BLUEBOOK

SERECO

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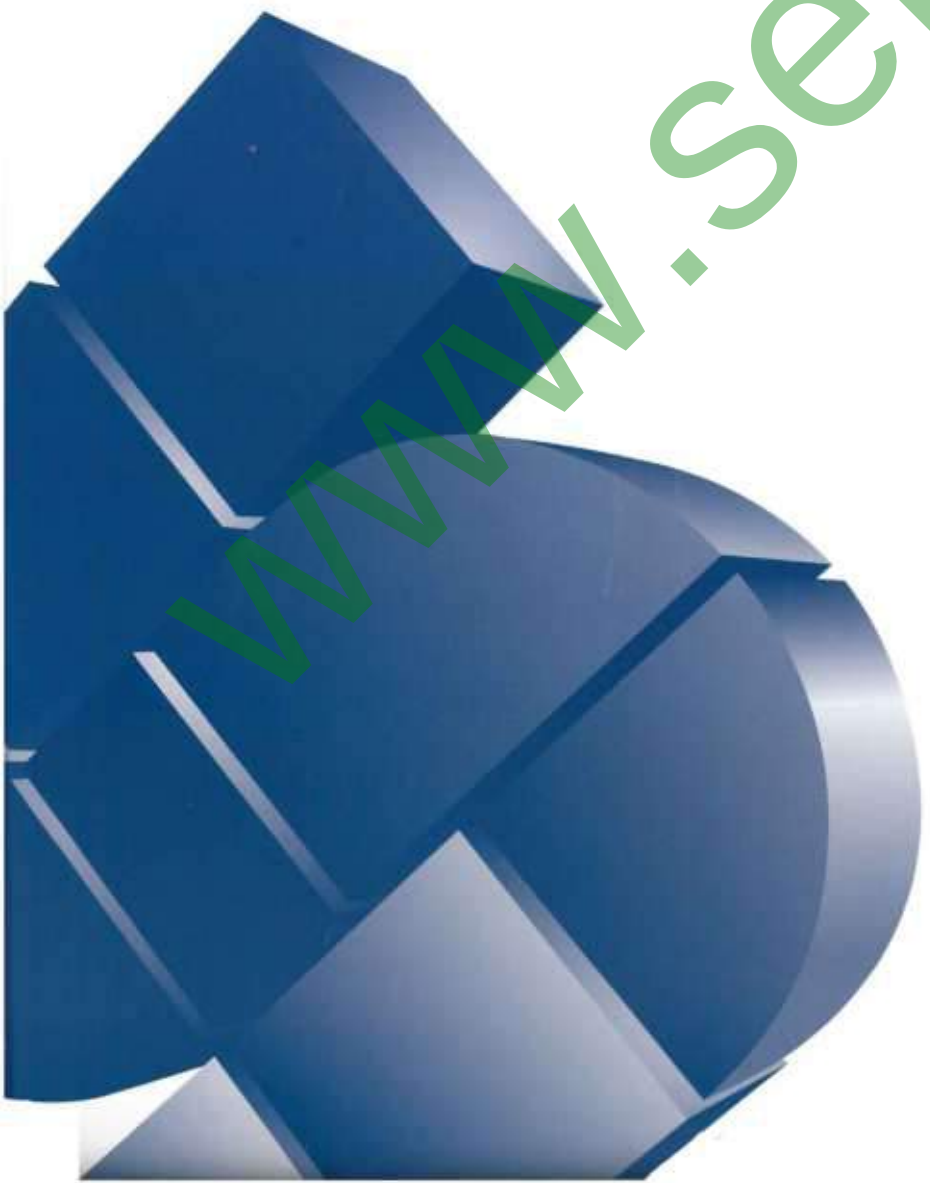


SERECO®

SCREENS GENERAL CATALOGUE

Together with you for a sustainable future

Would you bathe in this water?

Would you drink this nice glass of water?

No! Even if there were no danger to your health, the idea would be unacceptable.
The same happens in any application with water. Whether it be a seawater intake, a pumping station, a drinking water treatment plant or a wastewater treatment plant or an irrigation system, the organic and inorganic solid particles found in the water are an "inconvenience" for the good operation of the system.
For this reason, the screening process is the first to take place and is essential for the protection of all mechanical equipment downstream and for a drastic reduction of the organic load entering the subsequent treatments required.
But the presence of screens is not enough, as these must be chosen, sized and optimally manufactured to avoid damaging the whole plant.
When you choose SERECO you will find a wide range of screens that allows you to find the most appropriate solution for your specific needs.
Research, always at the forefront of SERECO's development, has led to the creation of screens that combine sturdiness, effective screening and cleanliness, reliability, and all at a competitive price.
The specific product sheets provide the necessary information for correct sizing and choice of the most appropriate screen based on the application, the flow rate of water to be treated, the dimensions of the channel, the required filtration opening, and various other process and dimensional parameters.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND READY FOR SHIPMENT AND SHIPPED FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

Screw filter

WHEN TO USE IT

The screw filter is suitable for many applications, in particular it is suitable for the micro-screening treatment of wastewater of civil and/or industrial origin in treatment plants, and for the filtration of sludge and supernatants.

HOW IT IS MADE

The main components of the FC type screw filter are a multifunctional screw and a semi-cylindrical filtering screen. The standard filtering screen is composed of a semi-cylinder composed of longitudinal wedge wire bars where the distance between the bars determines the filtration opening, but upon request the bars can be replaced by a perforated sheet screen where the filtration opening is determined by the diameter of the chosen hole. The multifunction screw is keyed onto a sturdy designed gearmotor and the various functions it must perform are ensured by different diameters gradually decreasing upwards and by the variability of pitch and thickness depending on the area in which it is located and therefore on the operation which it must carry out.

HOW IT WORKS

In the standard version, the screw filter is installed in a concrete channel where the water to be filtered flows, passing through the screen which blocks all solids with a diameter equal to or greater than the predetermined filtration opening. When the accumulated material on the screen creates a difference in water level between the upstream and downstream of the filter, a differential level sensor starts to rotates the shaft of the multifunction screw. The lower area of the screw has a diameter similar to the diameter of the filtering screen so that through a brush mounted on the external profile of the screw it continuously and effectively cleans the screen.
The second area of the screw, of smaller diameter, carries the screened material upwards, draining the water. After drainage the third compaction area begins, where the screw, in order to perform the compaction function, always takes an increasingly smaller pitch and becomes increasingly thicker as it goes upwards. Before being discharged and bagged into a suitable container, the screened material undergoes compaction and dewatering equal to about 50% by weight. The particular feature of this machine, with its completely closed body, prevents the spread of bad odors. The FC screw filter is equipped as standard with a washing system for the filtering screen and the screened material with nozzles and pressurized water.

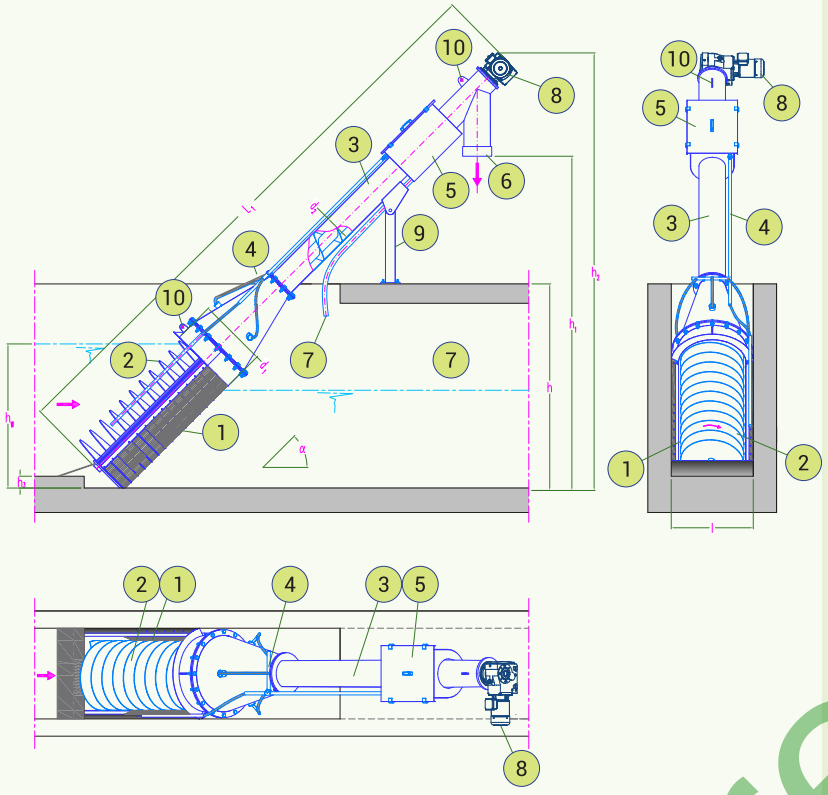
VERSIONS

The length and diameter of the screw filter are determined by the height and width of the channel which are therefore dependent on the flow rate of water to be treated. Upon request it is possible to obtain models with the length of the filtering screen different from the standard, in order to increase the flow rate of water to be treated. Furthermore, upon request, screw filters with discharge height other than the listed ones can be supplied. Upon request, the FCC version is available, consisting of a normal screw filter pre- installed in a channel-shaped box, completely closed and prefabricated in steel, complete with inlet and outlet flange, electrical panel and instruments for automatic operation.
The standard design is in stainless steel.

STRENGTHS FC

- SCREENING, LIFTING, COMPACTION AND WASHING OF THE SCREENED MATERIAL IN ONE MACHINE;
- LARGE SPECIFIC FLOW RATES;
- COMPLETELY CLOSED MACHINE ABLE TO PREVENT THE DIFFUSION OF UNPLEASANT ODORS;
- DURABILITY AND RELIABILITY.

Screw filter FC installed



LEGEND

1. FILTERING SCREEN
2. SCRAPING SCREW
3. CONVEYOR SCREW
4. WASHING SYSTEM
5. DRAINAGE CHAMBER
6. SCREENED MATERIAL DISCHARGE
7. DRAINAGE WATER DISCHARGE
8. GEARMOTOR
9. SUPPORT FOOT
10. LIFTING POINT

MAIN FEATURES	UNIT	DIMENSIONAL DATA				
MODEL FC		**FC03_10**	**FC05_10**	**FC07_10**	**FC09_15**	**FC11_15**
CHANNEL WITH (l)	mm	500	700	900	1100	1300
CHANNEL HEIGHT (h)	mm	700	700	700	1000	1000
DISCHARGE HEIGHT (h_1)	mm	2290	2370	2500	2600	2700
MAX HEIGHT (h_2)	mm	2370	2900	2900	4315	4315
CHANNEL STEP HEIGHT (h_3)	mm	190	270	400	500	600
MAX LENGHT (L_1)	mm	3350	4100	4100	6100	6100
INCLINATION (γ)	°	45	45	45	45	45
FILTERING GAP (f)	mm	0,5 ÷6				
SCRAPING SCREW DIAMETER (d_1)	mm	225	440	690	888	1086
SCREW CONVEYOR DIAMETER (d_2)	mm	195	195	195	298	298
POWER SUPPLY	kW	1,5	2,2	3	4	4
WEIGHT	kg	400	670	1050	2300	2850

	NOMINAL FLOW RATE (l/s)								
FILTERING GAP (mm) / **MODEL**	**0.5**	**1**	**1,5**	**2**	**2,5**	**3**	**4**	**5**	**6**
FC03_10	21	37	50	60	68	75	85	93	99
FC05_10	36	63	83	100	114	125	143	156	167
FC07_10	55	96	128	154	175	192	219	240	256
FC09_15	112	196	261	313	356	391	447	489	522
FC11_15	137	240	320	384	437	481	549	601	641

FCS

Shaftless screw filter

WHEN TO USE IT

The screw filter is suitable for many applications, in particular it is suitable for the micro-screening treatment of wastewater of civil and/or industrial origin in treatment plants and for the filtration of sludge and supernatants. The FCS screw filter is used when a simple, cheap and easy-to-maintain machine is required.

HOW IT IS MADE

The main components of the FCS type screw filter are a multifunctional screw and a semi-cylindrical filtering screen. The standard filtering screen is composed of a semi-cylinder in perforated sheet where the filtering opening is determined by the diameter of the chosen hole. The shaftless multifunction screw is keyed onto a sturdy gearmotor and the various functions it must perform are ensured by two different diameters, one for screening and one for the other functions. The screw, in the first lower area, has a diameter proportional to the flow rate to be treated and therefore to the channel in which it must be installed. In the second zone, above the first, the screw has a smaller diameter and pitch, suitable for transporting and dewatering the screened material.

HOW IT WORKS

In the standard version, the screw filter is installed in a concrete channel where the water to be filtered flows, passing through the screen which blocks all solids with a diameter equal to or larger than the predetermined filtration opening . When the material accumulated on the screen creates a difference in water level between the upstream and downstream of the filter, a differential level sensor start to rotate the shaft of the multifunction screw. The lower area of the screw has a diameter similar to the diameter of the filtering screen so that through a brush mounted on the external profile of the screw it continuously and effectively cleans the screen.
The second area of the screw, of smaller diameter, carries the screened material upwards, draining the water. After drainage, the third compaction area begins, where the screw, in order to perform the compaction function, always takes an increasingly smaller pitch upwards. Before being discharged and bagged into a suitable container, the screened material undergoes compaction and drying equal to about 50% by weight. The particular feature of this machine, with its completely closed body, prevents the spread of bad odors.

The FCS screw filter is equipped as standard with a washing system for the filtering screen and the screened material with nozzles and pressurized water.

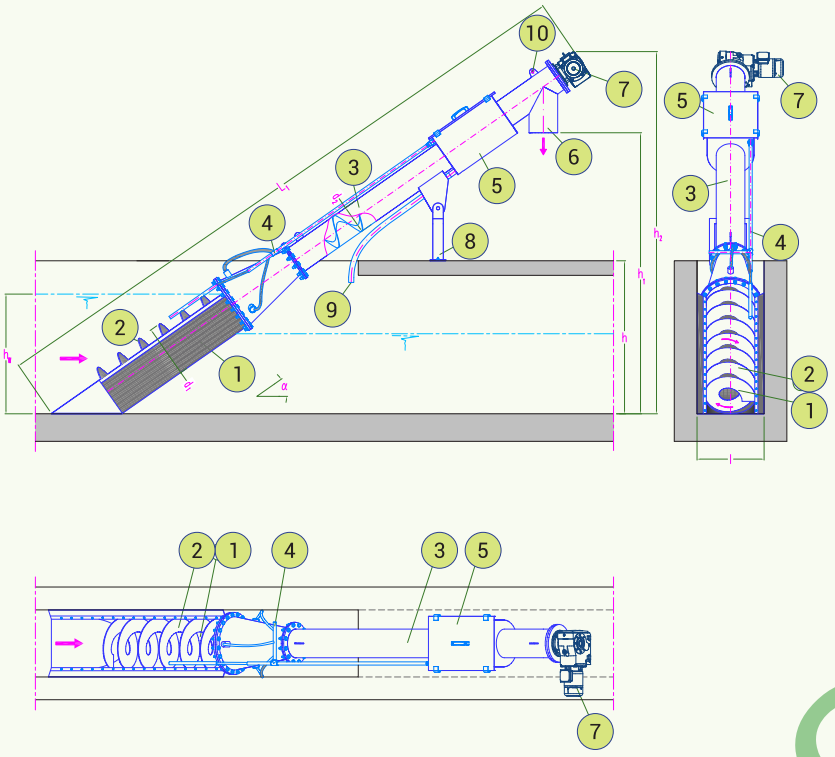
VERSIONS

The length and diameter of the screw filter are determined by the height and width of the channel which are therefore a function of the flow rate of water to be treated. Upon request it is possible to obtain models with the length of the filtering screen different from the standard in order to increase the flow rate of water to be treated. Furthermore, upon request, screw filters with discharge height other than the listed ones can be supplied. Upon request, the FCSC version is available, consisting of a normal screw filter pre-installed in a channel-shaped box, completely closed and prefabricated in steel, complete with inlet and outlet flange, electrical panel and instruments for automatic operation.
The standard design is in stainless steel.

STRENGTHS FCS

- SCREENING, LIFTING, COMPACTION AND WASHING OF THE SCREENED MATERIAL IN ONE MACHINE;
- LARGE SPECIFIC FLOW RATES;
- COMPLETELY CLOSED MACHINE OUT OF THE CHANNEL ABLE TO PREVENT THE DIFFUSION OF UNPLEASANT ODORS;
- PARTICULARLY SUITABLE FOR FILAMENTOUS SCREENED MATERIAL, THANKS TO THE USE OF A SHAFTLESS SCREW;
- REDUCED MAINTENANCE DUE TO THE ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER.

Shaftless screw filter FCS



LEGEND

1. FILTERING SCREEN
2. SCRAPING SCREW
3. CONVEYOR SCREW
4. WASHING SYSTEM
5. DRAINAGE CHAMBER
6. SCREENED MATERIAL DISCHARGE
7. GEARMOTOR
8. SUPPORT FOOT
9. DRAINAGE WATER DISCHARGE
10. LIFTING POINT

MAIN FEATURES	U.M.	DIMENSIONAL DATA				
MODEL FCS		**FCS03_10**	**FCS04_10**	**FCS05_10**	**FCS06_10**	**FCS07_10**
CHANNEL WIDHT (l)	mm	500	600	700	800	900
CHANNEL HEIGHT (h)	mm	700	700	700	700	700
DISCHARGE HEIGHT (h_1)	mm	2000	2250	2450	2600	2600
MAH HEIGHT (h_2)	mm	3050	3300	3500	4050	4050
MAX LENGHT (L_1)	mm	4550	4950	5250	5550	5550
INCLINATION (γ)	°	35	35	35	35	35
FILTERING GAP (f)	mm	3 ÷10				
SCRAPING SCREW DIAMETER (d_1)	mm	250	383	480	583	683
SCREW CONVEYOR DIAMETER (d_2)	mm	250	250	250	250	250
POWER SUPPLY	kW	1,5	1,5	1,5	2,2	2,2
WEIGHT	kg	256	335	390	550	630

	NOMINAL FLOW RATE (l/s)			
FILTERING GAP (mm) / **MODEL**	**3**	**5**	**6**	**10**
FCS03_10	69	73	84	90
FCS04_10	92	98	112	120
FCS05_10	115	122	140	150
FCS06_10	138	147	167	180
FCS07_10	161	171	195	210

FCV

Vertical screw filter

WHEN TO USE IT

The vertical screw filter is suitable for the micro-screening treatment of waste water of civil and/or industrial origin, in particular it was designed to be installed on the inlet pipe of lifting systems.

HOW IT IS MADE

The main components of the FCV type screw filter are a multifunctional screw and a semi-cylindrical filtering screen. The standard filtering screen is composed of a semi-cylinder of longitudinal wedge wire bars where the distance between the bars determines the filtration opening, but upon request the bars can be replaced by a perforated sheet screen where the filtration opening is determined by the diameter of the chosen hole. The semi-cylindrical filtering screen is closed on the other sides with sheet metal and with a standard flange for connection to the inlet pipe or with a quadrangular flange to be fixed to the wall and which incorporates the inlet pipe. The multifunction screw is keyed onto a sturdy designed gearmotor and the various functions it must perform are ensured by different diameters gradually decreasing upwards and by the variability of the pitch and thickness depending on the area in which it is located and therefore on the operation which it is responsible for carrying out.

HOW IT WORKS

In the standard version, the screw filter is installed on the inlet pipe in a lifting station. The water to be filtered which passes through it blocks on the screen all the solids with a diameter equal to or larger than the predetermined filtration opening. When the material accumulated on the screen creates a difference in water level between the upstream and downstream of the filter, a differential level sensor start to rotate the shaft of the multifunction screw. The lower area of the screw has a diameter similar to the diameter of the filtering screen so that, through a brush mounted on the external profile of the screw, it continuously and effectively cleans the screen.

The second area of the screw, of smaller diameter, carries the screened material upwards, draining the water, after drainage the third compaction area begins, where the screw, in order to perform the compaction function, always takes an increasingly smaller pitch and becomes increasingly thicker as it goes upwards. Before being discharged and bagged into a suitable container, the screened material undergoes compaction and drying equal to about 50% by weight. The particular feature of this machine, with its completely closed body, prevents the spread of bad odors. The FCV screw filter is equipped as standard with a washing system for the filtering screen and the screened material with nozzles and pressurized water.

VERSIONS

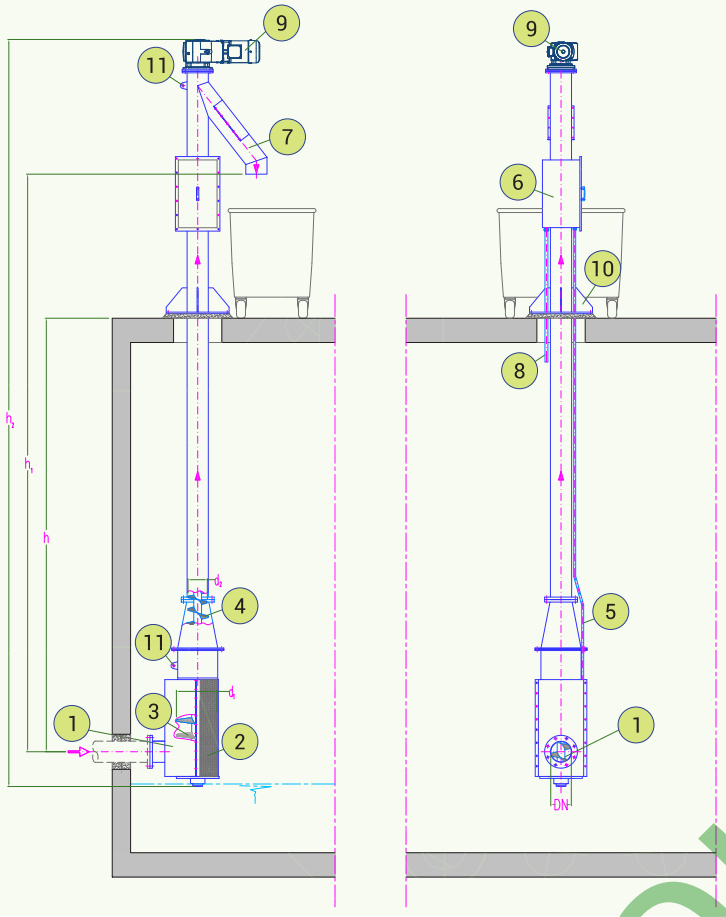
The length of the screw filter is determined by the depth of the inlet pipe with respect to the ground level, while the diameter depends on the flow of water to be treated. Upon request it is possible to obtain models with the length of the filtering screen different from the standard, in order to increase the flow rate of water to be treated. Furthermore, upon request, screw filters with discharge height other than the listed ones can be supplied. Upon request, an FCV version is available with accessories so that it can be installed in lifting stations but in the channel rather than flanged on the inlet pipe.

The standard design is in stainless steel.

STRENGTHS FCV

- SCREENING, LIFTING, COMPACTION AND WASHING OF THE SCREENED MATERIAL IN ONE MACHINE;
- LARGE SPECIFIC FLOW RATES;
- COMPLETELY CLOSED MACHINE ABLE TO PREVENT THE DIFFUSION OF UNPLEASANT ODORS;
- SUITABLE FOR OPERATING AT DEPTHS UP TO OVER 20 M WITHOUT ANY OPERATOR INTERVENTION;
- DURABILITY AND RELIABILITY.

Vertical screw filter FCV, factory testing



LEGEND

1. WATER INLET
2. FILTERING SCREEN
3. SCRAPING SCREW
4. CONVEYOR SCREW
5. WASHING SYSTEM
6. DRAINAGE CHAMBER
7. SCREENED MATERIAL DISCHARGE
8. DRAINAGE WATER DISCHARGE
9. GEARMOTOR
10. SUPPORT
11. LIFTING POINT

MAIN FEATURES	UNIT	DIMENSIONAL DATA				
MODEL FCV		**FCV03**	**FCV05**	**FCV07**	**FCV09**	**FCV11**
SCREEN DIAMETER (l_1)	mm	300	500	700	900	1100
SCREEN HEIGHT (h)	mm	1000	1000	1000	1500	1500
DISCHARGE HEIGHT (h_1)	mm	3000÷20000	3000÷20000	3000÷20000	3000÷20000	3000÷20000
INCLINATION (γ)	°	90	90	90	90	90
FILTERING GAP (f)	mm	0,5 ÷ 6				
FIRST ZONE SCREW DIAMETER (d_1)	mm	225	440	690	888	1086
DIAMETER CONVEYOR SCREW (d_2)	mm	195	195	195	298	298
POWER SUPPLY (for discharge height up to 5 m)	kW	1,5	2,2	3	4	4

	NOMINAL FLOW RATE (l/s)								
FILTERING GAPS (mm) / **MODEL**	**0,5**	**1**	**1,5**	**2**	**2,5**	**3**	**4**	**5**	**6**
FCV03_10	21	37	50	60	68	75	85	93	99
FCV05_10	36	63	83	100	114	125	143	156	167
FCV07_10	55	96	128	154	175	192	219	240	256
FCV09_15	112	196	261	313	356	391	447	489	522
FCV11_15	137	240	320	384	437	481	549	601	641

FSS

Drum screw filter

WHEN TO USE IT

The FSS-type drum screw filter is suitable for many applications, in particular in the macro-screening of suspended materials in civil and/or industrial sewage wastewater.

HOW IT IS MADE

The FSS filter consists of: a multifunctional screw, a cylindrical filtering screen with suitable free openings, a screen cleaning system, a screened material transport and compaction system and a sturdy gearmotor. The screen is made up of bars that are wrapped around the circumference, cleaned by a suitable rotating comb.

HOW IT WORKS

The water to be filtered passes through the filtering screen depositing material larger than the free opening on the wedge wire bars. Most of the time, therefore, the machine has no moving parts; only when the difference in height between the upstream and downstream of the screen reaches the threshold value the gearmotor activates the movement of the comb and the screw. The teeth of the comb clean the screen by depositing the screened material on the central screw, with a diameter smaller than the screen. The screw provides for the removal, lifting, compacting and discharging of the screened material. This last phase allows a compaction and drying equal to more than 60% of its initial weight to be obtained, before the screened material is bagged or discharged into a suitable container.

SPECIAL CHARACTERISTICS

The completely closed machine body, the special characteristic of this machine, prevents the spread of bad odors. The screw filter can be equipped with a screen-washing system with nozzles and pressurized water ensuring the minimum content of organic substances in the screened material.

VERSIONS

The length and diameter of the screen are determined by the height and width of the channel.

Therefore, the measurements depend on the flow of water to be treated. Models with lengths of the filtering screen different from the standard can be obtained in order to satisfy specific customer's requests.

The discharge height of the screened material can also be varied according to the actual depth of the channel. The standard design is in stainless steel.

STRENGTHS FSS

- SCREENING, LIFTING, COMPACTION AND WASHING OF THE SCREENED MATERIAL IN ONE MACHINE;
- GREAT VERSATILITY OF THE FLOW RATES OF WATER TO BE TREATED;
- COMPLETELY CLOSED MACHINE ABLE TO PREVENT THE SPREAD OF UNPLEASANT ODORS;
- ENERGY SAVING AND DURABLE THANKS TO THE DISCONTINUOUS OPERATION OF THE GEARMOTOR.

System overview with screw filter FSS

Drum screw filter FSS

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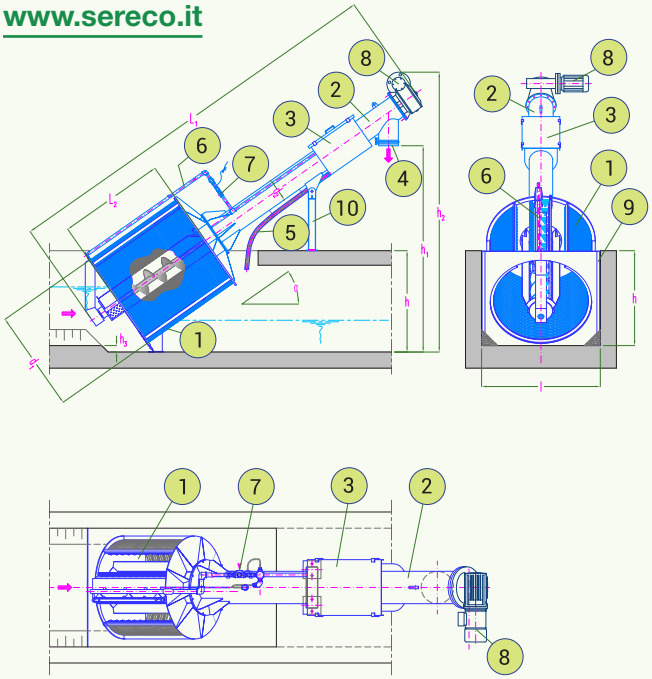


FSS

LEGEND

1. FILTERING SCREEN
2. CONVEYOR SCREW
3. SCREENED MATERIAL WASHING COMPARTMENT
4. SCREENED MATERIAL DISCHARGE
5. DRAINAGE WATER DISCHARGE
6. DRUM WASHING SYSTEM
7. WASHING WATER INLET
8. GEARMOTOR
9. LATERAL SEALS
10. SUPPORT FOOT

MAIN FEATURES	UNIT	DIMENSIONAL DATA									
MODEL FSS		**FSS 08**	**FSS 10**	**FSS 12**	**FSS 14**	**FSS 16**	**FSS 18**	**FSS 20**	**FSS 22**	**FSS 24**	**FSS 28**
CHANNEL WIDTH (l)	mm	1000	1200	1400	1600	1800	2000	2200	2400	2600	3000
CHANNEL HEIGHT (h)	mm	900	1050	1200	1400	1600	1800	2050	2200	2400	2700
DISCHARGE HEIGHT (h_1)	mm	1900	2050	2200	2400	2600	2800	3050	3200	3400	3700
MAX HEIGHT (h_2)	mm	2900	3050	3200	3400	3600	3800	4050	4200	4400	4700
CHANNEL STEP HEIGHT (h_3)	mm	70	70	100	100	130	130	150	150	200	200
MAX LENGTH (L_1)	mm	5050	5300	5550	5900	6250	6600	7050	7300	7650	8150
INCLINATION (α)	°	35	35	35	35	35	35	35	35	35	35
FILTERING GAP (f)	mm						8 ÷ 30				
SCREEN LENGTH (L_2)	mm	840	1050	1260	1470	1680	1890	2100	2310	2625	2940
SCREEN DIAMETER (d_1)	mm	800	1000	1200	1400	1600	1800	2000	2200	2400	2800
SCREW DIAMETER (d_2)	mm	273	273	273	324	406	406	457	457	610	610
POWER SUPPLY	kW	1.1	1.1	1.5	1.5	1.5	1,5	1,5	1,5	2,2	2,2
WEIGHT	kg	400	470	500	550	650	700	950	1050	1200	1350

	NOMINAL FLOW RATE (l/s)						
FILTERING GAPS (mm) / **MODEL**	**8**	**10**	**12**	**15**	**20**	**25**	**30**
FSS 08	296	313	325	339	353	363	369
FSS 10	462	488	508	529	552	567	577
FSS 12	639	676	703	733	765	785	799
FSS 14	895	947	985	1026	1070	1099	1119
FSS 16	1194	1262	1313	1368	1427	1465	1492
FSS 18	1547	1637	1702	1773	1850	1900	1934
FSS 20	1847	1954	2032	2117	2209	2268	2309
FSS 22	2345	2480	2579	2686	2803	2878	2931
FSS 24	2813	2976	3095	3224	3364	3454	3517
FSS 28	3979	4208	4376	4559	4757	4884	4973

FSSM

Drum screw filter for fine screening

WHEN TO USE IT

The FSSM-type screw filter with rotating drum screw filter for fine screening is suitable for many applications, in particular in fine screening of suspended materials in wastewater of civil or industrial plants, in fine screening of potabilization process and in the recovery of various substances from water in industrial processes of the agri-food type or in the plastics industry.

HOW IT IS MADE

It mainly consists of: a multifunctional screw, a cylindrical filtering screen with suitable free openings of various shapes and sizes, a screen cleaning system and a sturdy gearmotor. In the standard version the filtering screen is made up of wedge wire bars but can also be supplied in perforated sheet metal or mesh. As the filtering screen rotates, it is cleaned continuously by a brush and a washing system with water through a washing bar equipped with spray nozzles.

HOW IT WORKS

The water to be filtered passes through the filtering screen, depositing the material in suspension that is larger than the free opening on the internal surface of the drum; the brush removes the screened material and lets it fall on the central screw. Therefore, most of the time, the machine has no moving parts; only when the difference in height between the upstream and downstream of the screen reaches the threshold value, the gearmotor activates the movement of the drum and the screw. The screw provides for the removal, lifting, compaction and eventual bagging of the screened material. The drying and compaction that the screened material undergoes exceeds 60% of its initial weight.

SPECIAL CHARACTERISTICS

The completely closed machine body, a special characteristic of this machine, prevents the diffusion of bad odors. The screw filter is equipped with a screened-material washing system with nozzles and pressurized water.

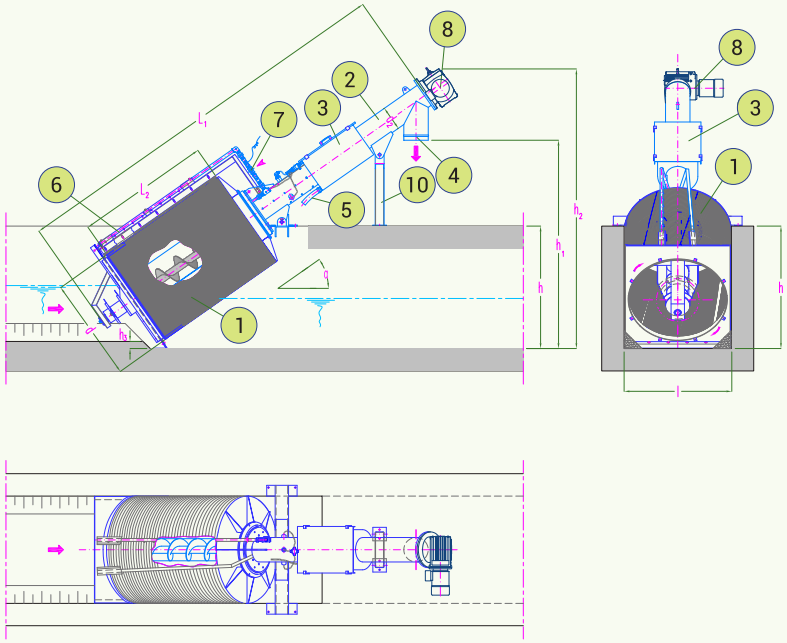
VERSIONS

The length and diameter of the screen are determined by the height and width of the channel, depending on the flow rates of water to be treated. Upon request, models with length of the filtering screen different from the standard can be obtained in order to increase the flow rate of water to be treated. Furthermore, it is possible to obtain screw filters with a specific discharge height upon request. The standard design is in 316L stainless steel or other type of SS as requested by the customer.

STRENGTHS FSSM

- SCREENING, LIFTING, COMPACTION AND WASHING OF THE SCREENED MATERIAL IN ONE MACHINE;
- LARGE FLOW RATES WHICH CAN BE TREATED IN A SMALL SPACE;
- COMPLETELY CLOSED MACHINE ABLE TO PREVENT THE DIFFUSION OF UNPLEASANT ODORS;
- ENERGY SAVING AND DURABLE THANKS TO THE DISCONTINUOUS OPERATION OF THE GEARMOTOR.

Installed FSSM screw filter



FSSM

LEGEND

1. FILTERING SCREEN
2. CONVEYOR SCREW
3. SCREENED MATERIAL WASHING COMPARTMENT
4. SCREENED MATERIAL DISCHARGE
5. DRAINAGE WATER DISCHARGE
6. DRUM WASHING SYSTEM
7. WASHING WATER INLET
8. GEARMOTOR
9. LATERAL SEALS
10. SUPPORT FOOT

MAIN FEATURES	UNIT	DIMENSIONAL DATA									
MODEL FSSM		**08**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**28**
CHANNEL WIDTH (l)	mm	1000	1200	1400	1600	1800	2000	2200	2400	2600	3000
CHANNEL HEIGHT (h)	mm	900	1050	1200	1400	1600	1800	2050	2200	2400	2700
DISCHARGE HEIGHT (h_1)	mm	1900	2050	2200	2400	2600	2800	3050	3200	3400	3700
MAX HEIGHT (h_2)	mm	2900	3050	3200	3400	3600	3800	4050	4200	4400	4700
CHANNEL STEP HEIGHT (h_3)	mm	70	70	100	100	130	130	150	150	200	200
MAX LENGTH (L_1)	mm	5050	5300	5550	5900	6250	6600	7050	7300	7650	8150
INCLINATION (α)	°	35	35	35	35	35	35	35	35	35	35
FILTERING GAP (f)	mm	0,5 ÷ 6									
SCREEN LENGTH (L_2)	mm	840	1050	1260	1470	1680	1890	2100	2310	2625	2940
SCREEN DIAMETER (d_1)	mm	800	1000	1200	1400	1600	1800	2000	2200	2400	2800
SCREW DIAMETER (d_2)	mm	273	273	273	324	406	406	457	457	610	610
POWER SUPPLY	kW	1.1	1.1	1.5	1.5	1.5	1,5	1,5	1,5	2,2	2,2
WEIGHT	kg	400	470	500	550	650	700	950	1050	1200	1350

	NOMINAL FLOW RATE (l/s)						
FILTERING GAPS (mm) / **MODEL**	**0.5**	**1**	**2**	**3**	**4**	**5**	**6**
FSSM 08	58	102	163	203	232	254	271
FSSM 10	91	159	254	317	383	397	423
FSSM 12	126	220	352	440	502	550	586
FSSM 14	176	308	492	615	703	769	821
FSSM 16	234	410	656	821	738	1026	1094
FSSM 18	304	532	851	1064	1216	1330	1418
FSSM 20	363	635	1016	1270	1451	1587	1693
FSSM 20	461	806	1289	1612	1842	2015	2149
FSSM 24	553	967	1547	1934	2211	2418	2579
FSSM 28	782	1368	21800	2735	3126	3419	3647

GCM

Curved screen with mechanical cleaning

WHEN TO USE IT

The GCM: type curved screen with mechanical cleaning is installed on small and medium-sized sewage treatment plants when there are shallow channels and responds to multiple screening needs.

HOW IT IS MADE

The screen is made up of a filtering screen with curved bars matched to a pair of cleaning combs fixed to the ends of a rotating arm. The machine is controlled by a gearmotor mounted directly on the rotating arm. The cleaning of the combs is entrusted to a device with double cam control, able to ensure efficiency and maximum resistance over time.

The screened material can be either collected in a special fixed container positioned on the channel immediately downstream of the screen or removed by means of a conveyor belt.

HOW IT WORKS

In the standard version, the GCM-type screen is installed in a concrete channel where the water to be screened flows; it passes through the curved screen leaving all solid materials of diameter equal to or greater than the screen opening predetermined by the distance between the bars of the screen on the bars. When the accumulated material on the screen creates a difference in water level between upstream and downstream of the screen, a differential level sensor rotates the rotating arm which, by means of the two combs fixed to the ends, cleans the screen.

When the rotating arm reaches the horizontal position, the comb that has just cleaned the filtering screen is in turn cleaned by the cleaner and the screened material is poured into the relative container.

VERSIONS

Upon request and for particular applications, it is possible to have the following versions:

GCMC, as described above but mounted in a prefabricated box with inlet and outlet flanges;

GCMM, used for micro-screening in which the filtering screen is made up of a perforated sheet or wedge wire bars cleaned by brushes applied to the end of the rotating arm;

GCMMC, as per the previous version, but mounted in a prefabricated box with inlet and outlet flanges;

GCMMCC, as per the previous version, but also equipped with a screened-material removal screw;

The standard design is in stainless steel sheets and profiles. Upon request, it is possible to have it in hot-dip galvanized carbon steel version or protected with an epoxy paint cycle. Protection against overloading is guaranteed by standard dynamometric devices or electronic absorption limiters. The machine has compact dimensions and low energy consumption.

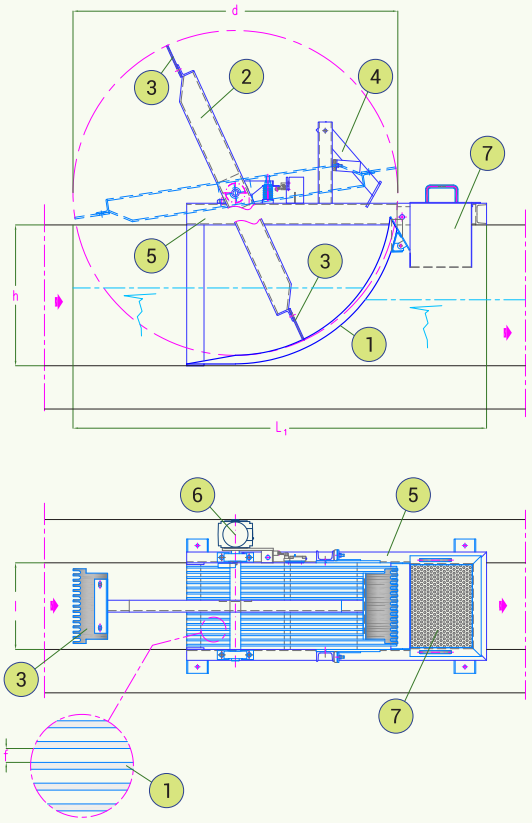
STRENGTHS GCM

- SIMPLICITY;
- LOW INITIAL INVESTMENT;
- STURDINESS;
- DURABILITY.

Curved screen GCM

Curved screen GCM

Curved screen GCM



LEGEND

1. SCREEN
2. ROTATING ARM
3. COMBS
4. COMB-CLEANING DEVICE
5. FRAME
6. GEARMOTOR
7. SCREENED-MATERIAL COLLECTING BASKET

MAIN FEATURES	UNIT	DIMENSIONAL DATA					
MODEL GCM		GCM xx_15	GCM xx_20	GCM xx_22	GCM xx_25	GCM xx_30	GCM xx_40
CHANNEL WIDTH (l)	mm	200÷600	300÷1000	400÷1200	400÷1600	1200÷2000	1500÷3000
CHANNEL HEIGHT (h)	mm	650	860	900	1050	1310	1950
OVERALL DIAMETER (d)	mm	1500	2000	2200	2500	3000	4000
MAX LENGTH (L_1)	mm	1910	2460	2680	2920	3460	4460
FILTERING GAP (f)	mm	15÷50	15÷50	15÷50	15÷60	15÷60	15÷60
POWER SUPPLY	kW	0,12	0,25÷0,37	0,55	0,55÷0,75	1,50	2,20÷3
WEIGHT (*)	kg	142+0.25 *l-1.5*f	304+0.25 *l-1.5*f	397+0.25 *l-1.5*f	571+0.25 *l-1.5*f	969+0.25 *l-1.5*f	2264+0.25 *l-1.5*f

(*) IInsert in the formula l and f sizes in mm.

	NOMINAL FLOW RATE (l/s) (**)									
FILTERING GAPS (mm) / MODEL	15	20	25	30	35	40	45	50	55	60
GCM xx_15	0.231 * l	0.260 * l	0.281 * l	0.297 * l	0.310 * l	0.320 * l	0.328 * l	0.335 * l	-	-
GCM xx_20	0.306 * l	0.344 * l	0.372 * l	0.393 * l	0.410 * l	0.423 * l	0.435 * l	0.444 * l	-	-
GCM xx_22	0.320 * l	0.360 * l	0.389 * l	0.411 * l	0.429 * l	0.443 * l	0.455 * l	0.465 * l	-	-
GCM xx_25	0.373 * l	0.420 * l	0.454 * l	0.480 * l	0.500 * l	0.517 * l	0.531 * l	0.542 * l	0.552 * l	0.560 * l
GCM xx_30	0.466 * l	0.524 * l	0.566 * l	0.599 * l	0.624 * l	0.645 * l	0.662 * l	0.676 * l	0.688 * l	0.699 * l
GCM xx_40	0.693 * l	0.780 * l	0.843 * l	0.891 * l	0.929 * l	0.960 * l	0.985 * l	1.006 *	1.024 * l	1.040 * l

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the channel width l (expressed in mm)

GCMR

Curved screen with radial mechanical cleaning

WHEN TO USE IT

The GCMR-type curved screen with radial mechanical cleaning is installed on civil and industrial sewage treatment plants and meets the needs of medium and coarse screening. The most frequent application is coarse screening in shallow channels of medium and large dimensions.

HOW IT IS MADE

The screen is made of a filtering screen with bars with a particular curved profile and a cleaning comb fixed to the end of a radial rotating arm that moves alternately and with continuous movement of the rotation axis on a circumference for about either 100° forwards, for the cleaning run, or backwards, for the return run. The control of the machine is guaranteed by a gearmotor mounted on the frame of the machine. The cleaning of the comb is entrusted to a cleaning device controlled by a series of levers capable of ensuring efficiency and maximum resistance over time. To ensure the linearity of the working torque, the rotation system is integrated with an eccentric flywheel.
The screened material can be collected in a special fixed container positioned on the channel immediately downstream of the screen or it can be removed by means of a conveyor belt.

HOW IT WORKS

When the screen is in operation, a system of rotating cams allows a specific rotating run of the comb to be obtained: in the upward working motion the comb is in contact with the bars of the filtering screen and removes the solid material deposited; once it reaches the top dead center, the comb begins its return run downwards away from the filtering screen. A suitable device guarantees the cleaning of the comb and the screened material is removed thanks to a slope. Protection against overloading is entrusted to a dynamometric device. The screen is equipped with a positioning limit switch to stop the comb, during pauses, above the free surface of the water in the channel.

VERSIONS

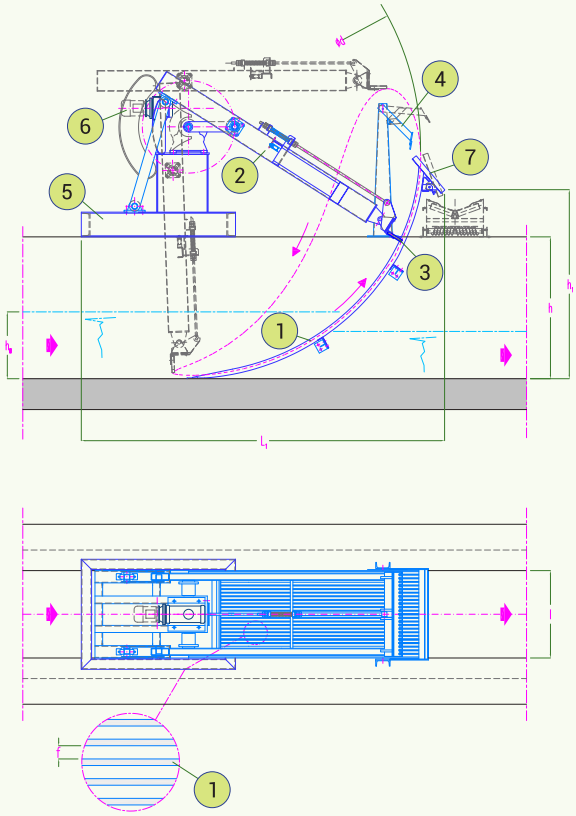
The standard design is in stainless steel. Upon request, a hot-dip galvanized version in carbon steel or a version protected with an epoxy paint cycle are available.

STRENGTHS GCMR

- SIMPLICITY;
- STURDINESS;
- DURABILITY;
- LIMITED OVERALL DIMENSIONS;
- CHANNEL HEIGHT NOT MORE THAN 3 M.

Group of 4 GCMR being tested

Overview with GCMR type screens installed



LEGEND

1. SCREEN
2. ROTATING ARM
3. COMB
4. COMB-CLEANING DEVICE
5. FRAME
6. GEARMOTOR
7. SLOPE

MAIN FEATURES	UNIT	DIMENSIONAL DATA				
MODEL GCMR		**GCMR xx_30**	**GCMR xx_40**	**GCMR xx_50**	**GCMR xx_60**	**GCMR xx_70**
CHANNEL WIDTH (l)	mm	500÷1100	800÷1500	1000÷1900	1000÷2300	1000÷2700
CHANNEL HEIGHT (h)	mm	1100	1500	1900	2300	2700
OVERALL DIAMETER (d)	mm	3000	4000	5000	6000	7000
MAX LENGTH (L_1)	mm	2400	3200	4000	4800	5600
FILTERING GAP (f)	mm	15÷50	25÷50	30÷60	40÷60	40÷60
POWER SUPPLY	kW	0,75 ÷ 1,1	1,5	1,85 ÷2,2	1,1 ÷ 1,5	1,1 ÷ 1,5
WEIGHT (*)	kg	250+13.3*l/ (f+12)	250+17.8*l/ (f+12)	250+22.2*l/ (f+12)	250+26.6*l/ (f+12)	250+31.1*l/ (f+12)

(*) Insert in the formula l and f sizes in mm

	NOMINAL FLOW RATE (l/s)(**)									
FILTERING GAPS (mm) / **MODEL**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
GCMR xx_30	0.391 * l	0.440 * l	0.476 * l	0.503 * l	0.524 * l	0.542 * l	0.556 * l	0.568 * l	-	-
GCMR xx_40	-	-	0.649 * l	0.686 * l	0.715 * l	0.738 * l	0.758 * l	0.774 * l	-	-
GCMR xx_50	-	-	-	0.869 * l	0.906 * l	0.935 * l	0.960 * l	0.981 * l	0.998 * l	1.013 * l
GCMR xx_60	-	-	-	-	-	1.132 * l	1.162 * l	1.187 * l	1.208 * l	1.227 * l
GCMR xx_70	-	-	-	-	-	1.329 * l	1.364 * l	1.394 * l	1.419 * l	1.440 * l

(**) The flow rate in litres per second is given by the product of the appropriate coefficient by the channel width l (in mm)

Mechanical basket screen

WHEN TO USE IT

The GMB type basket screen is suitable for the screening of wastewater of civil and/or industrial origin, and specially it was designed to be installed on the inlet pipe of pumping systems.

HOW IT IS MADE

The main parts of the GMB-type screen are a mobile basket mounted on vertical guides, a stop log that closes the water flow when the basket is being emptied, a trellis that supports a hoist suitable for the downstream and upstream movements of the basket controlled by a pushbutton.

HOW IT WORKS

In the standard version, the GMB screen basket is installed on the inlet pipe in a pumping station. The water to be screened enters directly into the basket and the solids with a diameter equal to or larger than the predetermined filtration opening are retained inside. When solids fill the basket screen, a sensor alerts the operator. The operator, by means of an electric push-button panel, allows the basket to be lifted, while at the same time a stop log is lowered closing the inlet pipe in order to prevent the non-screened sewage from flowing into the lifting station. When the basket screen reaches and exceeds the ground level, following the guides of the trellis, it begins tilting to discharge into a waste bin. After discharging, the operator, by means of a push-button panel, returns the screen to its working position in front of the inlet pipe and the stop log automatically lifts allowing the inlet of the sewage.

VERSIONS

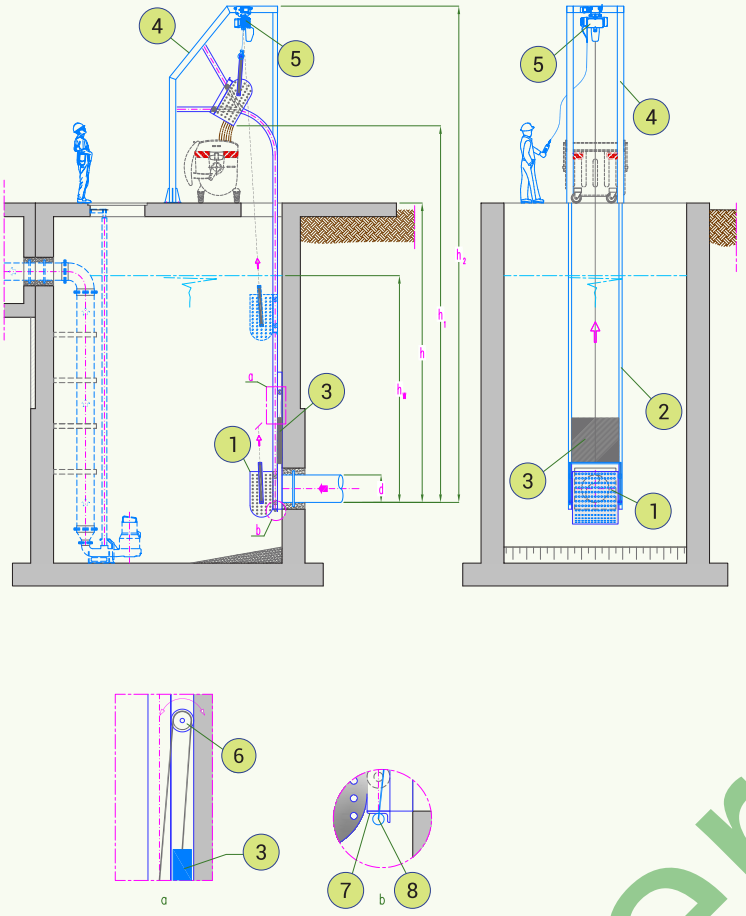
Depending on the customer's needs, the basket screen can be supplied both with the installation of the trellis in the GMBC type counterflow position, and with the installation of the trellis in the GMBI type inflow position.
The standard design is in stainless steel.

STRENGTHS GMB

- SUITABLE FOR DEEP AND NARROW WELLS, WITH LITTLE SPACE AVAILABLE;
- MECHANIZED LIFTING OF THE BASKET;
- ACTIVATION FROM OUTSIDE THE WELL;
- ADVANTAGEOUS PERFORMANCE/COST RATIO;
- ECONOMICAL COMPARED TO OTHER AUTOMATIC SCREENS.

Mechanical basket screen type GMB

Mechanical basket screen type GMB



LEGEND

1. BASKET
2. GUIDES
3. STOP LOG
4. SUPPORT STRUCTURE
5. HOIST
6. PULLEY
7. HOOKING DEVICE
8. BAR

MAIN FEATURES	UNIT	DIMENSIONAL DATA			
MODEL GMB		**GMBx03**	**GMBx05**	**GMBx08**	**GMBx10**
PIPE DIAMETER		DN ≤ 300	300<DN≤500	500<DN≤800	800<DN≤1000
FILTERING GAP	mm	da 20 a 100			
BASKET WIDTH	mm	428	612	917	1.120
BASKET DEPTH	mm	250	250	450	450
WEIGHT	kg	382	415	502	577
BASKET CAPACITY	kg	500	500	500	700
POWER SUPPLY	kW	0,55	0,55	0,55	0,75
DEPTH OF INSTALLATION PIPE CENTER TO OPERATOR GROUND LEVEL	m	min 1 - max 30			

GNAFO

Continuous belt screen with movable step

WHEN TO USE IT

The GNAFO type belt screen is installed in medium-depth channels of civil or industrial sewage and water water treatment plants. It allows the discharge of the screened material at the desired height and meets the needs of fine screening.

HOW IT IS MADE

The machine is essentially composed of: a sturdy press-bended steel sheets reinforced with stainless steel profiles; a belt consisting of mobile elements in perforated stainless steel sheet suitably shaped and fixed to the links of twin roller chains; two toothed wheels mounted in the upper part of the screen which move the chains; two static returns mounted in the lower part of the screen; a gearmotor of adequate power to move the belt; a cleaning system consisting of a rotating synthetic fiber brush; a gearmotor with adequate power for moving the cleaning brush; a washing system with water which uses solenoid valves and spray nozzles.

HOW IT WORKS

The filtration opening is given by the size of the holes in the perforated sheet of which the moving elements of the belt are made. These are shaped and fixed to the links of the roller chains so as to form a surface made up of many protruding steps that allow the lifting of screened material, even that which is difficult to lift, preventing it from falling back. For a some screened materials surface of the protruding steps and their number can be customized.

The gearmotor moves the belt. The cleaning of the belt takes place during movement thanks to the rotating brush that facilitates the cleaning of the belt and the fall of the material into the underlying slope. This system guarantees a screen with an automatic cleaning device that is extremely safe and of simple design. Further cleaning is obtained with an additional washing (to be activated when necessary) which uses external service water by means of spray nozzles.

VERSIONS

The standard version of the machine is built in one of the stainless steel types available on the market; it is chosen based on the chemical characteristics of the water to be treated and based on the aggressiveness of the environment in which it has to operate.

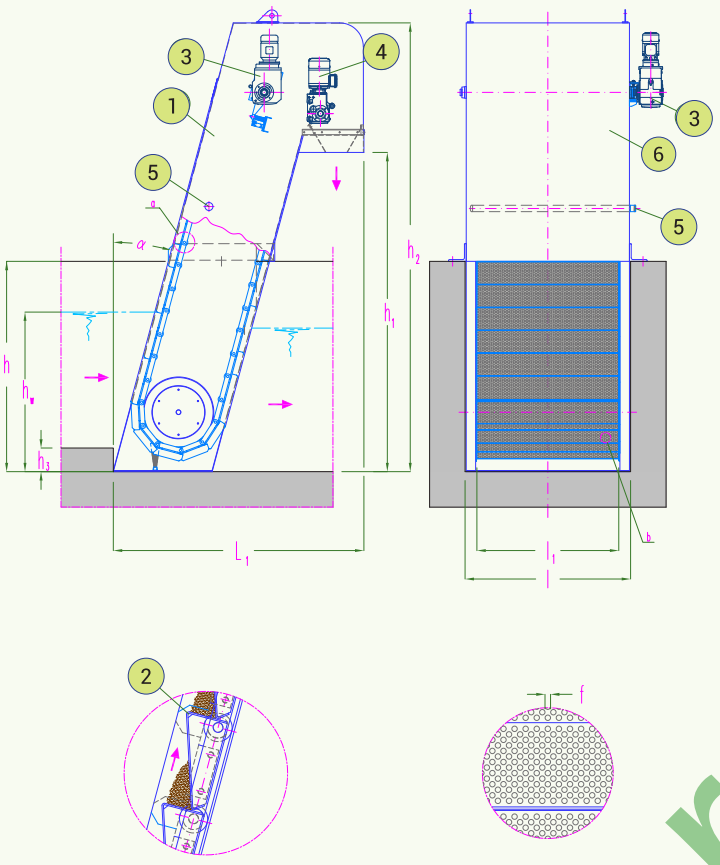
In addition to the filtering opening, it is possible to choose the shape of the opening which can be a round or slot hole of various sizes.

Belt screen GNAFO in operation

Belt screen GNAFO

STRENGTHS GNAFO

- FINE SCREENING;
- COLLECTION OF SCREENED MATERIAL WHICH IS DIFFICULT TO LIFT THANKS TO THE STEP PROFILE;
- SIMPLICITY;
- STURDINESS;
- BELT CLEANING GUARANTEED BY TWO CLEANING SYSTEMS;
- BSENCE OF MECHANICAL PARTS MOVING IN WATER.



LEGEND

1. FRAME
2. FILTERING BELT
3. GEARMOTOR
4. BRUSH' GEARMOTOR
5. COVER
6. WASHING SYSTEM

MAIN FEATURES	UNIT	DIMENSIONAL DATA		
CHANNEL WIDTH (l)	m	0,3 ÷ 1,0	1,0 ÷ 2,0	2,0 ÷ 3,0
CHANNEL HEIGHT (h)	m	0,5 ÷ 8,0		
SCREEN PANEL WIDTH (l_1)	m	l - 0,12	l - 0,18	l - 0,24
DISCHARGE HEIGHT (h_1)	m	h+0,8		
MAX HEIGHT (h_2)	m	h +1,9		
MAX LENGTH (l_2)	m	1,1+0,27* h_2		
INCLINATION REFERRED TO VERTICAL (α)	°	15		
FILTERING GAP (f)	mm	0,5 ÷ 10		
POWER SUPPLY	kW	1,28 ÷ 1,65	2,57 ÷ 3,3	3,55 ÷ 4,5
WEIGHT (*)	kg	500*h+480*l-1,5*f+716	600*h+480*l-1,5*f+716	700*h+480*l-1,5*f+716

(*) Insert in the formula the values l and h in m and f in mm

	NOMINAL FLOW RATE (l/s) (**)								
FILTERING GAPS (mm) / MODEL	0.5	1	1.5	2	2.5	3	4	5	6
GNAFO	92*l_1*h	114*l_1*h	171*l_1*h	179*l_1*h	179*l_1*h	211*l1*h	218*l_1*h	224*l_1*h	256*l_1*h

(**) The flow rate in litres per second is given by the product of the appropriate coefficient by screen width l_1 and channel height h (both in m)

GNAFO1

Dual flow belt screen

WHEN TO USE IT

GNAFO1, a dual flow belt with metal mesh filtering panels, is suitable for filtering water through intake channels for sea, lake or river water and more generally when there are significant flow rates to be treated.

HOW IT IS MADE

The machine essentially consists of: a sturdy frame made of press-bended steel sheets; a belt consisting of a series of metal mesh filtering panels mounted on twin roller chains; two toothed wheels installed in the upper part of the screen for moving the filter elements through the roller chains; two toothed wheels installed in the lower part of the screen, to ensure the return and precise guide of the chains; a drive shaft mounted on self-aligning supports and installed between the two upper roller chains; a sturdy gearmotor; a complete system for removing the screened material and washing the mobile filtering elements, consisting of two washing ramps equipped with spray nozzles.

HOW IT WORKS

The water to be treated which reaches the machine divides into two flows that cross the two opposite filtering sides of the screen and rejoin inside the screen. From here, the filtered water is removed through an opening at the rear. Most of the time the machine has no moving parts. The filter panels start to rotate when the difference in level between the upstream and downstream of the screen reaches a pre-established value. The screened material, larger than the filtration opening, is deposited on the filter panels which are designed and assembled to generate, also, a large filtration surface and a lifting system of the screened material collected out of the water flow and up at the desired discharge height. At the chosen discharge height, the screened material is removed from the filter panels by means of a counter-current washing system with water already filtered from the same screen. Counter-current water and filtered material flow into a channel that is usually made of reinforced concrete from which they are removed by flushing with water.
The simplicity of its design and the fully automatic cleaning allow this screen to always guarantee high performance and reliability over time.

VERSIONS

The standard version of the machine is built in 316L stainless steel according to the chemical characteristics of the water to be treated and, based on the aggressiveness of the environment in which it has to work, other stainless steel materials can also be used.
In addition to the filtering opening, it is also possible to choose the type of filtering panel which can be either of metal mesh (standard version), synthetic mesh, perforated sheet or wedge wire bars.

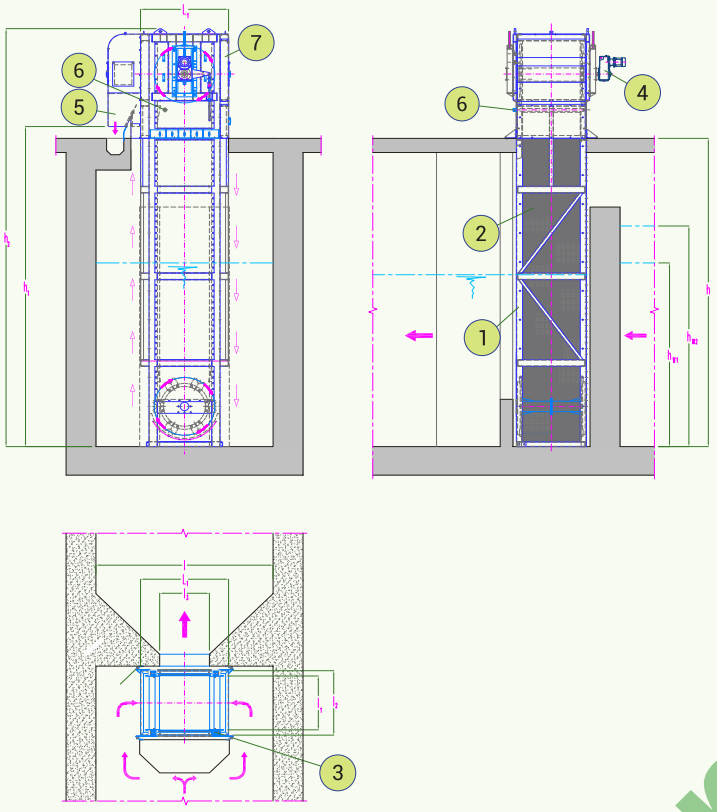
STRENGTHS GNAFO1

- SUITABLE FOR EVEN HIGH DEPTH CHANNELS;
- GREAT STURDINESS, WITH AN EXPECTED LIFE OF MORE THAN 30 YEARS;
- LARGE FILTRATION SURFACE;
- SUITABLE FOR FINE SCREENING;
- SIMPLE AND ECONOMICAL MAINTENANCE.

Overview with dual flow GNAFO1

Detail of a belt screen dual flow GNAFO1

GNAFO1 dual flow belt screen, factory testing



KEY

1. FRAME
2. FILTER BELT
3. GEARMOTOR
4. CHAIN
5. WASHING SYSTEM
6. SCREENED MATERIAL DISCHARGE
7. COVER

MAIN FEATURES	UNIT	DIMENSIONAL DATA					
MODEL GNAFO1		**06**	**12**	**18**	**24**	**30**	**36**
CHANNEL WIDTH (l)	m	≥ 2.5					
CHANNEL HEIGTH (h)	m	3÷30					
CHANNEL LENGTH (L_1)	m	1.77					
SCREEN WIDTH (l_2)	m	0,848	1,406	1,964	2,522	3,080	3,638
CHANNEL OPENING (l_3)	mm	1000					
DISCHARGE HEIGTH (h_1)	m	h + 0,28					
SCREEN TOTAL HEIGTH (h_2)	m	h_1+2.25					
SCREENIN PANELS WIDTH (l_1)(*)	m	0,580	1,138	1,696	2,254	2,812	3,370
FILTERING GAP	mm	0.5÷10					
POWER SUPPLY	kW	0.18÷0.37	0.25÷0.55	0.37÷0.75	0.37÷0.75	0.55÷1.1	0.75÷1,5
SPEED (MIN/MAX)	m/min	2.5/5					
WEIGHT	kg	1250+825*l+471*h+118*l*h					

(*) Other screen width values are also possible, according to the specific needs of the customer.

	NOMINAL FLOW RATE (l/s) (**)						
FILTERING GAPS (mm) / **MODEL**	**0.5**	**1**	**2**	**3**	**4**	**5**	**10**
GNAFO1	160 * l_1 * h_w	330 * l_1 * h_w	520 * l_1 * h_w	630 * l_1 * h_w	695 * l_1 * h_w	735 * l_1 * h_w	790 * l_1 * h_w

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the screening panel width l_1 and by the water level h_w (both expressed in m).

GNAFO2

Central flow belt screen

WHEN TO USE IT

The GNAFO2, a central flow belt screen with metal mesh filter panels, is suitable for filtering water through intake channels for sea, lake or river water and more generally when there are significant flow rates to be treated. The model with screened material collecting screw is suitable for screening waters with many coarse suspended solids including and/or industrial sewage.

HOW IT IS MADE

The unit consists of: a sturdy frame made of press-bended steel sheets; a belt consisting of filter panels; twin roller chains; two toothed wheels installed in the upper part of the screen for moving the filter elements through the chains; two toothed wheels installed in the lower part of the screen, for the return and guiding of the chains; a drive shaft mounted on self-aligning supports and installed between the two wheels; a heavy duty gearmotor; a complete system for removing the screened material and washing the mobile filtering elements, consisting of two washing ramps equipped with spray nozzles; a draining trough for screened material, installed in the upper part of the screen and equipped with an internal shaftless screw, for the discharge of screened material; a gearmotor, for the rotation of the screw.

HOW IT WORKS

The water to be treated which reaches the machine and enters the central part, flows out dividing into two streams after passing through the two opposite filtering sides of the screen from the inside to the outside. From the outside, the two streams of filtered water come together in a single stream that follows the path of the downstream channel. Most of the time the machine has no moving parts. The filter panels start to rotate when the difference in level between the upstream and downstream of the screen reaches a pre-established value. The screened material, larger than the filtration opening, is deposited on the filter panels which are designed and assembled in such a way as to generate, at the same time, a large filtration surface and a lifting system of the screened material collected out of the water flow and up at the desired discharge height. At the chosen discharge height, the screened material is removed from the filter panels by means of a counter-current washing system with water already filtered from the same screen. Backwash water and screened material flow into a trough inside the screen placed centrally at the desired discharge height, the standard solution has a drainage trough so that all the washing water goes back into the cycle with the water to be screened. The shaftless screw with its rotation allows the dewatering of the screened material and its removal from the screen.
The simplicity of its design and the fully automatic cleaning allow this screen to always guarantee high performance and reliability over time.

VERSIONS

The standard version of the machine is built in 316L stainless steel according to the chemical characteristics of the water to be treated and, based on the aggressiveness of the environment in which it has to operate, other stainless steel materials can also be used. In addition to the filtering opening, it is also possible to choose the type of filtering panel which can be either of metal mesh (standard version), synthetic mesh, perforated sheet or wedge wire bars. When the screened material does not reach high quantities or in the case of sea or lake surface waters, the screw can be replaced by a non-draining channel from where such material is removed by flushing with water. The simplicity of its design and the fully automatic cleaning allow this screen to always guarantee high performance and reliability over time.

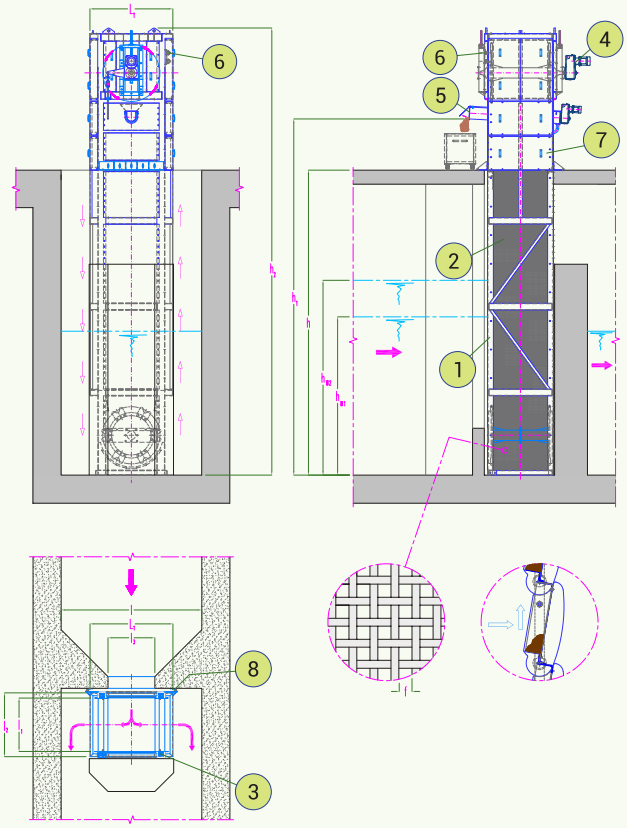
STRENGTHS GNAFO2

- GREAT VERSATILITY OF USE IN CHANNELS FROM A FEW METERS TO TENS OF METERS DEEP;
- GREAT STURDINESS AND POSSIBILITY OF CALCULATING A MACHINE DURABILITY OF OVER 30 YEARS;
- VARIABLE FILTRATION CAPACITY;
- HIGH PERFORMANCE BECAUSE THE WATER PASSES THROUGH THE FILTERING BELT ONLY ONCE AND THERE ARE NO SUSPENDED SOLIDS IN TREATED.

Central flow belt screen GNAFO2

Overview with central flow GNAFO2

GNAFO2



LEGEND

1. FRAME
2. FILTERING BASKET
3. CHAIN
4. GEARMOTOR
5. SCREENED MATERIAL SCREW
6. WASHING SYSTEM
7. PROTECTION CASING
8. RUBBER SEAL

MAIN FEATURES	UNIT	DIMENSIONAL DATA					
MODEL GNAFO2		**06**	**12**	**18**	**24**	**30**	**36**
CHANNEL WIDTH (l)	m	1÷5					
CHANNEL HEIGHT (h)	m	3÷30					
SCREEN LENGTH (L_1)	m	1,77					
SCREEN WIDTH (l_2)(*)	m	0,848	1,406	1,964	2,522	3,080	3,638
CHANNEL OPENING (l_3)	m	1,0					
DISCHARGE HEIGHT (h_1)	m	h+0,8					
SCREEN TOTAL HEIGHT (h_2)	m	h_1+2,25					
FILTERING PANELS WIDTH (l_1) (*)	m	0,580	1,138	1,696	2,254	2,812	3,370
FILTERING GAP	mm	0,5÷10					
POWER SUPPLY (ROTATION)	kW	0,18÷0,37	0,25÷0,55	0,37÷0,75	0,37÷0,75	0,55÷1,1	0,55÷1,5
POWER SUPPLY (SCREW)	kW	1,5	1,5	2,2	2,2	2,2	2,2
PANELS SPEED (MIN/MAX)	m/min	2,5/5					
WEIGHT	kg	1200+905*l_2+471*h+118*l_2*h					

(*) Other screen length values are also possible, according to the specific needs of the customer.

	NOMINAL FLOW RATE (l/s) (**)						
FILTERING GAPS (mm) / **MODEL**	**0.5**	**1**	**2**	**3**	**4**	**5**	**10**
GNAFO2	160 * l_1 * h_w	330 * l_1 * h_w	520 * l_1 * h_w	630 * l_1 * h_w	695 * l_1 * h_w	735 * l_1 * h_w	790 * l_1 * h_w

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the width of the filter panel l1 and by the height of the water upstream of the screen hw (both expressed in m).

GNP

Flat tooth belt screen

WHEN TO USE IT

The flat tooth belt screen is applicable for all fine screening treatments upstream of wastewater treatment plants. The GNP allows the elimination of about 10-15% of the pollution load upstream of municipal sewage treatment waste plants, and can be installed in place of or downstream of a coarse screen.

HOW IT IS MADE

The GNP consists of a main frame and a belt with patented flat and mobile teeth made of plastic material (standard design material in ABS, also available in fiber glass or polypropylene), suitably shaped and hinged on stainless steel spindles. The frame is made up of two sturdy sheet metal sides, kept in position by appropriate transversal profiles; the standard design of the frame is in stainless steel. Upon request it can be supplied in hot-dip galvanized carbon steel or carbon steel treated with cycle of epoxy paint. A long study and a careful research phase have led to the distinctive geometry of the patented tooth that combines functionality, resistance and reliability. The upper shape of the teeth is such as to prevent retained material from falling back, while the lower one is dovetailed and cleans the gaps in the return run. The desired filtration opening is obtained by appropriately spacing the moving elements. They are driven into motion by two roller chains, which are in turn driven by two toothed wheels mounted in the upper part of the screen and set in motion by a sturdy gearmotor. In the lower part, the two chains run around two static returns. At the unloading area there is a rotating brush, controlled by a second gearmotor, which cleans the belt, facilitating the fall of the screened material into the underlying hopper. A second fixed brush is positioned in the lower part of the screen and performs the sealing function.

HOW IT WORKS

Normally, the belt of the screen is stop and the sewage deposits all the solids with a diameter equal to or larger than the filtration opening on the belt; when the material deposited on the belt creates a difference in water level in the channel between upstream and downstream, a level probe require the movement of the belt which begins its rotation by lifting the screened material up to downstream, where the rotating brush facilitates its removal from the teeth and its fall into its hopper.

The particular operation of this machine allows for the belt to be washed during the return run by means of the already screened water which flows (with respect to the teeth) in the opposite direction to the screening flow. If necessary, an additional washing system can be activated, using external service water.

The screen comes complete with dynamometric load limiters.

STRENGTHS GNP

- FINE SCREENING;
- DURABLE AND RELIABLE MULTIFUNCTIONAL PATENTED TOOTH;
- CLEANING OF THE BELT ALWAYS GUARANTEED BY 4 CLEANING SYSTEMS IN SEQUENCE:

  - TOOTH TAIL THAT EXPELS THE MATERIAL STUCK BETWEEN ADJACENT TEETH,

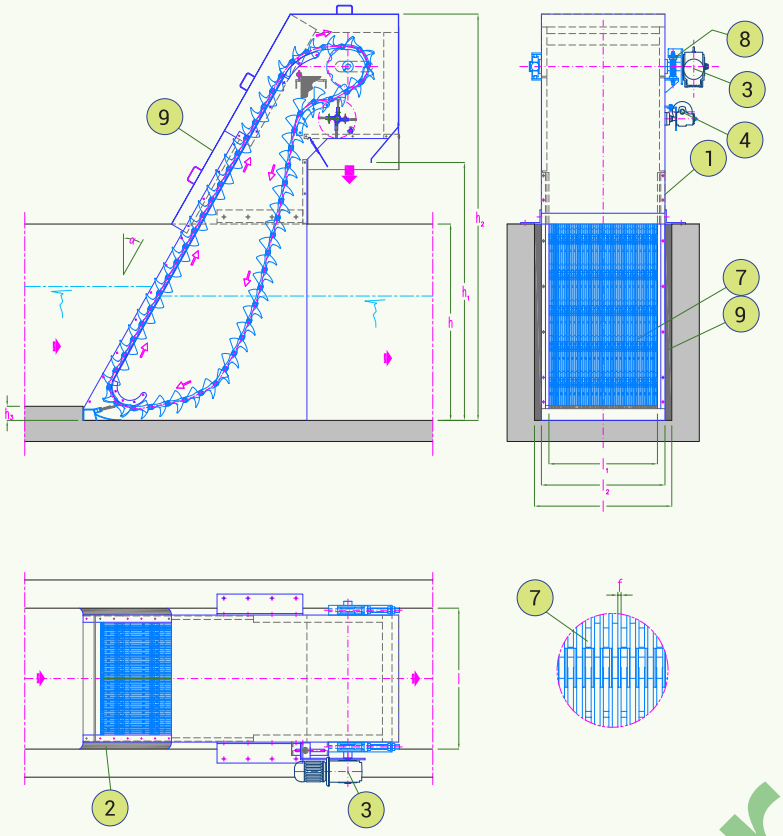
  - CHANNEL WATER FLOWING IN THE OPPOSITE DIRECTION WITH RESPECT TO THE BELT,

  -ROTATING BRUSH,

  -WASHING SYSTEM WITH NOZZLES AND PRESSURIZED WATER SUPPLY;
- ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- STURDINESS.

Overview of GNP flat tooth belt screen

Tooth of the GNP screen



LEGEND

1. FRAME
2. SEALS
3. GEARMOTOR
4. BRUSH' GEARMOTOR
5. DOVETAIL-CLEANING TOOTH
6. TOOTH
7. FILTER BELT
8. LOAD LIMITER
9. SAFETY CASING

MAIN FEATURES	UNIT	DIMENSIONAL DATA		
SCREEN WIDTH (l_2)	m	0,3 ÷ 2,4		
CHANNEL WIDTH (l)	m	l_2 + 0,1		
FILTERING BELT WIDTH (l_1)	m	$l_2 \leq 0,8$	$0,8 < l_2 \leq 1,6$	$1,6 < l_2 \leq 2,4$
		l_2 - 0,12	l2 - 0,18	l_2 - 0,23
CHANNEL HEIGHT (h)	m	0,5 ÷ 6		
DISCHARGE HEIGHT (h_1)	m	h + 0,8		
MAX HEIGHT (h_2)	m	h_1 + 1,2		
INCLINATION REFERRED TO VERTICAL (α)	°	30 (*)		
FILTERING GAP (f)	mm	1÷10		
POWER SUPPLY	kW	0,25 ÷ 1,5		
WEIGHT (**)	Kg	$1065 * h_1 + 733 * l_2 - 50 * f/5 - 920$		

(*) For particular applications you can obtain inclinations other than 30° (in any case in the range 0° ≤ α ≤ 60°).
(**) Insert the values of h_1 and l_2 in m and f in mm in the formula.

	NOMINAL FLOW RATE (l/s)(***)									
FILTERING GAPS (mm) / MODEL	1	2	3	4	5	6	7	8	9	10
GNP	$78 * l_1 * h$	$134 * l_1 * h$	$176 * l_1 * h$	$209 * l_1 * h$	$235 * l_1 * h$	$256 * l_1 * h$	$274 * l_1 * h$	$289 * l1 * h$	$302 * l_1 * h$	$313 * l_1 * h$

(***) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l_1 and by the channel height h (both expressed in m).

GPSA

Sub-vertical flat screen with alternating movement

WHEN TO USE IT

The GPSA-type sub-vertical flat screen is installed on medium and large civil or industrial wastewater treatment plants and meets the needs of macro screening. GPSA can be used when an essential, but, at the same time, sturdy and efficient machine is wanted.

HOW IT IS MADE

It consists of a sturdy frame in normal profile, a set of bars, a pendulum-type bucket integral with a trolley, a trolley driving system made of a pair of chains, a bucket cleaner for the discharge of waste and a gearmotor.

HOW IT WORKS

The screened material deposited on the bars of the screen is removed by the bucket during its upward run and ejected by the cleaner at a suitable distance from the upper end-run. When it reaches the upper dead center, the trolley stops for a predetermined time and begins the downward run, remaining at a distance from the screen. When it reaches the lower limit of the run, the trolley stops again for a pre-established time and resumes its upward run again, approaching the screen. This particular operating system makes it an automatic screen of extreme safety and constructive simplicity. The protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters. The parts that allow the movement are all far from the water, guaranteeing reliability and durability over time.

VERSIONS

The standard design is in carbon steel sheets and profiles protected with a hot-dip galvanization. Upon request, protection with an epoxy paint cycle or stainless steel design can be provided.

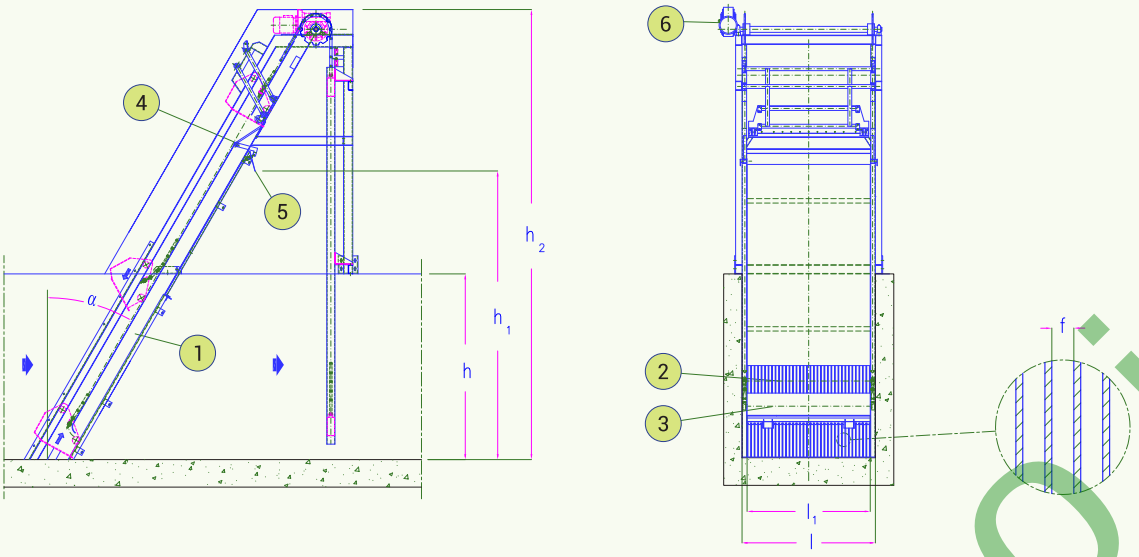
STRENGTHS GPSA

- SIMPLICITY OF DESIGN AND OPERATION;
- POSSIBILITY OF INSTALLATION IN DEEP CHANNELS;
- ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- STURDINESS.

Sub vertical moving flat screen alternate GPSA

Sub-vertical flat screen with alternating movement GPSA

Overview with sub-vertical moving flat screen alternate GPSA



LEGEND

1. FRAME
2. SCREEN
3. BUCKET
4. BUCKET-CLEANING DEVICE
5. SCREENED MATERIAL DISCHARGE
6. GEARMOTOR

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	0,5 ÷ 4,0
CHANNEL HEIGHT (h)	m	1,0 ÷ 7,0
SCREEN PANEL WIDTH (l_1)	m	l - 0,12
DISCHARGE HEIGHT (h_1)	m	h + 0,8
MAX HEIGHT (h_2)	m	h1 + 1,6
INCLINATION REFERRED TO VERTICAL (α)	°	30
FILTERING GAP (f)	mm	20 ÷ 100
POWER SUPPLY	kW	0,55 ÷ 4
WEIGHT (*)	kg	500 * l + 270 * h – 1,5 * f + 560

(*) Insert the values of l and h in m and f in mm in the formula.

	NOMINAL FLOW RATE (l/s)(**)								
FILTERING GAPS (mm) / MODEL	20	30	40	50	60	70	80	90	100
GPSA	457 * l_1 * h	505 * l_1 * h	533 * l_1 * h	552 * l_1 * h	565 * l_1 * h	574 * l_1 * h	582 * l_1 * h	588 * l_1 * h	593 * l_1 * h

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l_1 and by the channel height h (both expressed in m).

GPSC

Cable vertical flat screen

WHEN TO USE IT

The GPSC-type of cable vertical flat screen meets the needs of macro-screening for medium and large civil or industrial wastewater treatment plants.

HOW IT IS MADE

It essentially consists of: a sturdy frame made of standard profiles; a set of bars of the filtering screen and fixed to the frame by means of suitable support crosspieces; a pendulum bucket with a steel comb sliding on guides by wheels; a bucket handling system consisting of one or two steel cables, drum and related supports; a sturdy pendulum gearmotor of hollow shaft type for the upward run of the bucket; a bucket-cleaning system for discharging the screened material, installed in the upper part of the machine downstream of the screen.

HOW IT WORKS

The material deposited on the bars of the screen is removed by the bucket during its upward run; the cleaning of the bucket and the discharge of the screened material in the unloading hopper takes place at a suitable distance from the end of the upward run, thanks to the combined action of its rotation and its particular geometric shape. At the end of the upward run, the bucket stops for a predetermined time and then starts its return run downwards remaining at a distance from the bars thanks to a suitable guide system. When it reaches the lower limit of the run, the bucket stops again and then resumes its upward run, approaching the screen. Protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters. The simplicity of its design and the completely automatic cleaning, as well as the absence of mechanical parts immersed in water, allow this screen to always guarantee high performance and reliability over time.

VERSIONS

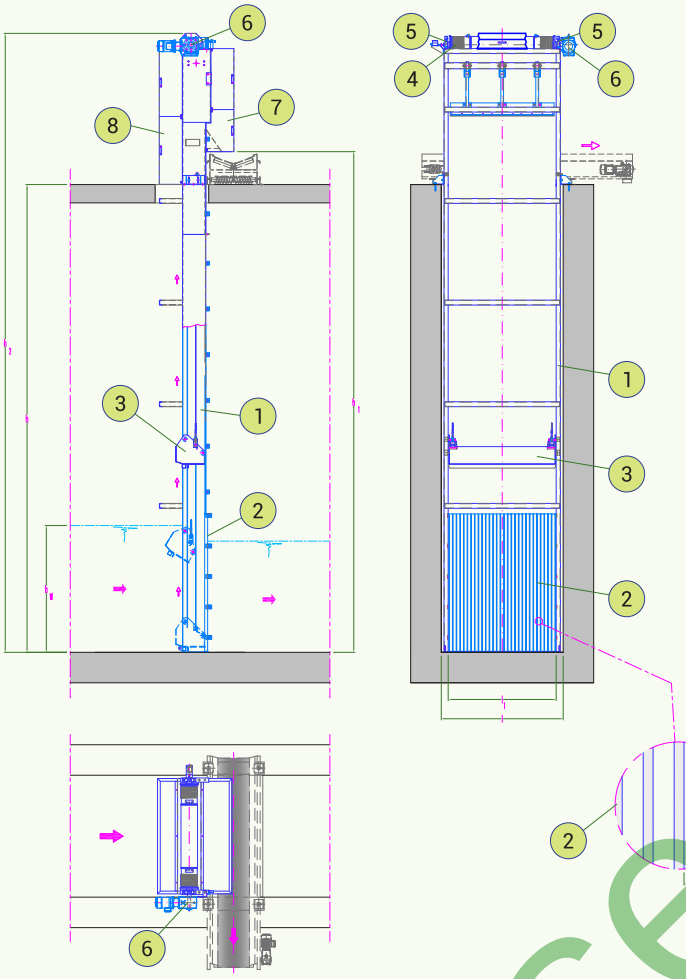
In addition to the standard version with downstream discharge of the screened material, there is also a version with upstream discharge of the screened material. The version with upstream discharge is made only in the vertical version while the version with downstream discharge can also be supplied with variable inclinations up to 45°.

STRENGTHS GPSC

- ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- POSSIBILITY OF INSTALLATION IN DEEP CHANNELS;
- REDUCED OVERALL DIMENSIONS;
- POSSIBILITY OF LIFTING SOLIDS OF LARGE DIMENSIONS AND WEIGHT;
- STURDINESS.

Overview with GPSC cable vertical flat screen

Cable vertical flat screen GPSC



LEGEND

1. FRAME
2. SCREEN BARS
3. BUCKET
4. DRUM
5. DRUM SUPPORTS
6. PROTECTION CASING
7. GEARMOTOR
8. BUCKET END-RUN
9. HYDRAULIC SYSTEM FOR BUCKET
10. SCREENED MATERIAL DISCHARGE

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	1 ÷ 24
CHANNEL HEIGHT (h)	m	1 ÷ 24
SCREEN WIDTH (l_1)	m	l – 0,1
DISCHARGE HEIGTH (h_1)	m	h + 0,8
SCREEN HEIGHT (h_2)	m	H_1 + 1,5
FILTERING GAP (f)	mm	15 ÷ 100
SLOPING ON THE VERTICAL	°	0 ÷ 45
ELECTRICAL POWER SUPPLY	KW	0,55 ÷ 3
WEIGHT (*)	kg	500 x l + 500 * l + 270* h-1,5*f + 530 with bars 40 x 8

(*) Insert the values of l and h in m and f in mm in the formula.

	NOMINAL FLOW RATE (l/s) (**)							
FILTERING GAPS (mm) / MODEL	15	20	25	30	40	50	60	70
GPSC	376 x l x h	411 x l x h	436 x l x h	455 x l x h	480 x l x h	497 x l x h	497 x l x h	517 x l x h

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l and by the channel height h (both expressed in m).

GGPSC

Sub vertical cable screen for large plants

WHEN TO USE IT

The GGPSC-type sub-vertical cable screen for large systems meets the needs of macro-screening in intake plants and large plants of sewage or industrial wastewater treatment, and is particularly suitable for large channels.

HOW IT IS MADE

It essentially consists of:

- a sturdy frame made of press-bended steel sheets;
- a set of bars constituting the filter screen and fixed to the channel by means of suitable support crosspieces;
- a steel pendulum bucket with comb sliding on guides by means of wheels;
- a bucket-handling system consisting of three steel cables, a cable drum and relative supports;
- a pendulum gearmotor for the movement of the bucket keyed on the shaft of the drum;
- an electric actuator to manage the rotation of the bucket through the third cable;
- a cleaning system of the bucket for discharging the screened material, installed in the upper part of the machine.

HOW IT WORKS

The material deposited on the bars of the screen is removed by the bucket as it runs upwards.

The bucket is discharged and cleaned at a suitable distance from the upper end-run. This is possible thanks to the combined action of its rotation, guided by the dedicated electric actuator and its particular geometric shape. At the end of the upward run, the bucket stops for a pre-established time and then starts the downward run. This occurs while remaining at a distance from the bars thanks to the combined action of the movement actuator and a suitable guide system. At the end of the downward run the bucket stops again and then resumes its upward run, gently approaching the screen thanks to the action of the actuator dedicated to the rotation of the bucket. Protection against overloading is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters.

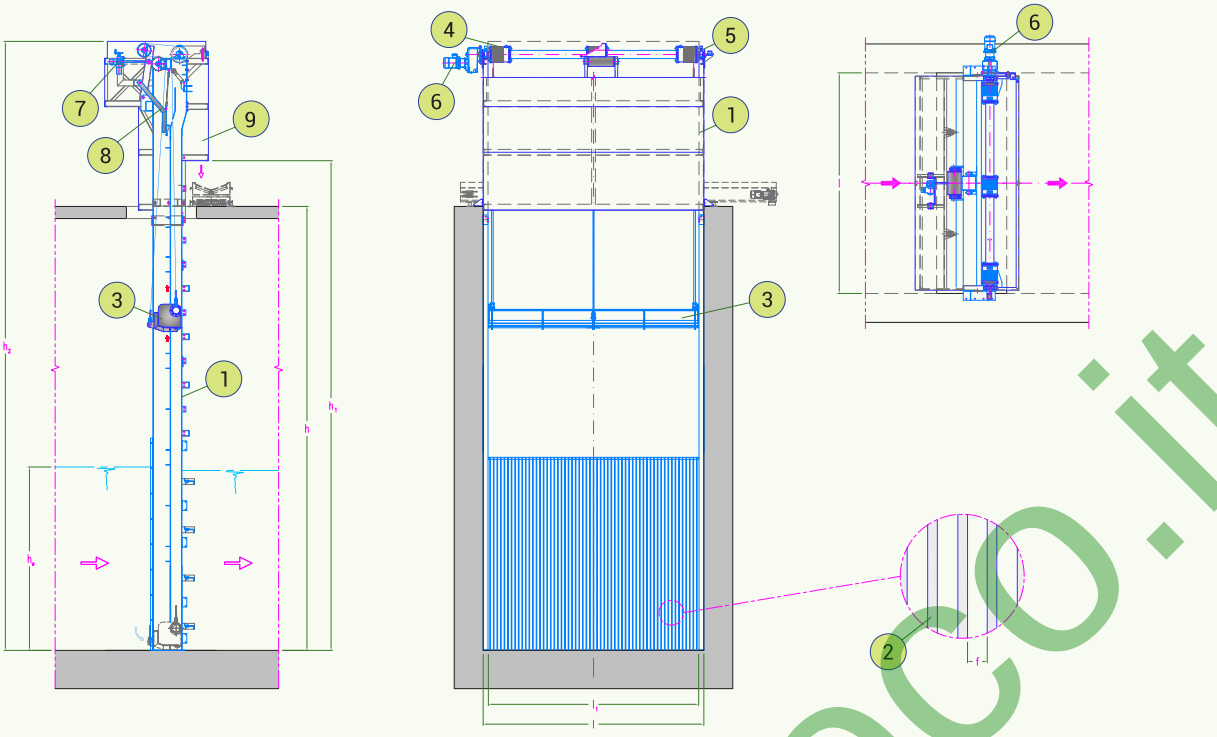
The simplicity of its design and the completely automatic cleaning, as well as the absence of mechanical parts immersed in water, allow this screen to always guarantee high performance and reliability over the time.

STRENGTHS GGPSC

- NO MECHANICAL MOVING PARTS IN WATER;
- POSSIBILITY OF INSTALLATION IN DEEP AND LARGE CHANNEL;
- REDUCED DIMENSIONS;
- POSSIBILITY OF LIFTING LARGE MATERIALS;
- STURDINESS.

Sub-vertical flat cable screen GGPSC

Overview with GGPSC flat screens installed



LEGEND

1. FRAME
2. BAR SCREEN
3. BUCKET
4. CABLE WINDING DRUM
5. DRUM SUPPORTS
6. DRUM GEARMOTOR
7. BUCKET ROTATION GEARMOTOR
8. CLEANER
9. PROTECTION CASING

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	2.8 ÷ 8
CHANNEL HEIGHT (h)	m	2 ÷ 40
SCREEN WIDTH (l_1)	m	l – 0.18
DISCHARGE HEIGHT (h_1)	m	h + 3.5
SCREEN HEIGHT (h2)	m	h1 + 2.0
MAX WATER DEPTH IN CHANNEL (hw)	m	0.85 * h
FILTERING GAP (f)	mm	20 ÷ 70
SLOPING ON THE VERTICAL (*)	°	0
LIFTING POWER SUPPLY	kW	3 ÷ 15
BUCKET ROTATION POWER SUPPLY	kW	1.1 ÷ 3
WEIGHT (**)	kg	700 x l + 270 x h1 – 1,5 x f + 650

(*) A different inclination is possible upon request.
(**) Insert in the formula the values of l and h in m and f in mm.

	NOMINAL FLOW RATE (l/s)(***)						
FILTERING GAPS (mm) / MODEL	20	25	30	40	50	60	70
GGPSC	530 x l_1 x h_w	570 x l_1 x h_w	600 x l_1 x h_w	640 x l_1 x h_w	670 x l_1 x h_w	685 x l_1 x h_w	700 x l_1 x h_w

(***) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l1 and by the water height in channel hw (both expressed in m).

GPSR

Climber sub vertical flat screen

WHEN TO USE IT

The GPSR-type of sub-vertical flat screen is installed on medium and large civil or industrial wastewater treatment plants for macro-screening needs, when moving parts in the water are not wanted and channels are not very deep and there are no particular height limitations.

HOW IT IS MADE

The screen is made up of a sturdy press-bended steel sheet frame reinforced with steel profiles, a filtering screen, a comb-holder trolley, a gearmotor, a rack system, a comb-cleaning system and a dynamometric torque limiter.

HOW IT WORKS

The filtering screen, inclined towards downstream, is made of a set of steel bars with a rectangular profile placed at a distance from each other in such a way as to form the free opening.

The comb-holder trolley is equipped with a system for climbing on vertical racks complete with guide rollers, toothed wheels, motor and cleaning arm with comb holder and comb.

Roller chains are not required for motion transmission, as the gearmotor, installed on the comb-holder trolley, transmits motion directly to the toothed wheels that climb on the two racks, guaranteeing precise and balanced motion. In the event of a power failure, a device keeps the trolley stationary, preventing it from falling downwards.

The length of the cleaning arm guarantees that there are no mechanical parts moving in the water. An articulated system mounted on stainless steel supports, complete with high density polyethylene scraping blade, is used to clean the comb.

The machine is equipped with a device for holding the comb out of the water during breaks.

The screened material deposited on the bars of the screen is removed by the comb mounted on the comb holder trolley as it climbs the rack.

The entire cleaning cycle takes place in 4 different phases: the comb is brought down from rest position out of the water; as soon as the trolley rotates around the lower dead center, the comb arm approaches the filtering screen so that the teeth are inserted between the bars; the comb then moves upwards, cleaning the screen and carrying the screened material with it to the discharge point, where it is cleaned by the cleaning blade and goes back to the rest position out of the water.

The mechanism is designed in such a way that the comb can by-pass and free itself from objects it encounters that cannot be removed.

Once the object has been by-passed, the comb will be inserted between the bars of the screen and continue its cleaning work. If the load of the comb transport mechanism increases beyond a predetermined value, the load limiter stops the electric motor.

Once the overload conditions have been corrected, the motor can be manually started again by means of a button. If necessary, you can manually reverse the movement of the comb by means of an electric control.

STRENGTHS GPSR

- ABSENCE OF TRANSMISSION CHAINS;
- EASY MAINTENANCE;
- ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- STURDINESS.

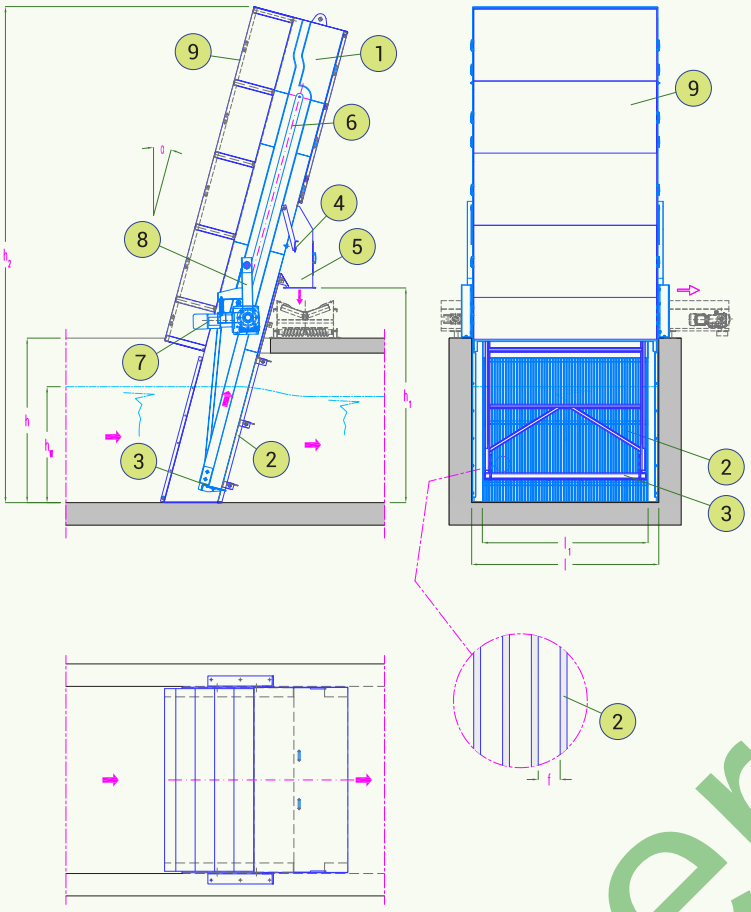
VERSIONS

In the presence of significant water level ranges due to high variations in the flow rate, the electric motor can be replaced with a hydraulic motor capable of working below the water level.

Overview of flat screen sub-vertical climbing GPSR

Overview of flat screen sub-vertical climbing GPSR

GPSR climbing sub-vertical flat screen



LEGEND

1. FRAME
2. FILTERING SCREEN
3. COMB
4. COMB-CLEANING SYSTEM
5. SCREENED MATERIAL DISCHARGE
6. RACK
7. GEARMOTOR
8. TROLLEY
9. SAFETY COVER

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	0,5 ÷ 3,0
CHANNEL HEIGHT (h)	m	0,5 ÷ 10,0
SCREEN PANEL WIDTH (l_1)	m	l - 0,2
DISCHARGE HEIGHT (h_1)	m	h + 0,8
MAX HEIGHT (h2)	m	$h_1 + h_3 * 1,25 + 1$
INCLINATION REFERRED TO VERTICAL (α)	°	15
FILTERING GAP (f)	mm	10 ÷ 100
POWER SUPPLY	KW	1,1 ÷3,0
WEIGHT (*)	kg	500 * l + 270 * h - 1.5 * f + 500

(*) Insert the values of l and h in m and f in mm in the formula.

	NOMINAL FLOW RATE (l/s)									
FILTERING GAPS (mm) / MODEL	10	20	30	40	50	60	70	80	90	100
GPSR	409*l_1*h	457*l_1*h	505*l_1*h	533*l_1*h	552*l_1*h	565*l_1*h	574*l_1*h	582*l_1*h	588*l_1*h	593*l_1*h

The flow rate in litres per second is given by the product of the appropriate coefficient by the screen width l_1 and channel height h (both in m).

Drum screen

WHEN TO USE IT

The GRSC-type rotating drum screen for micro-screening is installed on small and medium-sized civil or industrial wastewater treatment plants. It is particularly suitable for solid-liquid separation in the treatment of liquid waste from the food, textile, tanning, petrochemical and urban sewerage industries. For industrial uses, it is used for the recovery of recyclable materials.

HOW IT IS MADE

The screen is designed and built in the SERECO factory and consists of the following main components: a body in press-bent stainless steel sheet, a rotating drum in which the cylindrical part is made up of wedge wire bars or perforated sheet metal or other suitable filtering medium, a hollow shaft with the washing water of the drum flowing through the inside while its exterior supports the rotating drum, a filling blade, a system of washing nozzles, a series of mechanical seals and a gearmotor.

HOW IT WORKS

The incoming water, lapping the filtering bars of the drum, deposits the solid elements suspended in it. These are dragged by friction in rotation up to the cleaning blade which, detaching them from the drum, diverts and conveys them into a special container. The blade, which must exert a suitable pressure on the drum to allow the correct detachment of the filtered material, is connected to an adjustable counterweight system capable of a very sensitive adjustment of the pressure of the blade on the drum. The already filtered water that enters the drum falls by gravity, hitting the rotating drum again from the inside towards the outside and is then conveyed into the special filtered water discharge chamber or directly into the basin for subsequent treatment.

VERSIONS

The largest models can be equipped with a motorized system for cleaning the blade and removing the filtered material. In order to optimize the operation of the machine, upon request it is possible to adjust the rotation speed according to the quality of the water by adding a suitable electrical panel to control the electric motor with inverter or by replacing the normal gearmotor with a variable speed gearmotor. The machine is normally designed for installation on a tank. Upon request, a model complete with suitable discharge chamber and sturdy support feet can be provided.
For specific applications, it is possible to provide the GRSC model which is equipped with a conveyor screw integrated into the structure, to collects the screened material and moves it away while compacting it.
The standard design is in stainless steel.

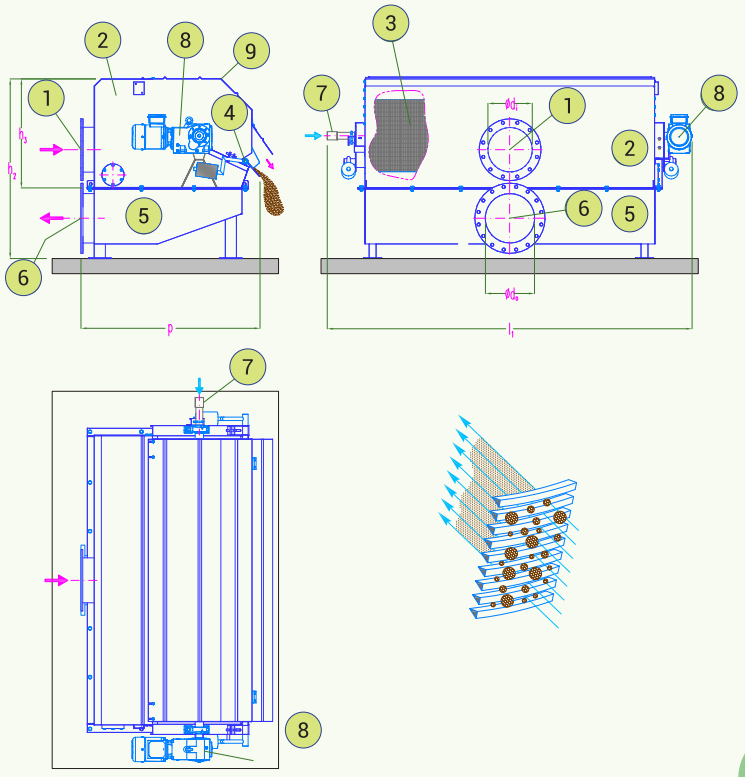
STRENGTHS GRS

- FINE SCREENING UP TO 0.25 MM;
- LARGE SPECIFIC FLOW RATES;
- ALSO USED FOR FOOD INDUSTRY;
- ALSO SUITABLE FOR COLLOIDAL AND HIGHLY VISCOUS SUBSTANCES.

GRS drum screen installed

GRS drum screen installed

GRS drum screen



LEGEND

1. WATER INLET
2. INLET CHAMBER
3. SCREENING DRUM
4. CLEANING BLADE
5. WATER DISCHARGE CHAMBER (OPTIONAL)
6. WATER OUTLET
7. WASHING SYSTEM
8. GEARMOTOR
9. SAFETY COVER

MAIN FEATURES	UNIT	DIMENSIONAL DATA								
MODEL GRS		**050/4**	**050**	**070**	**100**	**130**	**160**	**180**	**200**	**300**
SCREENING DRUM LENGTH	mm	500	500	700	1000	1300	1600	1800	2000	3000
SCREENING DRUM DIAMETER	mm	480	625	625	625	625	625	625	625	914
MAX LENGTH (l_1)	mm	1000	1000	1200	1500	1800	2000	2300	2500	3500
MAX HEIGHT (h_2)	mm	1150	1285	1285	1285	1285	1285	1285	1285	1600
HEIGHT WITHOUT OUTLET CHAMBER (h_3)	mm	640	785	785	785	785	785	785	785	1150
MAX DEPTH (p)	mm	1310	1310	1310	1310	1310	1310	1310	1310	1800
FILTERING GAP (f)	mm	0.25 ÷ 6								
INLET NOMINAL DIAMETER PN10 (d_i) (*)	DN	100	100	100	200	200	250	250	300	350x2
OUTLET NOMINAL DIAMETER PN10 (d_o) (*)	DN	150	150	150	250	250	300	300	350	450x2
POWER SUPPLY	kW	0.25	0.55	0.55	0.55	0.55	0.55	0.55	0.55	2.2
EMPTY WEIGHT WITH OUTLET CHAMBER	Kg	210	255	280	320	378	485	590	870	1310
WORKING WEIGHT WITH OUTLET CHAMBER	Kg	347	430	522	642	915	1108	1367	1826	2540

(*) Diameters valid for iltration gap f = 1,5 mm

NOMINAL FLOW RATE (m³/h)												
FILTERING GAPS (mm) / **MODEL**	**0,25**	**0,5**	**0,75**	**1**	**1,25**	**1,5**	**2**	**2,5**	**3**	**4**	**5**	**6**
GRS 050/4	27	48	66	82	95	106	124	139	151	169	181	191
GRS 050	35	63	86	106	123	138	162	181	196	219	236	249
GRS 070	49	88	121	149	173	193	227	253	275	307	331	348
GRS 100	69	126	173	213	247	276	324	362	393	439	473	498
GRS 130	90	164	225	276	320	359	421	470	510	571	614	647
GRS 160	111	202	277	340	394	441	518	570	628	702	756	797
GRS 180	125	227	311	383	444	497	583	651	707	790	851	896
GRS 200	139	252	346	425	493	552	648	724	785	878	945	996
GRS 300	305	553	759	933	1082	1210	1421	1588	1722	1926	2073	2184

GRSC

Drum screen with integrated compacting screw

WHEN TO USE IT

The GRSC-type rotating drum screen for micro-screening is installed on small and medium-sized civil or industrial wastewater treatment plants. It is particularly suitable for solid-liquid separation in the treatment of liquid waste from the food, textile, tanning, petrochemical and urban sewerage industries. Due to its characteristic of compacting and removing the screened material, it is particularly useful in case of large quantities of industrial screened material.

HOW IT IS MADE

The screen is designed and built in the SERECO factory and consists of the following main components: a body in press-bent stainless steel sheet, a rotating drum in which the cylindrical part is made up of wedge wire bars or perforated sheet metal or other suitable filtering medium, a hollow shaft with the washing water of the drum flowing through the inside while its exterior supports the rotating drum, a filling blade, a screw suitable for compacting and removing the screened material, a system of washing nozzles, a series of mechanical seals and a gearmotor.

HOW IT WORKS

The incoming water, lapping the filtering bars of the drum, deposits the solid elements suspended in it. These are dragged by friction in rotation up to the cleaning blade which, detaching, diverts and conveys them into the compacting screw. The blade, which must exert a suitable pressure on the drum to allow the correct detachment of the screened material, is connected to an adjustable counterweight system capable of a very sensitive adjustment of the pressure of the blade on the drum. The screened material detached from the drum falls by gravity into the channel of a screw which moves it away from the screen with its rotation and, at the same time, dewaters it by compaction between the screw and its exit from the channel.

The already filtered water that enters the drum falls by gravity, hitting the rotating drum again from the inside towards the outside and is then conveyed into the special filtered water discharge chamber or directly into the basin for subsequent treatment.

VERSIONS

The larger models can be equipped with a motorized system for cleaning the blade and removing the screened material.

In order to optimize the operation of the machine, upon request, it is possible to adjust the rotation speed according to the quality of the water by adding a suitable electrical panel to control the electric motor with inverter or by replacing the normal gearmotor with a variable speed gearmotor. The machine is normally designed for installation on a tank. Upon request, a model complete with suitable discharge chamber and sturdy support feet can be provided

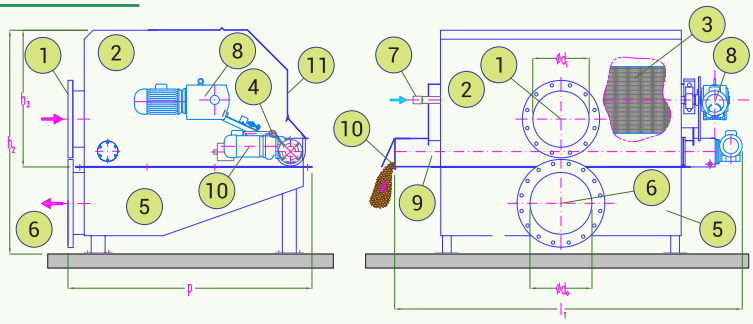
The standard design is in stainless steel.

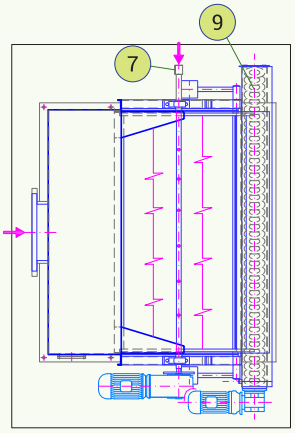
STRENGTHS GRSC

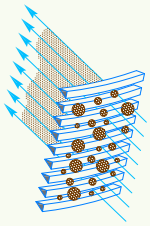
- FINE SCREENING UP TO 0.25 MM;
- LARGE SPECIFIC FLOW RATES;
- ALSO USED FOR FOOD INDUSTRY;
- ALSO SUITABLE FOR COLLOIDAL AND HIGHLY VISCOUS SUBSTANCES.

Drum screen with built-in screw compactor GRSC

Drum screen with built-in screw compactor GRSC







GRSC

LEGEND

1. WATER INLET
2. INLET CHAMBER
3. SCREENING DRUM
4. CLEANING BLADE
5. WATER DISCHARGE CHAMBER (OPTIONAL)
6. WATER OUTLET
7. WASHING SYSTEM
8. GEARMOTOR
9. SAFETY COVER
10. SCREENINGS OUTLET
11. PROTECTION CARTER

MAIN FEATURES	UNIT	DIMENSIONAL DATA								
MODEL GRSC		**050/4**	**050**	**070**	**100**	**130**	**160**	**180**	**200**	**300**
SCREENING DRUM LENGTH (l_1)	mm	500	500	700	1000	1300	1600	1800	2000	3000
SCREENING DRUM DIAMETER +	mm	480	625	625	625	625	625	625	625	914
MAX LENGTH (l_1)	mm	1000	1000	1200	1500	1800	2000	2300	2500	3500
MAX HEIGHT (h_2)	mm	1150	1285	1285	1285	1285	1285	1285	1285	1600
HEIGHT WITHOUT OUTLET CHAMBER (h_3)	mm	640	785	785	785	785	785	785	785	1150
MAX DEPTH (p)	mm	1310	1310	1310	1310	1310	1310	1310	1310	1800
FILTERING GAP (f)	mm	0.25 ÷ 6								
INLET NOMINAL DIAMETER PN10 (di) (*)	DN	100	100	100	200	200	250	250	300	350x2
OUTLET NOMINAL DIAMETER PN10 (do) (*)	DN	150	150	150	250	250	300	300	350	450x2
POWER SUPPLY	kW	0.25	0.55	0.55	0.55	0.55	0.55	0.55	0.55	2.2
EMPTY WEIGHT WITH OUTLET CHAMBER	Kg	210	255	280	320	378	485	590	870	1310
WORKING WEIGHT WITH OUTLET CHAMBER	Kg	347	430	522	642	915	1108	1367	1826	2540

(*) Diameters valid for iltration gap f = 1,5 mm.
(*) Approximate

	NOMINAL FLOW RATE [m³/h]											
FILTERING GAPS [mm] / **MODEL**	**0,25**	**0,5**	**0,75**	**1**	**1,25**	**1,5**	**2**	**2,5**	**3**	**4**	**5**	**6**
GRSC 050/4	27	48	66	82	95	106	124	139	151	169	181	191
GRSC 050	35	63	86	106	123	138	162	181	196	219	236	249
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GRSC 180	125	227	311	383	444	497	583	651	707	790	851	896
GRSC 200	139	252	346	425	493	552	648	724	785	878	945	996
GRSC 300	305	553	759	933	1082	1210	1421	1588	1722	1926	2073	2184

GRSI

Rotating drum screen

WHEN TO USE IT

The GRSI, a rotating drum screen for micro-screening, is particularly suitable for installation in intake from sea, lake or river water, intended for cooling systems in industrial processes, desalination, potabilization, irrigation or general production processes.

HOW IT IS MADE

The machine is composed of: a sturdy cylindrical supporting structure stiffened by means of steel profiles arranged in a radial pattern, ideal for having a large free cylindrical surface which is at the same time very robust and able to withstand heavy loads such as rotation in water and the thrusts of the hydraulic flow; a series of filter panels bolted to the above structure and easily removable, each panel consists of a frame and a filter screen in square mesh or perforated sheet metal; a fixed shaft supporting the entire structure; two sturdy supports mounted on the sides of the drum and equipped with special self-lubricating bushings for continuous operation even in water, suitably sized to support the drum during rotation with respect to the fixed shaft; a gearmotor with cylindrical gears for the rotation of the drum by means of a pinion which meshes with the rack; a counter-current washing bar of the filtering surface, from the inside to the outside, complete with high pressure nozzles; a hopper for collecting the screened material and washing water; a sealing system consisting of gaskets mounted between the rotating drum and a fixed steel part mounted on the channel wall. The protection against overloads is guaranteed by standard dynamometric devices or, on request, by electronic absorption limiters.
The simplicity of its design and the fully automatic cleaning allow this screen to always guarantee high performance and reliability over time.

HOW IT WORKS

The incoming water flow has an axial direction with respect to the drum; the front surface of the screen is closed and forces the flow to cross the cylindrical surface, made up of filter panels, from the outside to the inside. The water recombines after filtration and continues its motion along the axis of the drum, inside the screen, and then moves away from it. The screened material held on the outside of the screen is pushed into a hopper by the washing water which sprays from the inside to the outside of the drum.

VERSIONS

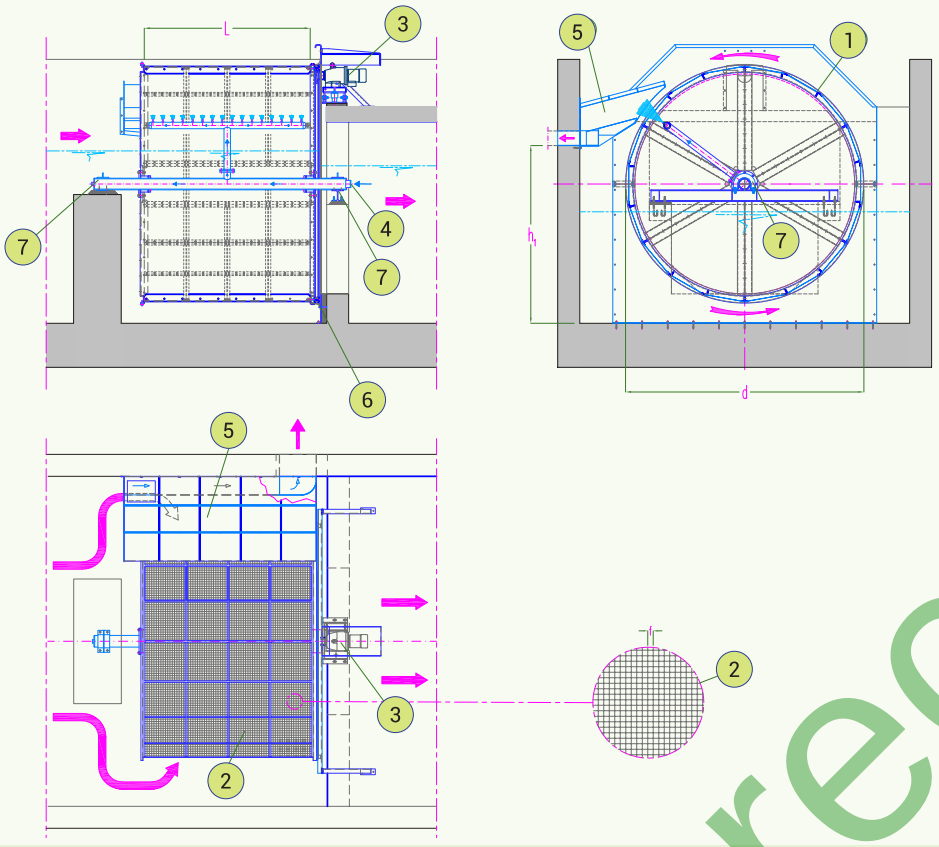
Upon request, it can be equipped with a control panel that allows automatic starting and stopping of the machine by means of differential level meters or of a work-pause timing system.

STRENGTHS GRSI

- REDUCED MAINTENANCE DUE TO THE ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- ENERGY SAVING AND LONG DURABILITY THANKS TO OPERATION WITH THE DRUM STOPPED AND WITH THE DRUM MOVING ONLY DURING WASHING;
- HIGH SPECIFIC FLOW RATES;
- EFFECTIVE AND FULLY AUTOMATIC CLEANING;
- LOW PRESSURE DROPS;
- STURDINESS.

Rotating drum screen GRSI

Rotating drum screen GRSI



LEGEND

1. DRUM
2. FILTER PANELS
3. GEARMOTOR
4. WASHING WATER INLET
5. SCREENED MATERIAL OUTLET HOPPER
6. FRONT SEAL
7. DRUM SUPPORTS

MAIN FEATURES	UNIT	DIMENSIONAL DATA					
DRUM DIAMETER (d)	m	1,5	2,2	3	4,3	5,7	7,1
FILTERING LENGTH	m	0,7÷1,3 x d					
CHANNEL WIDTH	m	1,5 x d					
CHANNEL HEIGHT	m	0,9 x d + 0,4					
SCREEN HEIGHT	m	d + 0,3					
WATER HEIGHT	m	0,7 x d+ 0,3					
FILTERING GAP (f)	mm	0,15÷10					
POWER SUPPLY	kW	0,75	1,1	1,5	3	4	5,5
PERIPHERAL SPEED	m/min	10					
WASHING WATER FLOW RATE	m³/h	12 x L					
WEIGHT APPROX.	kg	350 x d x L					

	NOMINAL FLOW RATE (m³/h) (*)					
FILTERING GAPS (mm) / MODEL	0,15	0,5	1	2	5	10
GRSI	520 d x L	588 d x L	927 d x L	1447 d x L	1583 d x L	1832 d x L

(*) Formulas valid for filtering panels in square mesh; d and L in meters.

GRSIS

Compact rotating drum screen

WHEN TO USE IT

The GRSIS is a small rotating drum screen for micro-screening which is particularly suitable for the filtration of small flow rates (few hundreds m^3/h) of wastewater, sea water, lake or river water, for industrial processes, potabilization, irrigation or production processes in general.

HOW IT IS MADE

The exterior of the machine is a completely closed and compact box and is essentially composed of: a sturdy structure in closed steel sheet which acts as a container for the whole machine; a horizontal cylinder stiffened by means of steel profiles arranged in a radial pattern, suitable for having a large free cylindrical surface which is at the same time very robust and able to withstand heavy loads such as rotation in water and the thrusts of the hydraulic flow; a series of filter panels bolted to the above structure and easily removable, each panel consists of a frame and a filtering screen in square mesh or perforated sheet metal; a fixed shaft supporting the entire structure; two sturdy supports mounted on the sides of the drum and equipped with special self-lubricating bushings for continuous operation even in water, suitably sized to support the drum during rotation with respect to the fixed shaft; a gearmotor with cylindrical gears for the rotation of the drum by means of a pinion which meshes with the rack; a counter-current washing bar of the filtering surface, from the inside to the outside, complete with high pressure nozzles; a hopper for collecting the screened material and washing water; a sealing system composed of gaskets mounted between the rotating drum and a fixed part of the container wall. Protection against overloads is guaranteed by standard dynamometric devices or, on request, by electronic absorption limiters.
The simplicity of its design and the fully automatic cleaning allow this screen to always guarantee high performance and reliability over time.

HOW IT WORKS

The water flow enters axial direction with respect to the drum through a flanged connection; the flow of water to be filtered crosses the cylindrical surface, made up of filter panels, from the outside to the inside. The water after filtration continues its motion along the axis of the drum to exit from the container through a flanged connection. The screened material remaning on the outside of the screen is pushed into a hopper by the washing water which sprays from the inside to the outside of the drum and flows out also by means of a flanged connection. The machine is also provided with a filter on the washing water pipe, an overflow flanged connection, a bottom drain and an electrical control panel.

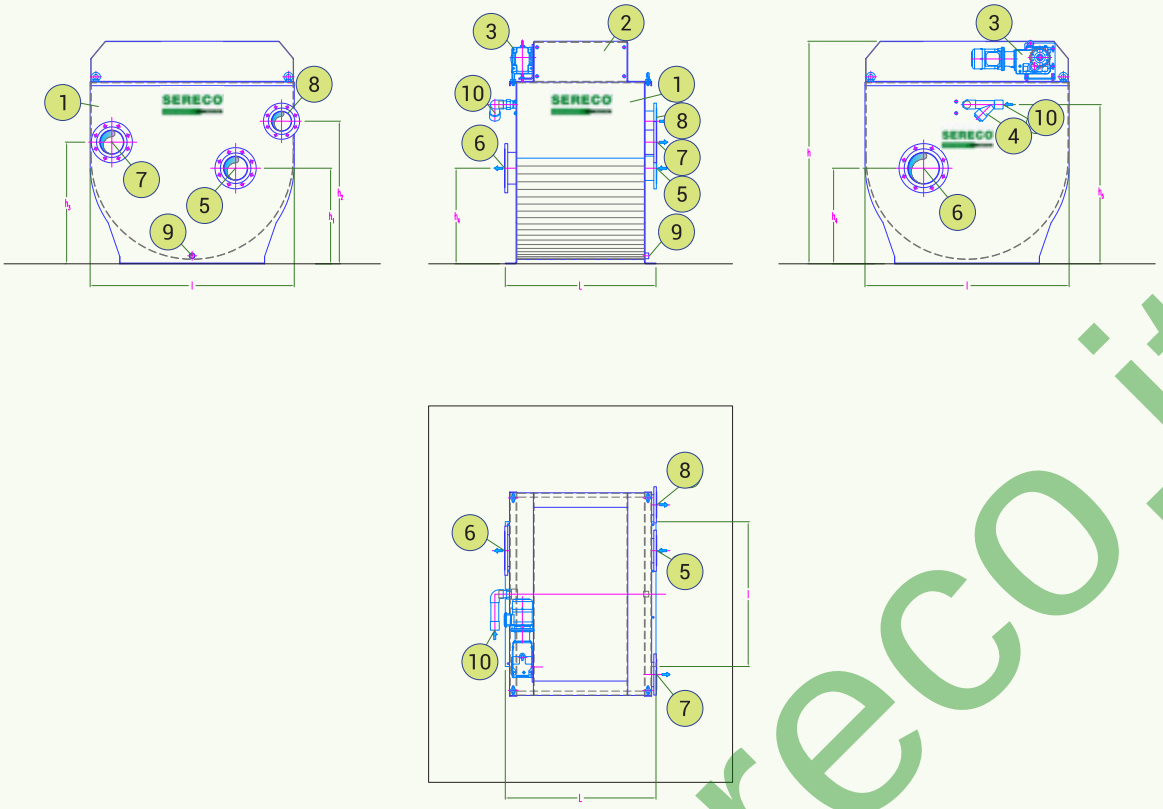
VERSIONS

The standard machine is built in one size only. It can be made in various degrees of stainless steel available on the market and for specific cases, the mesh of panels can be replaced with perforated sheet.

STRENGTHS GRSIS

- COMPACT AND EASILY MOVABLE MACHINE;
- BUILT ENTIRELY OF STAINLESS STEEL;
- POSSIBILITY OF CHANGING THE FILTERING OPENING AT ANY TIME;
- NO ROUTINE MAINTENANCE REQUIRED.

Compact rotating drum screen GRSIS testing phase



LEGEND

1. TANK
2. SAFETY COVER
3. GEARMOTOR
4. PANEL
5. WATER INLET
6. WATER OUTLET
7. OVERFLOW
8. SCREENED MATERIAL OUTLET
9. BOTTOM DRAIN
10. WASHING WATER INLET

MAIN FEATURES	UNIT	DIMENSIONAL DATA
DRUM DIAMETER	mm	1000
DRUM WIDTH	mm	500
FILTERING GAP	mm	from 0.05 to 5
NOMINAL FLOW RATE	m^3/h	from 80 to 500
INLET DIAMETER	DN	from 100 to 300
OUTPUT DIAMENTER	DN	from 150 to 400
POWER SUPPLY	kW	0,37
WEIGHT APPROX.	kg	450

GSMN

Mobile step screen

WHEN TO USE IT

The GSMN-type self-cleaning mobile step screen is intended for small and medium-sized civil or industrial water treatment plants that require mechanical separation of solids. The fine screening assured by this machine allows the separation of paper, plastics and other solid materials, decreases the final quantity of sludge to be treated and significantly reduces the clogging of pumps.

HOW IT IS MADE

The GSMN consists of steel blades assembled side by side to form a fine screen. One blade out of two is connected to a frame which constitutes the fixed part of the machine, the other blades are connected together to form a moving part.

HOW IT WORKS

During the movement, the mobile blades move with respect to the fixed ones by moving according to a circular trajectory, so that the material deposited on the steps is lifted onto an upper level of the fixed blades, step by step reaching the upper part of the machine and then the discharge.

Optimal performance of GSMN is obtained by operating at intervals so that a homogeneous bed of solids is formed on the blades of the screen; such bed of solids is able to better retain fats, oils and sands.

The screen is complete with dynamometric load limiters.

VERSIONS

Upon request, it can be equipped with a control panel that allows automatic starting and stopping of the machine by means of differential level meters or of a work-pause timer.

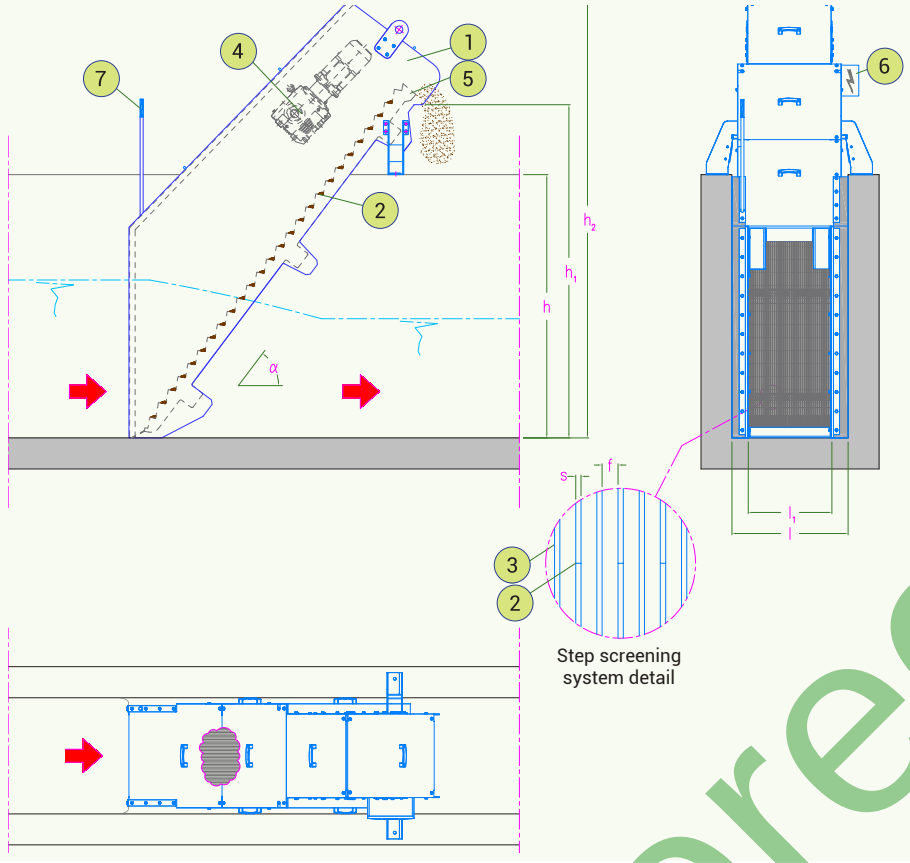
The standard design is in stainless steel.

STRENGTHS GSMN

- FINE SCREENING;
- HIGH SPECIFIC FLOW RATE;
- DISCONTINOUS OPERATION THAT IMPROVES THE FILTRATION DEGREE;
- SUITABLE FOR WASTE WITH HIGH CONCENTRATION OF SCREENED MATERIAL;
- STURDINESS.

Mobile step screen GSMN

Mobile step screen GSMN



LEGEND

1. FIXED FRAME
2. FIXED BLADE
3. MOBILE BLADE
4. GEARMOTOR
5. SCREENED MATERIAL DISCHARGE
6. JUNCTION BOX
7. HANDLE FOR THE MOVEMENT OF BOTTOM SLOPE

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	0,6 ÷ 2,0
CHANNEL HEIGHT (h)	m	0,5 ÷ 3,0
SCREEN PANEL WIDTH (l_1)	m	l-0,17
DISCHARGE HEIGHT (h_1) (*)	m	h+0,45
OVERALL HEIGHT (h_2)	m	h_1+0,70
INCLINATION REFERRED TO HORIZONTAL (a)	°	45 ÷ 55
FILTERING GAP (f)	mm	2-3-6
LAMELLA THICKNESS (s)	mm	3
POWER SUPPLY	kW	1,1 ÷ 4,0
WEIGHT	kg	900 ÷ 4500

(*) Different discharge heights are available upon request.

	NOMINAL FLOW RATE (l/s) (**)		
FILTERING GAPS (mm) / MODEL	2	3	6
GSMN	256*l_1*h	320*l_1*h	427*l_1*h

(**) The flow rate in liters per second is given by the product of the suitable coefficient for the screen width l_1 and the channel height h (both in m).

GVC

Vertical chain screen

WHEN TO USE IT

The GVC-type vertical chain screen of the is suitable for the most varied screening needs, in terms of the dimensions of the channel, the flow rates and the filtration openings. Indeed, GVC is SERECO's best-selling screen and is the one that has undergone more frequent and continuous restyling over the years to meet improvements in functionality, in expected life cycle, in energy consumption and in quality to deliver up to the perfect machine of today.

HOW IT IS MADE AND HOW IT WORKS

This type of screen consists of a cold-bent steel sheet frame on which the guides for the special roller-type chains are set. The toothed wheels for the movement of the chain are fixed only at the upper end of the machine. Indeed, in the lower part of the screen the chain is wound directly around static returns. This prevents moving mechanical parts from being immersed in water, ensuring reliability and durability over time. The cleaning of the filtering screen is ensured by one or more rakes mounted on the double chain which provide for the recovery of the screened material held on the bars. A comb-cleaning device with oscillating movement ensures the cleaning of the rake, improving the fall of the screened material into the underlying hopper. The movement of the machine is done by to a sturdy gearmotor and protection against overloads is guaranteed by standard dynamometric devices or by electronic absorption limiters upon request.

VERSIONS

The GVCM version for micro-screening is available: this version has free openings from 2.5 to 5 mm, filtering screen in perforated sheet metal or wedge wire bars and brush cleaning system. The basic design is in stainless steel of various degrees.

Vertical chain screen GVC

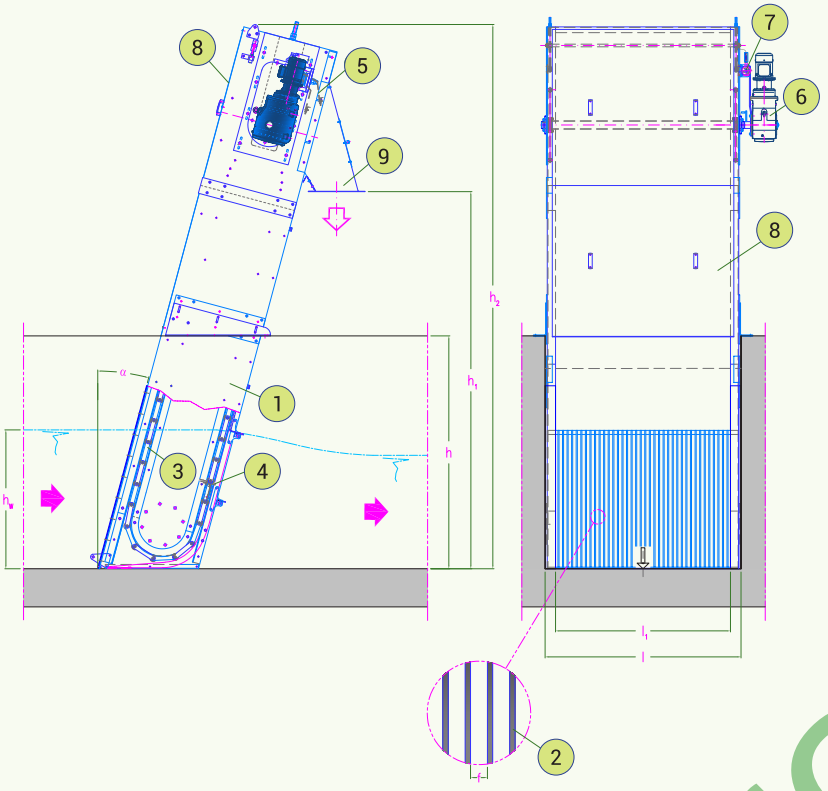
Vertical chain screen GVC

STRENGTHS GVC

- SUITABLE FOR A LARGE VARIETY OF SCREENING NEEDS;
- ABSENCE OF MECHANICAL PARTS MOVING IN WATER;
- STURDINESS AND SIMPLICITY;
- MINIMUM AND EASY MAINTENANCE.

RECOMMENDED ACCESSORIES

- STS SMART TELEMETRY SYSTEM;
- DIFFERENTIAL LEVEL METERS;
- BELT OR SCREW CONVEYOR;
- SCREENED MATERIAL COMPACTOR;
- ELECTRICAL AND CONTROL PANEL.



LEGEND

1. FRAME
2. SCREEN
3. CHAIN
4. COMB
5. COMB-CLEANING DEVICE
6. GEARMOTOR
7. LOAD LIMITER
8. COVER
9. DISCHARGE HOPPER

MAIN FEATURES	UNIT	DIMENSIONAL DATA
MODEL GVC		
CHANNEL WIDTH (l)	m	0.3 ÷ 4.0
CHANNEL DEPTH (h)	m	0.3 ÷ 20
SCREEN PANEL WIDTH (l_1)	m	l – 0.10 (*)
DISCHARGE HEIGHT (h_1)	m	h + 0.80 (**)
OVERALL HEIGHT (h_2)	m	h_1 + 0.65
INCLINATION ON VERTICAL (α)	°	15 (***)
FILTERING GAP (f)	mm	6 ÷ 100
POWER SUPPLY	kW	0.18 ÷ 4

(*) Value valid for the basic model, subject to variation for the larger models.
(**) Upon request, it is possible to obtain discharge heights different from the standard.
(***) A different angle can be supplied upon request.

	NOMINAL FLOW RATE (l/s) (***)								
FILTERING GAPS (mm) / MODEL	10	15	20	25	30	35	40	45	50
GVC	356 * l_1 * h	417 * l_1 * h	457 * l_1 * h	485 * l_1 * h	505 * l_1 * h	521 * l_1 * h	533 * l_1 * h	543 * l_1 * h	552 * l_1 * h

(***) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l1 and by the channel height h (both expressed in m).

GVCC

Counter-current chain vertical screen

WHEN TO USE IT

The GVCC-type chain vertical screen with counter-current cleaning is suitable for the most large range of screening needs, both for the dimensions of the channel and for the flow rates and filtration openings.

HOW IT IS MADE

This type of screen consists of a cold-bent steel sheet frame on which the guides for the special roller-type chains are set. The toothed wheels for the movement of the chain are guided only at the upper end of the machine. Indeed, in the lower part of the screen the chain is wound directly around static returns. This prevents moving mechanical parts from being immersed in water, ensuring reliability and durability over time.

HOW IT WORKS

The cleaning of the filtering screen is ensured by one or more rakes mounted on the double chain which provide for the collection of the screened material retained on the bars. The special feature of this screen is the counter-current cleaning. Indeed, the cleaning rakes act on the side of the channel downstream of the screen. This operation prevents the screened material from wedging between the bottom of the screen and the cleaning rake, eliminating the risk of clogging. A comb-cleaning device with oscillating movement ensures the cleaning of the rake, facilitating the fall of the screened material into the underlying hopper. The movement of the machine is entrusted to a sturdy gearmotor and protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters.

VERSIONS

The standard design is in stainless steel. Upon request hot-dip galvanized carbon steel versions or versions protected with an epoxy paint cycle are available.

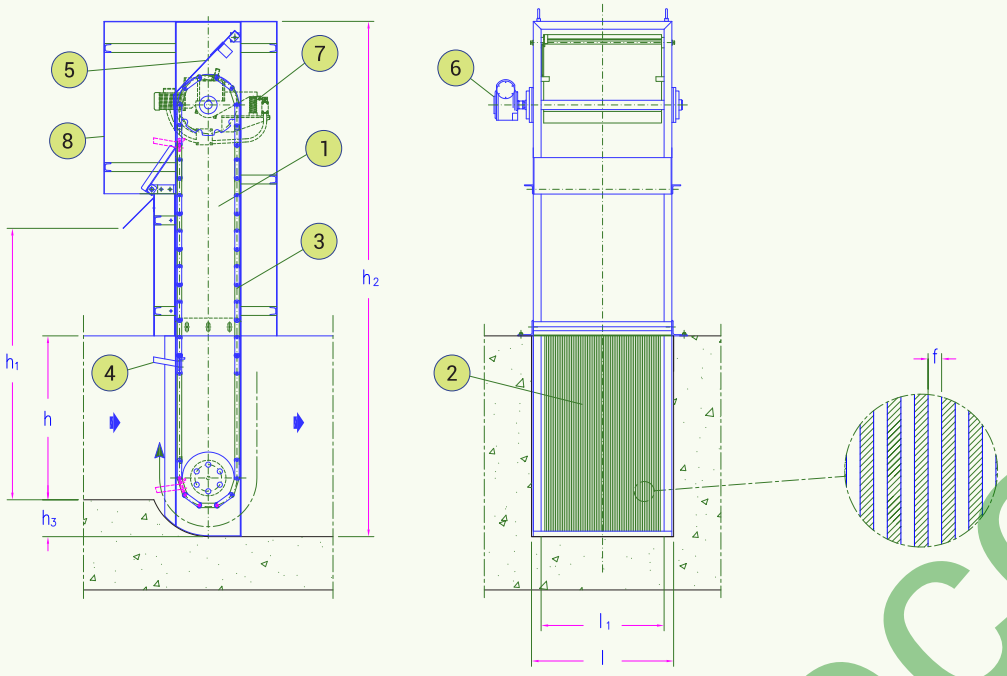
STRENGTHS GVCC

- COUNTER-CURRENT OPERATION WITH LOW RISK OF CLOGGING;
- SUITABLE FOR A LARGE RANGE OF SCREENING NEEDS;
- ABSENCE OF MECHANICAL PARTS MOVING IN THE WATER;
- POSSIBILITY OF VERTICAL INSTALLATION;
- REDUCED OVERALL DIMENSIONS;
- STURDINESS.

Counter-current chain vertical screen GVCC

Counter-current chain vertical screen GVCC

Counter-current chain vertical screen GVCC



LEGEND

1 FRAME
2 SCREEN
3 CHAIN
4 COMB
5 COMB-CLEANING DEVICE
6 GEARMOTOR
7 LOAD LIMITER
8 COVER

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	0,3 ÷ 2,0
CHANNEL HEIGHT (h)	m	0,3 ÷ 3,0
SCREEN PANEL WIDTH (l_1)	m	l - 0,10
DISCHARGE HEIGHT (h_1)	m	h + 0,80
MAX HEIGHT (h_2)	m	h_1 + 0,9
CHANNEL STEP HEIGHT (h_3)	m	0,2
FILTERING GAP (f)	mm	10 ÷ 50
POWER SUPPLY	kW	0,25 ÷ 0,75
WEIGHT (*)	kg	(4,72 * l + 5,28) x (34 * h + 19) + (2,5 – h * f)

(*) Insert the values of l and h in m and f in mm in the formula.

	NOMINAL FLOW RATE (l/s) (**)								
FILTERING GAPS (mm) / MODEL	10	15	20	25	30	35	40	45	50
GVCC	356 * l_1 * h	417 * l_1 * h	457 * l_1 * h	485 * l_1 * h	505 * l_1 * h	521 * l_1 * h	533 * l_1 * h	543 * l_1 * h	552 * l_1 * h

(**) The flow rate in liters per second is given by the product of the appropriate coefficient by the screen width l_1 and by the channel height h (both expressed in m).

GVI

Hydraulic vertical screen

WHEN TO USE IT

The GVI type hydraulic vertical screen is installed on medium and large civil or industrial wastewater treatment plants, on irrigation channels or supply channels of dams or hydroelectric power plants.

HOW IT IS MADE

The machine consists of a support trellis, a filtering screen, a rake for cleaning the screen, a rake-cleaning device, a double-acting hydraulic cylinder with one or more extensions for the downward and upward movements of the mobile part, a second hydraulic cylinder for the swinging movement of the rake, a hydraulic control unit and a control panel.

HOW IT WORKS

The GVI automatically reproduces the movements of the manual screening, in the upward run the rake is in contact with the bars of the filtering screen and removes the deposited material. At the end of the upward run, the rake-cleaning device moves the screened material away, and in the downward run, thanks to the swinging movement, the rake moves downward to an appropriate distance from the screen. The operation of the machine is guaranteed by a control panel which activates the hydraulic unit. The frequency of operation is programmed by a timer or, upon request, by an ultrasonic differential level meter. If necessary, manual operation can be activated from the control panel. Protection against overloads is guaranteed by an overpressure valve mounted on a by-pass line in the hydraulic circuit.

STRENGTHS GVI

- INCREASED LIFTING POWER THANKS TO THE HYDRAULIC CONTROL;
- POSSIBILITY OF WORKING ALSO WITH FULLY IMMERSED SCREEN;
- POSSIBILITY OF OPERATING AS A SCREEN CLEANER;
- STURDINESS.

VERSIONS

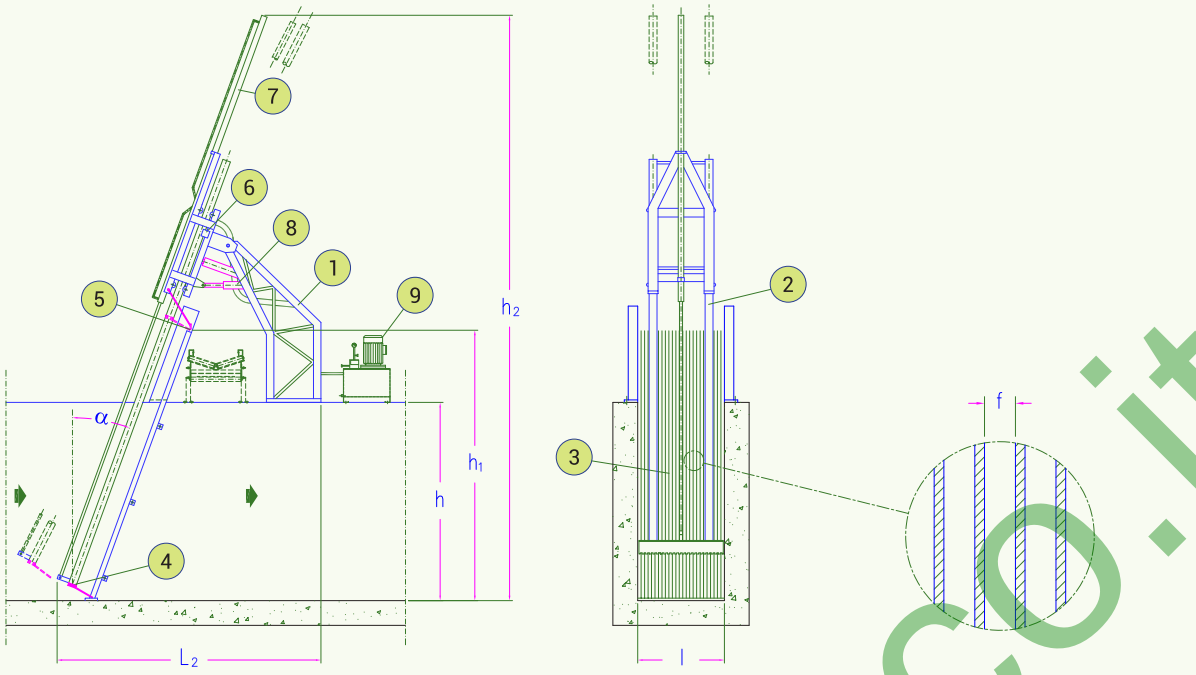
For specific applications, for a channel width greater than the standard, a screen cleaner which slides on rails along the channel width can be requested. It includes rake, trellis and moving equipment. This model ensures that the filtering screen is fixed and the screen cleaner, moving step by step along the channel width, cleans the entire screen. The synchronization of the movements is carried out by a programmable logic controller (PLC).

Since all movements are hydraulically driven the special design of GVI allows installation in channels at risk of flooding. Indeed, the screen can be completely submerged as long as the control unit is at a safe height and distance from the water.

The standard design is hot-dip galvanized carbon steel. Protection with an epoxy paint cycle or stainless steel solution is available upon request.

Hydraulic vertical screen GVI

Hydraulic vertical screen GVI



LEGEND

1. SUPPORT TRELLIS
2. RAKE GUIDE ARMS
3. FILTERING SCREEN
4. RAKE
5. SCREENED MATERIAL DISCHARGE
6. LIMIT SWITCH
7. RAKE HANDLING HYDRAULIC CYLINDER
8. RATE SWINGING HYDRAULIC CYLINDER
9. HYDRAULIC CONTROL UNIT

MAIN FEATURES	U.M.	DIMENSIONAL DATA
CHANNEL WIDTH (l)	m	1,0 ÷ 5,0 (*)
CHANNEL HEIGHT (h)	m	0,8 ÷ 4,0
DISCHARGE HEIGHT (h_1)	m	h + 0,8
SCREEN MAX HEIGHT (h_2)	m	(3 h_1 + 1,6) / 2
OVERALL DIMENSION (L_2)	m	0,342 h_2 + 0,2
INCLINATION (α)	°	20
FILTERING GAP (f)	mm	15 ÷ 100
POWER SUPPLY	kW	0,55 ÷ 5
WEIGHT (**)	kg	500 * l + 3150 * h_1 * l / (8 + f)

(*) For a channel width greater than the standard, the screen can work as a screen cleaner.
(**) Insert the values of l and h 1 in m and f in mm in the formula.

	NOMINAL FLOW RATE (m^3/h) (***)									
FILTERING GAPS (mm) / MODEL	15	20	30	40	50	60	70	80	90	100
GVI	1280 * l * h	1440 * l * h	1646 * l * h	1772 * l * h	1858 * l * h	1920 * l * h	1967 * l * h	2003 * l * h	2033 * l * h	2057 * l * h

(***) The flow rate in cubic meters per hour is given by the product of the appropriate coefficient by the channel width l and by the channel height h (both expressed in m).

ITC

T-shaped water intake

WHEN TO USE IT

The ITC type water intake screen is suitable for intake of fresh and sea water for small and medium flow rates and when the quality of the water to be collected does not require a complex intake work with mechanical screens; it is also used when there is no electricity on site.

HOW IT IS MADE

It consists of one or more T-shaped pipes which represent the means of intake. Indeed, the pipes are built in wedge wire bars assembled in such a way as to form one or more T-shaped pieces of piping closed on two sides and open on one side only, allowing the captured and filtered water to flow towards the suction pumps or towards other uses.

HOW IT WORKS

The incoming raw water fills the T-shaped pipe passing through the wedge wire bars and reaches the only open outlet of the T where a standard flange allows the connection to the suction pipe of the pumps or to the pipe which brings the water to subsequent steps. The structure of the machine allows a uniform distribution of the liquid on the filtering part. The water penetrates the spaces of the bars, filtering and reaching the discharge flange, while, at the same time, the screened material deposited on the bars is removed by the currents. The particular geometry of the bars allows optimization of the action of the cleaning effect due to the currents. When necessary, ITC is supplied with a water or air backwashing system assessed on a case by case basis according to actual needs.

This type of intake work has indisputable advantages due to the absence of moving parts and electric motor, the absence of civil works, low installation costs and absence of maintenance. The equipment is able to guarantee constant performance over time and silent operation.

VERSIONS

For raw water containing suspended solids of a particular nature, the equipment can be fitted with a backwashing system which is adapted each time according to the flow rates and the quality of the water. The washing system can be air or water-based.

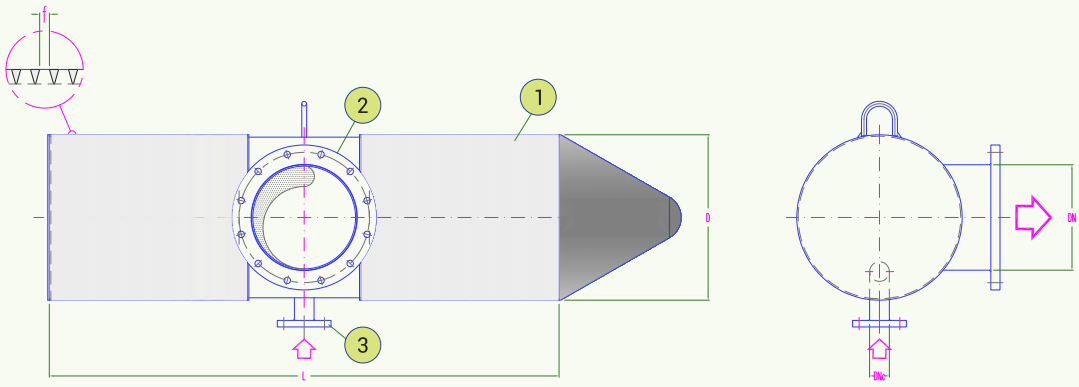
The standard design is in stainless steel.

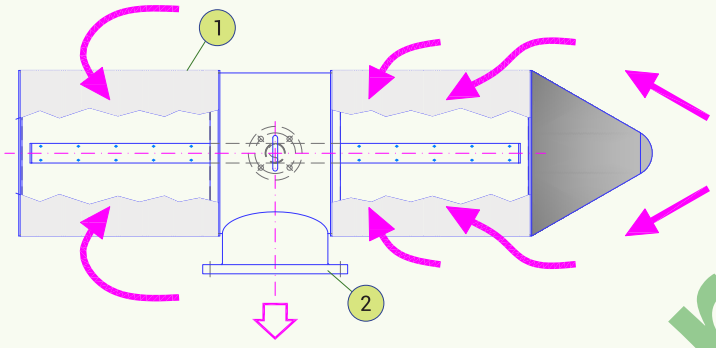
STRENGTHS ITC

- ELECTRICITY NOT REQUIRED FOR OPERATION;
- FINE SCREENING;
- LOW COSTS OF INSTALLATION AND MAINTENANCE;
- SILENT OPERATION;
- NO CIVIL WORKS REQUIRED FOR INSTALLATION;
- STURDINESS;
- SAFETY FOR FISHES AND MARINE LIFE.

T-shaped water intake ITC

T-shaped water intake ITC





LEGEND

1. FILTERING SURFACE
2. WATER SUCTION FLANGE
3. BACKWASH INLET FLANGE

MAIN FEATURES	UNIT	DIMENSIONAL DATA
FILTER SURFACE DIAMETER (D)	m	from 0,2 to 1,2
LENGTH (L)	m	from 1 to 5
FILTERING GAP (f)	mm	from 0,5 to 5
NOMINAL FLOW RATE	m^3/s	from 0,03 to 3
WATER SUCTION FLANGE DIAMETER	DN	from 200 to 1200

Rainwater spillway

WHEN TO USE IT

The SAP-type rainwater spillway is suitable for screening treatment on wastewater flood drains in civil or industrial plants.

HOW IT IS MADE

It consists of a semi-cylindrical filter screen in perforated sheet metal, or optional wedge wire bars, a screw equipped on the external profile, a cleaning brush and a sturdy gearmotor.

HOW IT WORKS

In periods of rain, the excess flow rate in the wastewater adduction channel passes into the rainwater overflow channel, crossing the semi-cylindrical filtering screen which retains suspended materials larger than its free opening. The screw cleans the filtering screen by reintroducing the deposited substances into the water flow of the main channel. The movement of the screw is generally carried out by a gearmotor, however, in cases where the power supply is not possible, the SAPS model can be used, in which the movement of the screw is guaranteed by a small turbine moved by the water of the channel.

The strengths of this machine are simple design and low maintenance that guarantee reliable and long-lasting operation.

The length and diameter of the spillway depend on the flow rate of water to be treated.

VERSIONS

The standard models are designed for small plants. However, upon request models for much greater flow rates can be obtained, identified on a case by case basis.

The standard design is in stainless steel.

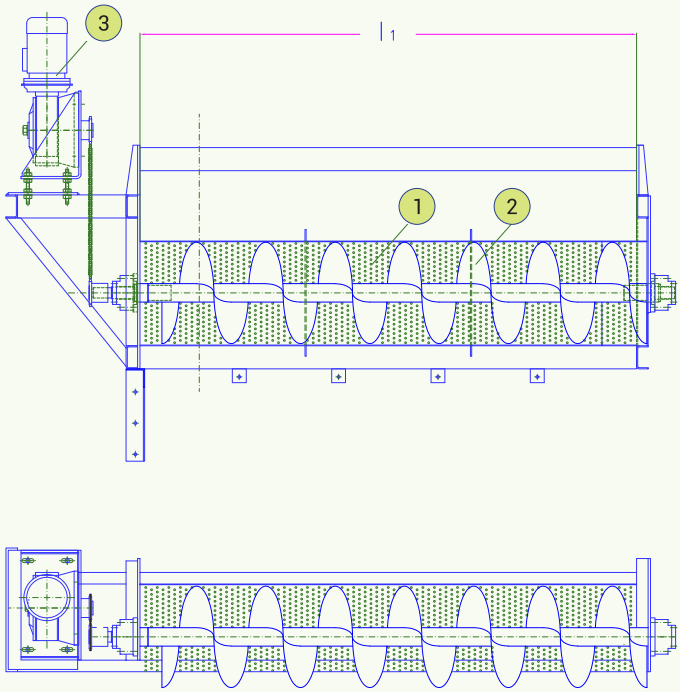
STRENGTHS SAP

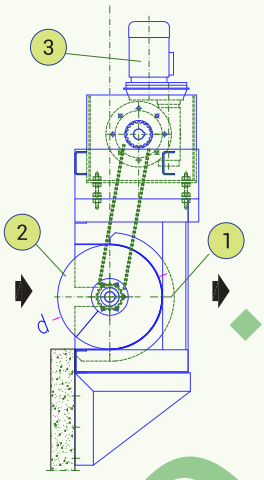
- SIMPLE DESIGN;
- VERY LOW ENERGY CONSUMPTION, NO ELECTRICAL NEED IN THE SAPS MODEL;
- LOW MAINTENANCE.

Rainwater spillway SAP

Rainwater spillway SAP

MAIN FEATURES	UNIT	NOMINAL FLOW RATE				
MODEL SAP		**SAP_15**	**SAP_20**	**SAP_25**	**SAP_30**	**SAP_40**
PANEL SCREEN WIDTH (l_1)	mm	1500	2000	2500	3000	4000
SCREW DIAMETER (d)	mm	452	452	452	452	452
FILTERING GAP (f)	mm	2 ÷ 10				
POWER SUPPLY	kW	0,75	1,1	1,1	1,5	1,5
WEIGHT	kg	335	430	525	620	810





LEGEND

1. FILTERING SCREEN
2. CLEANING SCREW
3. GEARMOTOR

FILTERING GAPS (perforated sheet metal screen) / MODEL	NOMINAL FLOW RATE (m³/h)				
	3	5	6	8	10
SAP_15	644	683	742	762	781
SAP_20	859	911	989	1016	1041
SAP_25	1073	1138	1237	1270	1302
SAP_30	1288	1366	1484	1524	1562
SAP_40	1717	1821	1979	2032	2083

FILTERING GAPS (wedge wire bars) / MODEL	NOMINAL FLOW RATE (m³/h)					
	2	3	5	6	8	10
SAP_15	930	1127	1356	1429	1531	1601
SAP_20	1240	1503	1808	1905	2041	2135
SAP_25	1550	1878	2260	2382	2552	2668
SAP_30	1860	2254	2712	2858	3062	3202
SAP_40	2480	3005	3616	3811	4083	4269

Automatic screen cleaner

WHEN TO USE IT

The SGM type automatic screen cleaner is used in the intake of large flow rates of fresh or sea water for hydroelectric power plants, intake of water for cooling, intake of water for potabilization and desalination, intake of water to industrial processes, etc.

HOW IT IS MADE

The SGM-type automatic screen cleaner is equipped with a bucket screen and represents an advanced technical solution among the automatic cleaning systems for bar screens installed in large channels.

In particular, it is essentially characterized by: a steel support structure composed of several columns which suitably support a running monorail; a trolley, which slides along the monorail, equipped with four wheels mounted on suitable supports, of which at least two are powered by a gearmotor. The power supply of the components inside the mobile trolley is guaranteed by either a festoon multipolar cable or an electric cable reel; an electric hoist, installed on the trolley, which, by means of two sturdy steel ropes wrapped around a drum, supports the screening bucket during its upward and downward runs to and from the channel. The hoist is equipped with a self-braking gearmotor, positioning sensors and electromechanical overload protection devices; two double-acting hydraulic pistons, made of stainless steel and with high quality components, for opening/closing the bucket. The pistons are powered by a hydraulic control unit installed on the trolley; there is also a bucket screen for collecting the screened material.

HOW IT WORKS

The bucket is characterized by a fixed lower scraper comb which is always in contact with the bars of the screen, made up of sturdy plates having the same center distance as the bars, which drags the screened material to the bottom of the channel during the downward run, and an upper rotating bucket, driven directly by the two pistons, which hold firmly the screened material coming from the bottom of the channel during the upward run.

The SGM model is particularly flexible and efficient because at the same time it is able to guarantee the thorough cleaning of the bar screens, the transport of the screened material for discharging in dedicated areas, such as isolated areas on the side of the channel.

In particular, the SGM screen cleaner can also follow curved trajectories or mixed straight and curved paths, thus offering the possibility of cleaning screens even very far from each other and not necessarily arranged next to one another. The operation, manual or completely automatic, can also involve single portions of the screens during maintenance phases of other screens or during channel emptying operations.

VERSIONS

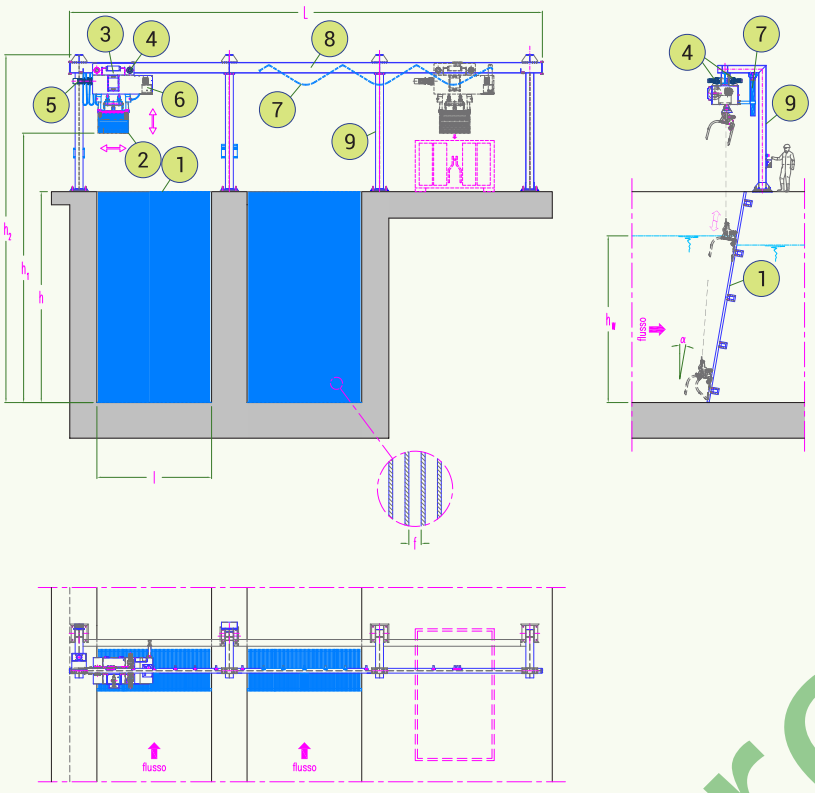
Upon request, the SGM2 cleaning system can be supplied with two screen cleaners which can work simultaneously on the same structure, if required, or one is in a rest phase or in reserve, while the other is in use.

STRENGTHS SGM

- FAST CLEANING OF VERY LARGE CHANNELS;
- POSSIBILITY OF DISCHARGING THE SCREENED MATERIAL AT RELATIVELY LARGE DISTANCES;
- POSSIBILITY OF WORKING ON NON-STRAIGHT SCREENS;
- VERY COMPACT CLEANING BLOCK;
- REMOTE CONTROL AT SIGHT.

Overview with mobile automatic cleaner SGM

Overview with mobile automatic cleaner SGM



SGM

LEGEND

1. FILTER PANEL
2. BUCKET
3. TROLLEY
4. GEARMOTOR FOR LATERAL MOUVEMENT
5. GEARMOTOR FOR BUCKET LIFTING
6. HYDRAULIC UNIT FOR OPERATING THE BUCKET OPENING/CLOSING PISTON
7. FESTOON CABLE
8. MONORAIL
9. SUPPORT PILLAR

MAIN FEATURES	UNIT	DIMENSIONAL DATA
CHANNEL WIDTH	m	10 ÷ 50
MAX CHANNEL HEIGHT (h)	m	25
GRAB BUCKET WIDTH	m	1,8
MAX BUCKET OPENING	m	1000
FILTERING GAP (MIN/MAX)	mm	25/200
BUCKET MAX LOAD	kg	1000
INSTALLED POWER (HOIST)	kW	5,5
INSTALLED POWER (TROLLEY)	kW	2 x 0,55
INSTALLED POWER (HYDRAULIC)	kW	2,2
BUCKET SPEED (MIN/MAX)	m/min	10/20
TRANSVERSE SPEED (MIN/MAX)	m/min	20/40
TOTAL WEIGHT TROLLEY/BUCKET (EXCLUDING SLIDING BEAM)	kg	2600

SGPSA

Automatic screen cleaner on rails

WHEN TO USE IT

The SGPSA-type automatic screen cleaner with pendulum bucket represents an advanced technical solution to the problem of cleaning large bar grids, installed near intake channels for sea, lake or river water, and large water treatment plants.

HOW IT IS MADE

In particular, this machine is essentially characterized by: a mobile trolley reinforced to withstand the upward, downward and overturning loads which it is subjected to by the weight of the bucket; a set of rails installed on the upper level of the channel; four wheels for moving the trolley, at least two of which are powered by a gearmotor; supply of the components on board of the trolley with an electric cable reel or a festoon multipolar cable; an electric hoist, installed in the upper part of the mobile frame, with three steel ropes wrapped on a drum, of which two are placed more externally, to support the bucket during the upward and downward runs to and from the channel, and the third, centrally positioned, necessary to guarantee the opening and closing of the bucket via an electric actuator; the hoist is equipped with a self-braking gearmotor and electromechanical overload protection devices; a pendulum type oscillating bucket complete with sliding rollers on the bars of the screen; the bucket remains open during the downward run, and then closes at the bottom of the channel lifting the screened material during the upward run.

HOW IT WORKS

The SGPSA screen cleaner performs three important functions in a single machine, namely: the effective cleaning of the screens, the retention of the screened material and, finally, its discharge.

The removal of the screened material in particular, can take place either by discharging it in dedicated areas accessed by the moving machine, through the tipper body when it has reached maximum filling, or from time to time directly from the bucket after the upward run from the screen, inside channels that run parallel to the rails.

The operation, which can be either manual, via push-button panel and remote control, or automatic, can also concern individual portions of the screens during the maintenance of the other screens or the emptying of the channels.

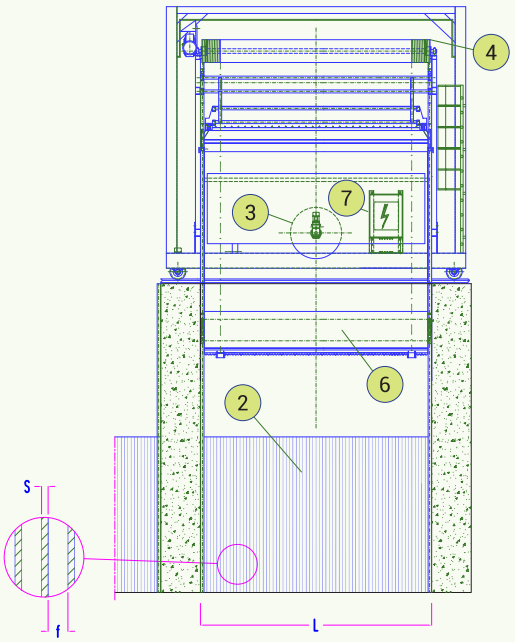
VERSIONS

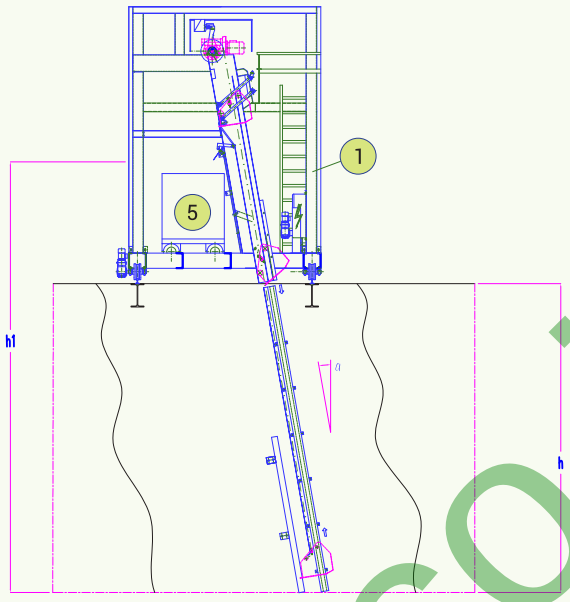
Upon request, the trolley can be equipped with a tipper body suitable for collecting and then discharging the screened material in special areas alongside the channels.

Automatic screen cleaner on rails SGPSA

Automatic screen cleaner on rails SGPSA

Automatic screen cleaner on rails SGPSA





LEGEND

1. FRAME
2. SCREEN
3. CABLE DRUM
4. LIFTING DRUM
5. DEBRIS TROLLEY
6. BUCKET
7. CONTROL PANEL

MAIN FEATURES	UNIT	DIMENSIONAL DATA
MODEL SGPSA		**MEDIUM**
MAX CHANNEL WIDTH	m	5÷20
MAX CHANNEL HEIGHT (h)	m	25
MAX BUCKET WIDTH	m	5
MAX FRAME WIDTH	m	6
FRAME HEIGHT	m	3,6
FRAME LENGTH	m	2,6
FILTERING GAP (MIN/MAX)	mm	25/200
MAX BUCKET LOAD	kg	1000
INSTALLED POWER (HOIST)	kW	5,5
INSTALLED POWER (TRANSLATION)	kW	2x2,2
INSTALLED POWER (HYDRAULIC)	kW	0,55
BUCKET SPEED (MIN/MAX)	m/min	6/12
LATERAL SPEED	m/min	6
TOTAL WEIGHT FRAME/BUCKET	kg	6600

Static screen

WHEN TO USE IT

The VS type static screen is recommended for the fine screening treatment of civil or industrial wastewater and is used when there is no electricity on site or when it is required to avoid motorized machines.

HOW IT IS MADE

It consists of a frame made of profiles and press-bended steel sheets forming the double acting water supply-discharge chamber (supporting structure of the screen), a filtering screen consisting of suitably spaced wedge wire bars and, in the VSV model, an electromechanical vibrator.

HOW IT WORKS

The incoming raw water fills the supply chamber and reaches the top of the screen. The structure of the machine allows a uniform distribution of the liquid on the filtering screen. The water penetrates the interspaces of the screen, is filtered and reaches the discharge chamber, while, at the same time, the screened material flows along the screen and reaches the discharge area aided by gravity. The particular geometry of the screen allows the slowdown of the screened material during its fall and therefore its partial dewatering. To optimize the operation of the machine in relation to the type of water to be treated, it is possible to change the inclination of the filtering screen by means of a special adjustment knob.

This type of equipment has indisputable advantages such as the absence of moving parts and electric motor, low installation costs and very low maintenance requirements. The screen is able to guarantee constant performance over time and quiet operation.

STRENGTHS VS

- NO NEED FOR ELECTRICITY;
- LOW INSTALLATION AND MAINTENANCE COSTS;
- SILENT OPERATION;
- EASY OPERATION;
- STURDINESS.

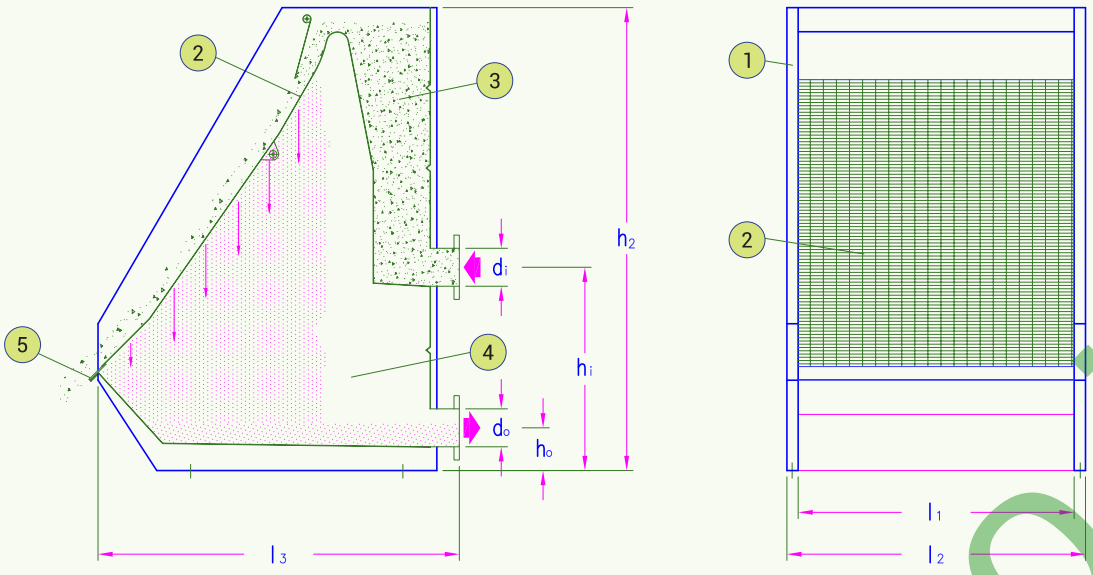
VERSIONS

For raw water containing suspended solids of a particular nature, it is possible to request the VSV-type model, which implements an electromechanical vibrator in the structure which facilitates the removal of the solid material deposited on the filtering screen.

The standard design is in stainless steel.

System overview with static screen VS

Static screen VS



LEGEND

1. FRAME
2. FILTERING SCREEN
3. INLET CHAMBER
4. DISCHARGE CHAMBER
5. SCREENED MATERIAL DISCHARGE
6. ELECTROMECHANICAL VIBRATOR (OPTION)

MAIN FEATURES	UNIT	DIMENSIONAL DATA					
MODEL VS		**VS0040 (*)**	**VS0300**	**VS0600**	**VS1200**	**VS1500**	**VS1800**
PANEL SCREEN WIDTH (l_1)	mm	500	304	608	1219	1524	1829
MAX WIDTH (l_2)	mm	550	390	694	1305	1610	1915
MAX LENGTH (l_3)	mm	635	1350	1350	1600	1600	1600
MAX HEIGHT (h_2)	mm	1050	2100	2100	2100	2150	2200
WATER INLET HEIGHT (h_i)	mm	865	1325	1325	1352	1378	1405
WATER OUTLET HEIGHT (h_o)	mm	65	180	180	206	233	259
INLET NOMINAL DIAMETER (d_i) (*)	DN	65	80	100	150	200	250
OUTLET NOMINAL DIAMETER (d_o) (*)	DN	100	125	150	200	250	300
EMPTY WEIGHT	Kg	95	195	258	357	424	491
MAX WORKING WEIGHT	Kg	146	300	450	860	1170	1530

(*) Diameters valid for filtration opening f=1,5 mm

	NOMINAL FLOW RATE (m³/h)								
FILTERING GAPS (mm) / **MODEL**	**0,25**	**0,5**	**0,75**	**1**	**1,25**	**1,5**	**2**	**2,5**	**3**
VS0040	8	15	21	26	30	34	40	45	49
VS0300	11	19	26	32	37	42	49	55	59
VS0600	21	38	52	64	75	83	98	110	119
VS1200	42	76	105	129	150	167	197	220	238
VS1500	53	96	131	161	187	209	246	275	298
VS1800	63	115	157	194	224	251	295	330	357

VTR

Rotating drum screen

WHEN TO USE IT

The VTR type rotating drum screen for micro-screening is installed on medium and large civil and industrial wastewater treatment plants, when it is required to carry out a fine screening of water which flows in pipes or hanging channels.

HOW IT IS MADE

The screen consists of a frame; a rotating drum with cylinder made of wedge wire bars, perforated sheet metal or metal mesh panels; a flanged inlet pipe; an inlet water distribution channel; a gearmotor; a system of nozzles for cleaning the filtering screen; a transport spiral and a discharge hopper for the screened material.

HOW IT WORKS

The incoming water is enters into the screening drum through a flanged pipe and the central channel and is distributed on the surface of the drum by one or more spillway blades. The water passes through the drum from the inside out, touching the surface of the wedge wire bars. The solid elements, deposited on the internal surface of the screen, are dragged out by a spiral which is integrated with the rotating drum. A system of nozzles ensures continuous washing of the drum, to constantly guarantee the maximum filtration surface.

OPERATION ADJUSTMENT AND SAFETY

To optimize its operation, upon request the machine can be equipped with a variable speed gearmotor that regulates the rotation speed of the drum or alternatively with VFD. Protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters. In order to ensure operation in all conditions, the machine can be equipped with probes that measure the clogging of the filtering medium of the drum, the temperature of bearings and motors, the humidity of the screened material at the outlet, etc.
The standard design is in stainless steel.

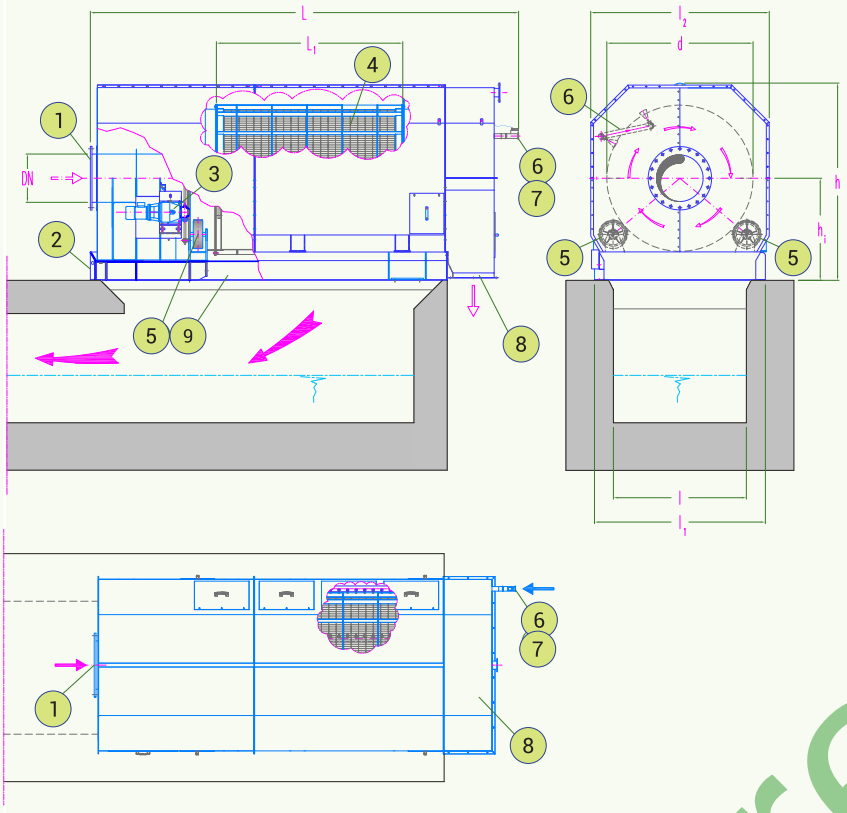
STRENGTHS VTR

- SUITABLE FOR MICRO-SCREENING;
- PARTICULARLY SUITABLE FOR PRE-TREATMENT UPSTREAM MBR SYSTEMS;
- POSSIBILITY OF TREATING LARGE SPECIFIC FLOW RATES;
- LOW HEAD LOSE;
- STURDINESS.

Rotating drum screen VTR

Rotating drum screen VTR

Rotating drum screen VTR



LEGEND

1. SEWAGE INLET
2. FRAME
3. GEARMOTOR
4. ROTATING DRUM
5. SUPPORT WHEEL
6. WASHING SYSTEM
7. VALVE
8. SCREENED MATERIAL DISCHARGE
9. FILTERED WATER OUTLET

MAIN FEATURE	UNIT	DIMENSIONAL DATA								
MODEL VTR		**09/09**	**15/09**	**20/09**	**20/15**	**25/15**	**30/15**	**30/18**	**40/18**	**50/18**
DRUM DIAMETER (d)	mm	900	900	900	1500	1500	1500	1780	1780	1780
DRUM LENGTH (l_1)	mm	900	1500	2000	2000	2500	3000	3000	4000	5000
MAX WIDTH (l_2)	mm	1360	1360	1360	2090	2090	2090	2900	2900	2900
MAX LENGTH (L)	mm	2110	2710	3210	3520	4020	4520	4770	5980	7150
BASE DISTANCE (h_1)	mm	900	900	900	1550	1550	1550	1850	1850	1850
MAX HEIGHT (h)	mm	1218	1218	1218	1810	1810	1810	2150	2150	2150
INLET DIAMTER PN 10 (DN) (*)	DN	250	300	350	450	500	550	600	650	700
POWER SUPPLY	kW	0,75	0,75	1,1	1,1	1,5	2,2	2,2	3	3
EMPTY WEIGHT	kg	640	880	990	2280	2320	2580	4050	4370	4780
WORKING WEIGHT	kg	1040	1280	1740	4080	4540	5190	6350	7400	8600

	NOMINAL FLOW RATE (m^3/h)									
FILTERING GAPS (mm) / **MODEL**	**0,25**	**0,50**	**0,75**	**1**	**1,5**	**2**	**2,50**	**3**	**4**	**5**
VTR 09/09	91	165	226	278	361	424	473	513	574	618
VTR 15/09	151	275	377	464	601	707	789	856	957	1030
VTR 20/09	202	366	503	618	802	942	1052	1141	1276	1374
VTR 20/15	336	611	838	1030	1337	1570	1754	1902	2127	2290
VTR 25/15	421	763	1048	1288	1671	1963	2192	2378	2659	2862
VTR 30/15	505	916	1257	1545	2005	2355	2631	2853	3191	3434
VTR 30/18	599	1087	1492	1834	2379	2795	3122	3386	3786	4075
VTR 40/18	798	1449	1989	2445	3172	3726	4162	4514	5048	5434
VTR 50/18	998	1811	2487	3057	3965	4658	5203	5643	6310	6792

VTR1

Central flow large diameter rotating drum filter

WHEN TO USE IT

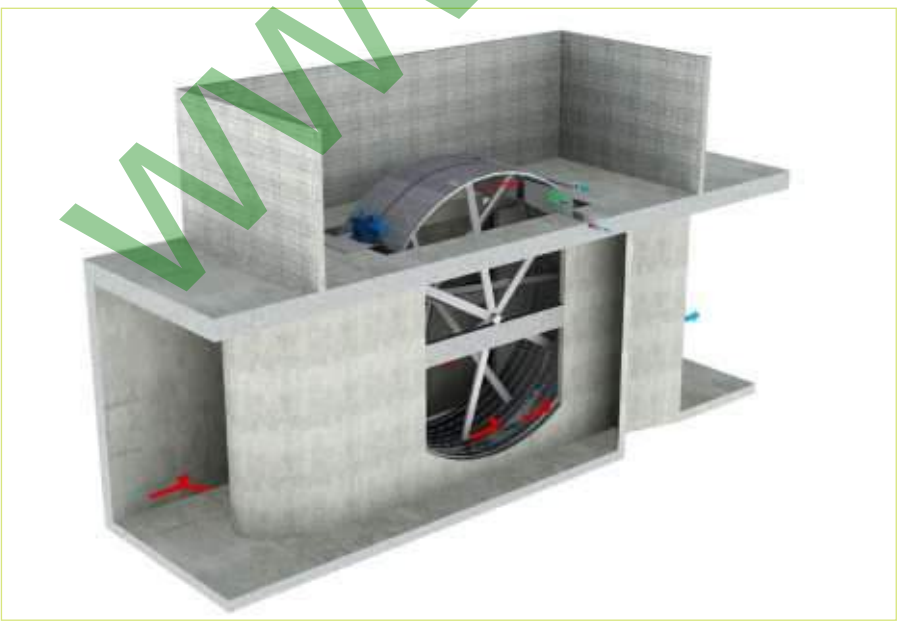
The VTR1 filter is particularly suitable for installation in intake channels for sea, lake or river water, deeper than 4-5 meters and for water to be used after filtration for cooling in industrial processes, desalination, potabilization and in other production processes in general.

HOW IT IS MADE

The machine is essentially composed of: a sturdy cylindrical-shaped bearing structure stiffened by means of steel profiles arranged in a radial pattern, ideal for having a large free cylindrical surface which is at the same time very robust and able to withstand heavy loads such as rotation in water and the thrusts of the hydraulic flow; a series of filter panels bolted to the above structure and easily removable, each panel consists of a frame and a filtering screen in square mesh or perforated sheet metal; a rotating shaft supporting the entire structure; two sturdy supports mounted on the sides of the drum and equipped with special bearings lubricated for life for continuous operation even in water, appropriately sized to support the drum during rotation; a gearmotor with cylindrical gears for the rotation of the drum by means of a pinion which meshes with the rack; a counter-current washing bar of the filtering surface, from the inside to the outside, complete with high-pressure nozzles; a hopper for collecting the screened material and washing water; a sealing system consisting of gaskets mounted between the rotating drum and a fixed steel part mounted on the channel wall. Protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters. Its simple design and fully automatic cleaning allow this filter to always guarantee high performance and reliability over time.

STRENGTHS VTR1

- MACHINE SUITABLE FOR MEGA FLOW RATES;
- MADE ENTIRELY OF STAINLESS STEEL AND RECYCLABLE MATERIALS;
- BEARINGS LUBRICATED FOR LIFE;
- SIMPLE AND LOW COST CIVIL WORKS;
- LOW ROUTINE MAINTENANCE.



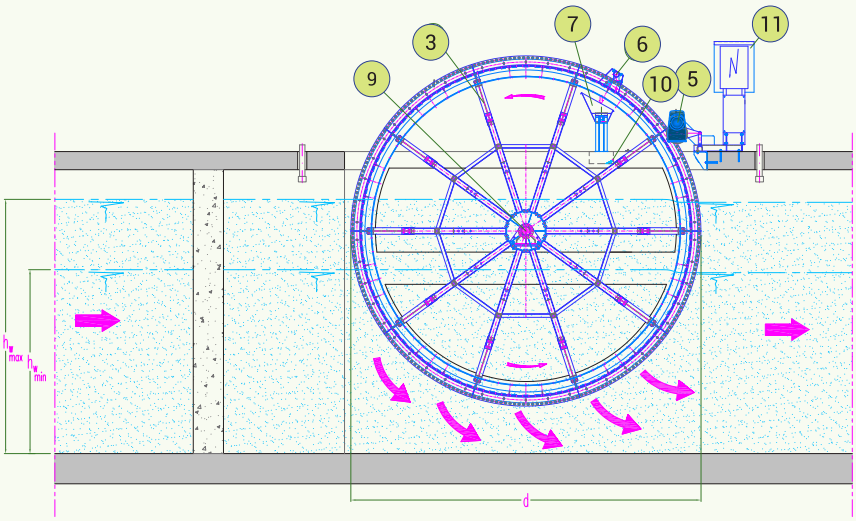
Central flow large diameter rotating drum filter VTR1

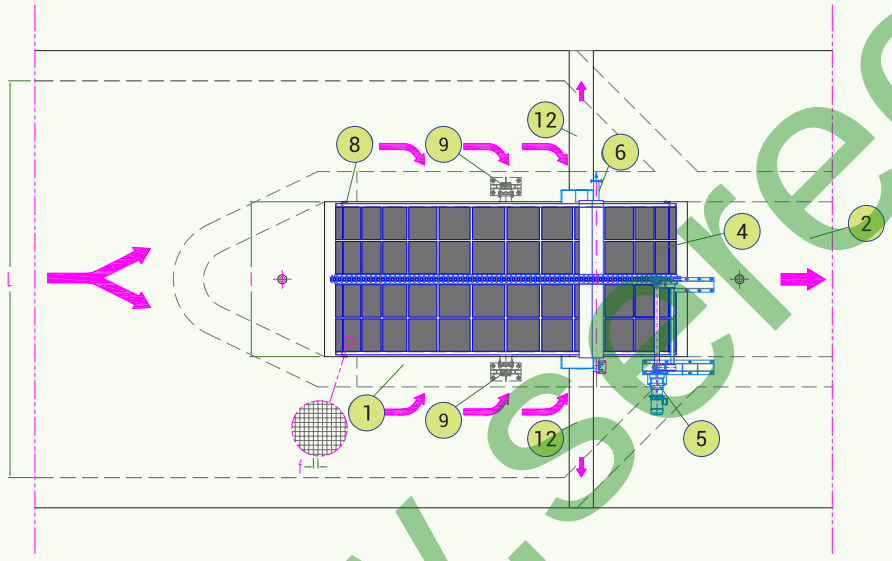
HOW IT WORKS

The water that arrives in the channel near the filter divides into two streams and enters the filter in an axial direction from both sides; the central front surface of the filter is closed and forces the flow itself to cross the cylindrical surface, made up of filter panels, from the inside out. The water recombines after filtration, crossing the entire immersed area of the drum and continues its motion along the downstream channel. The screened material held on the inside of the filter is pushed into the two hoppers by the washing water which is sprayed from the outside towards the inside.

VERSIONS

Upon request, it can be equipped with a control panel that allows automatic starting and stopping of the machine controlled by differential level meters.
The VTR2 version of this filter is also available, with filtration taking place from the outside towards the inside.





LEGEND

1. SEWAGE INLET
2. WATER OUTLET
3. ROTATING DRUM
4. FILTER PANELS
5. GEARMOTOR
6. WASHING WATER INLET
7. SCREENED MATERIAL HOPPER
8. FRONT SEAL
9. DRUM SUPPORTS
10. BACKWASH SYSTEM
11. CONTROL PANEL
12. SCREENED MATERIAL DISCHARGE

MAIN FEATURES	UNIT	DIMENSIONAL DATA
DRUM DIAMETER	m	from 5 to 22
DRUM WIDTH	m	from 1 to 5
FILTERING GAP	mm	from 1 to 10
NOMINAL FLOW RATE	m^3/s	from 1,5 to 38
CHANNEL WIDTH	m	from 1,5 to 8
CHANNEL DEPTH	m	from 5 to 22
POWER SUPPLY	kW	from 2,2 to 30

VTR2

Side flow large diameter rotating drum filter

WHEN TO USE IT

The VTR2 filter is particularly suitable for installation in intake channels for sea, lake or river water, deeper than 4-5 meters and for water to be used after filtration for cooling in industrial processes, desalination, potabilization and in other production processes in general.

HOW IT IS MADE

The machine is essentially composed of: a sturdy cylindrical-shaped bearing structure stiffened by means of steel profiles arranged in a radial pattern, ideal for having a large free cylindrical surface which is at the same time very robust and able to withstand heavy loads such as rotation in water and the thrusts of the hydraulic flow; a series of filter panels bolted to the above structure and easily removable, each panel consists of a frame and a filtering screen in usually square mesh; a rotating shaft supporting the entire structure; two sturdy supports mounted on the sides of the drum and equipped with special bearings lubricated for life for continuous operation even in water, appropriately sized to support the drum during rotation; a gearmotor with cylindrical gears for the rotation of the drum by means of a pinion which meshes with the rack; two counter-current washing bars of the filtering surface, from the inside to the outside, complete with high pressure nozzles; a hopper for collecting the screened material and washing water; a sealing system consisting of gaskets mounted between the rotating drum and a fixed steel part mounted on the channel wall. Protection against overloads is guaranteed by standard dynamometric devices or, upon request, by electronic absorption limiters. Its simple design and fully automatic cleaning allow this filter to always guarantee high performance and reliability over time.

HOW IT WORKS

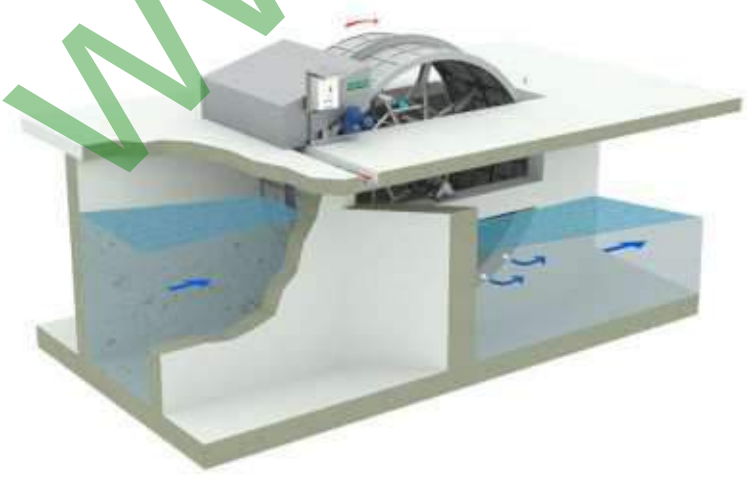
The water that arrives in the channel near the filter is conveyed towards the external surface of the drum and in particular over the entire submerged surface and is subsequently filtered passing through the internal part of the drum emerging from the 2 sides in the axial direction; the central surface of the channel downstream of the filter is closed and forces the flow itself to divide into two parts to recombine after the filter. The screened material held on the outside of the filter is pushed into the hopper by the washing water which is sprayed from the inside out.

VERSIONS

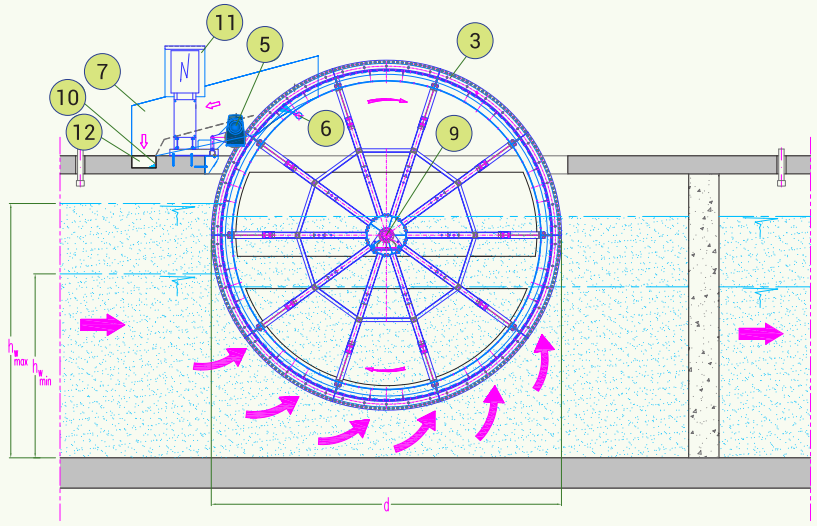
Upon request, it can be equipped with a control panel that allows automatic starting and stopping of the machine controlled by differential level meters.
VTR1 version of this filter is also available, with filtration taking place from the inside out.

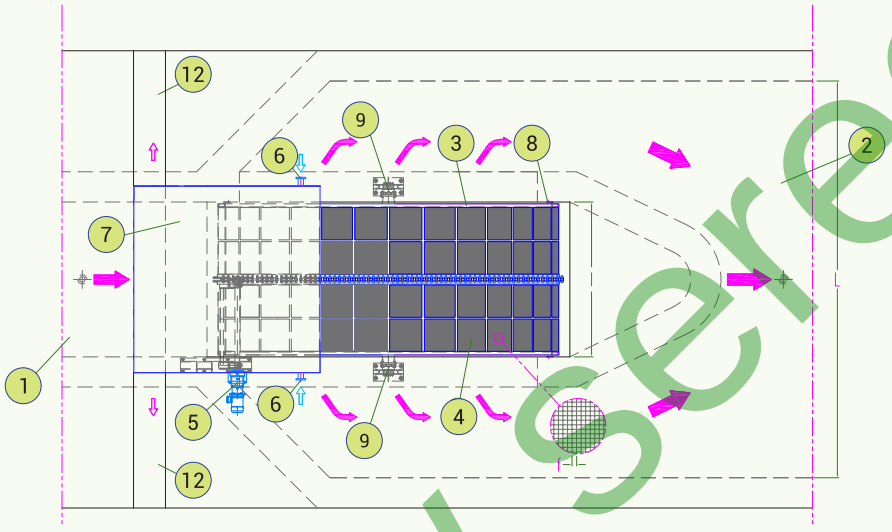
STRENGTHS VTR2

- MACHINE SUITABLE FOR MEGA FLOW RATES;
- MADE ENTIRELY OF STAINLESS AND RECYCLABLE MATERIALS;
- BEARINGS LUBRICATED FOR LIFE;
- SIMPLE AND EASILY ACHIEVABLE CIVIL WORKS;
- LOW ROUTINE MAINTENANCE.



Side flow large diameter rotating drum filter VTR2





LEGEND

1. SEWAGE INLET
2. WATER OUTLET
3. ROTATING DRUM
4. FILTER PANELS
5. GEARMOTOR
6. WASHING WATER INLET
7. SCREENED MATERIAL HOPPER
8. FRONT SEAL
9. DRUM SUPPORTS
10. BACKWASH SYSTEM
11. CONTROL PANEL
12. SCREENED MATERIAL DISCHARGE

MAIN FEATURES	UNIT	DIMENSIONAL DATA
DRUM DIAMETER	m	from 5 to 22
DRUM WIDTH	m	from 1 to 5
FILTERING GAP	mm	from 1 to 10
NOMINAL FLOW RATE	mc^3/s	from 1,5 to 38
CHANNEL WIDTH	m	from 1,5 to 8
CHANNEL DEPTH	m	from 5 to 22
POWER SUPPLY	kW	from 2,2 to 30

SERECO®

COMPACTORS GENERAL CATALOGUE

Together with you for a sustainable future

The screening of the civil or industrial wastewater treatment plant hold the solid material which often contain too much water and/or faecal material. Therefore, it cause an increase of the storage and transport costs. Compactors solve the problem washing, compacting and dewatering the screened material.
SERECO's range includes the most commonly used compactors for these applications, that is hydraulic or screw compactors.
In order to simplify the choice of the compactor shape suitable to the specific application, the sheets contain, in addition to the nominal flow rate of each model, three useful selection tables. When choosing the suitable compactor model, the selection table for the case is identified, and the type of compactor corresponding to the nominal flow rate of the plant (in m3/day), based on the filtering span of the upstream screen feeding the compactor.
The values in these tables are based on the fact that many compactors are used downstream of rough or fine screens, in order to compact the screened material. Often, compactors work for a conveyor that collects and conveys the screened material from several screens. The screened material quantity depends, in this case, on the screen number and on their filtration opening.
Of course, the values are theoretical and refer to medium-load civil sewage, with the only aim of making it easier to identify the model of compactor.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND READY FOR SHIPMENT FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

Hydraulic compactor-conveyor

WHEN TO USE IT

The hydraulic compactor-conveyor type CTG is used whenever there is a screened material coming from WWTP that needs to be compacted in order to reduce its volume and its water content and thus facilitate its transport for disposal. It can be installed to receive the screened material from any type of screen, but its use is limited if the washing of the screened inside the compactor is required.

HOW IS IT MADE

The CTG consists of a loading hopper, a compacting system that, in turn, consists of a pressing chamber, a clutch cylinder, a double-acting hydraulic cylinder and a hydraulic control unit; a conveyance piping of the compacted material, which size can be adapted to the customers' requirements.

HOW DOES IT WORK

The screened material from the screens falls in the hopper by means of a closed channel to prevent the diffusion of bad odours. The hopper is directly connected from the bottom to the pressing chamber, where the clutch cylinder with alternate motion continuously pushes the screened material in the direction of the conveyance piping. The water drained by the compaction process is collected in a special tank, from which it is piped back to the head of the system.

VARIATIONS

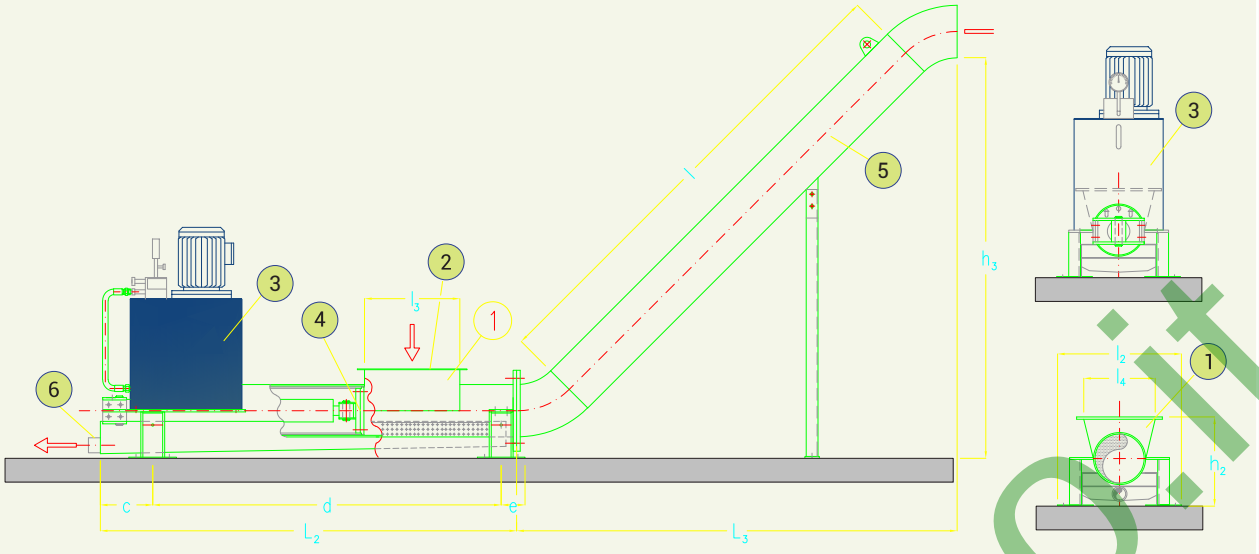
The standard construction of this machine is in 316L stainless steel, but upon request, it can be supplied in other types of stainless steel on the market. On request, it is also available the variation in hot dip galvanized steel.

STRENGTHS CTG

- HIGH RESISTANCE AND PRESSING FORCE DUE TO THE HYDRAULIC SYSTEM;
- POSSIBILITY OF OPERATION COMPLETELY UNDERWATER;
- EXCELLENT DEWATERING AND COMPACTION CAPACITY;
- EXCELLENT TRANSPORT CAPACITY WITH HYDRAULIC HEADS UP TO 5 M;
- COMPLETELY CLOSED EXECUTION THAT PREVENTS THE SPREAD OF UNPLEASANT ODOURS;
- POSSIBILITY OF UNLOADING DIRECTLY INTO POLYETHYLENE BAGS FOR MAXIMUM HYGIENE;
- VERY LOW MAINTENANCE.

Hydraulic compactor-conveyor

Hydraulic compactor-conveyor



LEGEND

1. LOADING HOPPER
2. LOADING HOPPER FLANGE
3. HYDRAULIC CONTROL UNIT
4. COMPACTING CYLINDER
5. DRAIN PIPE
6. DRAINAGE WATER OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA			
MODEL		CTG 200	CTG 250	CTG 300	CTG 500
LENGTH (L_2)	mm	1760	1798	1798	2328
WIDTH (l_2)	m	520	567	655	807
HEIGHT (h_2)	mm	375	450	550	700
MAX INPUT FLOW RATE	m^3/h	1,3	2	3,4	8
MAX OUTPUT FLOW RATE	m^3/h	0,4	0,7	1,1	2,1
INSTALLED POWER	kW	1,1	2,2	4	7,5
WEIGHT	kg	280	320	380	555

MACRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	NOMINAL SYSTEM CAPACITY (m3/day)		
	10	20	50
CTG 200	0 ÷ 37500	0 ÷ 55000	0 ÷ 100000
CTG 250	0 ÷ 57500	0 ÷ 87500	0 ÷ 150000
CTG 300	0 ÷ 97500	0 ÷ 150000	0 ÷ 225000
CTG 500	0 ÷ 105000	0 ÷ 162500	0 ÷ 275000

CTG compactor selection table for civil waste water treatment plants, based on flow rate and upstream macro-screened light.

MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	NOMINAL SYSTEM CAPACITY (m3/day)			
	1	2	3	5
CTG 200	0 ÷15000	0 ÷ 17500	0 ÷ 20000	0 ÷ 25000
CTG 250	0 ÷ 22500	0 ÷ 27500	0 ÷ 30000	0 ÷ 37500
CTG 300	0 ÷ 37500	0 ÷ 45000	0 ÷ 50000	0 ÷ 62500
CTG 500	0 ÷ 42500	0 ÷ 50000	0 ÷ 57500	0 ÷ 67500

CTG compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.

MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	NOMINAL SYSTEM CAPACITY (m3/day)			
	1	2	3	5
CTG 200	0 ÷ 17500	0 ÷ 21000	0 ÷ 25000	0 ÷ 33000
CTG 250	0 ÷ 27500	0 ÷ 32500	0 ÷ 37500	0 ÷ 50000
CTG 300	0 ÷ 45000	0 ÷ 45000	0 ÷ 62500	0 ÷ 87000
CTG 500	0 ÷ 50000	0 ÷ 55500	0 ÷ 67500	0 ÷ 95000

CTG compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.

Screw screening compactor-conveyor

WHEN TO USE IT

The screw screenings compactor-conveyor CTGC type is used whenever there is a screened material coming from WWTP that needs to be washed and compacted in order to reduce its volume and its water content and thus facilitate its transport for disposal. It can be installed to receive the screened material from any type of screen.

HOW IS IT MADE

The CTGC consists of a screened material loading hopper, a shaft-less screw conveyor, in treated steel, a washing chamber, a drain-pressing pipe consisting of a series of bars with a trapezoidal cross-section and a drainage outlet provided with a hinged closure with counterweight, which on request can be replaced by a clutch pipe with a discharge pipe sized according to specific customer requirements.

HOW DOES IT WORK

The screened material is conveyed from the loading hopper through the screw turns where it is pushed to the pressing zone. At the end of the pressing chamber, the counterweight prevents the material outcoming, creating the required compression effect. The material, continuously pushed by the screw rotation is compressed and, at the same time, de-watered. The screened material outcoming occurs when the compression force is the same as the counterweight force. The movement of the screw is provided by a gearmotor. Moreover, a thick layer of antifriction material protects the channel from the abrasive effect of the screw rotation.

STRENGTHS CTGC

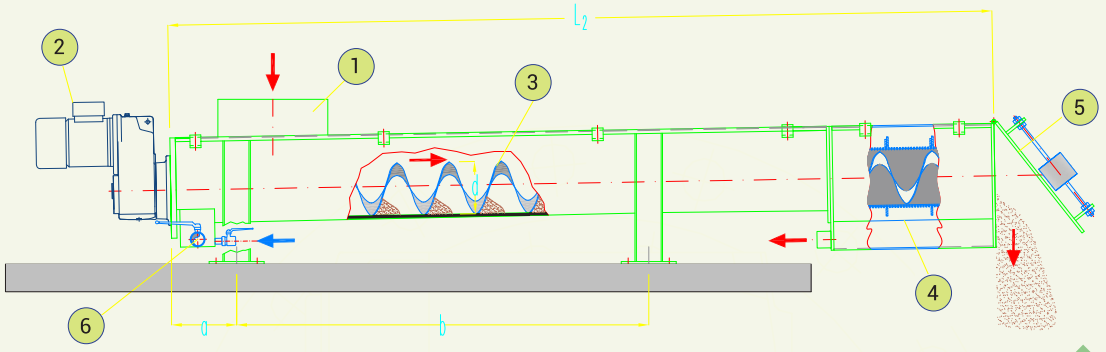
- EXCELLENT DEWATERING AND COMPACTION CAPACITY;
- STURDINESS THANKS TO THE LENGTH OPTIMIZED ACCORDING TO THE DIAMETER;
- EXCELLENT OPERATION ALSO WITH FILAMENTOUS SCREENED MATERIALS THANK TO THE SHAFT LESS SCREW;
- POSSIBILITY OF CONTINUOUS WASHING OF THE SCREEN AND COMPACTION CHAMBER;
- VERY LOW MAINTENANCE.

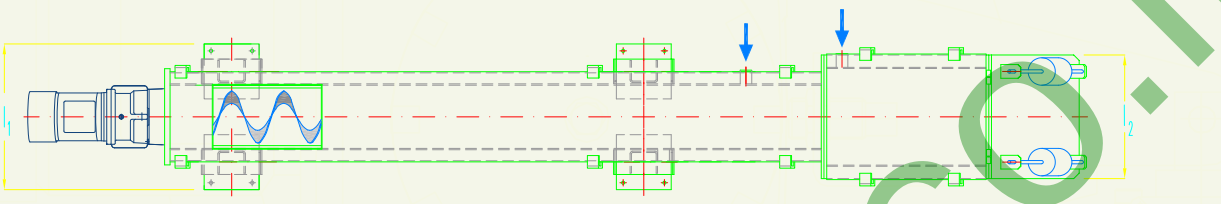
VARIATIONS

The standard construction of this machine is in 316L stainless steel, but upon request, it can be supplied in other types of stainless steel on the market. On request, it is also available the variation in hot dip galvanized steel.

Screw screening compactor-conveyor

Screw screening compactor-conveyor





LEGEND

1. LOADING HOPPER
2. GEARMOTOR
3. COMPACTING SCREW
4. DRAINAGE CHAMBER
5. HINGED CLOSING ELEMENT WITH COUNTERWEIGHT
6. DRAINAGE WATER OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA		
MODEL		CTGC200	CTGC250	CTGC350
COIL DIAMETER (d)	mm	190	240	340
LENGTH (L_2) (*)	m	3	3	3
WIDTH (l_2)	mm	530	570	670
MAX INLET FLOW RATE	m³/h	2,0	4,0	8,0
MAX OUTLET FLOW RATE	m³/h	1,2	2,4	4,8
INSTALLED POWER	kW	1,5	2,2	3
WEIGHT	Kg	550	650	770

(*) Non-standard lengths can be obtained on request.

	NOMINAL SYSTEM CAPACITY (m3/day)		
MACRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	10	20	50
CTGC 200	0 ÷ 57500	0 ÷ 87500	0 ÷ 150000
CTGC 250	0 ÷ 115000	0 ÷ 175000	0 ÷ 300000
CTGC 350	0 ÷ 230000	0 ÷ 350000	0 ÷ 600000

CTGC compactor selection table for civil waste water treatment plants, based on flow rate and upstream macro-screened light.

	NOMINAL SYSTEM CAPACITY (m3/day)			
MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	1	2	3	5
CTGC 200	0 ÷ 22500	0 ÷ 27500	0 ÷ 30000	0 ÷ 37500
CTGC 250	0 ÷ 45000	0 ÷ 55000	0 ÷ 60000	0 ÷ 75000
CTGC 350	0 ÷ 90000	0 ÷ 110000	0 ÷ 120000	0 ÷ 150000

CTGC compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.

	NOMINAL SYSTEM CAPACITY (m3/day)			
MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm) / MODEL	1	2	3	5
CTGC 200	0 ÷ 27500	0 ÷ 32000	0 ÷ 37500	0 ÷ 50000
CTGC 250	0 ÷ 55000	0 ÷ 64000	0 ÷ 75000	0 ÷ 100000
CTGC 350	0 ÷ 110000	0 ÷ 125000	0 ÷ 150000	0 ÷ 200000

CTGC compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.

CTGCW

Screw screening washer and compactor-conveyor

WHEN TO USE IT

The screw screening washer and compactor-conveyor CTGCW type is used whenever there is a screened material coming from WWTP that needs to be washed and compacted in order to reduce its volume and its water content and thus facilitate its transport for disposal. It can be installed to receive the screened material from any type of screen.

HOW IS IT MADE

The CTGCW consists of a screened material loading hopper equipped with a special screenings washing mixer, a shaft-less screw conveyor, a drain-pressing pipe, an automatic washing water supply and drainage system.

HOW DOES IT WORK

The screened material, which flows into the loading hopper, is automatically washed with water at a predetermined frequency in order to minimise the soluble organic matter content. Then, the screened material passes between the coils of the screw, from which it is pushed to the pressing area. The movement of the screw is provided by a gearmotor. Moreover, a thick layer of antifriction material protects the channel from the abrasive effect of the screw rotation.

VARIATIONS

The standard construction of this machine is in 316L stainless steel, but upon request, it can be supplied in other types of stainless steel on the market. On request, it is also available the variation in hot dip galvanized steel.

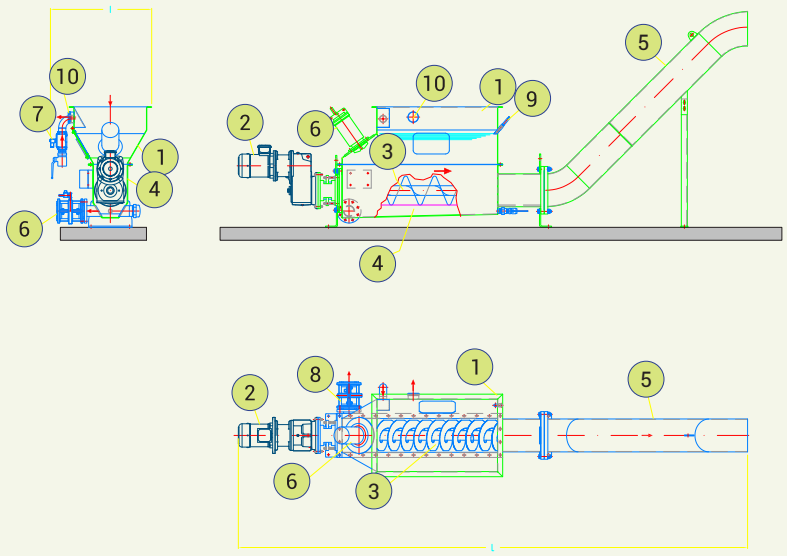
STRENGTHS CTGCW

- EXCELLENT DEWATERING AND COMPACTION CAPACITY;
- STURDINESS THANKS TO THE LENGTH OPTIMIZED ACCORDING TO THE DIAMETER;
- EXCELLENT OPERATION ALSO WITH FILAMENTOUS SCREENED MATERIALS THANK TO THE SHAFT LESS SCREW;
- CONTINUOUS AUTOMATIC WASHING OF THE SCREENED MATERIAL;
- VERY LOW MAINTENANCE.

Screening screw washer and compactor-conveyor

Screening screw washer and compactor-conveyor

Screening screw washer and compactor-conveyor



CTGCW

LEGEND

1. HOPPER
2. GEARMOTOR
3. COMPACTING SCREW
4. DRAINAGE CHAMBER
5. DRAIN PIPE
6. MIXER GEARMOTOR
7. WASHING WATER PIPE
8. DRAIN VALVE
9. LEVEL SENSOR
10. OVERFLOW

MAIN FEATURES	U.M.	DIMENSIONAL DATA		
MODEL		CTGCW 200	CTGCW 250	CTGCW 350
COIL DIAMETER (d)	mm	190	240	340
LENGTH (L) (*)	m	4200	4229	4480
WIDTH (l)	mm	850	900	1000
MAX INLET FLOW RATE	m^3/h	2,0	4,0	8,0
MAX OUTLET FLOW RATE	m^3/h	0,8	1,6	3,2
INSTALLED POWER	kW	1,5+0.55	2,2+0,55	3+0.55
DRY CONTENT IN THE COMPACTED SCREENED MATERIAL	%		>50	
WEIGHT	Kg	500	550	640

(*) non-standard lengths can be obtained on request.

	NOMINAL SYSTEM CAPACITY (m3/day)		
MACRO-SCREENED LIGHTS UP STREAM OF THE COMPACTOR (mm)	10	20	50
MODEL			
CTGCW 200	0 ÷ 57500	0 ÷ 87500	0 ÷ 150000
CTGCW 250	0 ÷ 115000	0 ÷ 175000	0 ÷ 300000
CTGCW 350	0 ÷ 230000	0 ÷ 350000	0 ÷ 600000

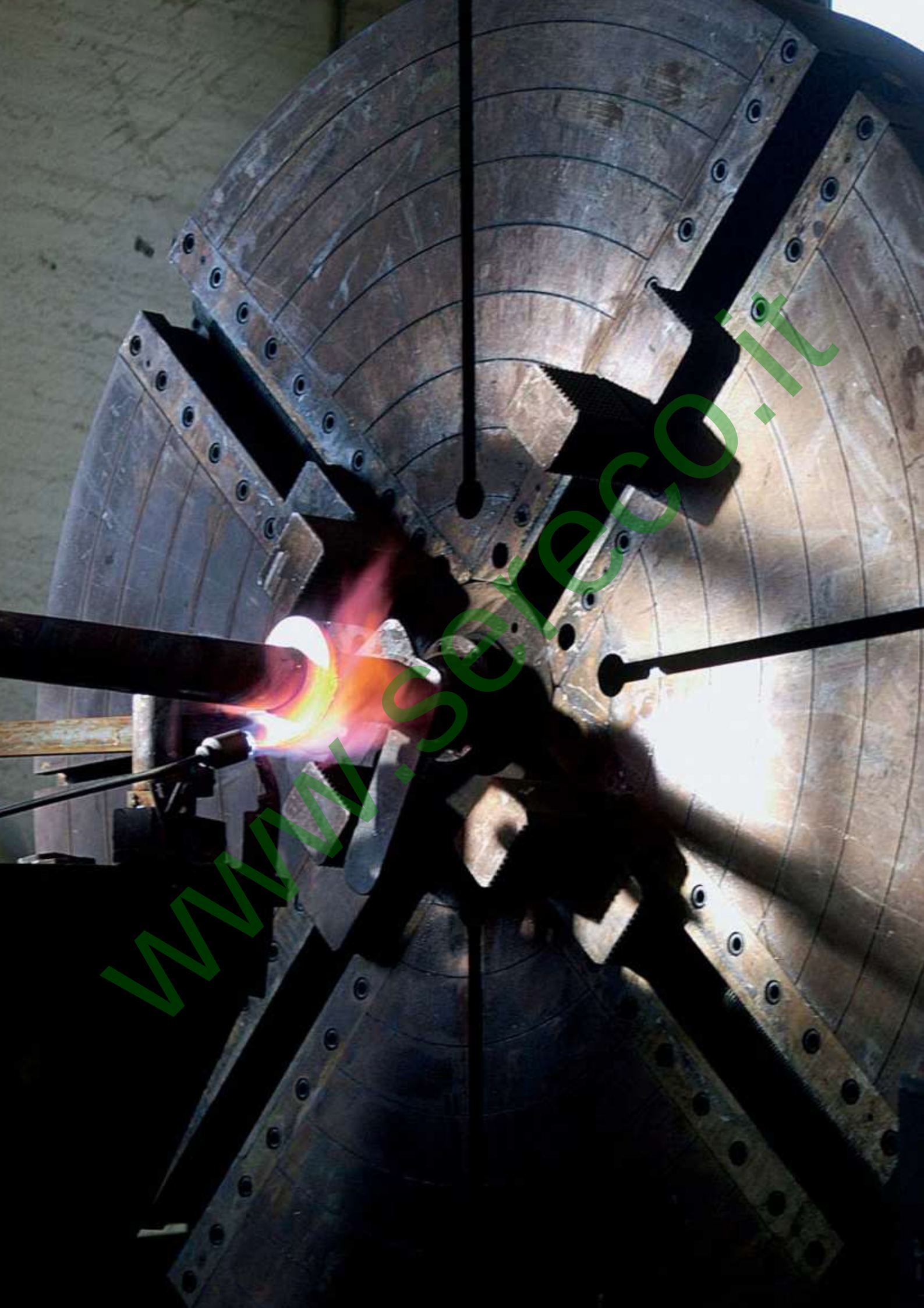
CTGCW compactor selection table for civil waste water treatment plants, based on flow rate and upstream macro-screened light.

	NOMINAL SYSTEM CAPACITY (m3/day)			
MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm)	1	2	3	5
MODEL				
CTGCW 200	0 ÷ 22500	0 ÷ 27500	0 ÷ 30000	0 ÷ 37500
CTGCW 250	0 ÷ 45000	0 ÷ 55000	0 ÷ 60000	0 ÷ 75000
CTGCW 350	0 ÷ 90000	0 ÷ 110000	0 ÷ 120000	0 ÷ 150000

CTGCW compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.

	NOMINAL SYSTEM CAPACITY (m3/day)			
MICRO-SCREENED LIGHTS UPSTREAM OF THE COMPACTOR (mm)	1	2	3	5
MODEL				
CTGCW 200	0 ÷ 27500	0 ÷ 32000	0 ÷ 37500	0 ÷ 50000
CTGCW 250	0 ÷ 55000	0 ÷ 64000	0 ÷ 75000	0 ÷ 100000
CTGCWT 350	0 ÷ 110000	0 ÷ 125000	0 ÷ 150000	0 ÷ 200000

CTGCW compactor selection table for civil waste water treatment plants, based on flow rate and micro-screened light upstream of the compactor, in the absence of coarse screening prior to microgridding.



Conveyors

- NT
- TC/TCSA

The conveyors are used in any cases where it is necessary to transport materials covering more or less long distances. They are used in almost all the industrial sectors; in particular in the water treatment plants they are used for the transport of material containing a high percentage of water, such as screened material, sludge, etc. The most used types of conveyors for said applications are the belts and screw types, with and without shaft. The specific sheets show the advantages and disadvantages of each of them.

With reference to the TC and TCSA screw conveyors, their standard execution is with one only screw which slides in a "U" channel. There are however applications where it is possible to install two or more screws placed side by side, sliding in double or triple "U" channel. A typical installation is that required at the discharge of the filter press for sludge or for storage silos for dewatered sludge. The transport channel width is the same as the cross overall dimension of the filtering press or the silo hopper base; the screws rotate in unison for the dewatered sludge transport.

This is only an example of the conveyor applications that **SERECO** can offer also with dimensions and shape different from the standard version.

With reference to the belt conveyors, the different models can cover the whole range of applications commonly required.

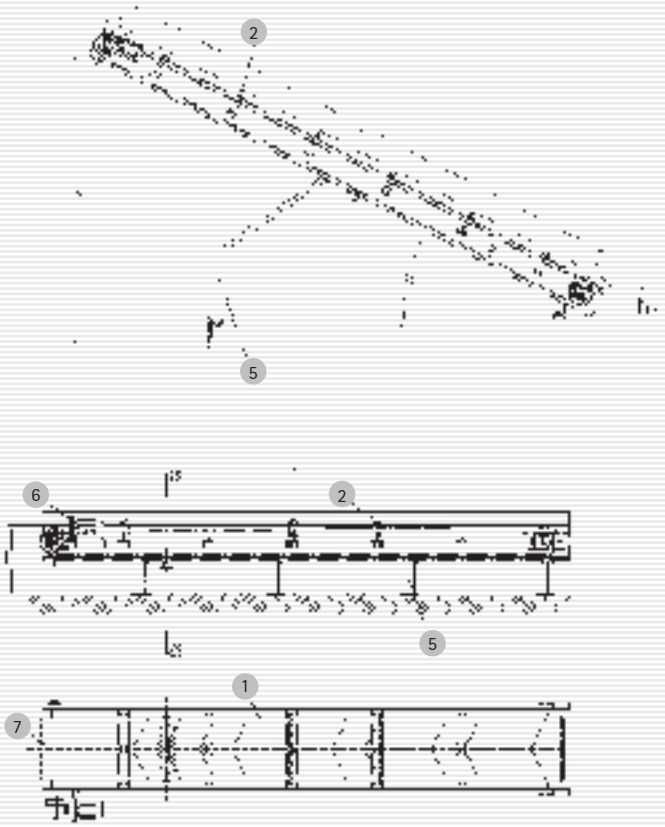
On request, any conveyors can be manufactured completely in stainless steel. As for the only TCSA conveyor without shaft, we would recommend for the screw the standard material (carbon steel adequately heat treated), as it has a high hardness & strength on the surface and toughness in the middle.

NT Belt conveyor

The belt conveyor NT type is suitable for the transport of any type of solid matters produced in a water treatment plant. It consists of a support frame of structural steel work with a section suitable for the belt sliding, struts of different size for the required frame inclination, a closed loop belt of wear proof material resistant to the atmospheric and chemical agents, a motor controlled roller for the belt driving, a set of support rollers and lateral guide for the belt, side boards for the containment of the transported material, a loading hopper and a gear motor. There are different types of belt conveyors: NT type is the basic model provided with single support rollers, NT2R type provided with couple rollers, NT3R type with triad rollers. The type NTP consists of a stationary stainless steel plate on which the material is carried over by blades integral with a chain, while the type NTR is provided with a conveyor belt consisting of a stainless steel metal net. All the models can be realized with horizontal belt, sloping (NTI), mixed (horizontal and sloping) and sloping-swivelling (NTIB). Moreover the large range of dimensions allows the choice of the most suitable belt conveyor, case by case. The standard type of construction is in carbon steel protected by hot galvanization. On request it is possible to realize metallic parts in stainless steel.

Strengths

- HIGH RESISTANCE AND LONG LIFE OF BELT.
- WIDE RANGE OF MODELS.
- OPTIMUM TRANSPORT CAPACITY.
- VERY LOW MAINTENANCE REQUIRED.
- SPECIFICALLY DESIGNED AND MANUFACTURED FOR THE TRANSPORT OF HUMID MATERIALS IN THE WATER TREATMENT.



Legend

1. BELT
2. SUPPORT ROLLER
3. SIDE BOARDS
4. RETURN ROLLER
5. SUPPORT STRUT
6. GEARMOTOR
7. DRIVE ROLLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA
NT	MODEL		NT / NT2R / NT3R / NTP / NTR / NTI / NTIB
	LENGTH (L)	m	2 ÷ 30
	BELT WIDTH (l_1)	m	0,3 ÷ 1,2
	MAX WIDTH (l_2)	m	l_1 + 0,2
	OUTLET HEIGHT (h_1)	m	0,5 ÷ 5
	MIN HEIGHT (h_2)	m	0,5
	SWIVEL	°	0 ÷ 180
	STANDARD TRANSPORT SPEED (*)	m/s	0,30
	FLOW RATE	m^3/h	32,13 * l_1
	GEARMOTOR POWER SUPPLY	kW	0,55 ÷ 9,2
	WEIGHT (**)	daN	(370 + 57,5 * L) * l_1

(*) On request it is possible to obtain transport speeds different from the standard.
(**) Insert in the formula the values l and l_1 in m

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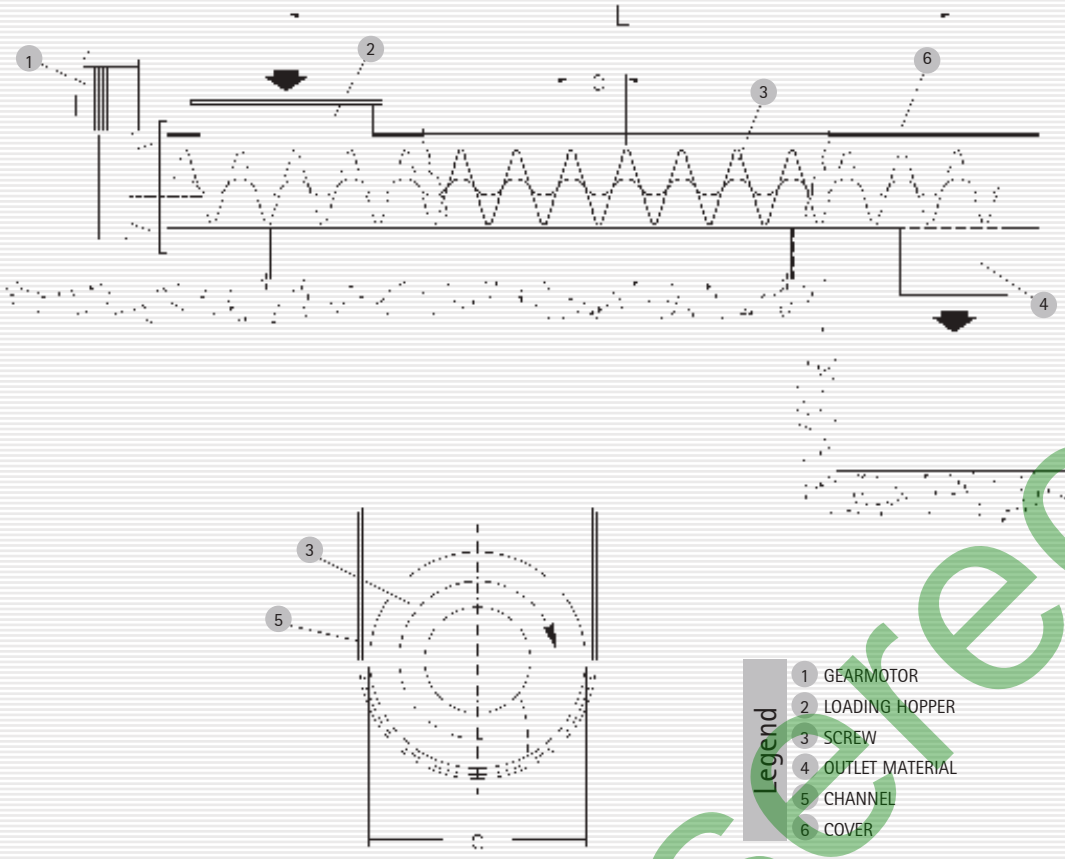
TC / TCSA Screw conveyor

TC screw conveyor has been designed for the transportation of sludge and screened material. It consists of a sturdy metal sheet channel provided, on the forward end, with a top loading hopper and on the opposite side end with a discharge opening, a tubular shaft, on which a screw with constant diameter and pitch is welded, and a driving gear motor. The screw, rotating around its axis, pushes the material toward the discharge end. The type TCSA, consisting of a central shaftless screw, can be also supplied. This type is particularly recommended in case of filamentous solid materials.

Both models can be installed in horizontal or sloping position (TCI, TCISA). On request, the channel can be closed by the use of suitable steel covers in order to guarantee hygiene and safety. For special requirements, it is also possible to have a conveyor with the screw completely tubed; this type of execution is required if considerable inclinations are concerned.
The standard construction is in carbon steel protected by hot dip galvanization. On request it is possible to produce metallic parts in stainless steel.

Strengths

- OPTIMUM OPERATION ALSO WITH FILAMENTOUS SCREENED MATERIALS.
- OPTIMUM TRANSPORT CAPACITY ALSO WITH HIGH HEADS.
- POSSIBILITY OF COMPLETELY CLOSED EXECUTION FOR THE MAXIMUM HYGIENE AND SAFETY.
- VERY LOW MAINTENANCE REQUIRED.
- STURDINESS.



Legend

1. GEARMOTOR
2. LOADING HOPPER
3. SCREW
4. OUTLET MATERIAL
5. CHANNEL
6. COVER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA				
TC	MODEL		TC 20	TC 25	TC 30	TC 35	TC 40
	SCREW DIAMETER (d)	mm	200	250	300	350	400
	PITCH (p)	mm	200	250	300	350	400
	TRANSPORT LENGTH (L) (*)	m	1 ÷ 20	1 ÷ 20	1 ÷ 20	1 ÷ 20	1 ÷ 20
	STANDARD TRANSPORT SPEED (**)	m/min	9,5				
	FLOW RATE	m^3/h	5,7	9,2	13,2	17,1	23,0
	POWER SUPPLY	kW	0,55 ÷ 2,2	0,75 ÷ 4	1,1 ÷ 5,5	1,5 ÷ 7,5	2,2 ÷ 9,2
	WEIGHT	daN	65 + 30 * L	70 + 35 * L	75 + 40 * L	80 + 50 * L	90 + 60 * L

(*) On request it is possible to obtain lengths different from the standard.
(**) On request it is possible to obtain transport speeds different from the standard.

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA				
TCSA	MODEL		TCSA 20	TCSA 25	TCSA 30	TCSA 35	TCSA 40
	SCREW DIAMETER (d)	mm	190	240	290	340	390
	PITCH (p)	mm	190	240	290	340	390
	TRANSPORT LENGTH (L) (*)	m	1 ÷ 9	1 ÷ 9	1 ÷ 9	1 ÷ 9	1 ÷ 9
	STANDARD TRANSPORT SPEED (**)	m/min	2,5 ÷ 3				
	FLOW RATE	m^3/h	1,3	2,0	3,2	4,4	6,0
	POWER SUPPLY	kW	0,37 ÷ 0,55	0,37 ÷ 0,55	0,55 ÷ 0,75	0,75 ÷ 1,1	1,1 ÷ 1,5
	WEIGHT	daN	65 + 30 * L	70 + 35 * L	75 + 40 * L	80 + 50 * L	90 + 60 * L

(*) On request it is possible to obtain lengths different from the standard.
(**) On request it is possible to obtain transport speeds different from the standard.

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Sewage pre-treatment stations

- SBFC
- SBFCS
- SBGNP
- FCSDS - FCDS

The pre-treatment stations are used for the preliminary treatment of sewage deriving from cesspools, Imoff tanks and industrial plants. In particular for the sewage transported by means of tank trucks, due to their high organic load, it is advisable to pre-treat this sewage before conveying it to the treatment process through a fine screening and, if required, sand removal and degreasing treatment in a specific station. Considering the particular operating conditions, it is suitable to unload the tank trucks in the shortest possible time and carry out the preliminary treatment in the most effective way; all this complied with more and more reduced dimensions. This is ensured by the use of the compact pre-treatment stations SERECO which combine compactness, functionality, reliability and long-term operation. In the types with screw filter, the station carries out also the compaction and washing of the screened material. Instead, the FCSDS - FCDS type station also provides for the sand removal from the sewage, sand washing and classification, degreasing and elimination of any oily substances. In each sheet there is the information necessary for a correct dimensioning and selection of the most suitable station according to the different requirements. We wish to point out that the sewage pre-treatment station can be used also as compact stations for the temporary or emergency pre-treatment.

SERECO®

FC_DS

Integrated compact pre-treament station

SAND TRAPS - DEGREASERS

Integrated compact pre-treament station

WHEN TO USE IT

The pre-treatment station FC_DS type can carry out in one single equipment the filtration, the washing and the compaction of screening, grit and grease removal, the grit washing and extraction. It finds application as a prefabricated pre-treatment, as an alternative to equipment to be installed in concrete tanks or as a pre-treatment of sewage transported by tankers before entering the treatment cycle.

HOW IT IS MADE

The station, completely closed to ensure maximum safety and hygiene and equipped with nozzles for deodorization where required, consists of a first sewage accumulation tank where the screen is housed, a second grit removal tank with a longitudinal grit conveying screw and a classifying screw for grit extraction.

HOW IT WORKS

The sewage entering the first tank passes through a filtering screen and deposits on it the suspended solids. The screening material is collected and discharged and depending on the type of screen installed in the tank, it could be washed and compacted. The water passes to the second tank connected to the first by flange.
Dimensions and shape of the second tank, calculated according to the flow rate of sewage to be treated, separate the grit with a grain size > 0.2 mm and the longitudinal screw conveyor conveys the grit by feeding the grit classifying screw which sends it to the discharge.
On request, it is also possible to integrate the removal of oils and grease with a compressed air system or surface scrapers for a more effective removal of the same, as well as an automatic system for the accumulation and discharge of oils and grease substances composed of a separate storage area inside the second tank and an automatically operated extraction pump.
The operation is completely automatic and managed by a PLC.

VERSIONS

The station is completely made in stainless steel. The options and accessories available are numerous and make this station an effective and compact pre-treatment.
Available upon request: flow meters at the inlet, screen with selectable filtering gap, manual or mechanical by-pass screen, continuous screening bagging system, additional grit washing unit, additional very fine screening unit, electric motors suitable for ATEX areas, different models of PLC and HMI for communication needs for the management of the entire plant.

STRENGTHS: FC_DS

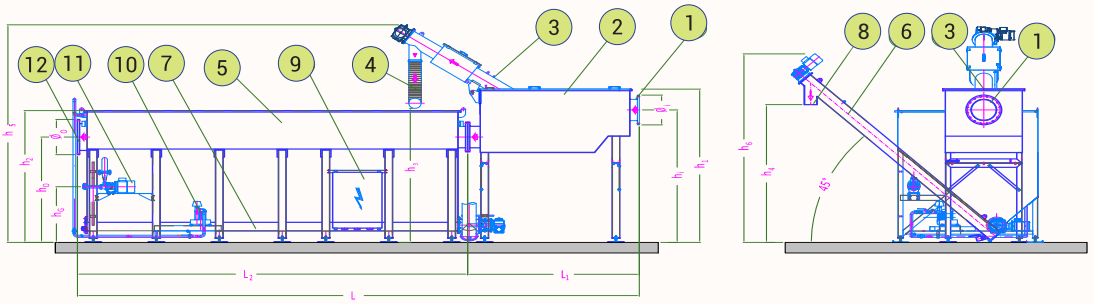
- VERY LIMITED CIVIL WORKS;
- COMPACT SIZE;
- COMPLETE WITH ALL COMPONENTS FOR QUICK INSTALLATION AND QUICK COMMISSIONING;
- MODULAR TO ADAPT TO THE FORESEEN INLET FLOW RATES;
- ADJUSTABLE IN HEIGHT;
- FULLY AUTOMATIC OPERATION THANKS TO A PLC.

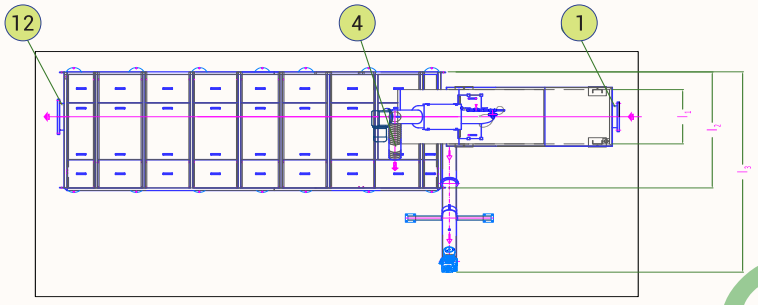
ACCESSORIES FC_DS

- BAGGING SYSTEM FOR SCREENING;
- FLEXIBLE DRAIN HOSE;
- SCREENING COMPACTION;
- GRIT WASHING ;
- BY-PASS SCREENING;
- ULTRA FINE SCREENING.

Integrated compact pre-treament station

Integrated compact pre-treament station





LEGENDE

1. SEWAGE INLET FLANGE
2. SCREENING TANK
3. SCREEN
4. SCREENING MATERIAL DISCHARGE
5. GRIT AND GREASE REMOVAL TANK
6. GRIT CLASSIFYING SCREW
7. GRIT COLLECTION SCREW
8. GRIT DISCHARGE
9. CONTROL PANEL
10. BLOWER
11. OIL AND GREASE PUMP
12. SEWAGE OUTLET

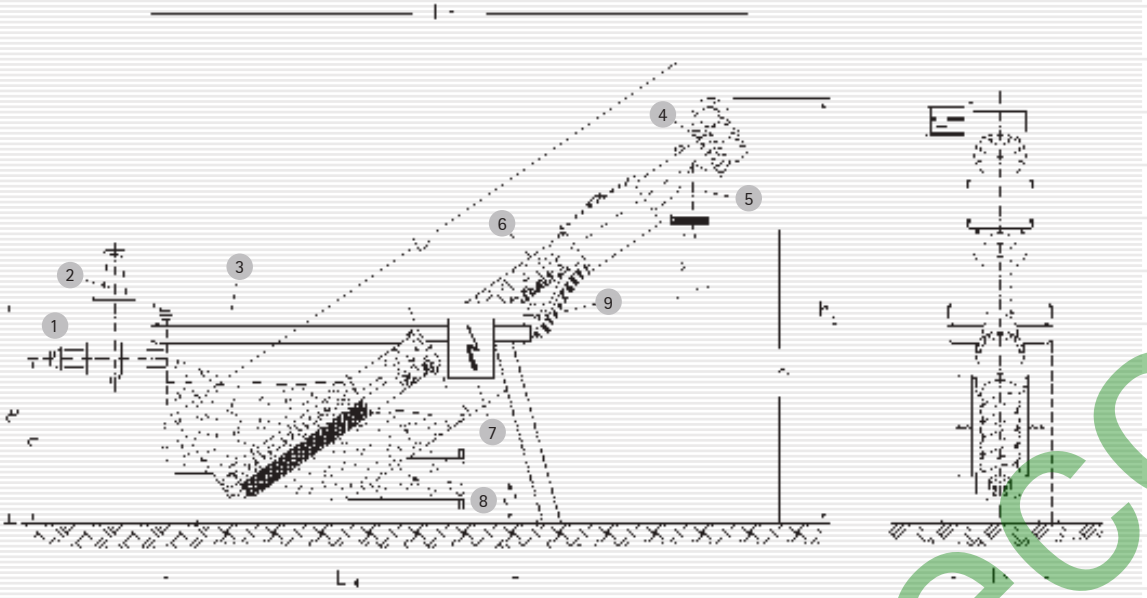
MAIN FEATURES	U.M.	DIMENSIONAL VALUES
MODELLO FC_DS		
FLOW RATE	m³/h	minimum 20 maximum 800
Standard FILTERING GAP (f)	mm	minimum 1 maximum 12
SEPARATED PARTICLE GRIT SIZE	mm	> 0.2
SEWAGE INLET HEIGHT (minimum)	mm	1900
SCREENING TANK WIDTH		VARIABLE
SCREENING DISCHARGE HEIGHT	mm	1500
GRIT REMOVAL TANK WIDTH (minimum)	mm	1100
GRIT DISCHARGE HEIGHT	mm	~ 1800
MAX HEIGHT	mm	3630
SEWAGE DISCHARGE HEIGHT (minimum)	mm	1390
TOTAL LENGTH	mm	VARIABLE

SBFC Sewage pre-treatment station with screw filter

The sewage pre-treatment station type SBFC is installed for the treatment of sewage deriving from cesspools, Imhoff tanks and industrial plants, transported by means of tank trucks. The station, completely closed to ensure the maximum hygiene and safety, consists of a structure which is also used as sewage storage tank and a screw filter FC type. The operation is easy: the sewage entering the tank from the tank truck passes through a filtering screen and deposits on it the suspended solid matters and undergoes to a micro-screening. The trapped solid matters are lifted by a multifunction screw - consisting of a first scraping section and a second conveying & compacting section – and discharged into a specific container through a hopper. During the compaction, the drain waters are recycled to the tank. The main characteristics of the equipment are: short emptying time of the tank truck thanks to the high inlet flow, maximum efficiency in the solid-liquid separation, considerable compaction of the solid material with consequent reduction in volume and weight. The station is provided with ball half-joint "Perrot" type; on request, it is also possible to have a pneumatic valve installed on the same inlet piping.
Furthermore the station is complete with nozzles for the washing of tank, filtering screen and screened material. The station is made completely in stainless steel. On request, it can be provided with a specific computerized equipment for the detection of the quantity and quality characteristics of the inlet sewage.

Strengths

- RAPID INLET CONNECTION, "PERROT" TYPE.
- SHORT EMPTYING TIME OF TANK TRUCK THANKS TO THE HIGH INFLOW.
- MAXIMUM EFFICIENCY IN THE SOLID-LIQUID MATTER SEPARATION.
- SCREENING, LIFTING, COMPACTING AND WASHING OF SCREENINGS IN ONE ONLY EQUIPMENT.
- MACHINE COMPLETELY CLOSED AND ABLE TO AVOID THE DIFFUSION OF BAD SMELLS, MAXIMUM SAFETY ENSURED.
- WASHING SYSTEM FOR TANK, FILTERING SCREEN AND SCREENINGS.



Legend

1. BALL HALF-JOINT "PERROT"
2. PNEUMATIC VALVE
3. TANK
4. GEARMOTOR
5. SCREENED MATERIAL DISCHARGE
6. MULTIFUNCTION SCREW
7. CONTROL PANEL
8. PRETREATED WATER OUTLET
9. WASHING WATER INLET 1" GAS

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA							
SBFC	MODEL		SBFC 300				SBFC 500			
	MAX LENGTH (L_3)	mm	4250				5200			
	TANK LENGTH (L_4)	mm	2570				3310			
	TANK WIDTH (L_2)	mm	710				810			
	SCREW LENGTH (L_1)	mm	4145				5080			
	MAX HEIGHT (h_2)	mm	2260				2800			
	DISCHARGE HEIGHT (h_1)	mm	1520				1800			
	TANK HEIGHT (h_3)	mm	1115				1450			
	SEWAGE INLET HEIGHT (h_i)	mm	1024				1080			
	WATER OUTLET HEIGHT (h_o)	mm	296				296			
	FILTERING GAPS (f)	mm	3	4	5	6	3	4	5	6
	FLOW RATE	m^3/h	53	60	85	115	89	100	142	193
	POWER SUPPLY	kW	1,5				2,2			
	EMPTY WEIGHT	daN	820				1480			
	WORKING WEIGHT	daN	2100				3500			

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SBFCS Sewage pre-treatment station with shaftless screw filter

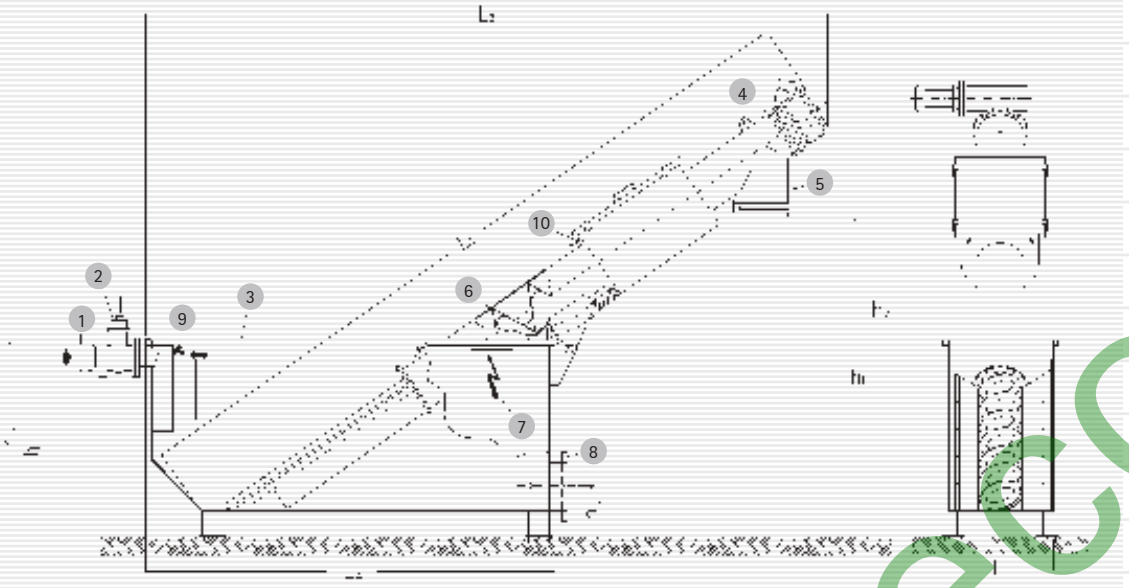
The sewage pre-treatment station type SBFCS is installed for the treatment of sewage deriving from cesspools, Imhoff tanks and industrial plants, transported by means of tank truck. The station, completely closed to ensure the maximum hygiene and safety, consists of a structure which is also used as sewage storage tank and a screw filter FCS type. The operation is easy: the sewage entering the tank from the tank truck, passing through the steel filtering screen deposits on it the suspended solid materials and undergoes to micro-screening. The trapped solid materials are lifted by a shaftless screw consisting of a first scraping section and a second conveying & compacting section – and discharged into a specific container through a hopper. In the terminal part of the screw on the same axis it is installed a shaft in order to improve the effect of compaction. During the compaction, the drain waters are recycled to the tank.

The main characteristics of the equipment are: short emptying time of the tank truck thanks to the high inlet flow, maximum efficiency in the solid-liquid separation, considerable compaction of the solid material with consequent reduction in volume and weight. The station is provided with ball half-joint "Perrot" type; on request, it is also possible to have a pneumatic valve installed on the piping. Furthermore the station is complete with nozzles for the washing of tank, filtering screen and screened material.

The station is made completely in stainless steel. On request, it can be provided with a specific computerized equipment for the detection of the quantity and quality characteristics of the inlet sewage.

Strengths

- RAPID INLET CONNECTION, "PERROT" TYPE.
- SHORT EMPTYING TIME OF TANK TRUCK THANKS TO THE HIGH INFLOW.
- SCREENING, LIFTING, COMPACTING AND WASHING OF SCREENED MATERIAL IN ONE ONLY EQUIPMENT.
- PARTICULARLY SUITABLE FOR THE FILAMENTOUS SCREENED MATERIALS, THANKS TO THE USE OF SHAFTLESS SCREW.
- MINIMUM MAINTENANCE CONSIDERING THE LACK OF MECHANICAL PARTS IN MOVEMENT UNDERWATER.
- COMPLETELY CLOSED STATION AND ABLE TO AVOID THE DIFFUSION OF BAD SMELLS, MAXIMUM SAFETY ENSURED.
- WASHING SYSTEM FOR TANK, FILTERING SCREEN AND SCREENED MATERIAL.



Legend

1. BALL HALF-JOINT "PERROT"
2. PNEUMATIC VALVE
3. TANK
4. GEARMOTOR
5. SCREENED MATERIAL DISCHARGE
6. MULTIFUNCTION SCREW
7. CONTROL PANEL
8. PRETREATED WATER OUTLET
9. TANK WASHING WATER INLET 1" GAS
10. SCREENED WASHING WATER INLET 1" GAS

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA							
SBFCS	MODEL		SBFCS 300				SBFCS 500			
	MAX LENGTH (L_3)	mm	3930				4700			
	TANK LENGTH (L_4)	mm	2334				3310			
	TANK WIDTH (L_2)	mm	606				810			
	SCREW LENGTH (L_1)	mm	4260				5080			
	MAX HEIGHT (h_2)	mm	2900				3150			
	DISCHARGE HEIGHT (h_1)	mm	1800				1800			
	TANK HEIGHT (h_3)	mm	1134				1134			
	SEWAGE INLET HEIGHT (h_i)	mm	1034				1034			
	WATER OUTLET HEIGHT (h_o)	mm	295				295			
	FILTERING GAPS (f)	mm	3	4	5	6	3	4	5	6
	FLOW RATE	m^3/h	53	60	85	115	89	100	142	193
	POWER SUPPLY	kW	1,5				2,2			
	EMPTY WEIGHT	daN	740				1480			
	WORKING WEIGHT	daN	2450				3500			

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SERECO®

GRIT AND GREASE REMOVERS GENERAL CATALOGUE

Together with you, for a sustainable future

Sometimes it happened that a grain of sand blown up by the wind has stopped a machine (engine).
Norberto Bobbio's quote from "Il problema della guerra e le vie della pace", Il Mulino, 1991

Grit and floating materials are the main coarse material found in municipal wastewater and their removal is essential during the first stages to protect the following ones and therefore avoid that the whole gear gets stuck.
The grit and grease removal process in a civil or industrial wastewater treatment plant is usually placed downstream the screening unit and before the purification treatments. A fully functional grit remover reduces the problems of clogging and wearing of the pumps installed downstream.
The range of products designed for the grit and grease removal allows to removal the grit from the sewage and discharge with high percentages of dryness and minimal organic matter content; moreover, many grit removers can also remove the oily and greasy substances at the same time.
This particular treatment not only reduces the organic load for the following treatment processes, but it also reduces the formationof foams, as they perform a preliminary aeration of the sewage.
SERECO offers a vast and wide range of products and can provide all the necessary information for a correct sizing and for the suitable choice of the grit and grease remover according to the specific needs.
All models are sized for a flow velocity, under nominal flow rate conditions, that allows precipitation and grit extraction with the highest performance.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND READY FOR SHIPMENT
AND SHIPPED FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

Degritting and degreasing suction bridge for rectangular basin

WHEN TO USE IT

The degritting and degreasing suction bridge PDRA type is used on medium and large size wastewater treatment plants for the pre-treatment of degritting municpal pre-aeration and degreasing of sewage and/or industrial origin.

HOW IT IS MADE

The bridge essentially consists of:
a mobile steel girder with walkway grating in galvanized steel;
a couple of lateral trolleys in steel;
a grit suction system consisting of a blower and air lift;
a couple of gear-motors fitted on in correspondence of the bridge centre line (one for the transmission of the bridge translation motion and the other one for the scraper movement);

- set of components for grease separation;
- electric control panel;
- festoon power supply line;
- an aeration consisting of a side channel blower and air diffusers.

HOW IT WORKS

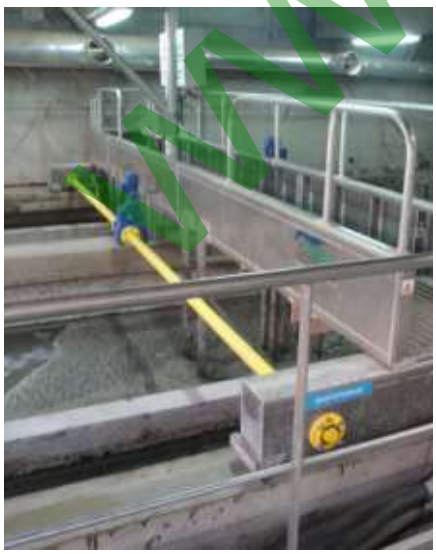
The bridge, during the upward run of its alternate motion, collects and removes any oily floating material by means of a surface scraper, while during the return run, sucks the grit collected on the tank bottom. The surface scraper is controlled by a cam mechanism that keeps it down during the working phase and up during the rest phase. In order to facilitate the separation of grease substances, the aeration system creates an oxygenation and flotation effect of the grease, making it easier for them to rise to the surface. The grease sucked up by the air-lift is pumped by the air-lift into a lateral channel running the full length of the tank. The protection against overloads is guaranteed by the use of electronic load limiting devices.

VERSIONS

The bridge can move on rubber wheels or on special sliding rails; the standard version has rubber wheels with guide wheels, the version with rails is available on request. On demand, the air-lift blower system for grit extraction can be replaced by one or more submersible pumps travelling with the bridge.
The standard construction is in carbon steel protected by hot dip galvanization. Upon request it is possible the production in stainless steel or the protection with epoxy painting.

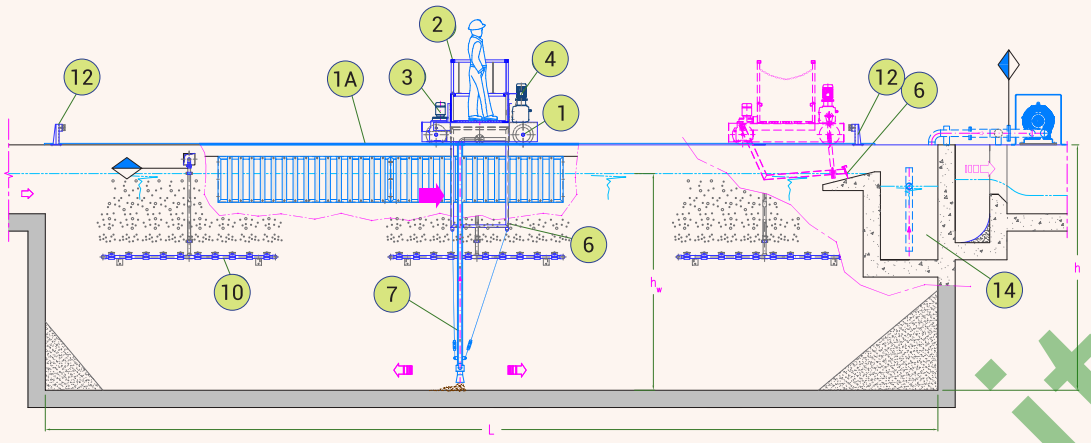
STRENGTHS PDRA

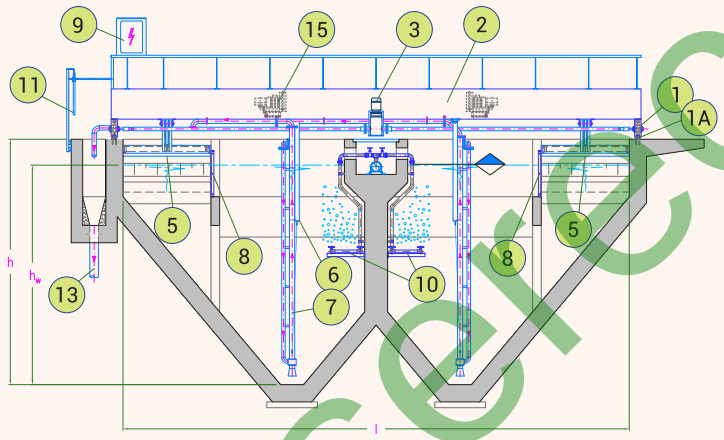
- SIMULTANEOUS DEGRITTING, DEGREASING AND PRE-AERATION;
- HIGH RESISTANT TRAVELING BRIDGE;
- MINIMUM POWER CONSUMPTION;
- SAFE AND PRECISE SCRAPER MOVEMENT SYSTEM AS IT DOES NOT USE CHAINS OR CABLES TO TRANSMIT THE MOTION, BUT ONLY SPECIAL RIGID CAMS ON THE SHAFTS.



Degritting and degreasing suction bridge for rectangular basin

Degritting and degreasing suction bridge for rectangular basin





LEGEND

1. LATERAL TROLLEY
1A. RAILS (OPTIONAL)
2. BRIDGE
3. GEARMOTOR
4. SCRAPER LIFTING GEARMOTOR
5. SURFACE SCRAPER
6. FRAME FOR AIR LIFT
7. AIR-LIFT FOR GRIT SUCTION
8. OIL & GRASE DEFLECTOR
9. ON BOARD CONTROL PANEL
10. AERATION SYSTEM (BLOWERS OPTION)
11. POWER CABLE (STANDARD BY FESTOON)
12. LIMIT SWITCH
13. GRIT DISCHARGE
14. OIL & GREASE COLLECTION TANK
15. BLOWER FOR AIR-LIFT

MAIN FEATURES	U.M.	DIMENSIONAL DATA
MODEL PDRA		
TANK WIDTH (l)	m	1,5 ÷ 7,0
TANK LENGTH (L)	m	10 ÷ 45
TANK DEPTH (h)	m	2,7 ÷ 5,5
TRAVELLING SPEED	m/min	1,2 ÷ 2,0
POWER SUPPLY	kW	0,43 ÷ 0,73

Degritting and degreasing scraper bridge for rectangular basin

WHEN TO USE IT

The degritting and degreasing bridge PDRR type is used on medium and large size water treatment plants for the pre-treatment of degritting municpal pre-aeration and degreasing of sewage and/or industrial origin.

HOW IT IS MADE

The bridge essentially consists of:
a mobile steel girder with walkway grating in galvanized steel;
a couple of lateral trolleys in steel;
a bottom scraping system;
a couple of gear-motors fitted on in correspondence of the bridge centre line (one for the trasmission of the bridge translation motion and the other one for the scraper movement);
set of components for grease separation;
electric control panel;
festoon power supply line;
an aeration consisting of a side channel blower and air diffusers.

HOW IT WORKS

The bridge, during the upward run of its alternate motion, collects and removes any oily floating material by means of a surface scraper while, during the return run, it scrapes the grit gathered on the tank bottom. The surface scraper is controlled by means of mechanisms similar to those driving the bottom scraper. In order to facilitate the separation of grease substances, the aeration system creates an oxygenation and flotation effect of the grease, making it easier for them to rise to the surface. Thanks also to the tank sloping, the grit is conveyed into a recovery tank. The protection against overloads is guaranteed by the use of electronic load limiting devices.

VERSIONS

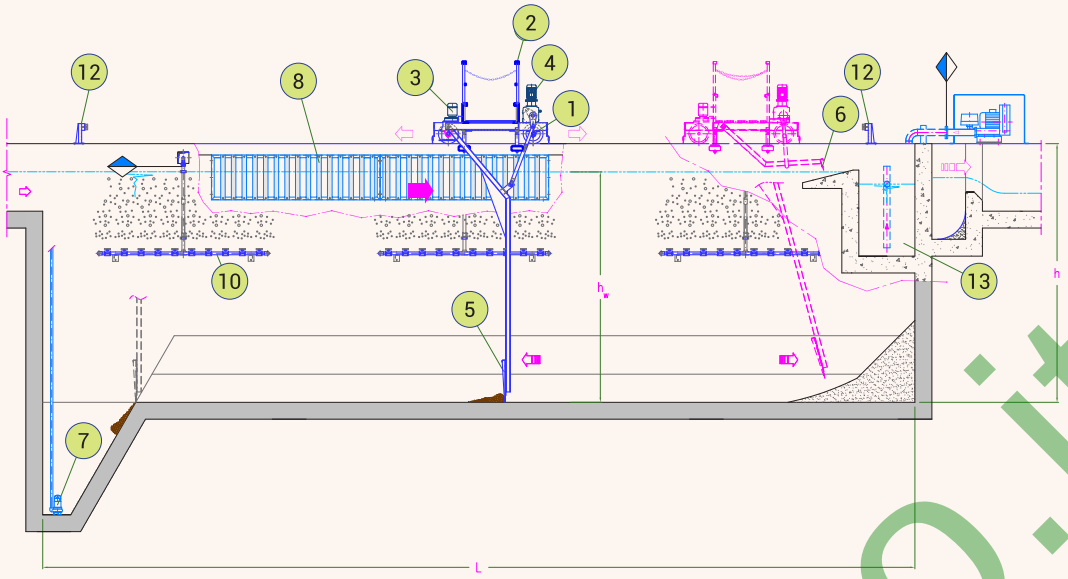
The bridge can move on rubber wheels or on special sliding rails; the standard version has rubber wheels with guide wheels, the version with rails is available on request.
The standard construction is in carbon steel protected by a hot dip galvanization. On request it is possible the production in stainless steel or the protection with epoxy painting.

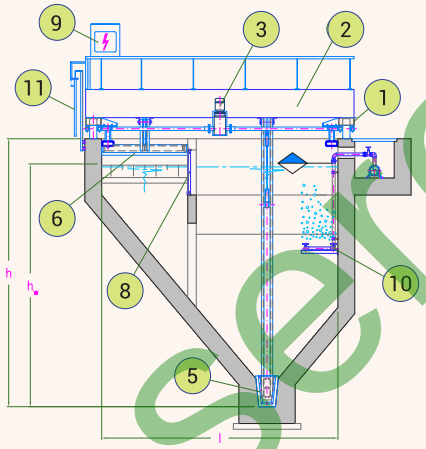
STRENGTHS PDRR

- SIMULTANEOUS DEGRITTING, DEGREASING AND PRE-AERATION
- HIGH RESISTANT TRAVELING BRIDGE;
- LOW POWER CONSUMPTION;
- SAFE AND PRECISE SCRAPER MOVEMENT SYSTEM AS IT DOES NOT USE CHAINS OR CABLES TO TRANSMIT THE MOTION, BUT ONLY SPECIAL RIGID CAMS ON THE SHAFTS.

Degritting and degreasing scraper bridge for rectangular basin

Overview of the plant with degritting and degreasing scraper bridge for rectangular basin





LEGEND

1. LATERAL TROLLEY
2. BRIDGE
3. GEARMOTOR
4. SCRAPER LIFTING GEARMOTOR
5. BOTTOM SCRAPER
6. SURFACE SCRAPER
7. SUBMERSIBLE PUMP (OPTION)
8. OIL & GREASE DEFLECTOR
9. ON BOARD CONTROL PANEL
10. AERATION SYSTEM (BLOWERS OTIONAL)
11. POWER CABLE (STANDARD BY FESTOON)
12. LIMIT SWITCH
13. OIL & GREASE COLLECTION TANK

MAIN FEATURES	U.M.	DIMENSIONAL DATA
MODEL PDRR		
TANK WIDTH (l)	m	1,5 ÷ 7,0
TANK LENGTH (L)	m	10 ÷ 45
TANK DEPTH (h)	m	2,7 ÷ 5,5
FEED RATE	m/min	1,2 ÷ 2,0
POWER SUPPLY	kW	0,43 ÷ 0,73

Rotating blade grit remover

WHEN TO USE IT

The rotating blade grit remover DPR type is installed on small and medium sized water and wastewater treatment plants to remove upstream, before the treatment processes, the grit in sewage in order to avoid operational problems due to any sediments and to any wearing the machines during the following treatments.

HOW IT IS MADE

The rotating blade grit remover type DPR is composed of:
a couple of rotating blades designed to give a uniform and lamellar rotation to the water to be treated;
a shaft on which the two blades are fitted; drive head for the control and rotation of the blade consisting of a cogwheel a pinion and a gear motor;
a piping system for air supply and grit washing-suction;
an air-lift suitable for lifting the water-grit mixture out of the tank;
a blower which produces the air necessary for the operation of the air-lift;
various components required for a corrent operation.

HOW DOES IT WORK

The water flow enters the tank tangentially and it is kept in rotation by the blade motion; once crossed the tank tangentially, it goes out in radial direction. The blades rotate in the same direction of the inlet flow speed; moreover, the particular geometry of the blades allows the achievement of a constant speed of the fluid even though the flow rate changes. However, on request for special applications, it is possible to replace the gear motor with a variable speed drive to modify the blade rotation according to specific requirements. In any case, the blade rotation speed is such as to avoid the beginning of a turbulent condition that would interfere with the grit sedimentation. The grit separated by the centrifugal force created by rotation, is gathered on the tank bottom and it is submitted to a first counter-current washing with air and pressurized water, in order to separate silt and organic materials. Then, by interrupting the washing process, the deposited grit is removed by the air-lift.

STRENGTHS DPR

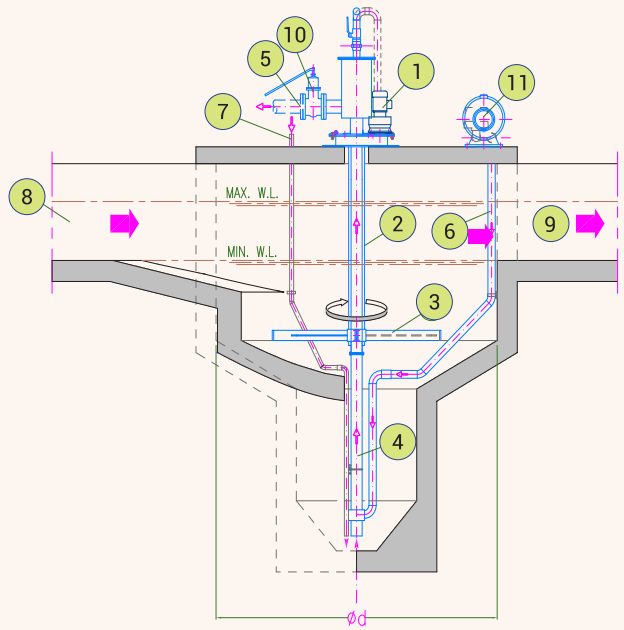
- MAXIMUM EFFICIENCY IN GRIT-WATER SEPARATION;
- GEOMETRY AND SPEED OF BLADES ALLOWING TO AVOID ANY TURBULENT FLUID WHIRLS;
- CONSTANT FLUID SPEED ALSO AT DIFFERENT FLOW RATE;
- VERY EFFECTIVE GRIT WASHING THANKS TO THE USE OF WATER AND AIR;
- STRENGTH AND RELIABILITY.

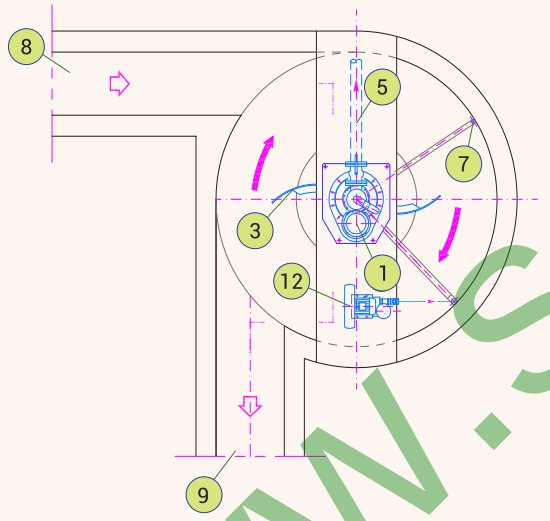
VERSIONS

On request, for applications where it is useless to have the grit air-lift with the shaft, it is possible to have the model DPRS which is not provided with the cogwheel and therefore the shaft is directly coupled to the gear motor. In this case the air lift can be replaced with a grit pump.

Rotating blade grit remover

Overview of the plant with rotating blade grit remover





LEGEND

1. GEARMOTOR
2. DRIVE SHAFT
3. BLADES
4. AIR-LIFT FOR GRIT
5. GRIT OUTLET
6. AIR PIPE TO AIR-LIFT
7. WASHING WATER PIPE
8. SEWAGE INLET
9. SEWAGE OUTLET
10. QUICK-OPENING VALVE
11. BLOWER FOR AIR-LIFT

MAIN FEATURES	U.M.	DIMENSIONAL DATA								
MODEL DPR		**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
TANK DIAMETER (d)	mm	2000	2500	3000	3500	4000	4500	5000	5500	6000
BLADE ROTATION SPEED	r.p.m.	34	28	26	20	20	17	16	15	13
MAXIMUM SEWAGE FLOW RATE	m^3/h	430	750	1400	1900	2800	4100	5100	6900	8200
MINIMUM AIR FLOW RATE FOR GRIT	m^3/h	100	100	130	150	150	250	250	250	250
MINIMUM FLOW RATE OF GRIT WAHING WATER	m^3/h	3,6	3,6	7,2	7,2	7,2	10,8	10,8	10,8	10,8
POWER SUPPLY	kW	0,37	0,37	0,55	0,75	1,1	1,5	2,2	3,0	4,0
WEIGHT	kg	180	200	230	250	280	300	320	340	400

Rotating blade grit remover with oil and grease separator

WHEN TO USE IT

The rotating blade grit remover type DPRD is installed on small and medium wastewater treatment plants to remove, before the treatment processes, grit, oil and grease present in sewage and avoid operating problems due to any sediments of these substances or wearing of the machines during the following treatments.

HOW IT IS MADE

The rotating blade grit remover with oil and grease separator type DPRD is composed of:
a couple of rotating blades designed to give a uniform and lamellar rotation to the water to be treated;
a shaft on which the two blades are fitted;
drive head for the control and rotation of the blade consisting of a cogwheel a pinion and a gear motor;
a piping system for air supply and grit washing-suction;
an air -lift suitable for lifting the water-grit mixture out of the tank;
a blower which produces the air necessary for the operation of the air-lift;
an oil and grease flotation system consisting of a ramp of fine bubbles diffusers and a second blower to produce the air for flotation;
various components required for a correct operation.

HOW DOES IT WORK

The water flow enters the tank tangentially and it is kept in rotation by the blade motion; once crossed the tank tangentially, it goes out in radial direction. The blades rotate in the same direction of the inlet flow speed; moreover, the particular geometry of the blades allows the achievement of a constant speed of the fluid even though the flow rate changes. However, on request for special applications, it is possible to replace the gear motor with a variable speed drive to modify the blade rotation according to specific requirements. In any case, the blade rotation speed is such as to avoid the beginning of a turbulent condition that would interfere with the grit sedimentation. The grit, gathered on the tank bottom, is submitted to a first counter-current washing with air and pressurized water, in order to separate silt and organic materials. Then, by interrupting the washing process, the deposited grit is removed by the air-lift. Above the blade level, there is a diffuser system which, by insufflating air, allows the oil and grease flotation. A suitable deflector installed in the upper part of the tank lets the oil and grease emulsion move towards the periphery and remain there up to the final removal. The DPRD unit allows the simultaneous grit collection, oil and grease removal and pre-aeration of sewage.

VERSIONS

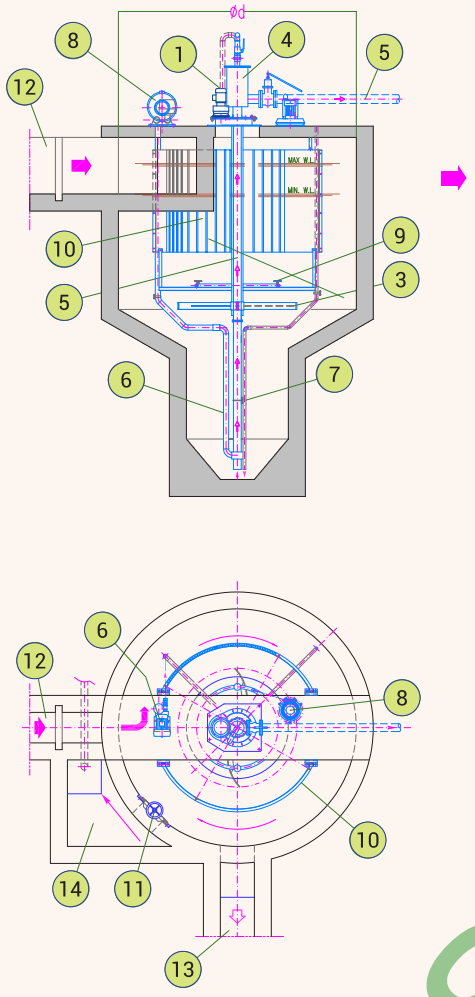
The standard construction is in stainless steel, but on request it can be supplied in carbon steel protected by hot dip galvanization. When the dimensions make it possible to discharge the grit by gravity or by means of an external pump, the version without air-lift DPRSD

STRENGTHS DPRD

- DEGRITTING AND DEGREASING CONTEMPORANEOUS;
- MAXIMUM EFFICIENCY IN SAND-WATER AND GREASE-LIQUID SEPARATION;
- PRE-AERATION OF SEWAGE;
- GEOMETRY AND SPEED OF BLADES ALLOWING TO AVOID ANY TURBULENT FLUID WHIRLS;
- CONSTANT FLUID SPEED ALSO AT DIFFERENT FLOW RATE
- HIGH EFFICIENCY IN UNIT VOLUME.

Rotating blade sand remover with oil and grease separator

Overview of the plant with rotating blade sand remover with oil and grease separator



LEGEND

1. GEARMOTOR
2. SHAFT
3. BLADES
4. AIR-LIFT
5. GRIT OUTLET
6. BLOWER FOR AIR-LIFT (OPTIONAL SUPPLY)
7. WATER MAIN FOR AIR-LIFT
8. BLOWER FOR FLOTATION (OPTIONAL SUPPLY)
9. AERATION FOR FLOTATION
10. DEFLECTOR
11. ADJUSTABLE WEIR SERECO SRP TYPE TO REMOVE FLOATED AND GREASE
12. SEWAGE INLET
13. WATER OUTLET
14. OIL AND GREASE STORAGE TANK
15. OIL AND GREASE DRAINAGE POINT FROM THE STORAGE TANK

type is available. Different versions are available depending on the flow rate and quality of the sewage; our engineers study the customer's specific problem and develop a suitable version.

MAIN FEATURES	U.M.	DIMENSIONAL DATA								
MODEL DPRD		**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
TANK DIAMETER (d)	mm	2000	2500	3000	3500	4000	4500	5000	5500	6000
BLADE ROTATION SPEED	r.p.m.	34	28	26	20	20	17	16	15	13
MAXIMUM SEWAGE FLOW RATE	m^3/h	150	300	450	600	1000	1250	1850	2200	2650
MINIMUM AIR FLOW RATE FOR GRIT	m^3/h	60	100	100	100	100	100	150	150	150
MINIMUM FLOW RATE OF GRIT WASHING WATER	m^3/h	3,6	3,6	7,2	7,2	7,2	10,8	10,8	10,8	10,8
POWER SUPPLY GEAR MOTOR	kW	0,37	0,37	0,55	0,75	1,1	1,5	2,2	3,0	4,0
POWER SUPPLY BLOWER FOR DIFFUSERS	kW	0,37	0,55	0,55	1,1	1,5	1,5	2,2	4,0	4,0
POWER SUPPLY BLOWER FOR AIR-LIFT	kW	3,0	3,0	3,0	5,5	5,5	5,5	7,5	7,5	7,5
WEIGHT	kg	280	300	330	350	380	400	420	440	500

Rotating blade grit remover with scraped oil and grease separator

WHEN TO USE IT

The rotating blade grit remover type DPRDR is installed on small and medium wastewater treatment plants to remove, before the treatment processes, grit, oil and grease present in sewage and avoid operating problems due to any sediments of these substances or wearing of the machines during the following treatments.

HOW IT IS MADE

The rotating blade grit remover with oil and grease separator type DPRDR is composed of:

a couple of rotating blades designed to give a uniform and lamellar rotation to the water to be treated;

a shaft on which the two blades are fitted consisting of two cogwheels pinions and two gear motors;

a piping system for air supply and grit washing-suction;

a drive head for the lateral and rotation of blades and scraper blades;

a air-lift suitable for lifting the water-grit mixture out of the tank;

a blower which produces the air necessary for the operation of the air-lift;

an oil and grease flotation system consisting of a ramp of fine bubbles diffusers and a second blower to produce the air for flotation;

various components required for a correct operation.

HOW IT WORKS

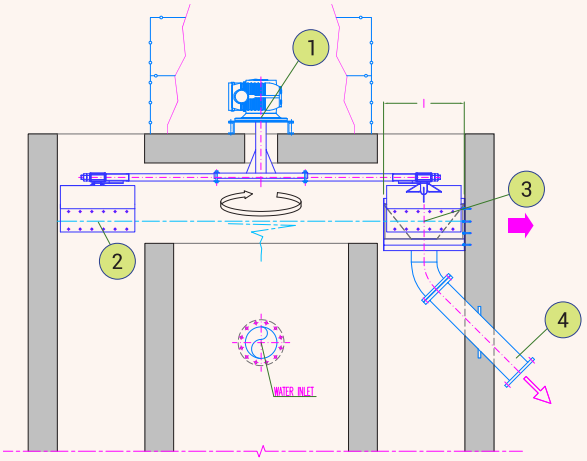
The water flow enters the tank tangentially and it is kept in rotation by the blade motion; once crossed the tank tangentially, it goes out in radial direction. The blades rotate in the same direction of the inlet flow speed; moreover, the particular geometry of the blades allows the achievement of a constant speed of the fluid even though the flow rate changes. However, on request for special applications, it is possible to replace the gear motor with a variable speed drive to modify the blade rotation according to specific requirements. In any case, the blade rotation speed is such as to avoid the beginning of a turbulent condition that would interfere with the grit sedimentation. The grit, gathered on the tank bottom, is submitted to a first counter-current washing with air and pressurized water, in order to separate silt and organic materials. Then, by interrupting the washing process, the deposited grit is removed by the air-lift. Above the blade level, there is a diffuser system which, by insufflating air, allows the oil and grease flotation. A suitable deflector installed in the upper part of the tank lets the oil and grease emulsion move towards the periphery and remain there up to they are picked up by the blades of the motorized scraper, which conveys them into a tank. The DPRDR unit allows the simultaneous grit collection, oil and grease removal and pre-aeration of sewage.

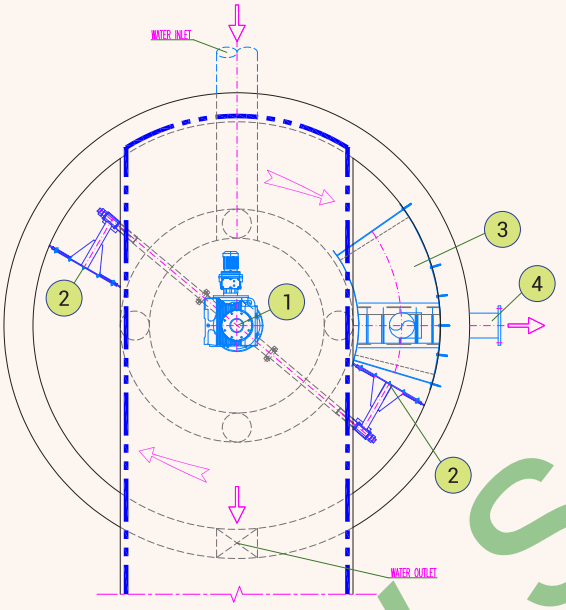
VERSIONS

The standard construction is in stainless steel, but on request it can be supplied in carbon steel protected by hot dip galvanization. When the dimensions make it possible to discharge the grit by gravity or by means of an external pump, the version without air-lift DPRSDR type is available. Different versions are available depending on the flow rate and quality of the sewage; our engineers study the customer's specific problem and develop a suitable version.

STRENGTHS DPRDR

- SIMULTANEOUS DEGRITTING AND DEGREASING;
- MAXIMUM EFFICIENCY IN GRIT-WATER AND GREASE-LIQUID SEPARATION;
- PRE-AERATION OF SEWAGE;
- GEOMETRY AND SPEED OF BLADES ALLOWING TO AVOID ANY TURBULENT FLUID WHIRLS;
- CONSTANT FLUID SPEED ALSO AT DIFFERENT FLOW RATE;
- HIGH EFFICIENCY IN UNIT VOLUME.





LEGEND

1. GEARMOTOR
2. SURFACE SCRAPER
3. FLOATING HOPPER
4. FLOATING OUTLET
5. GRIT AIR-LIFT
6. BLOWER FOR AIR-LIFT
7. AIR-LIFT AIR PIPING
8. QUICK-OPENING VALVE
9. GRIT WASHING
10. FLOTATION SYSTEM
11. BLOWER FOR FLOTATION

MAIN FEATURES	U.M.	DIMENSIONAL DATA								
MODEL DPRDR		**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
TANK DIAMETER (d)	mm	2000	2500	3000	3500	4000	4500	5500	5500	6000
BLADE ROTATION SPEED	r.p.m.	34	28	26	20	20	17	15	15	13
MAXIMUM SEWAGE FLOW RATE	m³/h	150	300	450	600	1000	1250	1850	2200	2650
MINIMUM AIR FLOW RATE FOR GRIT	m³/h	60	100	100	100	100	100	150	150	150
MINIMUM FLOW RATE OF GRIT WASHING WATER	m³/h	3,6	3,6	7,2	7,2	7,2	10,8	10,8	10,8	10,8
POWER SUPPLY GEAR MOTOR BLADES	kW	0,37	0,37	0,55	0,75	1,1	1,5	2,2	3,0	4,0
POWER SUPPLY GEAR MOTOR SCRAPERS	kW	0,12	0,12	0,12	0,18	0,18	0,18	0,18	0,18	0,18
POWER SUPPLY BLOWER FOR DIFFUSERS	kW	0,37	0,55	0,55	1,1	1,5	1,5	2,2	4,0	4,0
POWER SUPPLY BLOWER FOR AIR-LIFT	kW	3,0	3,0	3,0	5,5	5,5	5,5	7,5	7,5	7,5
WEIGHT	kg	360	390	430	450	490	512	540	560	650

Grit removal unit

WHEN TO USE IT

The grit removal unit type DR is mainly used in medium and large size treatment plants to remove the grit from municipal and industrial wastewater.

HOW IT IS MADE

The equipment is composed of a central driven rotating mechanism placed inside a shallow square tank with sloping angles. The grit remover type DR is mainly composed of:
a supporting bridge made of concrete or steel to support the mobile parts of the machine and house the driving unit;
three scraping arms, placed at 120° from each other and anchored to the central rotating shaft;
a drive unit composed of a gear motor, and a couple of cogwheels in order to obtain the required peripheral speed;
a series of adjustable inlet deflectors to reduce inlet flow disturbances guaranteeing a uniform velocity;
an outlet weir that sets the minimum level in the tank.

HOW IT WORKS

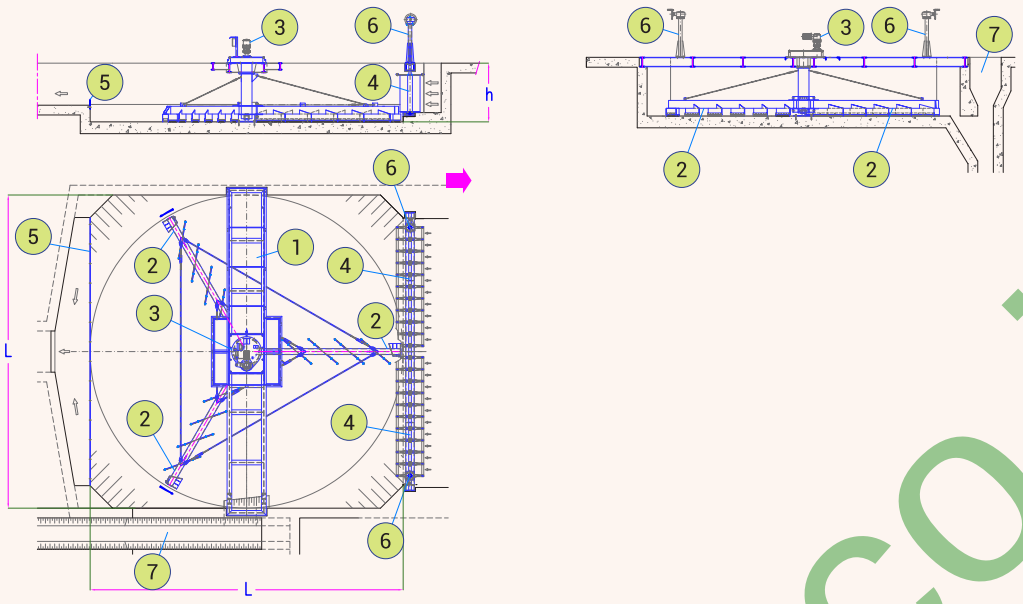
At the tank inlet, the sewage first crosses the deflector, obtaining a uniform velocity over the whole tank length. Than the sewage crosses the tank until it passes the outlet weir placed on the opposite side. During the crossing, the grit having size higher than dimensioning value tends to settle. This size depends on the inlet flow rate, tank dimension and the type of solids to be separated. Once settled, the grit accumulated at the bottom of the tank is removed by the machine that, by subsequent rotations, moves it towards the periphery of the tank up to a discharge hopper. This hopper is connected to a chamber where the fast grit classifier ESPP type (see related catalogue) is located. The machine has a continuous motion, and the protection against overload is guaranteed by the use of load limiting devices. The simple construction and the sturdiness of its structure allow this grit remover to always guarantee high performance and reliability.

STRENGTHS DR

- HIGH FLOW RATES;
- HIGH STRUCTURAL STRENGTH;
- LOW ENERGY CONSUMPTION;
- HIGH RELIABILITY AND DURABILITY.

Overview of the plant with grit removal unit

Overview of the plant with grit removal unit



LEGEND

1. FOOTBRIDGE
2. SCRAPING ARM
3. DRIVING UNIT WITH GEARMOTOR
4. INLET DEFLECTOR
5. OUTLET WEIR
6. DEFLECTOR COLUMN ROD
7. GRIT CLASSIFIER ESPP TYPE

MAIN FEATURES	U.M.	DIMENSIONAL DATA
MODEL DR		
SQUARE TANK SIZE (L)	m	4.0 ÷ 20.0
TANK HEIGHT (h)	m	1.5
PERIPHERAL SPEED	m/s	1.0 ÷ 1.2
NOMINAL FLOW RATE	m^3/h	1000 ÷ 27000
POWER SUPPLY	kW	0,09 ÷ 0,37

Compact grit and grease removal station

WHEN TO USE IT

The pre-treatment station DS type is a compact station, which is normally installed after a screening station whose SERECO catalogue offers several models. This compact unit performs the grit removal oil and grease removal and the washing and grit extraction. The DS station is used in the pre-treatment of sewage from small civil plants and in the pre-treatment of sewage from cesspits, Imhoff tanks and industrial plants.

HOW IT IS MADE

The station is completely closed to guarantee safety and hygiene and it is composed of:
a tank for the grit and grease removal and fed by a flange by sewage coming from screening or similar;
a screw for longitudinal conveying of the grit;
further screw classifier for grit extraction and sand washing;
a flotation and grease extraction system.

HOW IT WORKS

The sewage enters in the tank where the velocity and direction of the flow is such as the grit settles. A compressed air blowing system allows oil and grease to float and keeps the organic material in suspension. The longitudinal screw conveyor transports the sedimented grit close to the classifier screw and carries out an initial washing by the same water contained in the tank. The second inclined screw washes with service water and extracts the grit. A grease extraction system consisting of a mohno screw pump for the oil and grease removal from the DS..

VERSIONS

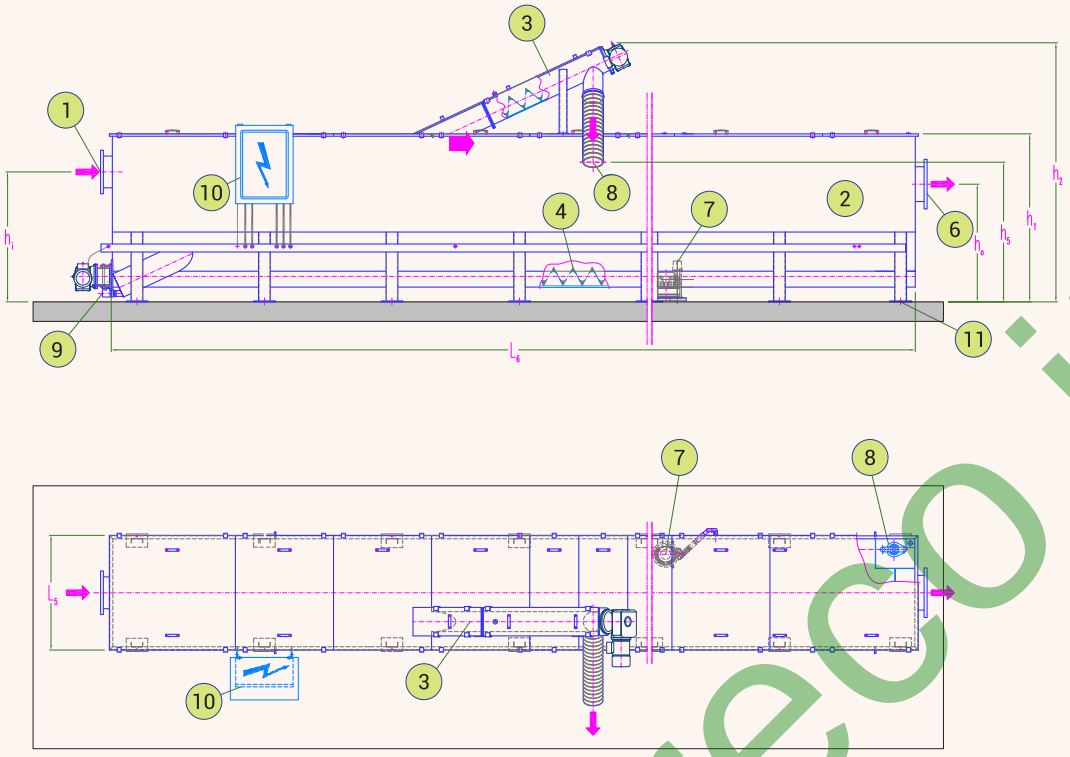
The station is manufactured in stainless steel. On request, it can be equipped with computerised equipment to detect the quantitative and qualitative characteristics of the incoming sewage.

STRENGTHS DS

- HIGH PERFORMANCE IN SOLID-LIQUID SEPARATION;
- LOW MAINTENANCE AS THERE ARE NO MOVING MECHANICAL PARTS IN THE WATER;
- FULLY ENCLOSED MACHINE TO PREVENT THE SPREAD OF UNPLEASANT ODOURS AND ENSURE MAXIMUM SAFETY;
- COMPLETELY AUTOMATIC TANK AND GRIT WASHING;
- PRE-ASSEMBLED MACHINE AND TRANSPORTABLE IN STANDARD 20' OR 40' CONTAINERS;
- STRENGTH AND RELIABILITY.

Compact grit and grease removal station

Compact grit and grease removal station



LEGEND

1. WATER INLET
2. DEGRITTING TANK
3. GRIT CLASSIFIER SCREW
4. GRIT CONVEYOR SCREW
6. WATER OUTLET
7. BLOWER
8. GREASE PUMP
9. DRAINAGE
10. CONTROL PANEL
11. ANCHOR BOLTS

MAIN FEATURES	U.M.	DIMENSIONAL DATA	
MODEL DS		**50-500**	**500-1000**
OVERALL LENGTH	m	2,5÷23	12÷23
OVERALL WIDTH	m	1,1	2,2
OVERALL MAX HEIGHT	m	3	3,5
FLOW RATE	m^3/h	50÷500	500÷1000

Screw grit classifier

WHEN TO USE IT

The screw grit classifier is installed on medium and large wastewater treatment plants, generally downstream of the grit removers in order to obtain the washing and the following water reduction of the grit.

STRENGTHS ES

- MAXIMUM EFFICIENCY IN GRIT-WATER SEPARATION;
- HIGH SPECIFIC FLOW RATE;
- EASY OPERATION;
- MINIMUM POWER CONSUMPTION.

Overview of the plant with screw grit classifier

Screw grit classifier

HOW IT IS MADE

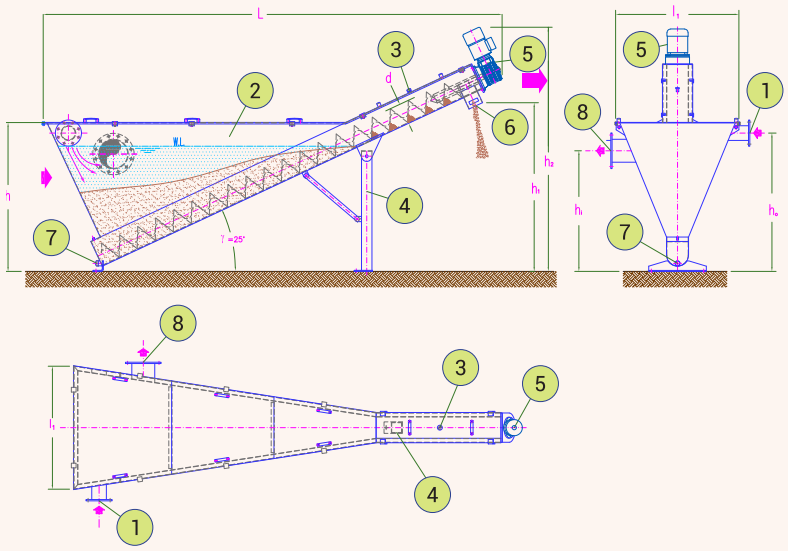
It is composed of:
a purpose-designed metal tank;
a shaftless screw conveyor;
a canal made of wearproof replaceable material suitable for collecting and conveying to grit;
a drive unit, a washing system and a grit discharge hopper.

HOW IT WORKS

The grit settled on the tank bottom is collected, lifted by the screw conveyor and then discharged. The screw diameter and consequently the classifier model, vary according to the inlet flow rate to be treated. The drive unit is a gear-motor directly fitted on the same axis as the screw. The competitive advantages of this equipment consist in the good performances and its extreme constructional and operation simplicity.
The classifier is complete with adequate supports and anchor bolts to ensure the good stability. The protection against overloads is ensured by an electronic load limiting devices.

VERSIONS

On request, the ESA model can be supplied (see dedicated brochure) in which the screw with shaft is supported, in the lower part, by a special double-seal grease-lubricated bearing. The standard construction is in stainless steel but on request it can be constructed in carbon steel protected by an epoxy painting cycle.



LEGEND

1. INLET
2. TANK
3. WASHING WATER INLET
4. ADJUSTABLE SUPPORT FOOT
5. GEARMOTOR
6. GRIT OUTLET
7. DRAINAGE OUTLET
8. WATER OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA		
MODEL ES		**200**	**300**	**400**
SCREW DIAMETER (d)	mm	190	290	350
LENGTH MAX (L)	mm	4380	5230	7140
WIDTH MAX (l_1)	mm	1172	1783	2120
TANK HEIGHT (h)	mm	1420	1750	2550
GRIT DISCHARGE HEIGHT (h_1)	mm	1550	1910	2710
HEIGHT MAX (h_2)	mm	2100	2562	3550
WATER INLET HEIGHT (h_i)	mm	1320	1670	2450
WATER OUTLET HEIGHT (h_0)	mm	1120	1350	2177
PN 10 INLET DIAMETER	DN	125	125	150
PN 10 OUTLET DIAMETER	DN	250	250	250
FREE SURFACE	m^2	1,8	3,3	5,0
TANK VOLUME	m^3	1,0	2,0	6,0
MAX INLET FLOW RATE	m^3/h	40	60	100
MAX EXTRACTED GRIT FLOW RATE	m^3/h	1,4	2,4	4,0
POWER SUPPLY	kW	1,1	1,5	2,2
EMPTY WEIGHT	Kg	780	1100	1800
WEIGHT IN OPERATION	kg	1900	3200	8500

Screw grit classifier

WHEN TO USE IT

The screw grit classifier is installed on large wastewater treatment plants, generally downstream of the grit removers in order to obtain the washing and the following water reduction of the grit.

HOW IT IS MADE

It is composed of:
a purpose-designed metal tank;
a shaftless screw conveyor;
a canal made of wearproof replaceable suitable for collecting and conveying the grit;
a drive unit, a washing system and a grit discharge hopper.

HOW DOES IT WORK

The grit settled on the tank bottom is collected, lifted by the screw conveyor and then discharged. The screw diameter and consequently the classifier model, vary according to the inlet flow rate to be treated. The spiral of the screw, welded to its shaft, is equipped with windows of various sizes and shapes that allow the washing and the dewatering of the grit. The drive unit is a gear-motor directly fitted on the same axis as the screw. The competitive advantages of this equipment consist in the good performances and its extreme constructional and operation simplicity.
The classifier is complete with adequate supports and anchor bolts to ensure the good stability. The protection against overloads is ensured by an electronic load limiting devices.

STRENGTHS ESA

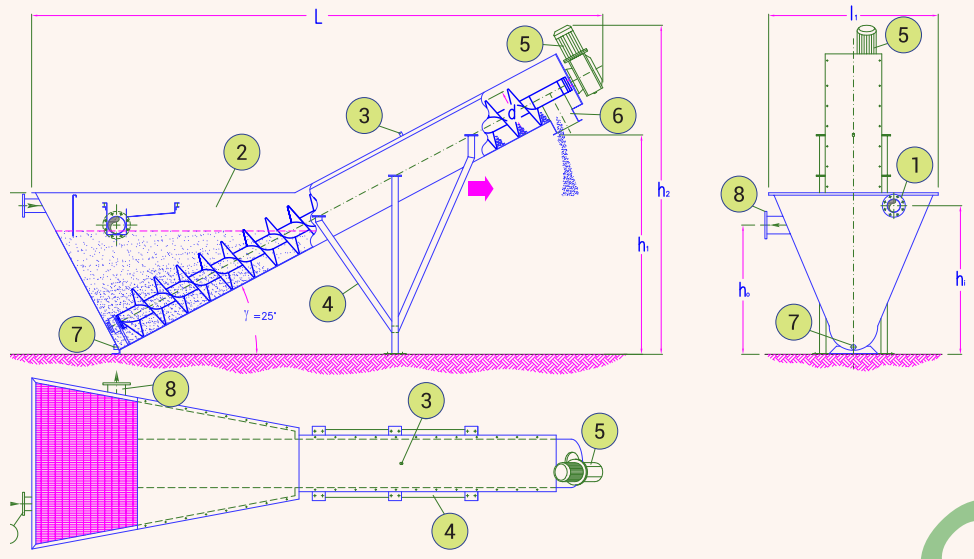
- MAXIMUM EFFICIENCY IN GRIT-WATER SEPARATION;
- HIGH SPECIFIC FLOW RATE;
- EASY OPERATION;
- MINIMUM POWER CONSUMPTION.

VERSIONS

On request, the ES model can be supplied (see dedicated brochure) in which the screw is without the shaft. The standard construction is in stainless steel, but on request it can be constructed in carbon steel protected by an epoxy painting cycle.

Overview of the plant with screw grit classifier

Screw grit classifier



LEGEND

1. WET GRIT INLET
2. CONTAINING HOPPER
3. WASHING WATER INLET
4. SUPPORT FOOT
5. GEARMOTOR
6. GRIT DISCHARGE
7. BOTTOM DRAIN
8. SANDLESS WATER OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA	
MODEL ESA		**400**	**500**
SCREW DIAMETER (d)	mm	360	580
LENGTH MAX (L)	mm	6100	7200
WIDTH MAX (l1)	mm	1733	2150
TANK HEIGHT (h)	mm	1750	2050
GRIT DISCHARGE HEIGHT (h_1)	mm	2150	2700
HEIGHT MAX (h_2)	mm	2920	3900
WATER INLET HEIGHT (h_i)	mm	1600	1900
WATER OUTLET HEIGHT (h_o)	mm	1400	1650
PN 10 INLET DIAMETER	DN	125	150
PN 10 OUTLET DIAMETER	DN	200	250
FREE SURFACE	m^2	3,2	5,0
TANK VOLUME	m^3	2,0	3,6
MAX INLET FLOW RATE	m^3/h	40	60
MAX EXTRACTED SAND FLOW RATE	m^3/h	4,3	13
POWER SUPPLY	kW	3	4
EMPTY WEIGHT	kg	1100	2280
WEIGHT IN OPERATION	kg	3500	6300

Screw grit classifier with integrated Coanda effect

WHEN TO USE IT

The screw grit classifier with integrated Coanda effect is designed to be installed on medium and large wastewater treatment plants. It is generally installed downstream the grit removers, to obtain a high dewatering of the grit-water mixture from the degritters, resulting in a water content of about 10÷12% and an organic matter content in the grit of less than 3%.

HOW IT IS MADE

It is mainly composed of:
a trunk conical tank;
a specially shaped screw inclined at 30° or 45°;
a motorized valve for the organic matter discharge;
an automatic grit washing system composed of rotameter for the flow rate measurement and valves and solenoid valves for regulating the water flow rate;
a sensor for the grit density measurement;
a bottom drainage system;
a sturdy gear motor suitable for the rotation of the screw;
a grit discharge hopper;
suitable supports and anchor bolts to ensure good stability.

HOW IT WORKS

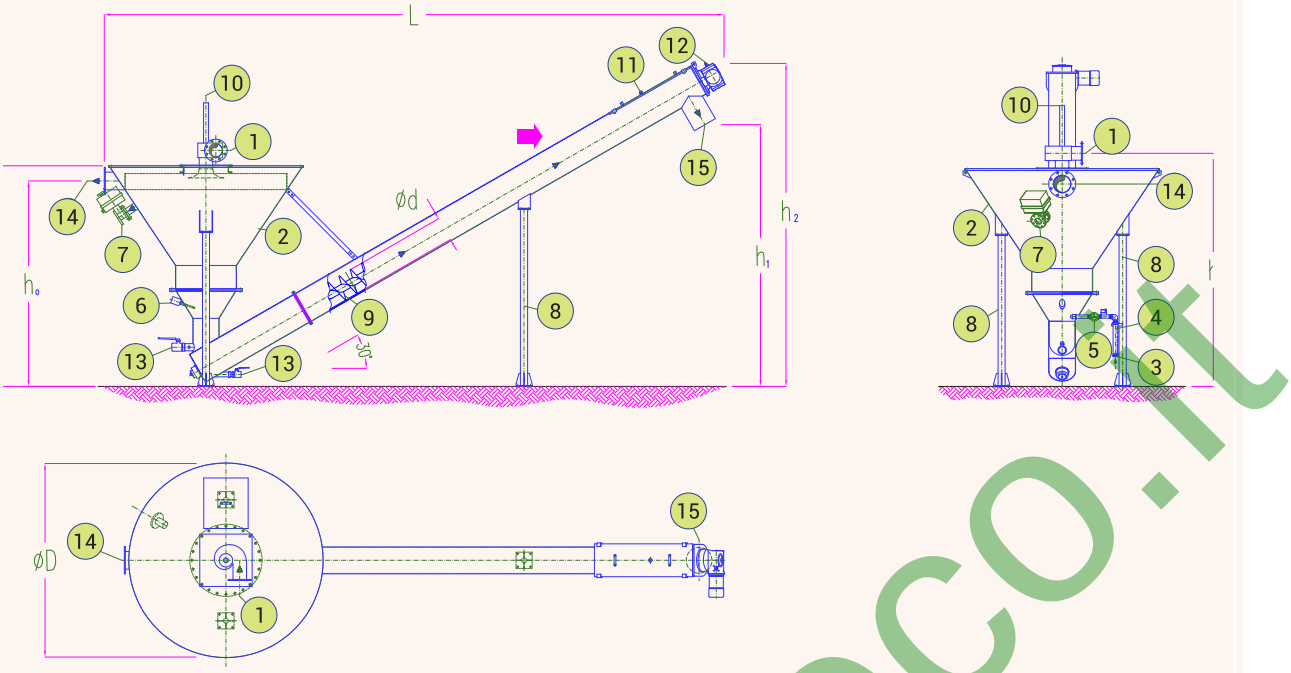
Grit mixed with water and organic substances comes in the grit classifier ESC from the upper central part of the tank, through a tangential inlet with cyclone that guarantees separation by Coanda effect. The design of this upper part is oriented to have immediately the separation of grit heavier than water. Grit washing water is injected in the tank bottom to guarantee a good grit washing and to separate the organic content. In this way, water and organic substances come out the tank respectively by a special overflow and a motorized valve, while the grit settles in a section of the bottom. Settled grit is kept and lifted by means of the rotating screw, suitable for a maximum drainage of water, and then it is discharged through a pipe into a disposal device.

RELIABILITY

The construction simplicity of the equipment and the quality of all its components always guarantee high performance and reliability, also for continuous working. The standard construction is in stainless steel, but on request it is possible the construction in different standardised stainless steel depending on the aggressiveness of the water to be treated.

Screw grit classifier with integrating Coanda effect

Screw grit classifier with integrating Coanda effect



LEGEND

1. WATER INLET
2. WATER COLLECTION TANK
3. GRIT WASHING WATER INLET
4. ROTAMETER
5. NEEDLE VALVE
6. GRIT DENSITY INDICATOR
7. ORGANIC SUBSTANCES DISCHARGE
8. SUPPORT PILLAR
9. SCREW
10. WASHING WATER INLET
11. GEAR MOTOR
12. WATER DISCHARGE
13. SANDLESS WATER OUTLET
14. GRIT OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA					
MODEL ESC		ESC 200		ESC 300		ESC 400	
SCREW DIAMETER (d)	mm	190		290		350	
SCREW INCLINATION	°	30	45	30	45	30	45
LENGTH MAX (L)		5050	3800	5480	4100	6400	4850
TANK DIAMETER (D)	mm	1550		1800		2400	
TANK HEIGHT (h)	mm	2150		2300		2600	
GRIT DISCHARGE HEIGHT (h_1)	mm	2400		2550		2900	
HEIGHT MAX (h_2)	mm	3100		3300		3650	
WATER INLET HEIGHT (h_3)	mm	2340		2490		2790	
WATER OUTLET HEIGHT (h_4)	mm	1960		2110		2410	
PN10 INLET DIAMETER	DN	150		150		200	
PN10 OUTLET DIAMETER	DN	200		200		250	
FREE SURFACE	m^2	1,7		2,4		4,4	
TANK VOLUME	m^3	0,95		1,4		3	
MAX INLET FLOW RATE	m^3/h	40		60		90	
MAX OUTLET FLOW RATE	m^3/h	1,4		2,4		4	
POWER SUPPLY	kW	1,1		1,5		1,5	
EMPTY WEIGHT	kg	620		1250		1800	
WEIGHT IN OPERATION	kg	1570		2650		4800	

Cantilever grit classifier

WHEN TO USE IT

The cantilever grit classifier ESPP type is installed on medium and big size treatments plants; it is generally installed downstream the grit removers in order to obtain a more efficient grit dewatering. Its use becomes exclusive when grit removers, DR type, from SERECO or similar types from the competitors are used for degritting.

HOW IT IS MADE

The cantilever grit classifier is mainly composed of:

a mobile frame provided with degritting blades which constitutes the rake and with a system of levers for the movement;

a gearmotor group, including a camshaft and a suitable fixed support;

a set of idle wheels necessary to obtain the correct machine motion;

idle wheel rails fixed on the tank wall.

HOW IT WORKS

The machine is generally installed into a concrete tank with a proper slope, which allows the drainage of water from the extracted grit. On request, the tank can be made of steel and the machine is therefore supplied completely prefabricated.

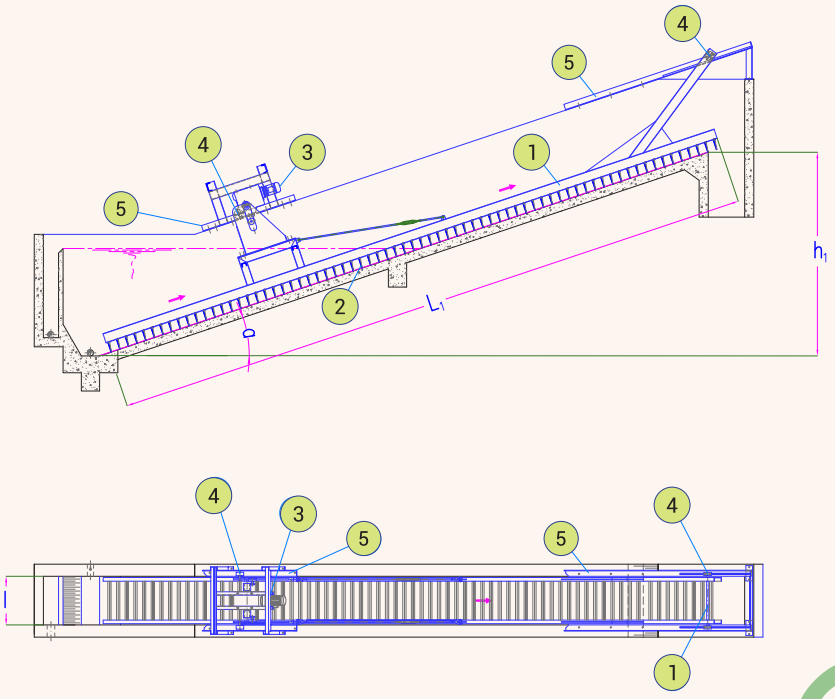
The water-grit mixture is first introduced into the channel through a pipe or a hopper, depending on the upstream grit remover machine. Once inside the tank, the grit carried by the incoming flow tends to settle at the bottom of the tank, while the water goes out the tank trough a weir placed in the opposite side of the tank.

The collected grit are removed by the raking mechanism of the ESPP grit classifier. At the beginning of each cycle, the mobile frame moves forward by sweeping the grit; then it is lifted and placed in start position, where it is brought back down. At this point, a new cycle begins again. After a certain number of cycles, depending on the ESPP length, the grit reaches the discharge point. The raking movement of the ESPP type grit classifier is achieved by the combination of the rotating movement of the camshaft driven by the gear motor and the consequent motion of the levers and idle wheels.

The equipment can be realized either in galvanized carbon steel or stainless steel.

Cantilever grit extractor

Cantilever grit extractor



LEGEND

1. MOBILE FRAME
2. DEGRITTING BLADE
3. GEARMOTOR
4. IDLE WHEEL
5. RAIL FOR IDLE WHEEL

MAIN FEATURES	U.M.	DIMENSIONAL DATA				
MODEL ESPP						
TANK WIDTH (l)	m	0,4	0,6	0,8	1,0	1,2
TOTAL LENGTH (L_1)	m	5 ÷ 12	5 ÷ 12	5 ÷ 15	5 ÷ 15	5 ÷ 20
INCLINATION ANGLE (α) (*)	°	18,5				
DISCHARGE HEIGHT (h_1) (*)	m	0,3173 x l				
LINEAR SPEED	m/min	1,2 ÷ 1,5				
MAX INLET FLOW RATE (*)(***)	m³/h	4,8 + 7,6 x (L-3)	7,2 + 11,4 x (L-3)	9,6 + 15,2 x (L-3)	12 + 19 x (L-3)	14,4 + 22,7 x (L-3)
MAX GRIT OUTLET FLOW RATE	m³/h	3	4,5	6	7,5	9
POWER SUPPLY	kW	0,37 ÷ 1,5				
WEIGHT (**)	kg	240 + 110 x L	240 + 120 x L	240 + 130 x L	260 + 140 x L	300 + 150 x L

(*) A different angle value and related discharge height is available on request.
(**) Insert in the formula the values of w and l in m.
(***) 3 m of the total length have been considered out of water as per Sereco standard. Different values are available on request..

Hydrocyclone for grit

WHEN TO USE IT

The hydrocyclone for grit ICS type is used downstream the grit removers in order to obtain a more efficient dewatering of the outlet grit. It is used in several industrial sectors, from the grit removal to the screening, filtration and grinding.

HOW IT IS MADE

The hydrocyclone has no moving parts and the only part that moves is the water. It essentially consists of three or four parts, depending on the model, that is a water inlet volute; one or two truncated conical bodies coupled by flanges; a manual or motorized valve also coupled by flanges, located at the grit outlet.

HOW IT WORKS

The water goes in, through the volute, tangentially with respect to the hydro cyclone an, after a vortex, goes out in axial direction. The circular trajectory of the water creates a centrifugal force proportionate to the material density, which therefore greatly pushes the grit towards the lateral walls of the truncated conical body. As a result, the grit falls by gravity down the walls of the hydrocyclone and the water goes upstream in the middle towards the outlet, dynamically pushed by the incoming water. An example of application for the hydro cyclone is the installation at the grit classifier inlet (see dedicated brochure ICES); in this case the hydro cyclone carries out a first grit-water separation and the subsequent grit classifier will have a smaller potentiality. The constructional simplicity of this equipment, the absence of any mechanical parts in motion and the absence of any gear motor ensure low installation and maintenance costs and a long operating life.

VERSIONS

In the standard version, the hydrocyclone is supplied in carbon steel treated with an epoxy paint cycle; its components - subject to grit abrasion - are made of a special anti-abrasion steel or internally coated with abrasion-resistant material.

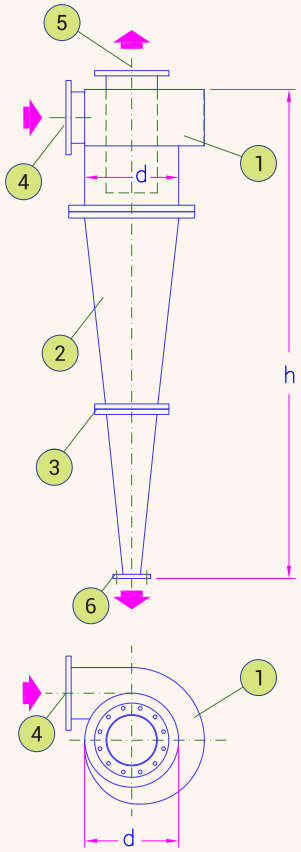
Hydrocyclone for grit

Hydrocyclone for grit

Hydrocyclone for grit

STRENGTHS ICS

- ABSENCE OF GEARMOTORS AND MECHANICAL MOVING PARTS;
- OPERATION WITHOUT ANY POWER CONSUMPTION;
- MAXIMUM EFFICIENCY IN GRIT-WATER SEPARATION;
- EASY OPERATION.



LEGEND

1. INLET VOLUTE
2. CONICAL BODY
3. COUPLING FLANGE
4. GRIT AND WATER INLET
5. WATER OUTLET
6. GRIT OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA							
MODEL ICS									
NOMINAL DIAMETER (d)	mm	75	100	150	250	350	500	700	1000
CYCLONE HEIGHT (h)	mm	800	1000	1200	1400	2200	2700	3300	4000
GRIT SIZE (MIN-MAX)	mm 10^{-3}	15÷30	25÷40	35÷45	40÷60	50÷70	60÷80	65÷90	90÷125
FLOW RATE (MIN - MAX)	m^3/h	1-7	7-14	14-51	51-110	110-205	205-480	480-560	560-2400
EMPTY WEIGHT	kg	39	48	67	98	135	204	264	430

Grit classifier

WHEN TO USE IT

The grit classifier ICES type is a combination of a grit classifier ES type and a hydro cyclone ICS type. This union allows to treat large water flow rate with low grit concentrations. This is the case in which its use is recommended.

HOW IT IS MADE

The main components of the machine are:

hydro cyclone made of a water inlet volute, a truncated conical body, a lower flanged pipe connection for the grit outlet, an upper flanged pipe connection for the grit-free water outlet. All that is assembled on the grit classifier tank through a bolted support

a shaftless screw, forged and turned from a high quality and high thickness steel bar. The screw inclination is about 25°. The special manufacturing of the screw aims at a considerable increase in hardness and strength of the steel and normal, silent operation;

a tank with a suitable shape, volume and surface to allow a good separation of the grit from the water, while preventing the separation of organic substances;

The tank is supplied with a hydro cyclone inlet and outlet spout with a flange and an adjustable grit-free water system

a U-shaped laying canal of the screw with a bolted cover and a with lower inner part lined with replaceable wear-resistant material;

at the upper end, the same canal is supplied with a threaded connection for the inlet of the grit washing water and a square pipe suitable for the discharge of the grit into a disposal container;

gearmotor suitable for slow rotation of the screw, of the hollow slow shaft type, through a special hub which is splined to the hollow slow shaft of the gearmotor on the one hand and screwed firmly to the screw on the other hand.

HOW IT WORKS

In wastewater treatment plants, the grit extracted from the grit removers by means of electric pumps or AIR LIFT, still contains not only an organic content, but also a large amount of water, usually around 90-95%. The grit classifier ICES type has been designed to wash these grit, classify them according to their diameter and dewater them up to a water content less than 10%. This process is made possible in the ICES machine by a long-lasting full-scale experimentation. Since 1975 up to nowadays, this experimentation has never stopped, and it will continue in the next years in order to obtain a top-quality product with high performances.

The grit mixed with water and organic substances arrive at the classifier ICES type via a pressure pipe through the grit removers and enter the hydro cyclone. The inlet water in the volute, whose direction is perpendicular to truncated conical body axis, separates from the grit due to the different centrifugal thrust. The grit, that is heavy, remains on the side walls of truncated conical body, going down by gravity toward the classifier tank; while the water, that is light, rises towards the outlet under the dynamic thrust of the incoming water. The tank shape allows a further separation of the water still present in the grit and the separation of the grit free of organic substances. While the water, which is rich in organic substances and free of grit, goes out of the tank by means of a special system with adjustable multi-canals, the grit settles on the bottom. The rotating screw picks up the grit from the bottom of the tank and transport them upwards. Immediately outside the water surface of the tank, the grit can be washed of the organic residues it contains thanks to the service water. After the washing, the grit is still transported upwards with a linear-rotational motion suitable to permit the maximum drainage water. The drained grit, which has arrived at the highest part of the classifier, falls through the square discharge pipe into the disposal container. The abrasion effect of the grit on the screw canal is eliminated by the cover, which is made of replaceable panels of highly abrasion-resistant plastic material.

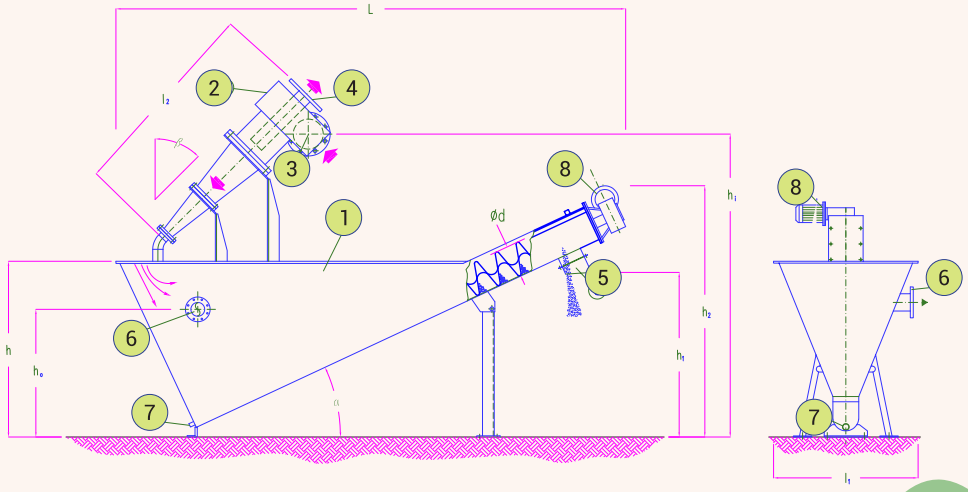
The advantages of this machine are precise, such as its high inlet flow rate, simple construction and high efficiency in separating perfectly washed grit, with low installation and maintenance costs.

STRENGTHS ICES

- HIGH EFFICIENCY IN SAND-SEWAGE SEPARATION;
- HIGH SPECIFIC WATER FLOW RATE;
- EASY OPERATION;
- LOW ENERGY CONSUMPTION.

VERSIONS

The standard construction is in stainless steel with only the hydro cyclone screw in carbon steel, but on request the whole machine can be supplied in stainless steel or in carbon steel .



LEGEND

1. GRIT CLASSIFIER ES TYPE
2. HYDRO CYCLONE ICS TYPE
3. WATER AND GRIT INLET
4. WATER OUTLET
5. GRIT OUTLET
6. DRAINAGE WATER OUTLET
7. BOTTOM DRAIN
8. GEARMOTOR

MAIN FEATURES	U.M.	DIMENSIONAL DATA		
MODEL ICES		**250-200**	**350-300**	**500-400**
SCREW DIAMETER (d)	mm	190	290	350
LENGTH MAX (L)	mm	4380	5230	7140
WIDTH MAX (l_1)	mm	1172	1783	2120
TANK HEIGHT (h)	mm	1420	1750	2550
GRIT DISCHARGE HEIGHT (h_1)	mm	1550	1910	2710
HEIGHT MAX (h_2)	mm	2100	2562	3550
WATER INLET HEIGHT (h_i)	mm	1850	2300	3200
WATER OUTLET HEIGHT (h_0)	mm	1120	1350	2177
INLET DIAMETER PN 10	DN	125	150	250
WATER OUTLET DIAMETER ICS PN 10	DN	200	250	350
WATER OUTLET DIAMETER ES PN10	DN	250	250	250
MAX INLET FLOW RATE	m^3/h	100	200	450
MAXIMUM FLOW RATE OF EXTRACTED GRIT	m^3/h	2,4	4	10
POWER SUPPLY	kW	1,1	1,5	2,2
EMPTY WEIGHT	kg	890	1260	2070

SERECO®



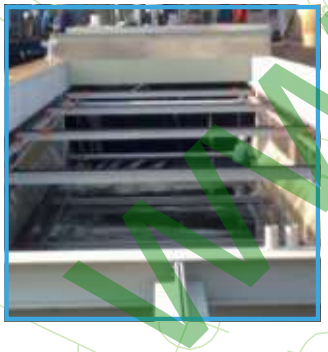













CLARIFIERS GENERAL CATALOGUE

Together with you for a sustainable future

The water clarification process in a civil or industrial treatment plant is one of the crucial phases for the performances of the entire plant.
During the years different technical alternative solutions have been developed to optimize the space consumption, the materials, the power required and the safety of the operators.
The sedimentation process can also be implemented in several stages in a water treatment line.
SERECO has developed and optimized on its own many solutions to respond to applications for drinking water, sewage treatment and industrial water sector to allow an optimal choice for the project.
In the range of SERECO products there is a choice of circular base sedimentation units of different type, with central drive or with peripheral drive. As an alternative, in the case of clarifiers having a rectangular base, chain scrapers are available as well as "back and forward" travelling bridges.
There are also many accessories that on demand are available on clarifiers, as the removal systems of floating substances, the cleaning system of water outlet channels with special brushes, various sludge extraction systems. For applications that require mixing and sedimentation within the same tank, rapid mixers or flocculators can be supplied.
In many solutions it is possible to integrate the installation of lamella packs for greater compactness and performance.
For all models there is a wide range of alternative materials of construction or also combination of parts in different materials, the most used are carbon steel hot dip galvanized, stainless steel of various grades, also duplex or super duplex, and for the parts always at dry the alternative of aluminum that combines lightness, strength and corrosion resistance where the initial investment is amortized in a few years by the reduced maintenance costs.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND MADE AVAILABLE FOR SHIPMENT AND LOADED FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

Peripheral drive scraper for circular decanter

WHEN TO USE IT

The PRTP type Circular Decanter Peripheral Drive Scraper can be used whenever it is necessary to perform a process of sedimentation of water of any capacity that contains sedimentable suspended solids of any nature.

HOW IT'S MADE

The peripheral scraper PRTP consists of a mobile girder with the function of a walkway, a central tower, a central deflector, a traction carriage, a control unit, a scum box, a foaming blade, a series of sludge scraper blades, a perimeter deflector and a weir. The slewing ring unit is mounted centrally to the tank and is equipped with thrust bearings and manifold with double rotating brush distributing machine. The traction trolley and the control unit are positioned peripherally at the walkway.

HOW IT WORKS

The inlet of the sewage is central, but the flow is diverted by the deflector in order to optimize sedimentation. The sedimented sludge is collected and conveyed by the scrapers to the center of the tank. The function of the foaming blade and the scum box is to remove any floating material and substances such as oils and surfactants. The overload protection can be entrusted to an electromechanical torque limiter, suitably adjustable, complete with an alarm signalling device that can be connected to the control panel.

VERSIONS

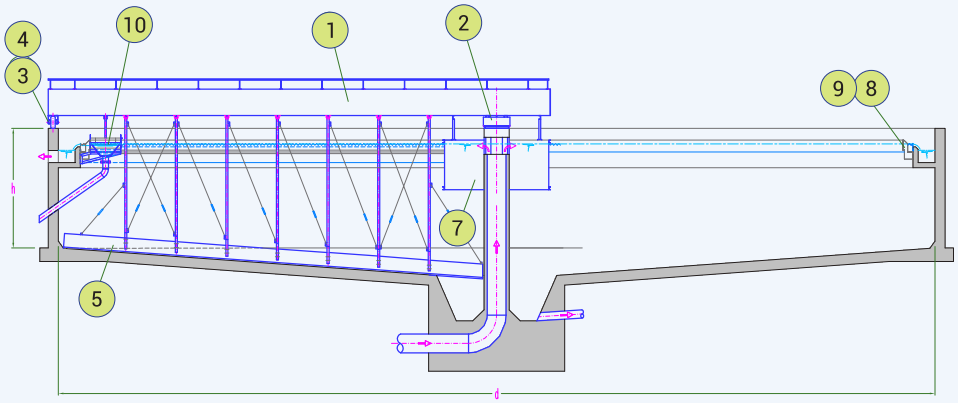
The standard realization is with girder length equal to the radius of the decanter in addition to an additional length of service, on request the type of length equal to 1+1/3 of the radius of the decanter can be provided. The standard construction is in carbon steel protected by hot dip galvanization; on request, the construction in stainless steel or aluminium or combinations of the materials indicated above is possible and if necessary also GRP.

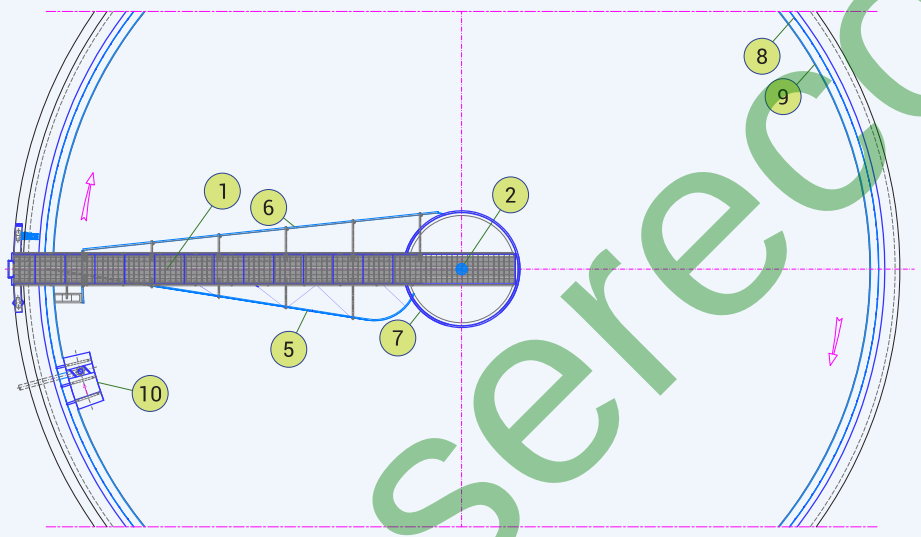
STRENGTHS PRTP

- HIGH EFFICIENCY OF PERIPHERAL DRIVE WITH VERY LOW INSTALLED POWER;
- HIGH STRENGTH MOBILE BRIDGE;
- HIGH EFFICIENCY OF SIMULTANEOUS REMOVAL OF BOTH SLUDGE AND FLOATING SUBSTANCES;
- MECHANICAL COMPONENTS TESTED TO ENSURE 24/24 H OPERATION FOR OVER THIRTY YEARS OF LIFE EXPECTANCY.

Peripheral drive scraper for circular decanter

Peripheral drive scraper for circular decanter





KEY

1. BRIDGE
2. CENTRAL ROTATING UNIT
3. SIDE TROLLEY
4. GEAR MOTOR
5. BOTTOM SCRAPERS
6. FLOATING SCRAPERS
7. CENTRAL DEFLECTOR
8. WEIR
9. PERIPHERAL DEFLECTOR
10. SCUM BOX

MAIN FEATURES	UNIT	DIMENSIONAL DATA														
TANK DIAMETER (d))	m	6	10	12	16	18	24	28	30	32	34	40	46	50	56	60
TANK MINIMUN HEIGHT (h)	m	1,8			2,2			3,0			3,5		4,0	4,5	5,0	
MAX TANK VOLUME	m^3	50 ÷ 14000														
PERIPHERAL SPEED	m/min	2,0 ÷ 2,2														
POWER SUPPLY	kW	0,12			0,18		0,25		0,37				0,5			0,75
METAL PARTS WEIGHT	kg	1230	2122	2385	2913	3218	4538	5024	5727	6875	7329	8731	10006	10807	13195	14330

Diameter peripheral drive scraper for circular decanter

WHEN TO USE IT

The peripheral drive diameter scraper for circular type PRTPD decanter shall be used whenever in a water sedimentation process it is necessary to remove the sedimented sludge in less time than necessary to remove it for a scraper radial type PRTP because the scraper PRTPD in addition to the walkway also has the scraping of the sludge of the diameter type and therefore the time of scraping of the same point of the tank is halved.

HOW IT'S MADE

The diameter peripheral scraper for PRTPD type circular decanter consists of: a pair of mobile girders with a walkway function; a slewing ring unit, a central deflector; two traction trolleys; a control unit for each trolley; a scum box; a radial pair of foam blades; a diameter system of sludge scraper blades; a perimeter deflector and a weir. The slewing ring unit is mounted centrally to the tank and is equipped with thrust bearings and manifold with double rotating brush distributing machine. The traction bogies and their respective control units shall be positioned peripheral to the walkway.

HOW IT WORKS

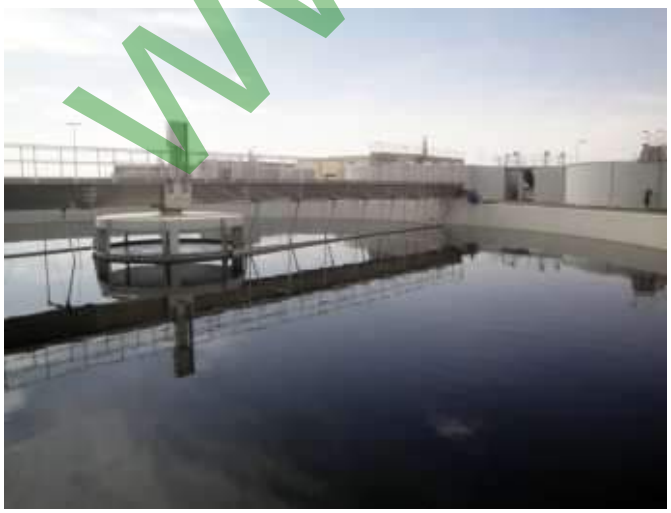
The inlet of the sewage is central, but their flow is diverted by the deflector in order to optimize sedimentation. The sedimented sludge is collected and conveyed by the scrapers to the center of the tank. The function of the foaming blades and the scum box is to remove any floating material and substances such as oils and surfactants. The overload protection can be entrusted to electromechanical torque limiters suitably calibrated complete with alarm signalling device that can be carried over to the control panel.

VERSIONS

The standard construction is in hot galvanized carbon steel, on request it is possible to make stainless steel or aluminum or combinations of the materials indicated above and if necessary also GRP.

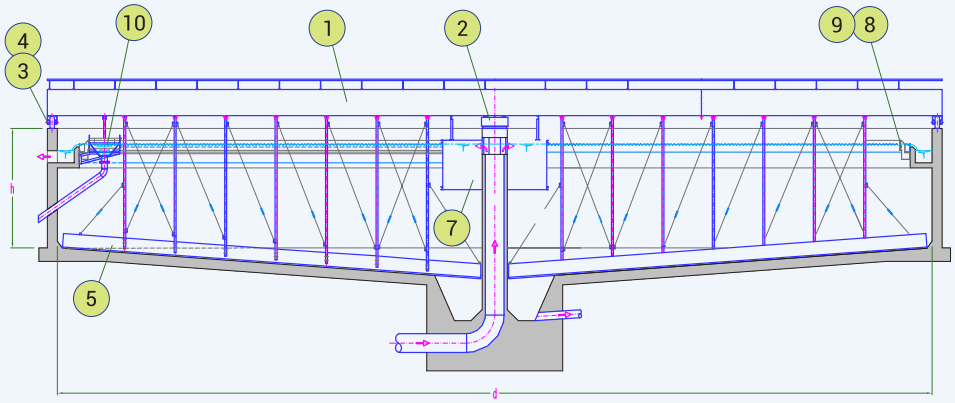
STRENGTHS PRTPD

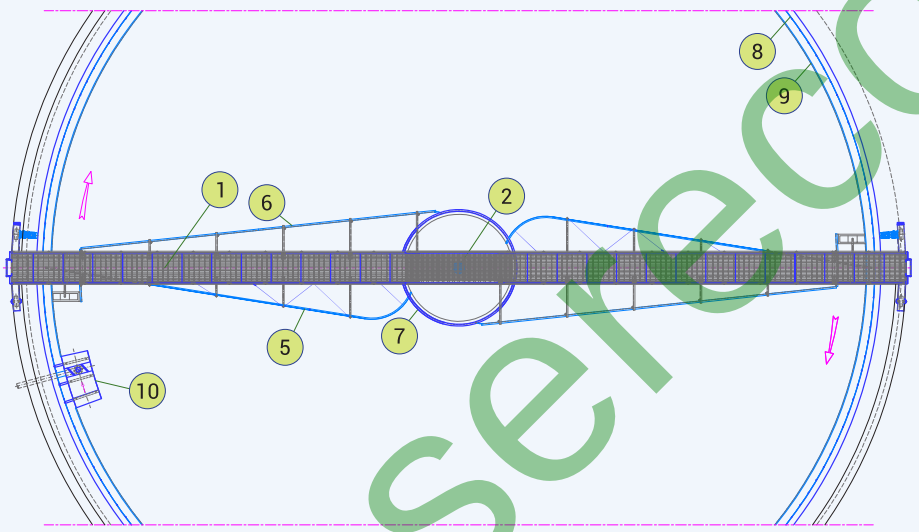
- HIGH EFFICIENCY OF PERIPHERAL DRIVE WITH VERY LOW INSTALLED POWER;
- HIGH STRENGTH MOBILE BRIDGE;
- HIGH EFFICIENCY OF SIMULTANEOUS REMOVAL OF BOTH SLUDGE AND FLOATING SUBSTANCES;
- IF NECESSARY, THE BRIDGE CAN OPERATE WITH ONLY ONE OF THE TWO GEAR MOTORS INSTALLED, ENSURING THE SMOOTH OPERATION OF THE SLUDGE SCRAPING SYSTEM;
- MECHANICAL COMPONENTS TESTED TO ENSURE 24/24 H OPERATION FOR OVER THIRTY YEARS OF LIFE EXPECTANCY.



Diameter peripheral drive scraper for circular decanter

Diameter peripheral drive scraper for circular decanter





KEY

1. BRIDGE
2. CENTRAL ROTATING UNIT
3. SIDE TROLLEY
4. GEAR MOTOR
5. BOTTOM SCRAPERS
6. FLOATING SCRAPERS
7. CENTRAL DEFLECTOR
8. WEIR
9. PERIPHERAL DEFLECTOR
10. SCUM BOX

MAIN FEATURES	UNIT	DIMENSIONAL DATA														
TANK DIAMETER (d))	m	6	10	12	16	18	24	28	30	32	34	40	46	50	56	60
TANK MINIMUN HEIGHT (h)	m	1,8			2,2			3,0			3,5		4,0	4,5	5,0	
MAX TANK VOLUME	m^3	50 ÷ 14000														
PERIPHERAL SPEED	m/min	2,0 ÷ 2,2														
POWER SUPPLY	kW	0,12X2			0,18X2		0,25X2		0,37X2				0,5X2			0,75X2
METAL PARTS WEIGHT	kg	1614	2892	3317	4090	4524	6842	7906	8405	10311	10987	12963	14861	16076	19878	21447

Scraper with peripheral drive with three arms for circular decanter

WHEN TO USE IT

The peripheral drive diameter scraper for circular type PRTPT decanter shall be used whenever, in a water sedimentation process, it is necessary to remove sedimented sludge in less time than necessary to remove it for a scraper radial or diametrical or when the sludge is of inorganic origin and therefore particularly heavy and/or in high concentrations not sufficient to remove them a standard two-arm scraper type PRTPD.

HOW IT'S MADE

The peripheral scraper with three arms for circular decanter type PRTPT consists of: three mobile racks with the function of support and traction of the sludge scraping systems and support of the gangway; a slewing ring group; a central deflector; three traction trolleys; one control unit for each trolley; one scum box; one or more skimmer blades; three sludge scraper blade systems; one perimeter deflector and one weir. The slewing ring group is mounted centrally to the tank and is equipped with thrust bearings and manifold with double rotating brush distributing machine. The drive bogies and their respective control units are positioned peripheral to the racking.

HOW IT WORKS

The inlet of the sewage is central, but their flow is diverted by the deflector in order to optimize sedimentation. The sedimented sludge is collected and conveyed by the scraping systems to the center of the tank. The function of the foaming blades and the scum box is to remove any floating material and substances such as oils and greases. The overload protection can be entrusted to electromechanical torque limiters suitably calibrated complete with alarm signalling device that can be carried over to the control panel.

VERSIONS

The standard construction is with three arms all motorized but only one equipped with a radial walkway, on request it is possible to provide the version with two or three walkways.

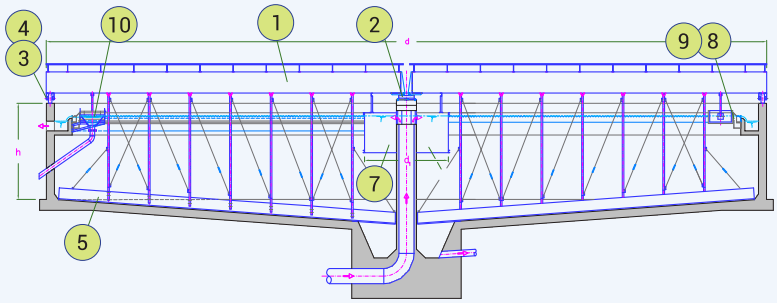
The standard construction is in hot galvanized carbon steel, on request it is possible to make stainless steel or aluminum or combinations of the materials indicated above and if necessary also GRP.

STRENGTHS PRTPT

- HIGH EFFICIENCY OF PERIPHERAL DRIVE WITH VERY LOW INSTALLED POWER;
- RECOMMENDED FOR HEAVY SLUDGE FROM RIVER WATER WITH PRESENCE OF LARGE AMOUNTS OF SILT IN PERIODS OF FLOODING OR WASTEWATER FROM MINING;
- HIGH STRENGTH MOBILE BRIDGE;
- HIGH EFFICIENCY OF SIMULTANEOUS REMOVAL OF BOTH SLUDGE AND FLOATING SUBSTANCES;
- IN CASE OF NEED THE BRIDGE CAN OPERATE WITH ONE OR TWO OF THE THREE GEAR MOTORS INSTALLED ENSURING THE OPERATION OF THE SLUDGE SCRAPING SYSTEM;
- MECHANICAL COMPONENTS TESTED TO ENSURE 24/24 H OPERATION FOR OVER THIRTY YEARS OF LIFE EXPECTANCY.

Scraper with peripheral drive with three arms for circular decanter

Scraper with peripheral drive with three arms for circular decanter



KEY

1. MOBILE GIRDER
2. SWEARING RING GROUP
3. TRACTION TROLLEYS
4. GEARED MOTORS
5. SLUDGE SCRAPER BLADES
6. SKIMMING BLADE
7. CENTRAL DEFLECTOR
8. WEIR
9. PERIMETER DEFLECTOR
10. SCUM BOX
11. TIE RODS

MAIN FEATURES	UNIT	DIMENSIONAL DATA											
TANK DIAMETER (d))	m	16	18	24	28	30	32	34	40	46	50	56	60
TANK MINIMUN HEIGHT (h)	m	2,2			3,0			3,5		4,0	4,5	5,0	
PERIPHERAL SPEED	m/min	2,0 ÷ 2,2											
POWER SUPPLY	kW	0,18X3		0,25X3		0,37X3				0,5X3			0,75X3
METAL PARTS WEIGHT	kg	5889	6516	9852	11384	12103	14848	15821	18666	21399	23149	28624	30883

Scraper for circular decanter with central control

WHEN TO USE IT

The centrally controlled scraper for circular decanter PRCC type can be used whenever it is necessary a process of sedimentation of water of any flow rate that contains sedimentable suspended solids of any nature.

HOW IT'S MADE

The scraper for circular decanter with central command type PRCC consists of: a rotation group with central control complete with gear motor; a bottom scraping system provided that in the standard version consists of two arms blade-holder; a central baffle cylinder and a peripheral weir. The control group shall be positioned centrally. It includes an electric motor and a multi-stage reduction group of the coaxial and/or planetary type. For diameters equal to or greater than 20 meters there is also a reduction with slewing ring and pinion suitably sized. Overload protection is provided by an electronic torque limiter for diameters up to 20 meters and by a calibratable torque limiter, complete with an alarm warning device, for diameters equal to or greater than 20 meters.

HOW IT WORKS

The inlet of the sewage is central, to optimize the sedimentation the flow is diverted by the baffle cylinder. The sludge scraper blades remove the sludge precipitated on the inclined bottom of the tank and collect it in a pit located in the center, from where they are then sucked. The clarified water is removed through the weir. This type of scraper combines the functionality of circular, even large diameter, Sedimention tank with the advantages of the central control. The scraping systems and all the mobile parts of the bridge, are supported and set in motion only through the central group, this allows to keep the upper part of the sedimenter free from mechanical parts in motion, allowing, for example, the installation of lamella pack inside, and avoids the maintenance on the edge of the settler required in the case of peripheral control bridges at the traction trolleys.

STRENGTHS PRCC

- CONTROL AND TRANSMISSION DEVICES ALL LOCATED IN THE CENTRAL PART;
- VOLUME OF THE SETTLER FREE OF MOVING MECHANICAL PARTS;
- REDUCED MAINTENANCE OF THE REINFORCED CONCRETE TANK;
- LOW ENERGY CONSUMPTION;
- POSSIBILITY OF SIMULTANEOUS REMOVAL OF SEDIMENTED SLUDGE AND FLOATING SUBSTANCES.

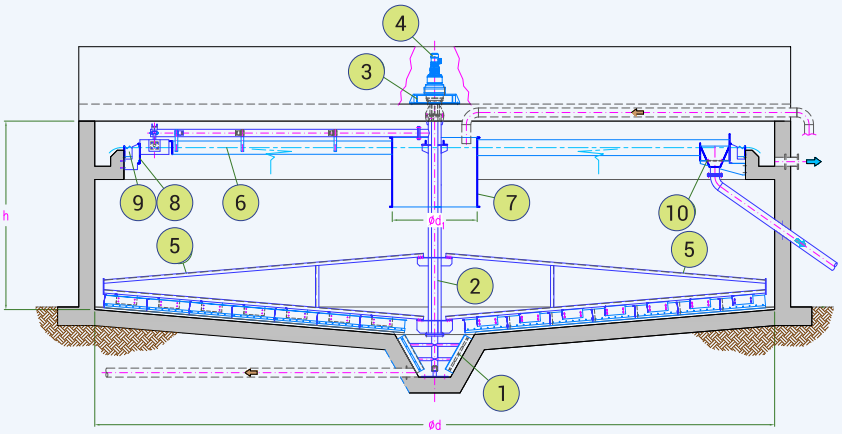
Scraper for circular decanter with central control

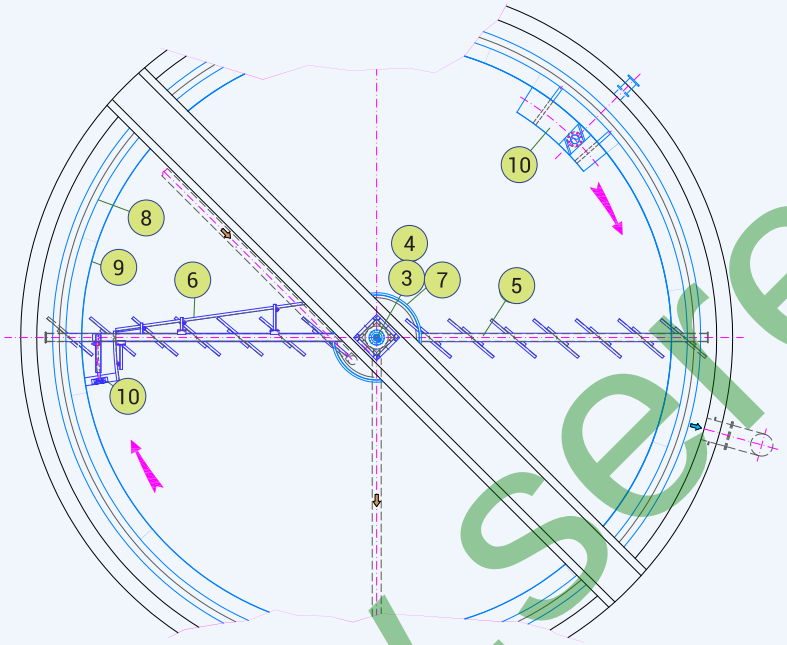
VERSIONS

The standard version is with diameter type sludge-scraper system but on request is possible the version with three or four arms.

On request, is possible to realize the system of collection and evacuation of floating substances, consisting of surface scrapers, peripheral deflector and collection tray, aswell is possible to provide a metal walkway for the inspection of the central group, its standard execution is diametrical up to 20 meters and radial for diameters equal to or greater than 20 meters. It is also possible to supply the PRACC type with suction system for sludge extraction, see specific brochure.

The standard construction is in carbon steel protected by hot dip galvanization, on request the constr make stainless steel or aluminum or combinations of the materials indicated above and if necessary also GRP.





KEY

1. SCRAPER
2. CENTRAL SHAFT
3. CONTROL HEAD
4. GEAR MOTOR
5. SLUDGE-SCRAPER BLADE
6. FOAMING BLADE
7. FEED CYLINDER
8. WEIR
9. PERIPHERAL DEFLECTOR
10. SCUM BOX

MAIN FEATURES	UNIT	DIMENSIONAL DATA														
DIAMETER TANK (d)	m	3	6	8	10	14	18	22	26	30	34	40	46	50	56	60
MINIMUM HEIGHT TANK (h)	m	1,8		2,2			2,6		3,0		3,5		4,0	4,5	5,0	
PERIPHERAL SPEED	m/min	1,4 ÷ 2														
POWER SUPPLY	kW	0,18			0,25		0,35	0,55		0,75	1,1		1,5			
METAL PARTS WEIGHT (*)	kg	650	1050	1300	1500	2300	3000	5200	6850	8300	9750	11600	13350	14500	18700	20000

(*) Excluding weight of the gangway, if any.

High efficiency scraper for centrally controlled decanter

WHEN TO USE IT

The PRCCL type high efficiency central drive scraper can be used whenever it is necessary a process of sedimentation of water of any capacity that contains sedimentable suspended solids of any nature in a space and volume reduced to technical and/or commercial reasons.

HOW IT'S MADE

The circular scraper type PRCCL is installed in a concrete tank with a square plan but with a bottom that through appropriate chamfers cut into the corners takes on the circular shape with a diameter equal to the side of the square.

The PRCCL type centrally controlled scraper consists of: a rotation group with central control complete with gear motor; a bottom scraping system with two blade arms; a weir of incoming water distribution to be settled; a system of channels and overflow collection of sedimented water and a system of lamella packs that cover almost the entire surface of the tank. The control group shall be positioned centrally. It includes an electric motor and a multi-stage reduction group of the coaxial and/or planetary type. For diameters equal to or greater than 20 meters there is also a reduction with slewing ring and pinion suitably sized. Overload protection is provided by an electronic torque limiter for diameters up to 20 meters and by a calibratable torque limiter, complete with an alarm warning device, for diameters equal to or greater than 20 meters.

HOW IT WORKS

The water inlet is lateral on one of the four sides of the tank through adjustable weir, the flow is deflected downwards by a deflector to create a laminar flows with low and uniform speeds that cover all the lamella placed high below the water surface. When the water flow passes through the lamella from the bottom upwards the solids still suspended in the water stop under the surface of the lamella where, accumulating and aggregating with each other assume a size and shape such as to facilitate their precipitation on the bottom of the tank. The sludge scraper blades remove the sludge precipitated on the inclined bottom of the tank and collect it in a pit located in the center, then they are sucked. The clarified water is moved away through the system of channels, which can be built in both concrete that steel, and its adjustable weir.

This type of combines the functionality of traditional sedimention tanks with the advantages of high efficiency of lamella packs decanter

STRENGTHS PRCCL

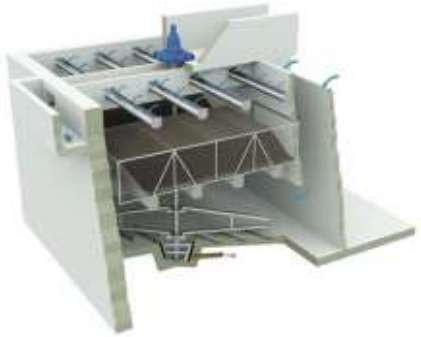
- CONTROL AND TRANSMISSION DEVICES ALL LOCATED IN THE CENTRAL PART;
- THE VOLUME OF THE DECANTER REDUCED TO A MINIMUM BY THE PRESENCE OF THE LAMELLA PACK;
- SEDIMETING AREA REDUCED FROM 5 TO ABOUT 12 TIMES IN RELATION TO THE SURFACE AREA REQUIRED BY CONVENTIONAL SYSTEMS.

VERSIONS

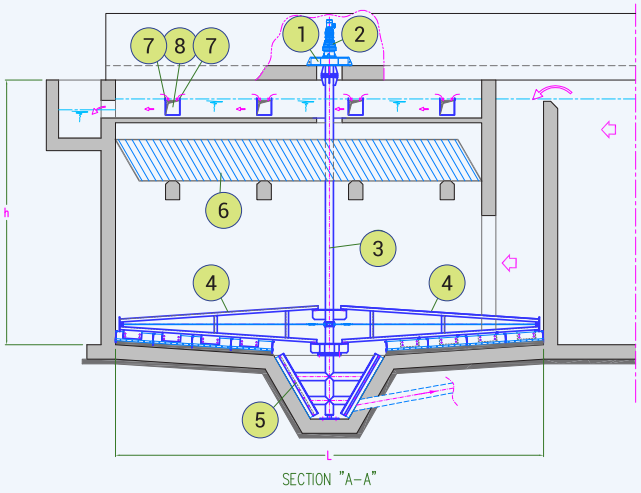
It is possible to have as an alternative to the top-up power supply also the bottom-up power and the flow control through suitable distribution manifolds.

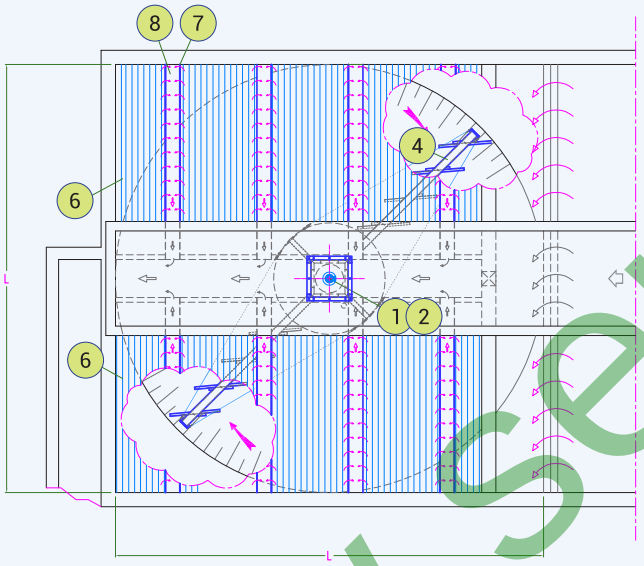
Upon request, a metal walkway can be provided for the inspection of the central assembly.

The standard realization that applies to all the components is in hot galvanized carbon steel, on request it is possible to make stainless steel or aluminum or combinations of the materials indicated above and if necessary also GRP.



High efficiency scraper for centrally controlled decanter





KEY

1. GEAR MOTOR
2. CONTROL HEAD
3. CENTRAL SHAFT
4. SCRAPER
5. SCRAPER
6. LAMELLA PACK
7. WEIR
8. WATER OUTLET CHANNEL

MAIN FEATURES	UNIT	DIMENSIONAL DATA												
SIDE TANK (L)	m	3	4	5	6	8	10	12	14	16	18	20	22	24
MINIMUM HEIGHT TANK (h)	m	4,8		5,2			5,6		6,0		6,5		7	7,5
PERIPHERAL SPEED	m/min	1,4 ÷ 2												
POWER SUPPLY	kW	0,18			0,18		0,25	0,25		0,37	0,55		0,55	
NOMINAL FLOW RATE (*)	kg	110	192	300	432	768	1200	1728	2352	3072	3888	4800	5808	6912

(*)Nominal flow rate to be verified from time to time according to the characteristics of the water and lamella.

Peripheral drive aspirated scraper for circular decanter

WHEN TO USE IT

The PRATP Circular Decanter Peripheral Drive Scraper can be used whenever it is necessary to perform a sedimentation process of water of any flow rate that contains sedimentable suspended solids of any nature, when the recirculation flow or the amount of sludge to be removed is such that aspiration is also required.

HOW IT'S MADE

The aspirated scraper bridge unit for peripheral traction circular decanter type "PRATP", is essentially made up of: a mobile girder, made of suitably bent and reinforced sheet metal, with the function of walkway; a side trolley with two wheels, one driving and one idle; a central bridge support group consisting a slewing ring unit,, double brush distribution manifold for electrical power supply; a gearmotor of the orthogonal axis type placed on the driving wheel of the bridge, with motion transmission to the driving wheel itself; set of bottom scraping blades suitably shaped to convey the sludge to the accumulation and suction point; complete set of sludge suction pipes in the lower inlet end part and in the upper part of a telescopic valve with handwheel that can be operated from the gangway; two metal trays for the accumulation of the sucked sludge; two siphons for discharging recirculation sludge; mobile grease scraper unit with shaped skids so as to convey the greases into a special hopper; an electro-aspirator suitable for automatically priming the siphons; set of instruments suitable for automatic operation; hopper unit for foam collection complete with discharge pipe; peripheral group consisting of a Thompson-type steel weir and relative foam deflector;

STRENGTHS PRATP

- HIGH EFFICIENCY OF PERIPHERAL TRACTION WITH VERY LOW INSTALLED POWER;
- MOBILE BRIDGE OF HIGH STRENGTH;
- HIGH EFFICIENCY OF THE CONTEMPORARY REMOVAL OF BOTH SLUDGE AND FLOATING SUBSTANCES;
- MECHANICAL COMPONENTS TESTED TO ENSURE A 24/24 H OPERATION FOR MORE THAN THIRTY YEARS OF EXPECTED LIFE;
- LOW ENERGY CONSUMPTION IN RELATION TO THE QUANTITY OF SLUDGE EXTRACTED;
- GREAT EFFICIENCY AND RAPIDITY OF SLUDGE EXTRACTION;
- POSSIBILITY TO ADJUST THE QUANTITY OF SLUDGE EXTRACTED WITH DIFFERENT FLOWS FROM THE VARIOUS AREAS OF THE TANK.

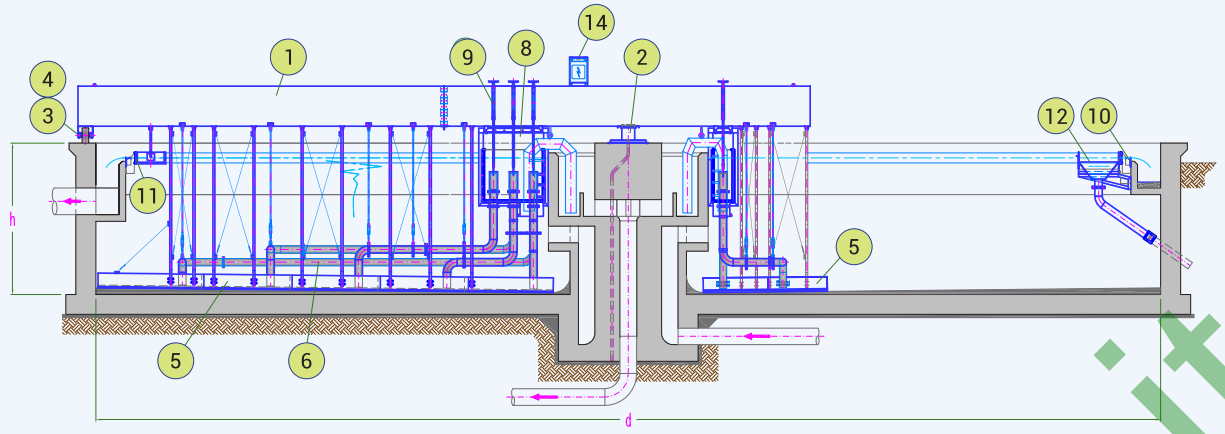
Peripheral drive aspirated scraper for circular decanter

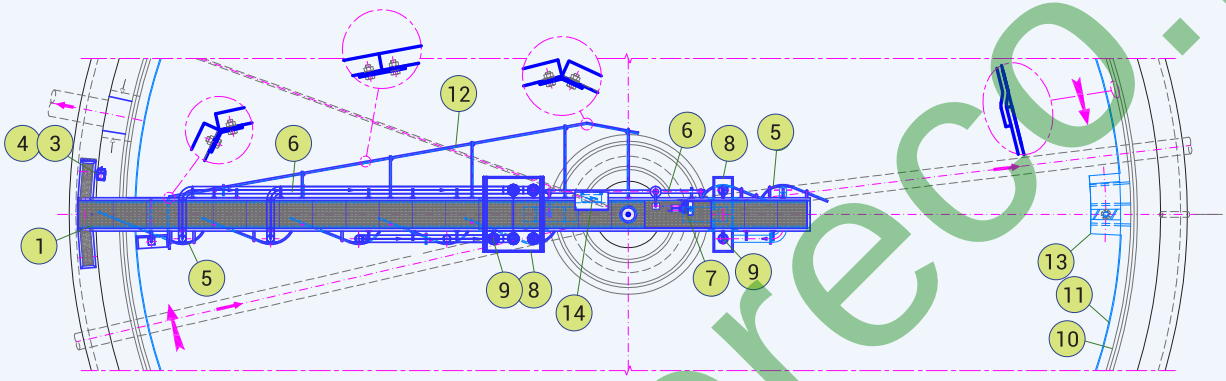
HOW IT WORKS

The aspirated scraper bridge unit for peripheral drive circular decanter type "PRATP" is a machine suitable for the sedimentation process of secondary sludge from biological waste water processes. The sewage inlet come from central column which, in addition to supporting the central part of the bridge, being hollow, is used as a supply pipeline. The control unit drags the walkway and the entire sludge suction system around the central axis, in correspondence with a central circular wall with inside a compartment where the sludge is discharged through the siphons. In fact, the sludge that settles on the bottom of the sedimenter is continuously sucked from the set of pipes positioned in a regular manner over the entire diameter of the tank. The pipes are divided into 2 groups, one on the entire radius of the decanter, and the other on 1/3 of the radius and discharge by gravity respectively into 2 tubs positioned near the central wall. Both tanks, which rotate with the bridge, are continuously discharged through the two siphons.

A telescopic valve is mounted on the upper end of each sludge suction pipe with which, by means of a handwheel positioned on the gangway, it is possible to adjust the flow rate of the sucked sludge.

The protection against overloads can be carried out by an electromechanical torque limit switch,complete with an





KEY

1. MOBILE BEAM
2. SLEWING RING UNIT
3. TRACTION TROLLEY
4. GEAR MOTOR
5. SLUDGE SCRAPER BLADES
6. SLUDGE SUCTION PIPES
7. ASPIRATOR
8. SLUDGE COLLECTION TRAY
9. TELESCOPIC VALVES
10. WEIR
11. PERIMETER DEFLECTOR
12. FOAMING BLADE
13. SCUM BOX
14. ELECRICAL PANEL

alarm signaling device that can be brought back to the command and control panel.

VERSIONS

The standard construction is with the length of the girder and sludge suction systems equal to the radius of the decanter + 1/3 of the same radius, the diametrical version is available on request (see PRATPD brochure).

The standard construction is in carbon steel protected with hot dip galvanization; on request, the construction in stainless steel or aluminium or combinations of the materials indicated above is possible and, if necessary, also GRP.

MAIN FEATURES	UNIT	DIMENSIONAL DATA											
TANK DIAMETER (d)	m	16	18	24	28	30	32	34	40	46	50	56	60
MINIMUM HEIGHT TANK (h)	m	2,2			3,0			3,5		4,0	4,5	5,0	
PERIPHERAL SPEED	m/min	2,0 ÷ 2,2											
INSTALLED POWER TRANSLATION	kW	0,18	0,18	0,25	0,37	0,37	0,37	0,37	0,37	0,55	0,55	0,55	0,75
WEIGHT METAL PARTS	kg	4240	4790	7340	8820	9590	11550	12570	15940	18380	22050	26320	29610

Aspirated scraper with diametrical peripheral traction

WHEN TO USE IT

The PRATPD type Circular Decanter Peripheral Drive Scraper can be used whenever it is necessary a process of water's sedimentation of any flow rate that contains sedimentable suspended solids of any nature, when the recirculation flow rate or the amount of sludge to be removed is such that the sludge must be removed over the entire diameter of the tank.

HOW IT'S MADE

The group scraper bridge diametrically aspirated peripheral traction type "PRATPD", consists essentially of: a mobile diameter girder, sheet metal properly bent and reinforced, used as walkway; two side trucks, each with two wheels, a drive unit and a idle; a slewing ring unit, a dual-brush collector for distribution of electrical power; two orthogonal axis geared motors on the driving wheels of the bridge, with transmission of the motion to the same wheels; set of bottom scraping blades suitably shaped to convey the mud to the point of accumulation and intake; set of complete sludge suction pipes in the lower end of the inlet and in the upper part of telescopic valve with handwheel manoeuvrable from the gangway; two metal trays for the accumulation of sucked sludge; two siphons for draining recirculation sludge; Mobile scraper unit for greases with skids shaped so as to convey the greases in the appropriate hopper; an electro-aspirator suitable for triggering the siphons automatically; set of instrumentation suitable for automatic operation; scum box complete with drain pipe; peripheral group composed of steel weir type Thompson and relative flap.

HOW IT WORKS

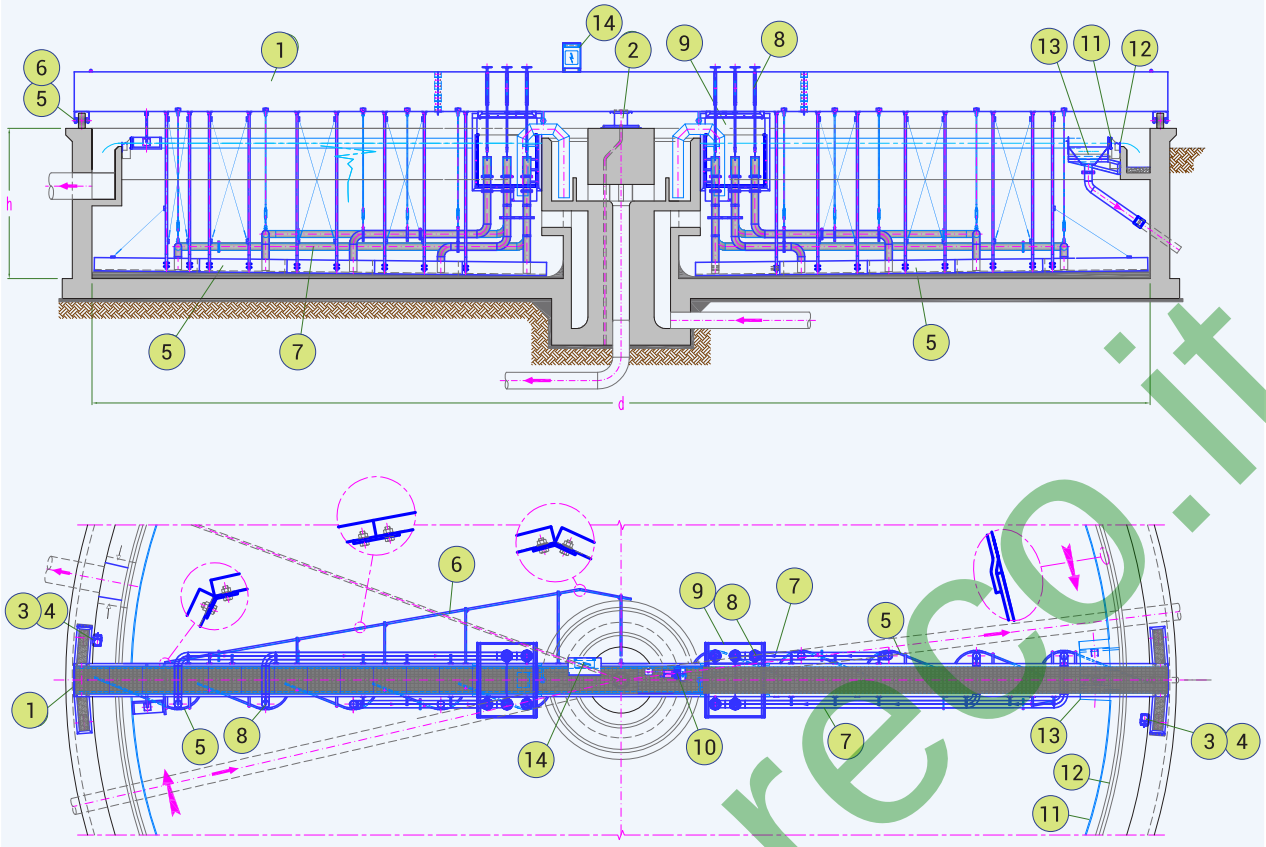
The scraper bridge group diametrically aspirated peripheral traction type "PRATPD" is a machine suitable for the process of sedimentation of secondary sludge from biological waste water processes. The sewage enters the settled through the central column which, in addition to supporting the central part of the bridge, being hollow, is used as a supply line. The control unit carries the gangway and the whole sludge suction system around the central axis, where a circular central wall containing a compartment where sucked sludge is discharged through the siphons. In fact, the sludge that is deposited on the bottom of the sedimenter, is continuously sucked from the set of pipes placed in a regular way on the entire diameter of the tank. The pipes are divided into 2 radial groups and discharge gravity respectively in 2 trays located near the central wall. Both tanks that rotate with the bridge, are discharged continuously through the two siphons.

On the upper end of each sludge suction pipe is mounted a telescopic valve, with a handwheel positioned on the gangway, to adjust the flow rate of the sludge sucked. The protection against overloads can be carried out by the electro-mechanical

STRENGTHS PRATPD

- HIGH EFFICIENCY OF PERIPHERAL TRACTION WITH VERY LOW INSTALLED POWER;
- HIGH STRENGTH MOBILE BRIDGE;
- HIGH EFFICIENCY OF SIMULTANEOUS REMOVAL OF BOTH MUD AND FLOATING MATTER;
- MECHANICAL COMPONENTS TESTED TO ENSURE 24/24 H OPERATION FOR MORE THAN 30 YEARS OF EXPECTED LIFE;
- LOW ENERGY CONSUMPTION IN RELATION TO THE QUANTITY OF EXTRACTED SLUDGE;
- HIGH EFFICIENCY AND SPEED OF SLUDGE EXTRACTION;
- POSSIBILITY OF ADJUSTING THE QUANTITY OF MUD EXTRACTED WITH FLOW RATES DIFFERENT FROM THE VARIOUS AREAS OF THE TANK.

Aspirated scraper with diametrical peripheral traction



KEY

1. MOBILE GIRDER
2. SLEWING GROUP UNIT
3. TRACTION TROLLEYS
4. GEARMOTORS
5. SLUDGE SCRAPER BLADES
6. FOAMING BLADE
7. SLUDGE SUCTION PIPES
8. TELESCOPIC VALVES
9. SLUDGE COLLECTION TRAY
10. ASPIRATOR
11. PERIMETER DEFLECTOR
12. WEIR
13. SCUM BOX
14. ELECTRICAL PANEL

torque limit switches, adequately set, complete with alarm signals displayed on the control panel.

VERSIONS

The standard realization is with length of the girder and of the systems of aspiration sludge equal to the diameter of the tank but if required is available with length equal to the radius of the decanter +1/3 of the same radius, for this version see brochure PRATP.

The standard construction is in carbon steel protected by hot dip galvanization, on request the construction in stainless steel or aluminum or combinations of the materials indicated above is possible.

MAIN FEATURES	UNIT	DIMENSIONAL DATA											
TANK DIAMETER (d)	m	16	18	24	28	30	32	34	40	46	50	56	60
MINIMUM HEIGHT TANK (h)	m	2,2			3,0			3,5		4,0	4,5	5,0	
PERIPHERAL SPEED	m/min	2,0 ÷ 2,2											
POWER SUPPLY TRACTION	kW	0,18x2	0,18x2	0,25x2	0,37x2	0,37x2	0,37x2	0,37x2	0,37x2	0,55x2	0,55x2	0,55x2	0,75x2
METALLIC PARTS WEIGHT	kg	5600	6320	9840	11820	12840	15660	17000	21210	24540	29630	36020	39305

Aspirated scraper for circular decanter with central control

WHEN TO USE IT

The scraper for decanter circular with central command PRACC type can be used whenever a secondary sedimentation process of activated sludge is required, when the recirculation flow or the amount of sludge to be removed is such that aspiration is also required.

HOW IT'S MADE

The scraper for decanter circular with central command PRACC type consists of: a rotation group with central control complete with gear motor; a scraping system bottom provided consisting of two arms with blades suitable for suction; a central baffle cylinder; two trays suitable for the installation of as many siphons for the discharge of sludge; a suction system composed of vents, intake pipes and telescopic valves in number equal but proportional to the amount of sludge to be sucked; a mobile scraper unit for greases with skids shaped so as to convey the greases in a special hopper placed on the outer wall of the tank; an electric aspirator suitable for triggering the siphons automatically; a peripheral weir with its deflector and a set of instrumentation suitable for the automatic operation of the suction bridge.

The control group shall be positioned centrally. It includes an electric motor and a multi-stage reduction group of the coaxial and/or planetary type. For diameters equal to or greater than 20 meters there is also a reduction with slewing ring and pinion suitably sized. Overload protection is provided by an electronic torque limiter for diameters up to 20 meters and by a calibratable torque limiter, complete with an alarm warning device, for diameters equal to or greater than 20 meters.

HOW IT WORKS

The "PRACC" type central-controlled suction settler is a machine suitable for the process of sedimentation of secondary sludge from biological waste water processes. The water and sludge mixture enters the sedimenter through the conduit with a circular crown section formed internally by the sludge drain pipe and externally by the concrete hollow column supporting the central part of the walkway.

The control unit pulls the diameter bottom scraper and then all the sludge suction equipment around the central axis. In fact, the sludge that is deposited on the bottom of the sedimenter, is continuously sucked by a series of pipes positioned in a regular manner on the entire diameter of the tank, the pipes are divided into 2 groups, one per radius, and gravity discharge respectively in 2 metal trays placed in the center of the rotating bridge under the walkway and at the central skirt. The 2 metal trays, which run continuously with the bridge and then also with the 2 series of suction pipes communicate through 2 siphons also revolving with the central sludge drain pipe, continuously discharging the sludge of the 2 metal trays. On the upper end of each sludge suction pipe is mounted a telescopic valve that through a handwheel positioned on the walkway, at man height, you can adjust the flow rate of the sludge sucked. Normally the siphons work continuously without the intervention of external energy, only when the settler is started or after accidental or programmed stops are triggered, with the aspirator mounted on deck.

VERSIONS

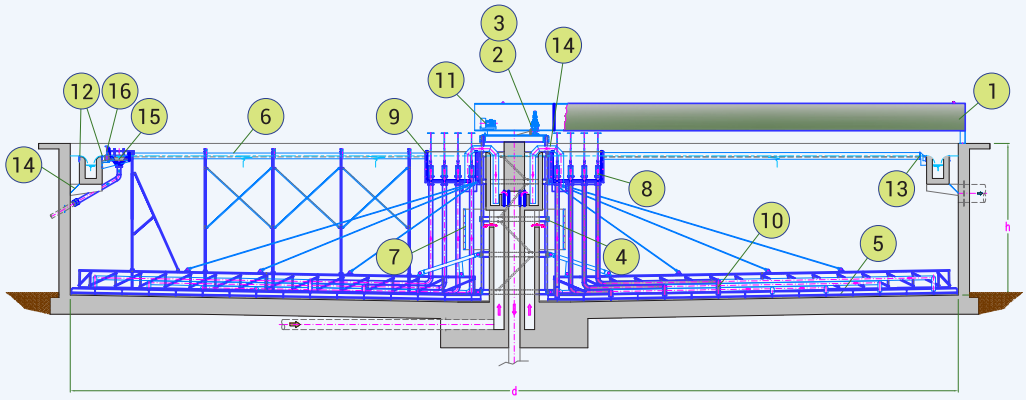
The standard version of this machine is with diameter sludge-scraper system and radial walkway + about 1/3 radius, while the central support tower of the whole equipment is made of concrete but on request can be supplied in metal.

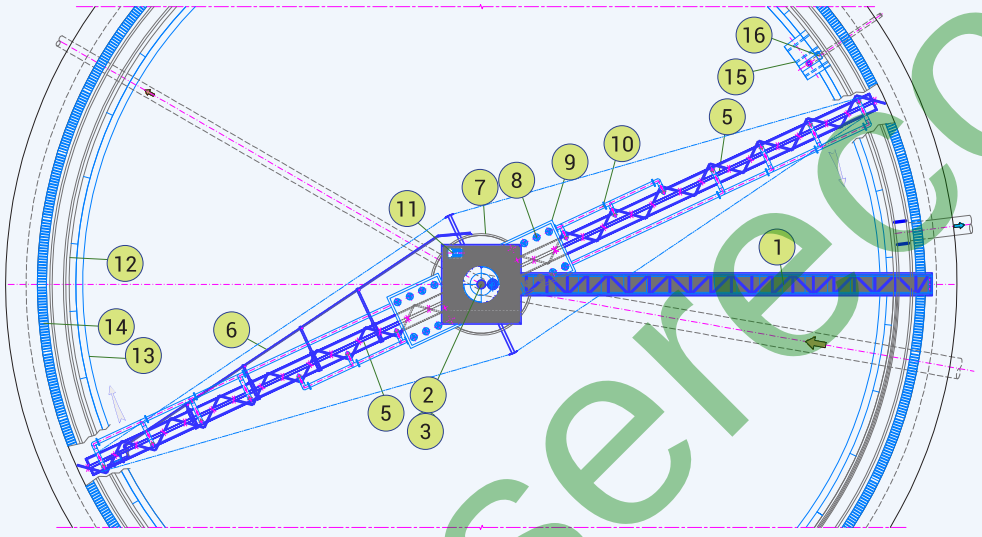
Also the presence of the system of collection and evacuation of floating substances, consisting of surface scrapers, peripheral deflector and collection tray is available only on request.

The standard construction is in carbon steel protected by hot dip galvanization, on request it is possible to make stainless steel or aluminum or combinations of the materials indicated above and if necessary also GRP.

STRENGTHS PRACC

- CONTROL AND TRANSMISSION DEVICES ALL LOCATED IN THE CENTRAL PART;
- LOW ENERGY CONSUMPTION IN RELATION TO THE QUANTITY OF EXTRACTED SLUDGE;
- HIGH EFFICIENCY AND SPEED OF SLUDGE EXTRACTION;
- POSSIBILITY OF ADJUSTING THE AMOUNT OF SLUDGE EXTRACTED WITH DIFFERENT FLOW RATES FROM THE VARIOUS AREAS OF THE TANK.





KEY

1. FIXED BRIDGE
2. CONTROL HEAD WITH SLEWING RING
3. GEAR MOTOR
4. ROTATING TRELLIS
5. BOTTOM SCRAPERS
6. SCRAPERS FOR FLOATING MATERIAL
7. DEFLECTOR
8. TELESCOPIC VALVES FOR SLUDGE
9. MSLUDGECOLLECTION CHAMBER
10. SLUDGE SUCTION TUBES
11. ASPIRATOR
12. STRAITS A V
13. FLOATING MATERIAL DEFLECTOR
14. PERIPHERAL DEFLECTOR
15. SCUM BOX
16. SCUM BOX FLOW VALVE

MAIN FEATURES	UNIT	DIMENSIONAL DATA									
TANK DIAMETER (d)	m	18	22	26	30	34	40	46	50	56	60
MINIMUM HEIGHT TANK (h)	m	2,6		3,0		3,5		4,0	4,5	5,0	
PERIPHERAL SPEED	m/min	1,4 ÷ 2									
INSTALLED POWER TRANSLATION	kW	0,37	0,55		0,75	1,1		1,5			
WEIGHT METAL PARTS (*)	kg	4500	7670	9932	11830	13650	15950	18350	19575	23840	25000

(*) Excluding weight of steel gangway, if any.

Backward and forward sludge aspirator for rectangular decanter

WHEN TO USE IT

The PRVA Rectangular Decanter Sludge Suction Bridge can be used whenever it is necessary to perform a sedimentation process of water of any flow rate that contains sedimentable suspended solids of any nature, when the recirculation flow or the amount of sludge to be removed is such that aspiration is also required.

HOW IT'S MADE

The backward and forward scraper for rectangular decanter type PRVA consists of: a mobile girder with the function of a walkway; a pair of lateral sliding trolleys; an articulated system for the collection of sludge and the skimming of the foams; a mobile sludge extraction system with bridge; a gear motor to drive the two side carriages, a control unit of the articulated bottom scraper system and foaming blade; and an electric control panel. The gear motor and the control unit are mounted at the centre of the bridge.

HOW IT WORKS

The water inlet is located on one of the two short sides of the tank. During the outward run, the sludge is scraped from the bottom scraper, in the direction opposite to the horizontal component of the rate of sedimentation. The floating substances are collected by the surface scraper in one of the two phases of the movement. The sludge extraction system is of the siphon type with several predetermined suction points and is transported directly from the bridge. The standard scope of supply includes the suction unit for the initiation of the siphon, valves, pipes, solenoid valves and various accessories.

Protection against overload is provided by a system of periodic control of the bridge working cycle.

STRENGTHS PRVA

- SIMULTANEOUS REMOVAL OF SEDIMENTED MUD AND FLOATING SUBSTANCES;
- SCRAPER HANDLING SYSTEM SAFE AND PRECISE AS IT USES NEITHER CHAINS NOR TRANSMISSION CABLES OF THE MOTION BUT ONLY SPECIAL RIGID CAMS ON THE SHAFTS;
- LOW ENERGY CONSUMPTION IN RELATION TO THE AMOUNT OF SLUDGE EXTRACTED;
- HIGH EFFICIENCY AND SPEED OF SLUDGE EXTRACTION;
- POSSIBILITY TO ADJUST THE AMOUNT OF MUD EXTRACTED WITH DIFFERENT FLOW RATES FROM THE VARIOUS AREAS OF THE TANK.
- ROBUSTNESS AND RELIABILITY.

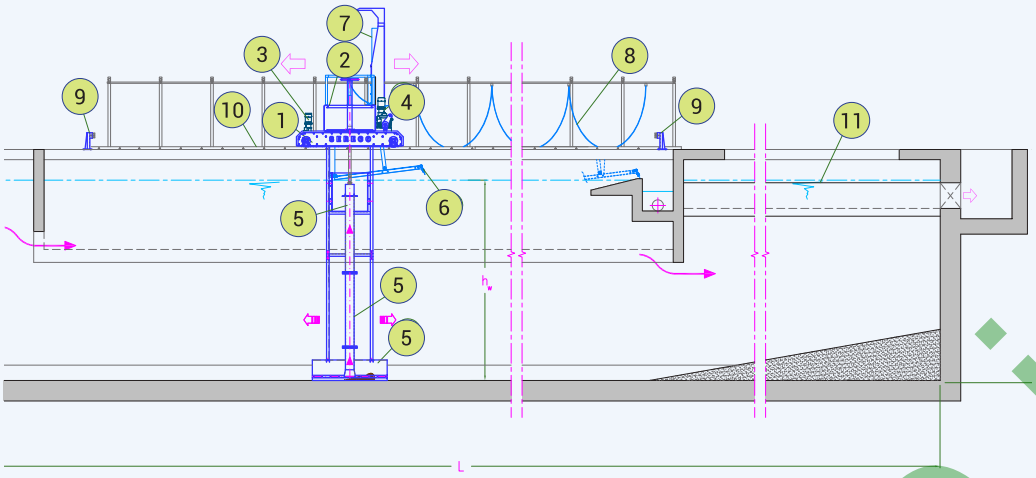
VERSIONS

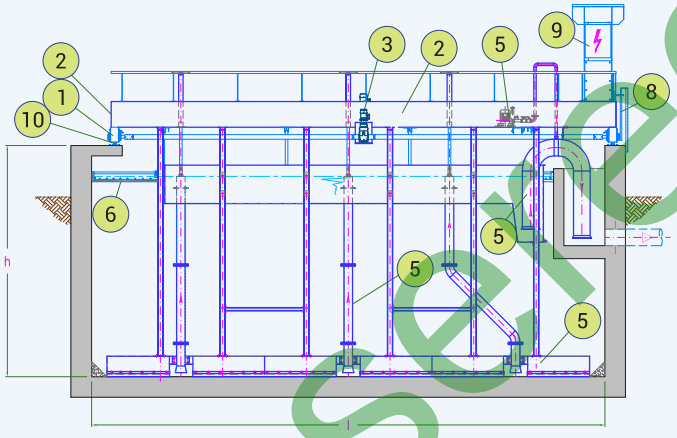
On request it is possible to supply the sludge suction system of the type with submersible pump, or by air-lift. Protection against overload is provided by a system of periodic control of the bridge working cycle.

In the standard execution the bridge slides on solid rubber tyred wheels and the power is supplied by a festoon cable; on request the traslation system can be conceived on rails with carbon steel wheels.

The standard construction is in carbon steel protected by hot dip galvanization, on request the construction in stainless steel or aluminum or combinations of the materials indicated above is possible and, if necessary, also GRP.

Backward and forward sludge aspirator for rectangular decanter





KEY

1. SIDE TROLLEYS
2. MOBILE GIRDER
3. TRAVEL GEAR MOTOR
4. SURFACE SCRAPER LIFTING GEAR MOTOR
5. EXTRACTION OF SLUDGE
6. SURFACE SCRAPERS
7. ELECTRICAL SWITCHBOARD
8. POWER SUPPLY
9. LIMIT SWICH
10. TRACKS (OPTIONAL)
11. WEIR

MAIN FEATURES	UNIT	DIMENSIONAL DATA									
WIDTH TANK (l)	m	18	22	26	30	34	40	46	50	56	60
LENGHT TANK (L)	m	10 ÷ 50									
HEIGHT TANK (h)	m	2 ÷ 5									
VOLUME TANK	m3	60 ÷ 3000									
TRASLATION SPEED	m/min	1,2 ÷ 2,0									
POWER SUPPLY BRIDGE	kW	0,25 ÷ 2,2									

(NOTE) the exact dimensions and characteristics are defined for each specific project

Backward and forward scraper for rectangular decanter

WHEN TO USE IT

Backward and forward scraper for rectangular decanter PRVR type can be used whenever it's necessary to perform a process of water sedimentation of any flow rate that contains sedimentable suspended solids of any nature.

HOW IT'S MADE

Backward and forward scraper for rectangular decanter PRVR type consists of: a mobile girder used as a walkway; a pair of side sliding trolleys; an articulated system for collecting sludge and skimming; a gear motor to drive the two side trolleys, a control unit of the articulated bottom scraper system and foaming blade; and an electric control panel. The gear motor and the control unit are mounted at the centre of the bridge.

HOW IT WORKS

The water inlet is located on one of the two short sides of the tank. During the outward run, the sludge is scraped from the bottom scraper, in the direction opposite to the horizontal component of the rate of sedimentation. The floating substances are collected by the surface scraper in one of the two phases of the movement.

Protection against overload is provided by a system of periodic control of the bridge working cycle.

VERSIONS

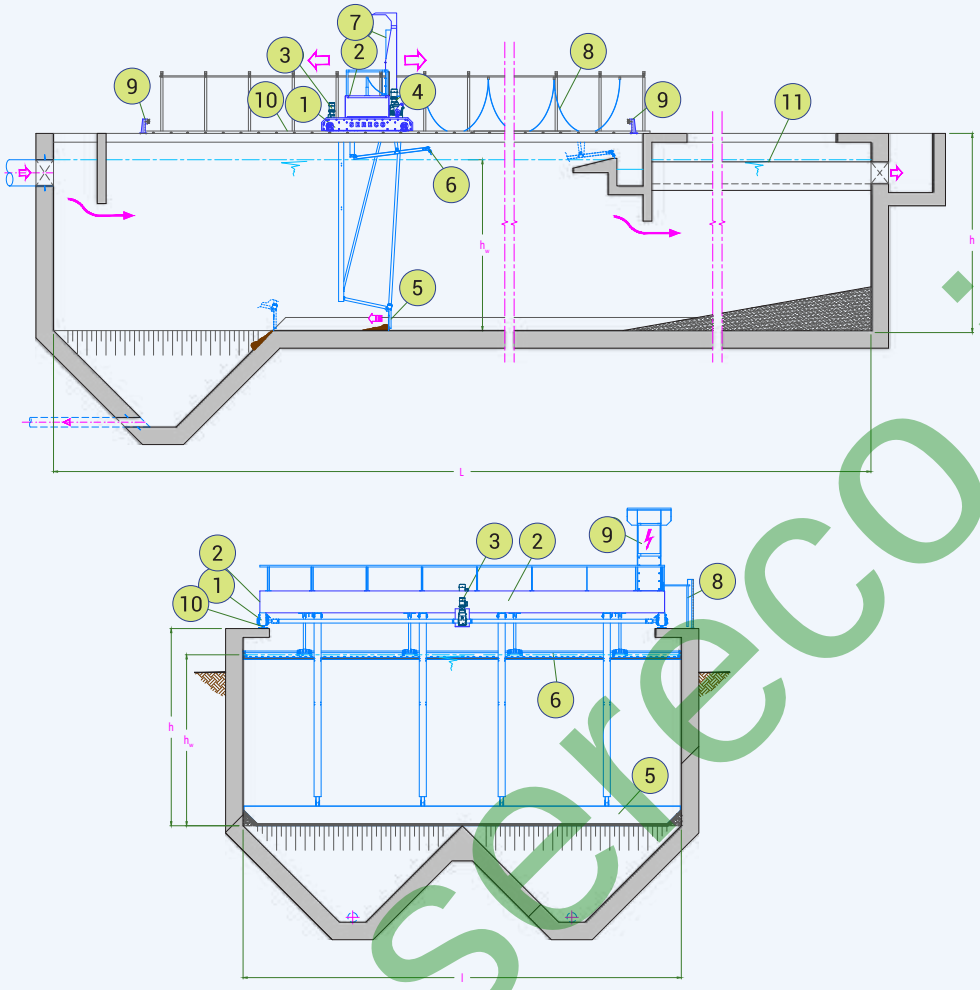
The standard construction includes the sliding of the bridge on the solid rubber tyred wheels and the supply by cable festoons, on request it is possible to provide the traslation system can be conceived on rails with carbon steel wheels and, regardless of the type of slide the power supply can be instead of festoons with cable reel.

The standard construction is in carbon steel protected by hot dip galvanization, on request the construction in stainless steel or aluminum or combinations of the materials indicated above is possible and, if necessary, also GRP.

STRENGTHS PRVR

- MINIMUM ENERGY CONSUMPTION;
- SIMULTANEOUS REMOVAL OF SEDIMENTED SLUDGE AND FLOATING SUBSTANCES;
- HANDLING SYSTEM FOR SCRAPERS SAFE AND PRECISE BECAUSE IT DOES NOT USE CHAINS OR CABLES FOR THE TRANSMISSION OF THE MOTION BUT ONLY SPECIAL RIGID CAMS ON THE SHAFTS;
- ROBUSTNESS AND RELIABILITY.

Backward and forward scraper for rectangular decanter



KEY

1. CARRELLI LATERALI
2. MOBILE GIRDER
3. GEAR MOTOR TRASLATION
4. GEAR MOTOR SCRAPER
5. SLUDGE SCRAPER BLADE
6. SKIMMING BLADE
7. ELECTRIC PANEL
8. POWER SUPPLY CABLE
9. LIMIT SWITCH
10. TRACKS
11. WEIR (OPCIONAL)

MAIN FEATURES	UNIT	DIMENSIONAL DATA										
WIDTH TANK (l)	m	3,0	3,5	4,0	5,0	6,0	7,0	8,0	9,0	10	11	12
LENGHT TANK (L)	m	10 ÷ 50										
HEIGHT TANK (h)	m	2 ÷ 5										
VOLUME TANK	m^3	60 ÷ 3000										
TRANSLATION SPEED	m/min	1,2 ÷ 2,0										
METAL PARTS WEIGHT	kg	1600	1700	1900	2400	2900	3400	3900	4300	4800	5300	5800
INSTALLED POWER	kW	0,43	0,43	0,73	0,73	0,8	0,92	0,92	1,1	1,1	1,3	1,3

Chain scraper

WHEN TO USE IT

The chain scraper type RC is commonly used in rectangular tanks and has the specific function of conveying in a lateral hopper the sludge deposited on the bottom of the tank and possibly clean the surface of the water from floating substances, conveying them in a transverse channel.

HOW IT'S MADE

The chain scraper consists of: a gear motor drive unit; a motor shaft positioned on the end of the tank with two crowns at the ends; two drive chains of the blades; three or more idle shafts complete with toothed crowns; set of scraper blades; set of sliding guides mounted on the long side walls and on the floor.

HOW IT WORKS

The gear motor transmits the rotary motion to the shaft, which, through the two lateral crowns, sets in motion the two drag chains. On the opposite wall is placed a return unit that has the function of tensioning the chains, appropriate guides hold the chains in place avoiding bending due to the own weight and the scrapers. The peculiarity of this scraper consists in the double funcion of the scrapers, in fact, during the lower run, they push the sludge into the recovery hopper while during the highler run they convey the floating material into the lateral.

VERSIONS

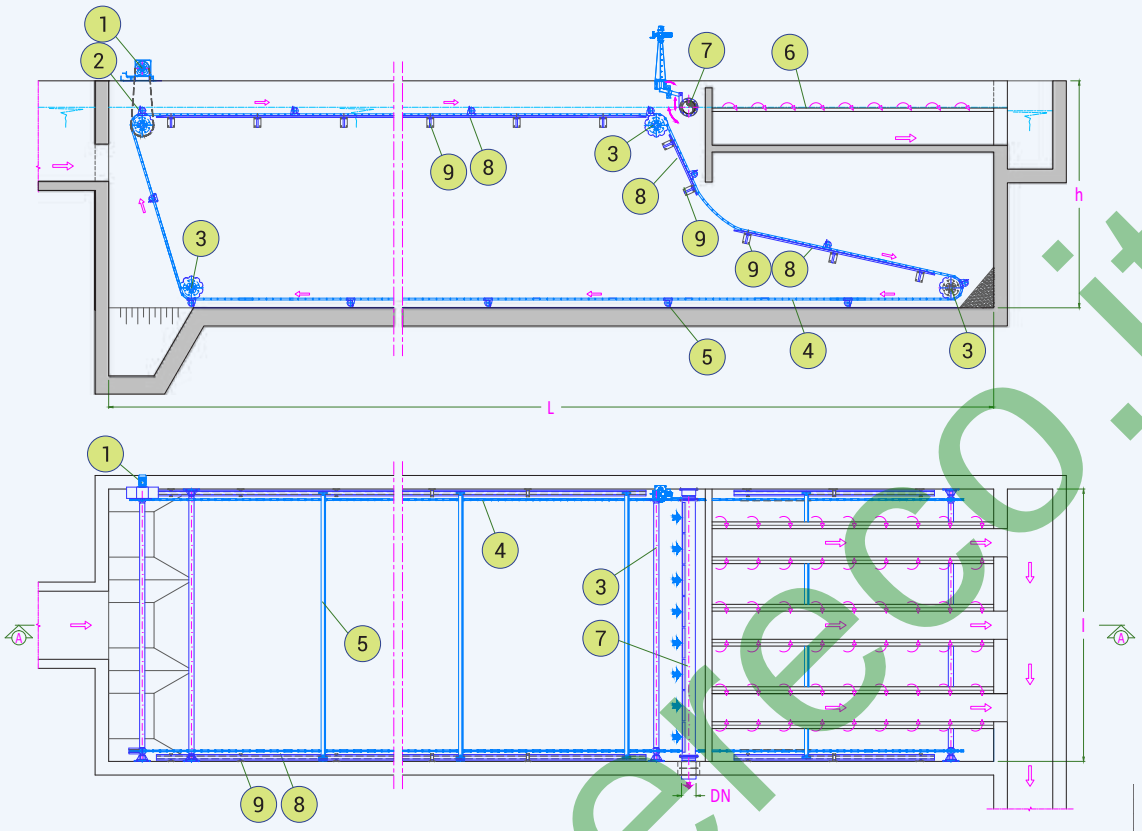
On request, for particular applications, a chain scraper can be provided that cleans only the bottom or only the surface of the tank. On request it is also possible to combine the two models and obtain the cleaning of the bottom and the surface of the tank with two completely independent scrapers.
The standard construction is in carbon steel protected by hot dip galvanization, on request the construction in stainless steel or aluminum or combinations of the materials indicated above is possible and, if necessary, also GRP.

STRENGTHS RC

- SIMULTANEOUS REMOVAL OF SEDIMENTED SLUDGE AND FLOATING SUBSTANCES;
- FUNCTIONAL SIMPLICITY THAT ENSURES LONG-LASTING OPERATION;
- MINIMUM POWER CONSUMPTION;
- ROBUSTNESS AND RELIABILITY.

Chain scraper

Chain scraper



KEY

1. GEAR MOTOR
2. DRIVE SHAFT
3. IDLE SHAFT
4. CHAIN
5. SCRAPER
6. WEIR (OPTIONAL)
7. SKIMMER (OPTIONAL)
8. TRACKS
9. SUPPORTS

MAIN FEATURES	UNIT	DIMENSIONAL DATA								
LENGHT TANK (L)	m	4 ÷ 50								
WIDTH TANK (l)	m	4	5	6	7	8	9	108	119	12
HEIGHT TANK (h)	m	2 ÷ 5								
VOLUME TANK	m^3	60 ÷ 3000								
TRANSLATION SPEED	m/min	0,8 ÷ 1,2								
INSTALLED POWER	kW	0,37 ÷ 2,2								

Lamella clarifier type

WHEN TO USE IT

The lamella clarifier CPL type is mainly used when there is little space to carry out the process of clarification of water coming from the treatment of water of civil or industrial origin. Therefore it can be used in emergency situations to compensate, in parallel with other clarifiers already installed, at higher seasonal flow rates or for emergency periods or as a real compact clarification system.

MAIN FEATURES

The main characteristic of the CPL is that of being a prefabricated compact clarifier with a high specific load that, depending on the model and its dimensioning, can bear sedimentation specifications that vary from 5 to 12 times higher, per unit of occupied geometric surface, to those of traditional clarifiers.

HOW IT'S MADE

The CPL consists of a monolithic prefabricated carbon steel tank, a feeding system suitable for the distribution of water to be sedimented, a lamella assembly system, one or more sludge collecting hoppers, a treated whater weir and a discharge piping. The corrugated plates, placed one in front of the other form the lamella, are neutral colored, in plastic reinforced by iber glass, protected with a special anti-ageing film, the TEDLAR, which ensures high resi-stance to the abrasion and prevents the fiber glass surfacing phenomenon. The lamella are supported by a press-bended plate and separated by PVC spacers. Adequate tie rods are provided inside the spacers to firmly hold the pack compact. Suitable eyebolts moreover allow to lift the packs. This type of clariication combines the practicality of a compact system to the functionality and good results ensured by the use of lamella packs. The clariication has no mechanical parts in motion, sign of very low maintenance and long life.

HOW IT WORKS

The water to be clarified goes in through the inlet piping and is uniformly distributed below the lamella. The distribution channel is such as to ensure a laminar motion for the whole clarifier length . The materials that can be settled precipitate into the sludge recovery hopper while the water passes through the lamella with upward motion. A specific piping allows the sludge extraction.

VERSIONS

The standard execution is with carbon steel tank and stainless steel support structure for lamellas. On request, it is possible the complete realization in stainless steel or for large capacities with tank made in concrete.

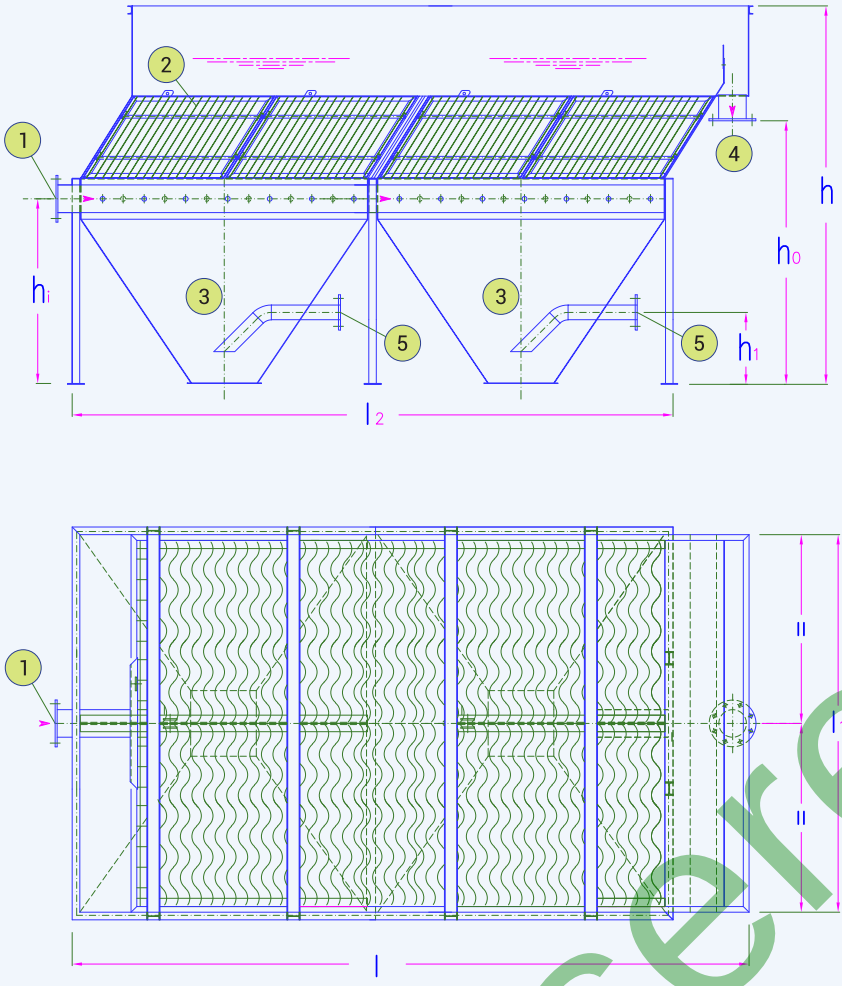
STRENGTHS CPL

- GREAT SOLID-LIQUID SEPARATION EFFICIENCY;
- CONSIDERABLE CONSTRUCTIONAL COMPACTNESS;
- NO ENERGY CONSUMPTION;
- ABSENCE OF MECHANICAL PARTS IN MOTION;
- HIGH RELIABILITY.

Lamella clarifier type

Lamella clarifier type

CPL



KEY

1. WATER INLET
2. LAMELLA PACK
3. SLUDGE HOPPER
4. CLARIFIED WATER OUTLET
5. SLUDGE OUTLET

MAIN FEATURES	UNIT	DIMENSIONAL DATA							
MODEL CPL		010	020	040	060	080	100	125	150
TOTAL LENGTH (l)	mm	2200	2200	3700	5200	6700	8200	9700	11200
WIDTH (l_1)	mm	1000	2000	2000	2000	2000	2000	2200	2200
TOTAL HEIGHT (h)	mm	2800	2800	2800	2800	2800	2800	2800	2800
AMELLA PACK LENGTH (l_2)	mm	1500	1500	3000	4500	6000	7500	9000	10500
WATER INLET HEIGHT (h_i)	mm	1185	1185	1185	1185	1185	1185	1185	1185
WATER OUTLET HEIGHT (h_0)	mm	1950	1950	1950	1950	1950	1950	1950	1950
SLUDGE OUTLET HEIGHT (h_1)	mm	575	575	575	575	575	575	575	575
WATER INLET DIAMETER	DN	100	100	100	150	150	200	200	250
WATER OUTLET DIAMETER	DN	100	100	150	200	200	250	250	300
LOW RATE	m^3/h	10	20	40	60	80	100	125	150
EMPTY WEIGHT	kg	750	1200	2400	3600	5000	6200	7500	9000
WORKING WEIGHT	kg	4250	8200	16400	24600	33000	41200	49500	58000

Lamella de-oiler for separation oil

WHEN TO USE IT

The lamella de-oiler type CPLO is mainly used as a pretreatment when separating oil from oily polluted water before any subsequent treatment.

MAIN FEATURES

The main feature of the CPLO is to be a compact high-performance de-oiler that exploits the phenomenon of coalescing.

HOW IT'S MADE

The CPLO consists of a monolithic prefabricated steel tank, a feeding system suitable for the distribution of water to be de-oiled, a lamella assembly system, one or more sludge collecting hoppers, a weir for clarified water and an automatic motorized system for the collection of oils.

HOW IT WORKS

Lamellas, facing each other, form the lamella pack which ensure maximum exploitation of the phenomenon of coalescence.

The water to be de-oiled enters the de-oiler and is distributed evenly over the lamella pack through the distribution system. The distribution system is such as to ensure a laminar motion over the entire surface of the de-oiler. The oil is automatically collected by the motorized rotating weir while the sedimentable substances precipitate into the sludge collection hoppers, while the water passes through the lamellar bundles with a laminar descending motion.

VERSIONS

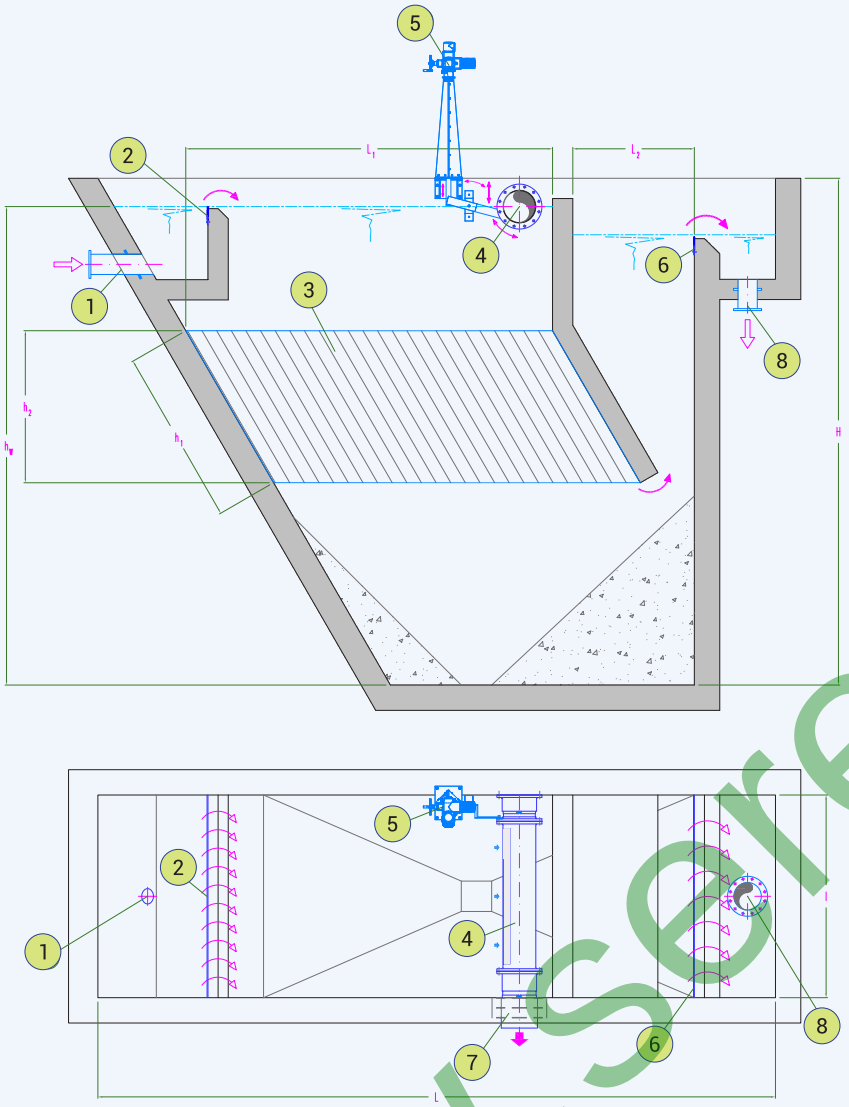
The standard execution is with carbon steel tank and and stainless steel support structure for lamellas. On request, the whole unit in stainless steel can be supplied, or for significant tank flows made in concrete.

STRENGTHS CPLO

- HIGH OIL-WATER SEPARATION EFFICIENCY;
- GREAT COMPACTNESS;
- SIMULTANEOUS SEPARATION OF OILS AND SEDIMENTABLE SUBSTANCES;
- HIGH RELIABILITY.

Lamella de-oiler for separation oil

Lamella de-oiler for separation oil



KEY

1. WATER INLET
2. WEIR
3. LAMELLAS
4. OIL SKIMMER (OPCIONAL)
5. SKIMMER'S UNIT DRIVE (OPCIONAL)
6. WEIR WATER OUTLET
7. OIL OUTLET
8. TREATED WATER OUTLET

MAIN FEATURES	UNIT	DIMENSIONAL DATA							
MODEL CPLO		**010**	**020**	**040**	**060**	**080**	**100**	**125**	**150**
TOTAL LENGTH (L)	mm	1500	2000	3500	4500	6000	7000	8250	9500
WIDTH (I)	mm	2000							
TOTAL HEIGHT (H)	mm	2800							
LAMELLA PACK LENGTH (l_1)	mm	500	1000	2000	3000	4000	5000	6250	7500
NOMINAL FLOW RATE	m^3/h	10	20	40	60	80	100	125	150

Floating decanter for SBR

WHEN TO USE IT

SGSBR is a sedimented water discharge system from a water purification basin designed specifically for SBR (Sequencing Batch Reactors).

HOW IT'S MADE

The SGSBR system consists of: a clarified water collection channel with adjustable weir; a series of drain pipes coming out of the channel and positioned on the bottom of the same; a collector of water clarified by the discharge pipes; a floating tube for retaining floating substances to prevent their entry into the settler; a rotary hydraulic joint connecting the exhaust manifold and the drainage pipe sedimented water from the basin; a support with a control column that houses the drive system controlled by a screw; by a robust electric actuator; by two or more masonry brackets to support the system.

HOW IT WORKS

When the system is in a state of "rest" the weir of the decanter SGSBR is placed a few centimeters above the maximum water level of the tank. An ultrasonic level sensor continuously measures the level in the tank while the water flows inside.
Upon reaching the maximum water level in the tank, the electrical panel, possibly equipped with a PLC, keeps the decanter in a resting position for the duration of the oxidation and subsequent decanting phases.
At the end of this phase a signal is sent to the decanter type SGSBR to start its handling. The decanter driven by the electric actuator is lowered below the water level to a predefined height, and at the same time the clarified water discharge begins. When the minimum level is reached, or after a predetermined time by the PLC, the system is returned to the initial condition of "rest". During the descent motion of the decanter it is also possible to keep the height of water constant on the weir of the floating channel. The program of the PLC also makes this system very flexible: it can work with a timer, or setting appropriate levels, or with the combination of different inputs. The simple and robust design of the decanter also guarantees excellent performance and reliability.

VERSIONS

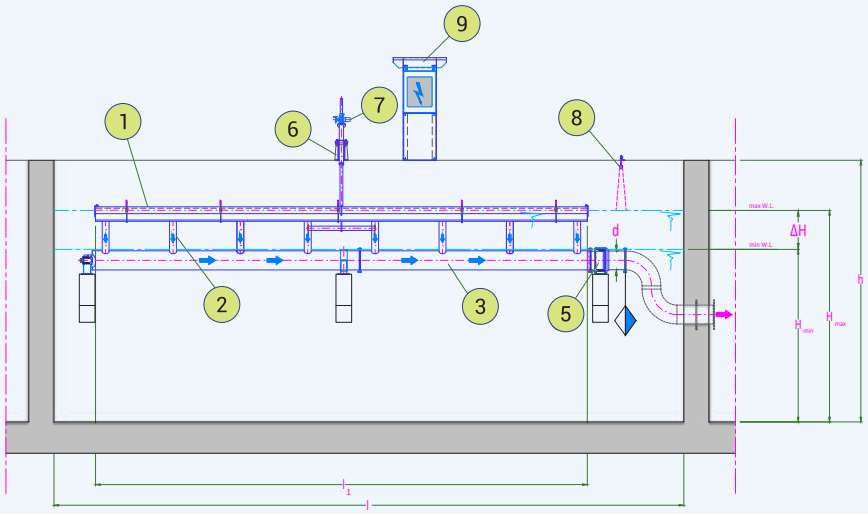
The standard system is made of stainless steel but on request is possible to have the version in carbon steel protected by hot dip galvanization.
For larger models, capacity greater than 1000 m3/h, the version with double rotary hydraulic exhaust joint is available, then with the exit from both sides of the exhaust manifold, version that allows to have a significant decrease in the diameter of the exhaust manifold that consequently favorably affects the construction costs.

STRENGTHS SGSBR

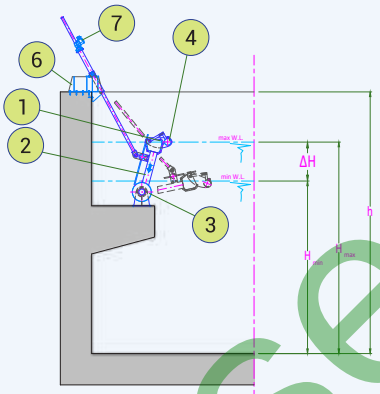
- HIGH RELIABILITY AND DURABILITY;
- FULLY AUTOMATIC SYSTEM;
- HIGHLY CUSTOMIZABLE SYSTEM OPERATION;
- REDUCED ORDINARY MAINTENANCE;
- STURDINESS.

Floating decanter for SBR

Floating decanter for SBR



SERECO ALTRI — LIMITE DI FORNITURA



KEY

1. FLOATING CHANNEL WEIR
2. EXHAUST PIPES
3. DELIVERY PIPE
4. FOAM STOP PIPE
5. SUPPORT FOR SEALING
6. CONTROL COLUMN
7. ELECTRIC ACTUATOR
8. LEVELS
9. ELECTRICAL PANEL

MAIN FEATURES	UNIT	DIMENSIONAL DATA
TANK WINDHT (l)	m	l_1 +2 m min
DECANTER TOTAL WIDTH	m	l_1 +1 m
WEIR'S LENGHT (l_1)	m	2 ÷ 30
TANK HEIGHT (h)	m	3 ÷ 12
RUN (Δh)	m	1.0 ÷ 5.0
POWER SUPPLY	kW	0,12 ÷ 0,8
NOMINAL FLOW RATE PER METER OF WEIR LENGHT	$m^3/h/m$	150

(*) Enter the value of l_1 in m in the formula

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Mixers - Aerators

- DRAF 100
- DRAF 200
- DRP
- EC
- EEM
- EPS
- ETSD
- E2PI
- E4PA
- E4PI
- RAM
- TASC

The aeration process is fundamental in a civil or industrial sewage treatment plant as it allows the supply of the oxygen required for the metabolic activity of the activated sludge. Many are moreover the applications of different types and speeds of mixers in biological and/or chemical-physical plants.

SERECO aeration systems include coarse (DRAF 100) or fine (DRAF 200) bubble type diffusers, fixed (TASC) or floating (TASCG) surface turbines and Mammouth rotor (RAM). In particular, the fine bubble diffuser DRAF 200 type has been conceived after specific studies and researches that have allowed the execution of a patented product characterized by optimum efficiency in terms of oxygen transfer, high surface density of micro-holes, no risk of clogging, extreme installation easiness, long-term operation also in heavy running conditions, since it is made of first rate materials.

In this section there also are the distributors for biological or trickling filters type DRP and DRPM.

The wide range of **SERECO** mixers includes the type of mixer suitable for any use: fast agitators for the reagent mixing (EEM), the dissolution of pulverized products (E4PI), for flash-mixing (EPS, E2PI), slow agitators for flocculation (EC, E4PA), specific for the denitrification or soft mixing (ETSD). Any type of mixer is available with different sizes and powers. In particular, the mixer EPS type can be used in several fields of activity thanks to the high hydraulic efficiency of its impeller with Sabre outline blades.

DRAF 100 Coarse bubble air diffuser

The air diffuser DRAF 100 type, mainly designed for the oxidation and homogenizing processes, is used in the aeration and internal recycling where a coarse bubble air ratio is needed; in particular conditions can be used also for carpet aeration. It consists of a polypropylene diffuser body and a neoprene anti-backflow membrane with elastic sealing able to prevent the water entering the diffuser body. A 1/2 inch gas thread connection allows the joining to the air supply ramps. The air, arriving from the supply ramp, goes against the neoprene diaphragm and its flow is then deviated downwards. In correspondence of the annular end, the body shows a multiplicity of holes allowing the air to come out with bubble of coarse size. The geometry and the elasticity of the neoprene membrane allows a uniform air distribution on all the holes and, at the same time, the lateral tightness against the water entering the diffuser.

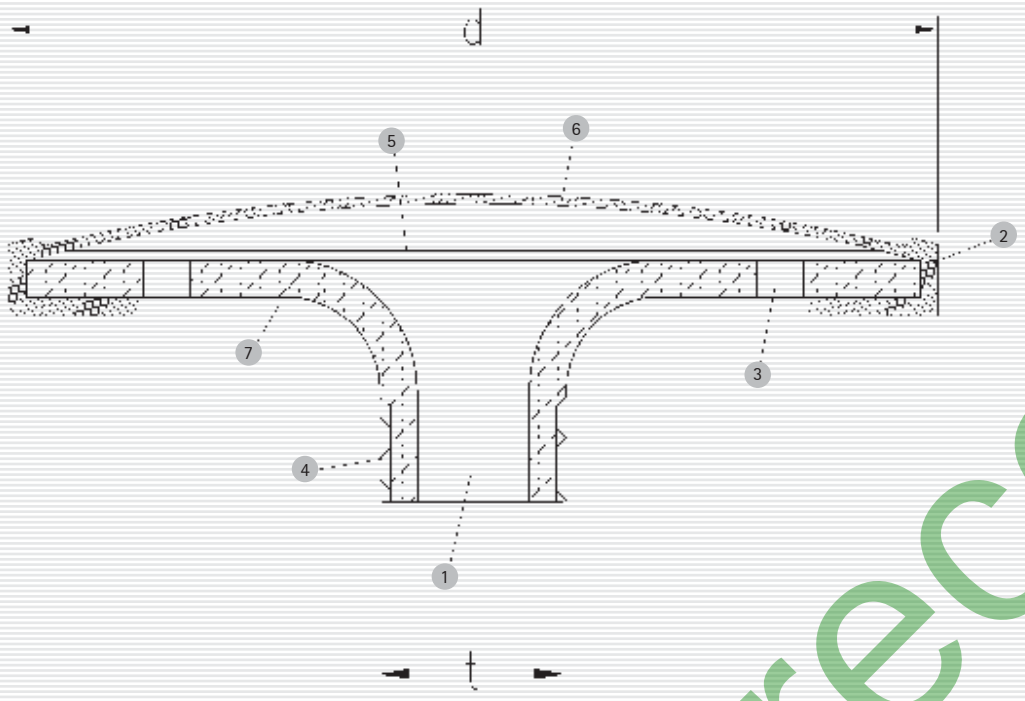
The DRAF 100 diffuser, thanks to the very low head loss, allows to obtain a high and continuous output in the oxygen transfer. Moreover, due to the special strength of the materials of which is made, ensures very low investment and maintenance costs. For its characteristics, the DRAF 100 diffuser has become essential in the pre-aeration, aeration, mixing, stripping, degreasing, oil separation and sand removing processes.

Strengths

- HIGH OXYGEN TRANSFER RATE DELIVERED WITH THE INLET OF COARSE BUBBLE AIR.
- MINIMUM HEAD LOSS AT THE SUPPLY RAMPS.
- HOMOGENEOUS DISTRIBUTION THROUGH ALL THE HOLES.
- PERFECT TIGHTNESS AGAINST THE WATER INLET INTO THE DIFFUSER.
- CONSTRUCTIONAL MATERIALS RESISTANT TO ATMOSPHERIC AGENTS.
- MINIMUM INVESTMENT AND MAINTENANCE COSTS.

Recommended accessories

- EASY 34.
- BLOWERS FOR AIR SUPPLY.

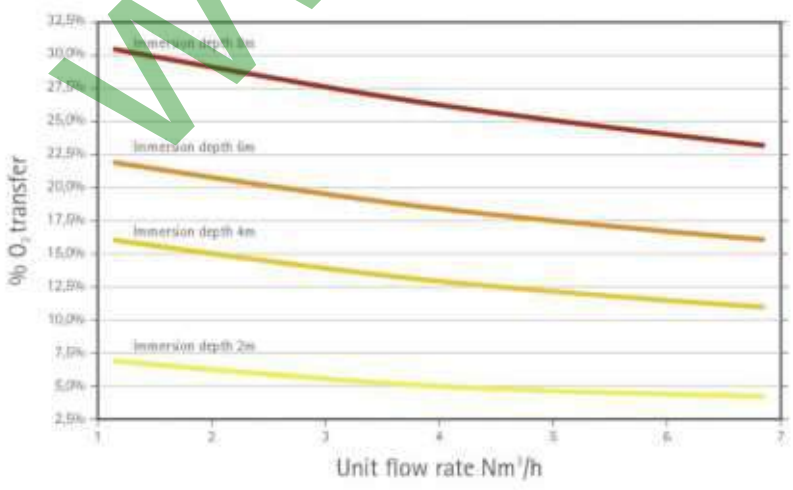


Legend

1. AIR INLET
2. NEOPRENE MEMBRANE
3. AIR OUTLET HOLES
4. THREAD
5. CLOSED POSITION
6. OPEN POSITION
7. POLYPROPYLENE DIFFUSER BODY

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA
DRAF 100	DIAMETER (d)	mm	100
	INLET THREAD (t)	inch	1/2
	UNIT AIR FLOW RATE	Nm^3/h	1 ÷ 7
	HEAD LOSS AT MAX FLOW RATE	mm w.c.	350
	OXYGEN TRANSFER O_2	KgO_2 / kWh	3,5÷6
	MAX DIFFUSERS DENSITY WITH CARPET DISPOSITION	n^0/m^2	24



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DRAF 270

Fine bubble air diffuser

WHEN TO USE IT

The fine bubble air diffuser DRAF 270 type is used when it is necessary to supply atmospheric oxygen into a liquid body with high transfer efficiency. It is particularly suitable for the aeration of activated sludge basins of middle and large size wastewater treatment plants, also SBR process, for tank of homogenizing and aerobic digestion, for the oxygenizing of ichthyic breeding, and for the hydroponic cultivations.

STRENGTHS DRAF 270

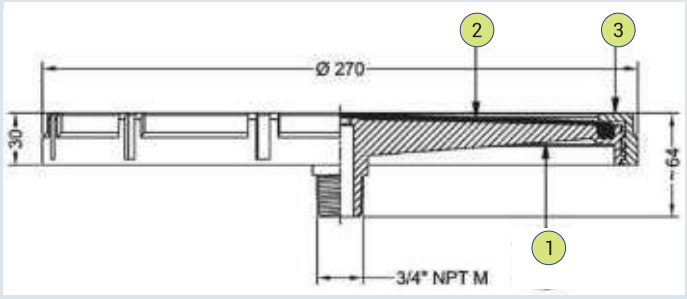
- HIGH OXYGEN TRANSFER RATE, BY AIR FINE BUBBLES;
- MINIMUM PRESSURE DROPS ON THE DISTRIBUTION RAMPS;
- HOMOGENEOUS DISTRIBUTION OF AIR;
- NON-CLOGGING AIR OUTLET MEMBRANE SYSTEM;
- PERFECT SEAL TO PREVENT WATER FORM ENTER INTO THE DIFFUSERS AND RAMP;
- CONSTRUCTION MATERIALS RESISTANT TO CORROSIVE AGENTS;
- MINIMUM INVESTMENT AND MAINTENANCE COSTS;
- GUARANTEED FOR 10 YEARS OF CONTINUOUS OPERATION.

HOW IT IS MADE

The DRAF 270 air diffuser consists of three components: a peroxide-hardened EPDM membrane having great resistance to high temperature up to 120°, great resistance to aging, and a good resistance to chemicals and oils; a fastening ring and a body both in PPGF glass fiber reinforced polypropylene. This type of diffuser is the result of a long term test and study.
The construction material and the degree of surface finish may vary depending on the use for which it is intended.

HOW IT WORKS

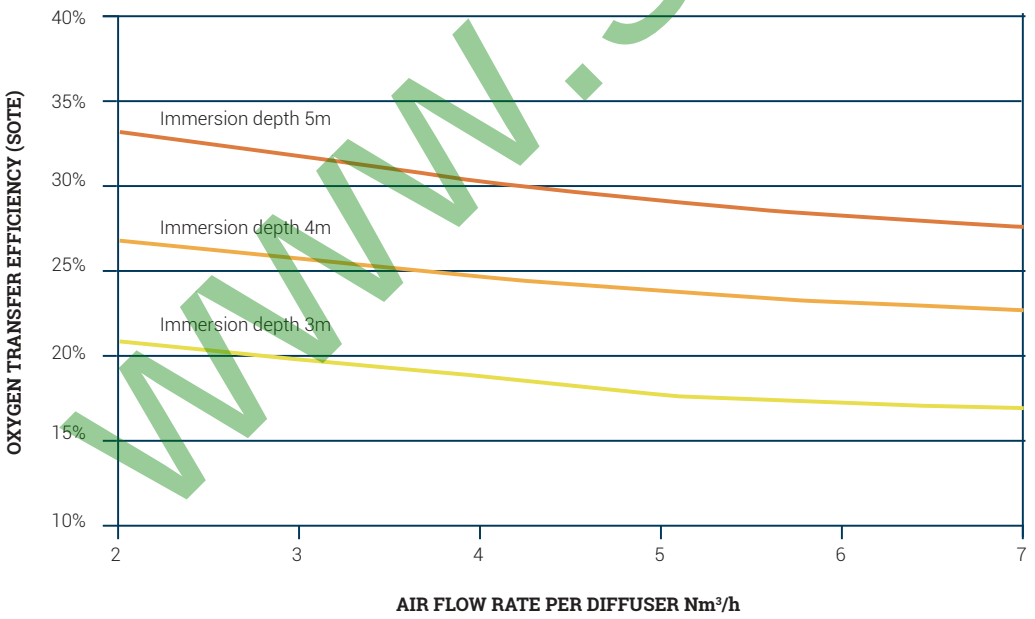
Thanks to its special operation characteristics and the high strength of the materials of which is made, it is able to ensure a high level of dissolution efficiency of oxygen form air, constant during the time. The DRAF 270 working is based on the breathing effect of the elastic synthetic rubber membrane provided with microholes and able to open with an extreme softness and progression just at a minimum air pressure of about 250 mm of air column. The special design of the drilling system moreover allows the immediate closing of the microholes as soon as the air flow stops, due to the immediate effect of the back pressure on the membrane. This membrane operation system guarantees the DRAF 270 from any possibility of clogging.



LEGEND

1. BODY
2. MEMBRANE
3. FASTENING RING

MAIN FEATURES	UNIT	DIMENSIONAL DATA
DRAF 270		
DIAMETER	mm	270
INLET THREAD	inch	3/4" NPT
HEIGHT	mm	64
NUMBER OF MICROHOLES	nos.	>6500
AIR FLOW RATE	Nm^3/h	1÷ 7
DIFFUSER HEAD LOSS	mm air column	350
TRANSFER RATE O_2 SOTE	%	17÷34
OXYGEN TRANSFER O_2	Kg O_2/ kWh	3,5÷6
MAXIMUM NUMBER OF DIFFUSERS WITH CARPET DISPOSITION	n/m^2	12

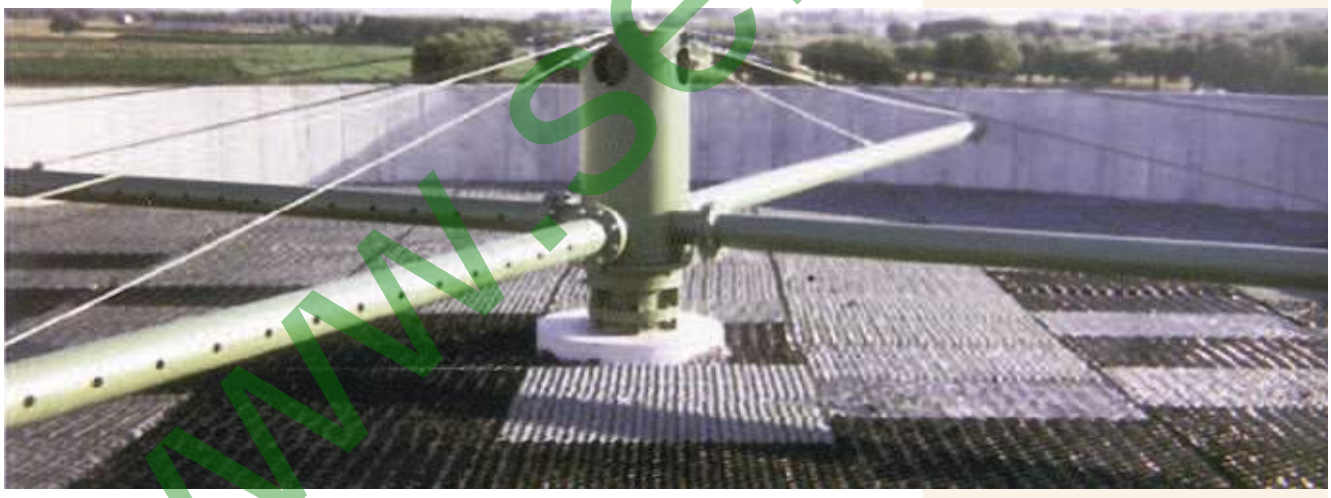


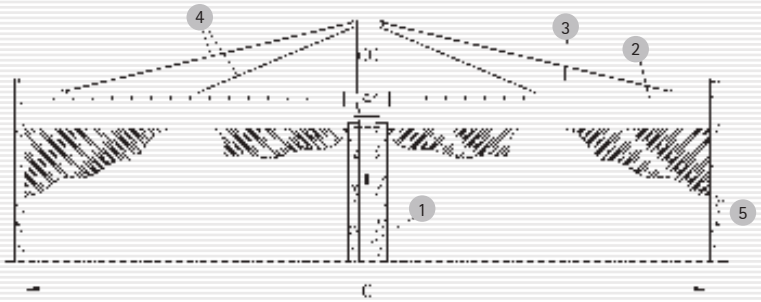
DRP Rotating distributor for biological or trickling filters

The rotating distributor for biological filters DRP type has been conceived to be used both in the classic trickling filters and in the modern biological filters. It consists of a sewage inflow duct flanged to the supply piping, located in the middle of the percolation basin, having to support a rotating supply system complete of at least a couple of supply pipes radially flanged to a central manifold and stretched by means of adjustable tie rods.
The sewage coming from the inflow duct radiates into the delivery pipes and comes out of them through a set of nozzles adequately sized to obtain, according to the whirlpool principle, a hydrostatic push able to put into rotation the whole distributor system. The angular velocity of the rotating distributor varies according to the resulting hydrodynamic thrust and the current friction forces; usually, it varies between 30 and 300 revolutions per hour and depends on the peripheral speed that has however to range from 0.5 to 1.0 m/s.
With regard to plants without lifting system, the rotating distributor operates through a siphon. Instead, in the cases where the hydrodynamic thrust obtained by means of a lifting plant does not ensure the distributor rotation (generally regarding diameters over 35 m), the distributor is equipped with a motor (DRPM type).
The standard construction is in carbon steel. On request it is possible the construction in stainless steel.

Strengths

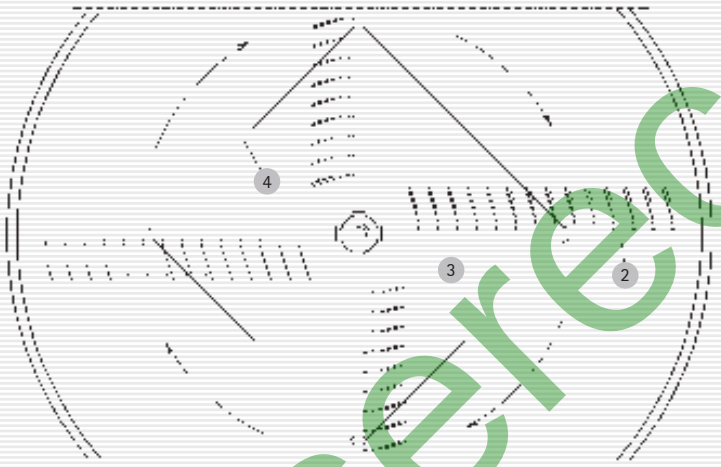
- HOMOGENEOUS DISTRIBUTION OF THE SEWAGE ON THE WHOLE FILTER SURFACE.
- DISTRIBUTOR ROTATION DUE TO THE HYDROSTATIC THRUST.
- OPERATION WITHOUT ANY ENERGY CONSUMPTION (DRP TYPE).
- POSSIBILITY TO OPERATE WITH SIPHON.





Legend

1. FEADING PIPE
2. DISTRIBUTING PIPE
3. DISTRIBUTING NOZZLES
4. ADJUSTING TIE RODS
5. TRICKLING FILTER



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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA														
DRP DRPM	TANK DIAMETER (d)	m	4	6	8	10	12	15	20	25	30	35	40	45	50	55	60
	WEIGHT DRP (*)	kN	2,2	5,4	6,7	8,2	9,6	11	15	18	21	29	//				
	WEIGHT DRPM (**)	kN											45	58	65	76	84

(*) Type with rotation by hydrodynamic thrust.
(**) Type with motorized rotation.

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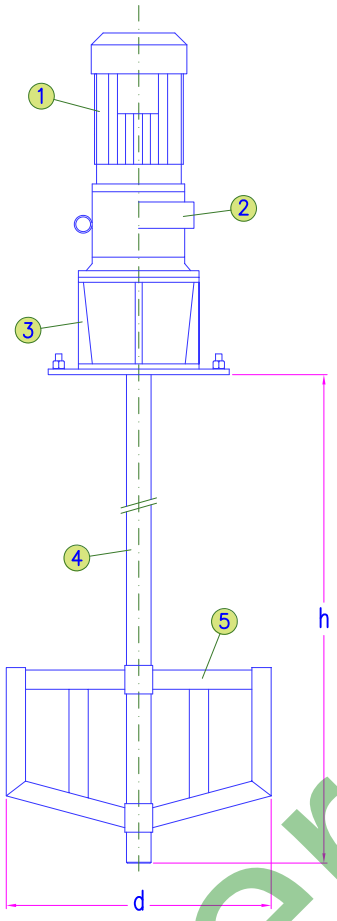
Gate type electric mixer

The gate type electric mixer EC type is mainly used for the flocculation treatment. It consists of an electric motor which can be equipped with mechanical variable speed drive or with inverter on board, a gearbox, a lantern, a shaft and a gate impeller.
Within the fluid mass, the impeller ensures the absence of any whirl and turbulence and, at the same time, uniformly distributes the kinetic energy to the fluid, ensuring perfect mixing of the coagulant reactive agent with the water and facilitating the formation of sludge flocks which settle easily.
The lantern function is to absorb the axial load of the mixer and ensure a long life to the gearmotor bearings.
The noticeable flexibility of use, the constructional simplicity and the lasting operation make this mixer suitable for many applications.
The standard construction is in carbon steel.
On request impeller and shaft can be manufactured in stainless steel or with particular protections.

STRENGTHS EC

- GEOMETRY WITH A ROTATION SPEED SUCH AS TO MAXIMIZE THE FLOCK FORMATION.
- OPERATION WITHOUT FORMATION OF WHIRLS OR TURBULENCES.
- POSSIBILITY TO INSTALL A VARIABLE SPEED DRIVE TO ADJUST ROTATION SPEED.
- ABSENCE OF ANY VIBRATIONS AND LONG OPERATION ENSURED BY A SUITABLE LOAD ABSORPTION SYSTEM.
- MINIMUM ENERGY CONSUMPTION.
- STURDINESS AND RELIABILITY.



LEGEND

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. IMPELLER

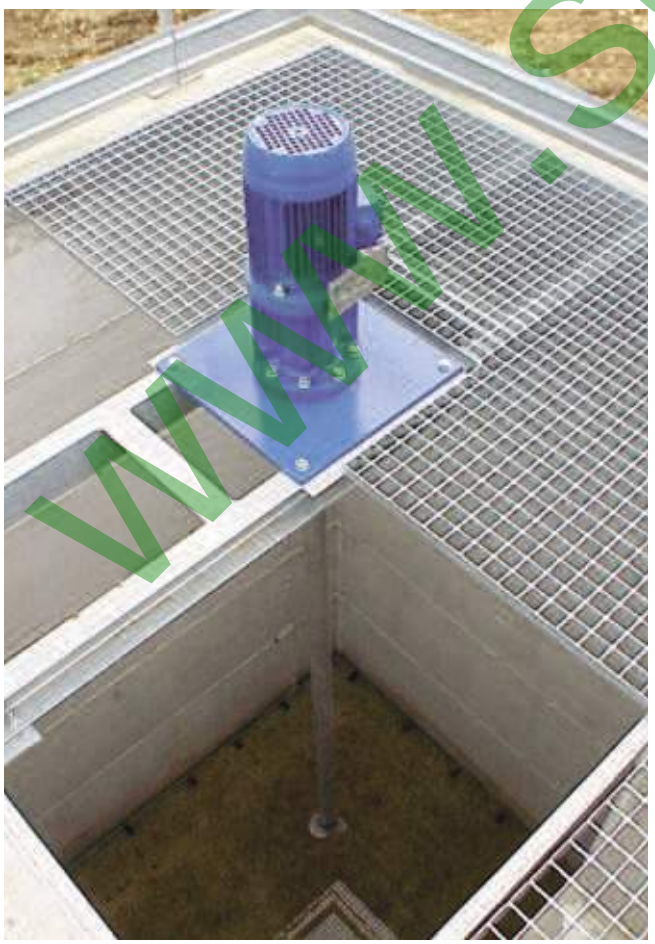
MAIN FEATURES	UNIT	DIMENSIONAL DATA											
MODEL EC		900	1150	1350	1600	2000	2200	2400	2600	2800	3000	3600	4000
NOMINAL DIAMETER	mm	900	1150	1350	1600	2000	2200	2400	2600	2800	3000	3600	4000
MAX REVOLUTION SPEED	r.p.m.	13,9	13,1	11,1	8,65	7,64	6,77	6,75	6,75	5,6	4,73	3,91	3,47
POWER SUPPLY	kW	0,35	0,55	0,75	1,1	1,5	1,5	2,2	3	3	3	4	5,5
SHAFT DIAMETER	mm	50	50	70	70	70	80	80	80	219	219	168	168
STANDARD SHAFT LENGTH	m	2,3	2,6	2,9	3	3,1	3,1	3,1	3,1	3,3	3,3	3,6	3,6
WEIGHT	kg	133	150	285	305	339	495	582	618	722	778	935	1012

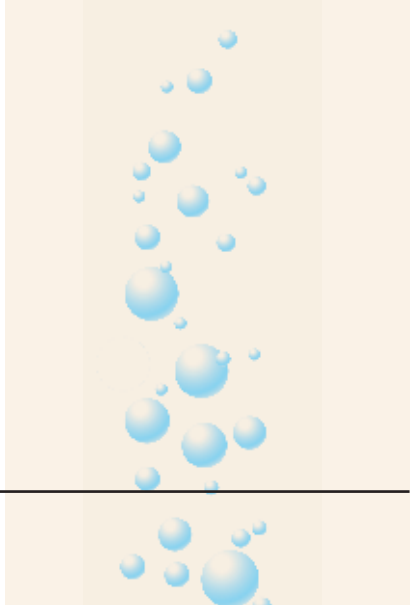
EEM Electric agitator, marine screw propeller type

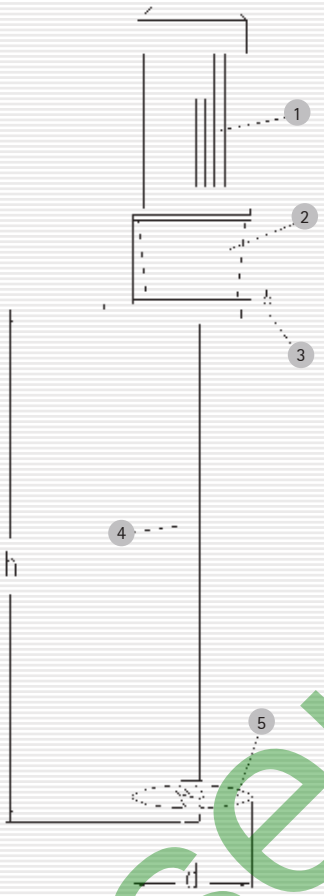
The electric agitator of marine screw propeller EEM type is used for multiple processes such as neutralization, pH correction, reactive preparation, mixing, etc.
The electric agitator consists of an electric motor, a lantern, an agitator shaft and one or several marine screw propellers that can positioned in any point of the shaft. The standard execution is provided with one only propeller placed at the rotating shaft end. The motion is transmitted from the motor to the shaft and then directly to the impeller. The shaft has a variable cross section and is sized so as to combine lightness and strength in order to avoid any vibration of the whole system.
The electric agitator is complete with connection flange to the base plate.
The standard construction is in carbon steel. On request it is possible the use of stainless steel or with particular protections.

Strengths

- GEOMETRY AND ROTATION SPEED SUCH AS TO MAXIMIZE THE REACTIVE AGENT MIXING.
- HIGH RESISTANT AND LIGHT TAPERING SHAFT TO AVOID ANY VIBRATIONS.
- POSSIBILITY TO INSTALL SEVERAL BLADES ON THE SAME SHAFT.
- MINIMUM POWER CONSUMPTION.







Legend

1. ELECTRIC MOTOR
2. LANTERN
3. COUPLING FLANGE
4. SHAFT
5. IMPELLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA											
EEM	MODEL		01	02	03	04	05	06	07	08	09	10	11	12
	IMPELLER DIAMETER (d)	mm	88	102	108	110	115	117	124	135	140	160	175	195
	SHAFT LENGTH (h) (*)	mm	1200	1200	1200	1500	1500	1500	1500	1500	1500	1500	1500	1500
	TREATED FLUID VOLUME	m^3	0,3	0,5	1,0	1,5	2,2	3,0	3,0	5,0	10	15	20	25
	REVOLUTION SPEED (**)	r.p.m.	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450	1450
	AXIAL LOAD	daN	1,2	2,4	5,4	6,0	11	14	16	18	22	25	29	33
	RADIAL LOAD	daN	3	3,5	4	5	5,5	6	7	8,5	9,5	10,5	12	14
	DYNAMIC TORQUE VERTICAL AXLE	daNm	0,24	0,49	0,54	0,72	0,89	1,0	1,4	2,0	3,9	7,2	8,4	10
	WEIGHT	daN	90	100	115	130	140	160	175	195	215	235	265	295
	POWER SUPPLY	kW	0,18	0,37	0,55	0,55	0,75	0,75	1,1	1,5	3	5,5	7,5	7,5

(*) On request it is possible to supply shaft with lengths different from the standard.
(*) On request it is possible to supply the electroagitator with a rotation speed equal to 900 rpm.

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EPS

Electric mixer with Sabre profile blades

The electric mixer with Sabre profile blades EPS type is used for many water treatment processes such as equalization, neutralization, pH correction, flash-mixing, sludge conditioning, reactive agent mixing and recycling, whereas the version "f" is used for flocculation process, see dedicated table.

The EPS mixer consists of an electric motor that can be equipped with mechanical variable speed drive or inverter on board, a gearbox, a lantern, a shaft and an impeller.

On its top end, the shaft is flanged to the gear box while the bottom end is provided with keyed impeller.

The special blade profile allows an optimum mixing and the treatment of specific high flow rates.

The impellers can be positioned in any point of the shaft and can be removed easily.

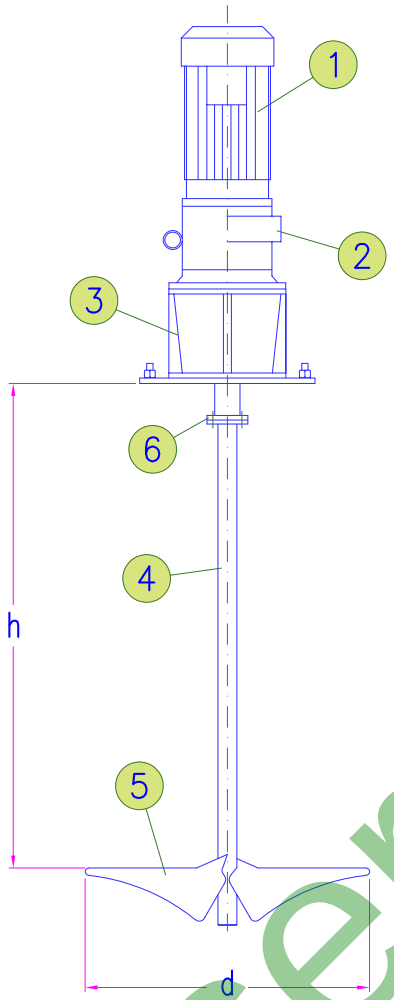
The shaft length changes according to depth of the tank wherein the mixer is installed and is calculated in compliance with the diameter to avoid any vibration.

The standard construction is in carbon steel.

On request it is possible the construction in stainless steel or with particular protections.

STRENGTHS EPS

- SABRE PROFILE IMPELLER ALLOWING HIGH HYDRAULIC EFFICIENCIES.
- POSSIBILITY OF USE FOR SEVERAL APPLICATIONS.
- POSSIBILITY TO INSTALL A VARIABLE SPEED DRIVE TO ADJUST ROTATION SPEED .
- ABSENCE OF ANY VIBRATIONS AND LONG OPERATION ENSURED BY A SUITABLE LOAD ABSORPTION SYSTEM.
- MINIMUM ENERGY CONSUMPTION.
- STURDINESS AND RELIABILITY .



LEGEND

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. SABRE IMPELLER
6. FLANGED COUPLING

MAIN FEATURES	UNIT	DIMENSIONAL DATA														
MODEL EPS		002	009	013	020	028	035	050	065	115	120	130	140	150	160	200 and over
NOMINAL DIAMETER	mm	540	800	840	920	980	1040	1100	1340	1500	1560	1650	1800	1900	2000	on request
MAX REVOLUTION SPEED	r.p.m.	122	80,5	82	80,2	80,2	80	80,8	63	59,2	61,6	60	55,1	56	55	
POWER SUPPLY	kW	0,55	1,1	1,5	2,2	3	4	5,5	7,5	11	15	18,5	22	30	37	
NOMINAL OUTPUT TORQUE OF GEARMOTOR	Nm	927	1010	1010	1010	1010	1010	1010	1980	2790	3960	3960	5280	7450	10500	
STANDARD SHAFT LENGHT	m	1,2	1,4	1,4	1,5	1,7	1,9	2	2,2	2,5	2,7	2,8	3	3,3	5	
WEIGHT	kg	67	91	98	134	143	196	256	314	268	333	402	452	691	1051	

MAIN FEATURES	UNIT	DIMENSIONAL DATA											
MODEL EPS for flocculation		001f	002f	003f	004f	005f	006f	007f	008f	009f2g	010f2g	011f2g	012f2g
NOMINAL DIAMETER	mm	800	1000	1200	1400	1600	1800	2000	2200	2200	2300	2400	2600
MAX REVOLUTION SPEED	r.p.m.	30,7	23,5	19,35	17,4	15,4	14,4	13,4	13	10,68	10,91	11,3	11
POWER SUPPLY	kW	0,185	0,25	0,35	0,55	0,75	1,1	1,5	2,2	3	4	5,5	7,5
STANDARD SHAFT LENGHT	m	2,3	2,6	2,9	3	3,1	3,1	3,1	3,1	3,3	3,3	3,6	3,6
WEIGHT	kg	100	135	159	197	253	323	423	494	431	480	607	694

3000 and above on request

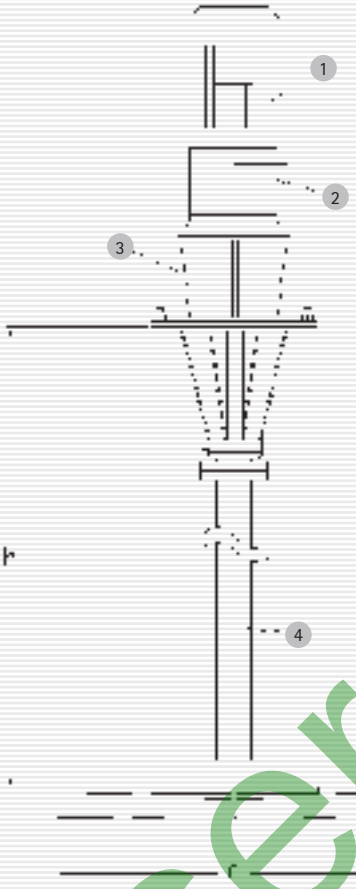
ETSD

Electric agitator with submerged turbine for denitrification

The electric agitator with submerged turbine ETSD type is installed in civil or industrial water treatment, mainly for the denitrification or soft mixing. It consists of an electric motor, a gearbox, a lantern, a shaft and a turbine impeller. The impeller is made of steel metal sheet adequately shaped according to the treatment to be carried out. It is complete with blade, generally six, connected by bolted or welded unions. With regard to the shafts with a length exceeding five meters, the impeller is driven and supported at the base by a self-lubricating support.
The electric agitator ensures the continuous maintenance in suspension of the biomass or other materials, keeping the whole liquid mass in motion and avoiding any whirls or little turbulences. On request, it is possible to install a variable speed drive (ETSDV) in order to optimize the rotation speed. The standard construction is in carbon steel. On request it is possible the construction in stainless steel or with particular protections.

Strengths

- GEOMETRY AND ROTATION SPEED ENSURING THE MAINTENANCE IN SUSPENSION OF THE BIOMASS OR OTHER MATERIALS.
- OPERATION WITHOUT FORMATION OF WHIRLS OR TURBULENCES.
- POSSIBILITY OF SUPPLY WITH VARIABLE SPEED DRIVE TO CONTROL THE ROTATION SPEED.
- ABSENCE OF ANY VIBRATIONS AND LONG OPERATION ENSURED BY A SUITABLE LOAD ABSORPTION SYSTEM.
- GEAR MOTOR AT SIGHT NOT SUBMERGED.



Legend

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. IMPELLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA												
ETSD	IMPELLER DIAMETER (d)	mm	900	1100	1400	1450	1530	1530	1600	2000	2000	2500	2600	2800	3000
	SHAFT LENGTH (h)	mm	2500	2500	3000	3000	3000	3000	3000	3000	3000	4000	4000	4000	4000
	TREATED WATER VOLUME	m^3	40	60	183	250	367	500	667	917	1250	1530	1830	2500	3000
	REVOLUTION SPEED	r.p.m.	18	18	15	15	15	18	18	13	15	11	10	8	7
	AXIAL LOAD	daN	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5
	RADIAL LOAD	daN	4	6	14	16	17	19	21	22	24	25	37	45	51
	DYNAMIC TORQUE VERTICAL AXLE	daNm	39	58	191	280	382	424	583	1100	1170	1900	2200	3300	3800
	WEIGHT	daN	347	395	450	499	552	615	650	700	790	1040	1120	1350	1650
	POWER SUPPLY	kW	0,37	0,55	1,5	2,2	3,0	4,0	5,5	7,5	9,2	11	11	15	18,5

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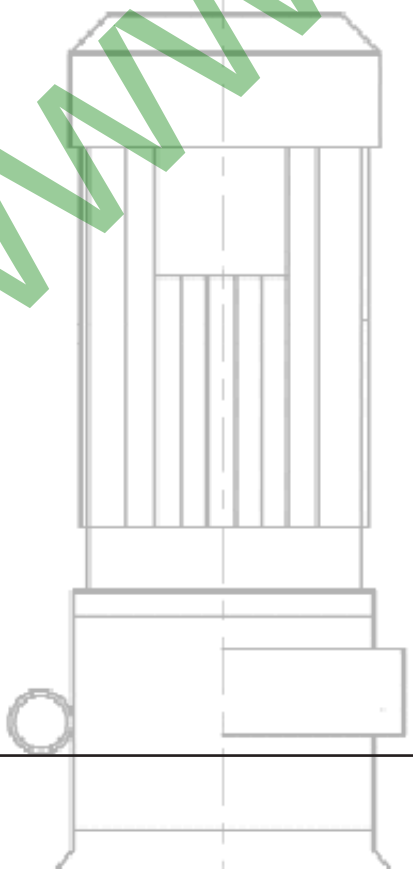
Cap. Soc. Euro 2.500.000,00 i.v.

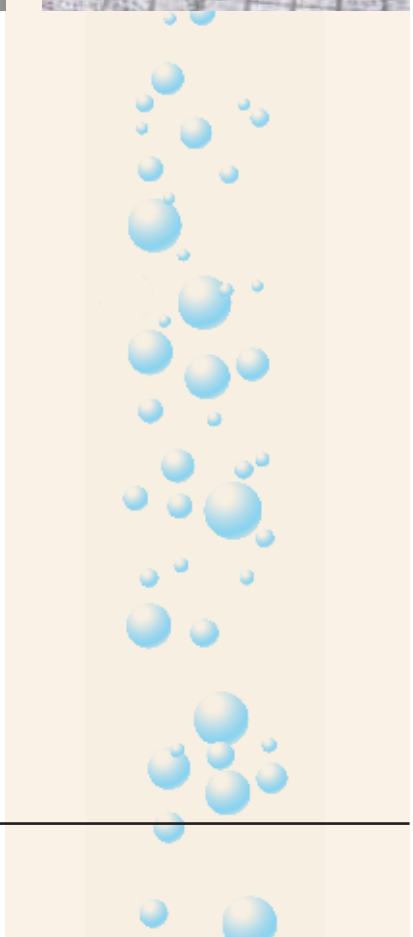
E2PI Electric agitator with two sloping blades

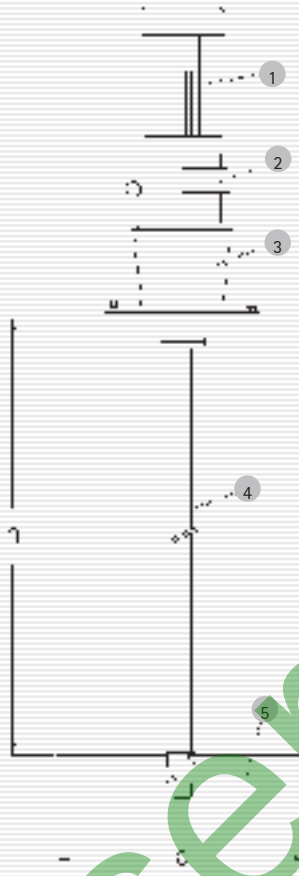
The electric agitator E2PI type is used for the mixing treatment in several water treatment processes: equalization, neutralization, pH correction, flash-mixing, sludge conditioning, mixing, etc. It consists of an electric motor, a gearbox, a lantern, a shaft and a two sloping blade impeller.
On its top end, the shaft is adequately joined to the gearbox while the bottom end is provided with two flat 45° sloping blades. The shaft length changes according to the depth of the tank wherein the agitator is installed and is suitably dimensioned in compliance with the diameter to avoid any vibration.
The standard construction is in carbon steel. On request it is possible the use of stainless steel or with particular protection covers.

Strengths

- POSSIBILITY OF USE FOR SEVERAL APPLICATIONS.
- ABSENCE OF ANY VIBRATIONS AND LONG OPERATION ENSURED BY A SUITABLE LOAD ABSORPTION SYSTEM.
- MINIMUM ENERGY CONSUMPTION.







Legend

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. IMPELLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA													
E2PI	MODEL		002	003	004	007	009	013	020	028	035	050	065	090	110	120
	DIAMETER (d)	mm	320	350	380	410	440	470	500	540	570	610	770	890	930	1200
	SHAFT LENGTH (h)	mm	1000	1000	1000	1000	1000	1500	1500	1500	1500	1500	1500	1500	2000	2000
	TREATED WATER VOLUME	m^3	4	5	6	9	12	18	25	37	45	55	63	70	90	125
	REVOLUTION SPEED	r.p.m.	140	140	140	140	140	140	140	140	140	120	90	75	75	55
	AXIAL LOAD	daN	25	46	60	66	73	80	95	110	140	215	265	330	410	485
	RADIAL LOAD	daN	3,5	6,2	9,8	11	12	16	22	28	42	56	63	72	79	85
	DYNAMIC TORQUE VERTICAL AXLE	daNm	3,4	3,8	5,0	7,5	10,3	15	20	30	41	48	85	102	140	260
	WEIGHT	daN	60	65	70	75	95	102	120	135	160	175	215	250	300	375
	POWER SUPPLY	kW	0,25	0,25	0,37	0,55	0,75	1,1	1,5	2,2	3	3	4	4	5,5	7,5

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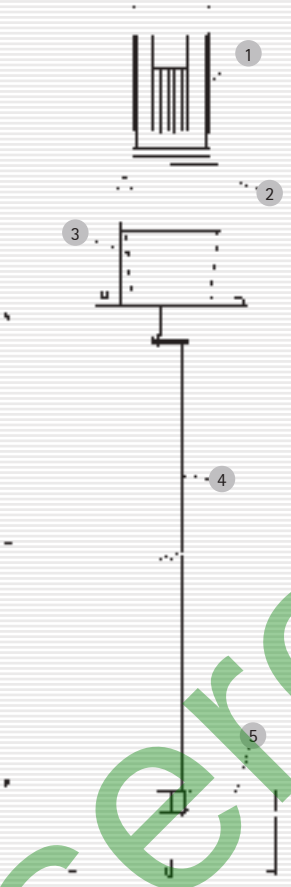
E4PA Electric agitator with four axial blades

The electric agitator E4PA type is mainly used for the flocculation treatment. It consists of an electric motor, a gearbox, a lantern, a shaft and an impeller complete with four axial blades connected with bolted or welded unions.
The advantages of this type of electric agitator consist in the noticeable flow capacity, the uniform distribution of the energy of displacement within the tank, the absence of any turbulences. The shaft length changes according to the depth of the tank wherein the agitator is installed and is suitably dimensioned in compliance with the diameter to avoid any vibration.
On request, it is possible to install a variable speed drive in order to adapt the rotation speed to the specific requirements.
The standard construction is in carbon steel. On request it is possible the realization in stainless steel or with particular protections.

Strengths

- GEOMETRY WITH A ROTATION SPEED SUCH AS TO MAXIMIZE THE FLOCK FORMATION.
- OPERATION WITHOUT FORMATION OF WHIRLS OR TURBULENCES.
- ABSENCE OF ANY VIBRATIONS AND LONG OPERATION ENSURED BY A SUITABLE LOAD ABSORPTION SYSTEM.
- MINIMUM ENERGY CONSUMPTION.



Legend

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. IMPELLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA							
E4PA	IMPELLER DIAMETER (d)	mm	600	650	700	870	1210	1280	1600	1700
	SHAFT LENGTH (h)	mm	1500	1500	2000	2000	2000	2000	2500	2500
	TREATED WATER VOLUME	m^3	25	35	45	47	50	55	75	85
	REVOLUTION SPEED	r.p.m.	25	25	25	22	14	14	10	10
	AXIAL LOAD	daN	0,5	1	1,5	2	2,5	3	3,5	4
	RADIAL LOAD	daN	0,9	1,3	1,7	2,1	4,6	6,4	14	18
	DYNAMIC TORQUE VERTICAL AXLE	daNm	19	28	42	48	70	75	140	150
	WEIGHT	daN	93	99	104	138	170	182	204	225
	POWER SUPPLY	kW	0,25	0,37	0,55	0,55	0,55	0,55	0,75	0,75

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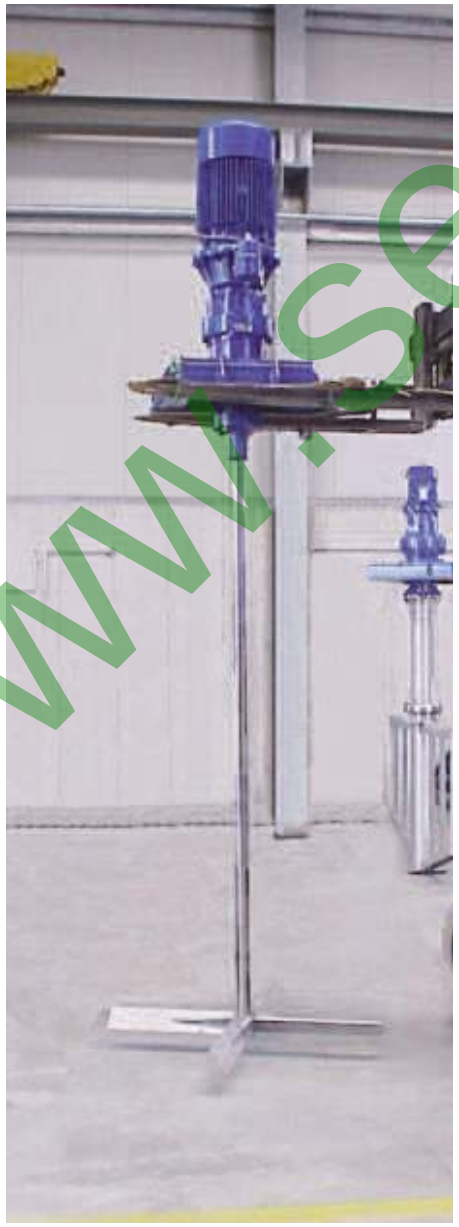
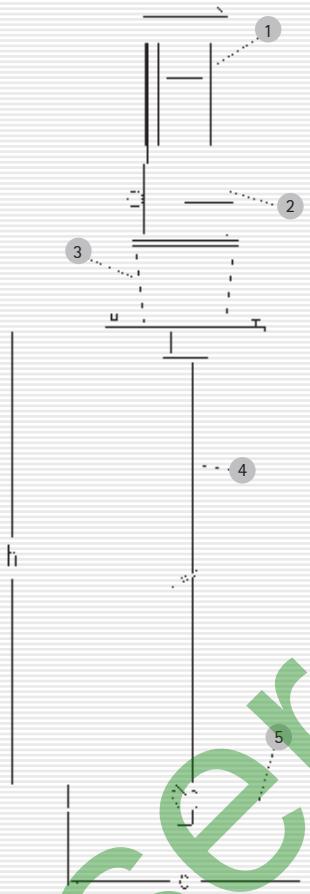
E4PI Electric agitator with four sloping blades

The electric agitator E4PI type is mainly used for the dissolution of the polyelectrolyte, lime and other products typically used for the treatment processes. It consists of an electric motor, a gearbox, a lantern, a shaft and an impeller made of shaped steel metal sheet and provided with four sloping blades connected by means of bolted or welded unions.
The blade sloping is such as to ensure the agitation of the whole liquid mass, even if the solution has reached the maximum viscosity limit; moreover it is able to avoid the cut effects on the molecular chains and the formation of floating lumps.
On request, it is possible to install a variable speed drive in order to adapt the rotation speed to the specific requirements.
The standard construction is in carbon steel. On request it is possible the use of stainless steel or with particular protection covers.

Strengths

- GEOMETRY AND ROTATION SPEED SUCH AS TO MAXIMIZE THE PULVERIZED PRODUCT DISSOLUTION IN WATER SOLUTIONS, WITHOUT THE FORMATION OF FLOATING LUMPS.
- OPTIMUM MIXING EVEN WITH HIGH VISCOSITY VALUES.
- OPERATION WITHOUT ANY CUT EFFECT ON THE MOLECULAR CHAINS.
- POSSIBILITY OF SUPPLY WITH VARIABLE SPEED DRIVE TO CONTROL THE ROTATION SPEED.
- MINIMUM ENERGY CONSUMPTION.





Legend

1. ELECTRIC MOTOR
2. GEARBOX
3. LANTERN
4. SHAFT
5. IMPELLER

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA												
E4PI	IMPELLER DIAMETER (d)	mm	390	430	450	480	490	520	560	620	640	750	770	960	1020
	SHAFT LENGTH (h)	mm	1000	1000	1000	1000	1000	1500	1500	1500	1500	2000	2000	2000	2000
	TREATED WATER VOLUME	m^3	9	12	18	23	27	36	45	32	34	36	38	45	50
	REVOLUTION SPEED	r.p.m.	140	140	140	140	140	140	140	90	90	70	70	50	50
	AXIAL LOAD	daN	12	15	28	65	73	80	85	110	135	190	220	250	280
	RADIAL LOAD	daN	1,7	2,1	4,9	8,3	13	14	15	27	28	30	31	45	48
	DYNAMIC TORQUE VERTICAL AXLE	daNm	7,5	10	15	18	22	30	41	44	47	58	63	84	115
	WEIGHT	daN	75	95	103	115	120	135	167	185	193	213	227	325	375
	POWER SUPPLY	kW	0,55	0,75	1,1	1,5	1,5	2,2	3	2,2	2,2	2,2	2,2	2,2	3

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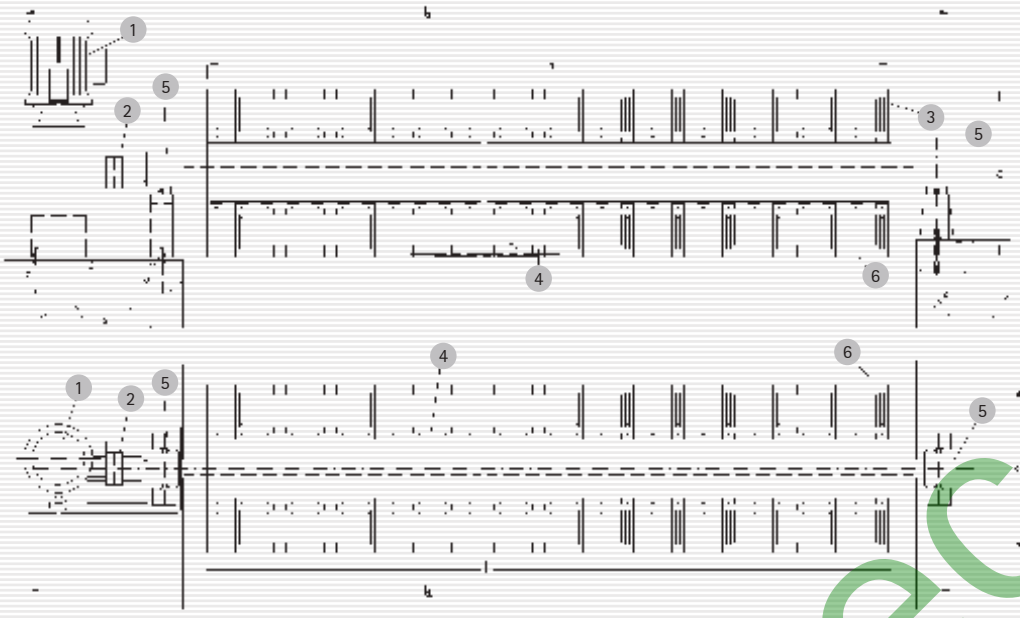
RAM Mammouth type aeration rotor

The aeration rotor RAM type is usually used in the biological treatments for the sewage aeration or for the aerobic sludge stabilization. The rotor unit consists of a sturdy gear motor, a flanged steel pipe on which the lamella crowns are bolted, a flexible gear-rotor joint, two lateral supports consisting of adjustable roller bearings provided with water sprays and end spray guard flanges. On request, the aerator can be supplied complete with double polarity motor for the optimization of the peripheral speed of the blades according to specific requirements. During the rotor rotation, the lamellae are partially immersed in water and their motion involves the lifting of very fine water drops which, also thanks to the wide surface of contact with the air, are enriched with oxygen. On request, a cover can be supplied for the protection of the whole equipment and thus avoid uncontrolled water sprays.
The standard execution provides for the lamella crowns, lamellae and spray guard flanges to be hot dip galvanized after pickling, while the other components are protected against the corrosion with an epoxy painting cycle. On request it is possible the realization in stainless steel.

Strengths

- HIGH OXYGEN TRANSFER DELIVERY WITH RESPECT TO THE INSTALLED POWER.
- OPERATION WITHOUT ANY VIBRATIONS THANKS TO THE SUITABLE LAMELLA ARRANGEMENT.
- POSSIBILITY OF SUPPLY WITH VARIABLE SPEED DRIVE TO CONTROL THE ROTATION SPEED.
- POSSIBILITY TO INSTALL A PROTECTION COVER FOR THE WHOLE EQUIPMENT.



Legend

1 GEARMOTOR
2 ELASTIC COUPLING
3 SPRAY GUARD
4 AERATION CYLINDER
5 END SUPPORT
6 AERATION BLADES

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA									
RAM	MODEL		RAM 07_25	RAM 025	RAM 030	RAM 035	RAM 040	RAM 045	RAM 050	RAM 055	RAM 060	RAM 080
	ROTOR LENGTH (L)	mm	2500	2500	3000	3500	4000	4500	5000	5500	6000	8000
	ROTOR DIAMETER (d)	mm	700	1000	1000	1000	1000	1000	1000	1000	1000	1000
	TOTAL LENGTH (L_2)	mm	3500	3700	4300	4900	5500	6000	6600	7150	7700	9800
	OXYGEN TRANSFER	kg/h	9,5	20	24	28	32	36	40	44	48	64
	WEIGHT	daN	590	870	910	1170	1230	1500	1800	2300	2600	3500
	POWER SUPPLY	kW	5,5	11	15	18,5	18,5	22	30	30	30	45

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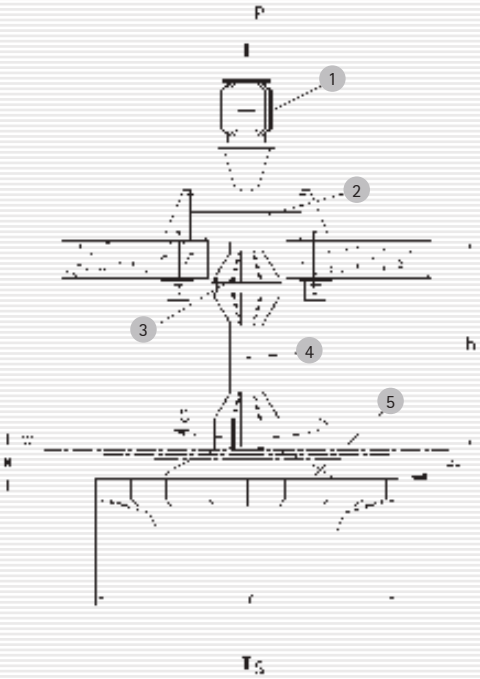
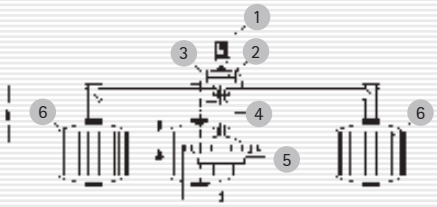
TASC Surface aeration turbine, talaro type

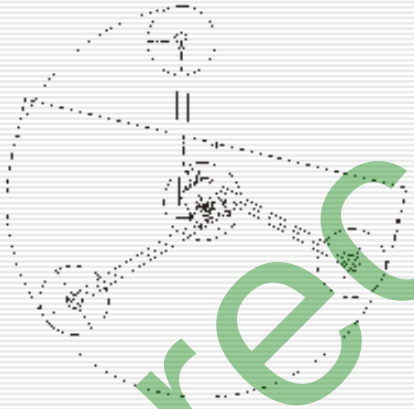
The TASC type turbine for surface aeration is conceived for the biological aeration treatment of sewages. It consists of an electric motor, a gearbox of optimum quality, selected among the best in commerce, a coupling, a shaft and a turbine. The electric motor, by means of the parallel and/or planetary gearbox, controls the shaft on which the turbine is keyed. It is provided with a number of blades variable from twenty to twenty-four, stiffly anchored according to a specific welding process. The connection is generally carried out by means of a bolted flange. The advantage of the TASC turbine consists in the high potential in recycling the sludge which is submitted to a diffused and homogeneous aeration of the whole mass.
It is also possible to request the TASCG type which equipment is fitted on a metal floating structure consisting of three cylindrical tanks and suitable support and centering elements. This type of turbine is particularly recommended for the aeration of lagoons or basins whose liquid level is variable.
The standard construction is in carbon steel. On request it is possible the use of stainless steel.

Strengths

- OPTIMUM RATIO: OXYGEN TRANSFER RATE/INSTALLED POWER.
- HIGH SEWAGE RECYCLE CAPACITY.
- DIFFUSED OR HOMOGENEOUS AERATION ON THE WHOLE TANK MASS.
- OPERATION WITHOUT ANY VIBRATIONS THANKS TO THE BLADE ARRANGEMENT.
- POSSIBILITY OF INSTALLATION ON VARIABLE-LEVEL BASINS (TASCG).







Legend

1 ELECTRIC MOTOR
2 GEARBOX
3 COUPLING
4 SHAFT
5 TURBINE
6 FLOATS

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA														
TASC TASCG	MODEL		004	005	007	008	010	014	017	020	027	033	040	050	070	080	100
	TURBINE DIAMETER (d)	mm	930	930	930	1200	1200	1600	1600	1600	1600	2060	2500	2500	2750	3100	3500
	SHAFT LENGTH (h)	mm	1000	1000	1000	1000	1000	1000	1000	1500	1500	1500	1500	1500	1500	1500	1500
	MAX IMMERSION DEPTH (n)	mm	50	100	100	100	100	120	120	120	120	120	150	150	150	150	150
	REVOLUTION SPEED	r.p.m.	85	100	112	78	84	57	61	64	71	46	40	43	35	33	28
	OXYGEN TRANSFER	kg/h	8	12	17	20	24	32	40	48	64	78	98	119	162	194	238
	AXIAL LOAD	daN	330	450	650	650	950	950	1450	1450	1800	2000	2600	3050	3300	4900	5600
	RADIAL LOAD	daN	82	158	230	230	340	340	650	650	820	830	1180	1300	1750	2000	2600
	TOTAL DYNAMIC VERTICAL LOAD	daN	500	650	800	800	1100	1100	1300	1700	2500	2500	3800	4200	4600	6400	7300
	DYNAMIC TORQUE VERTICAL AXLE	daNm	87	117	250	284	485	500	750	890	1280	1535	2335	2950	4050	4900	7900
	TURBINE WEIGHT	daN	100	220	240	255	330	750	830	980	1100	1600	2620	2860	3450	4250	5474
	TOTAL WEIGHT TASCG	daN	1620	1640	1650	2910	2910	3040	3100	3150	3430	3620	4260	4600	5670	7120	9424
	POWER SUPPLY	kW	4	5,5	7,5	9,2	11	15	18,5	22	30	37	45	55	75	90	110

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SERECO®

WATER FILTERS GENERAL CATALOGUE

Together with you for a sustainable future

A few more steps before saying it is clean.

Filtration is an essential water treatment. Whether primary water is used for drinking, irrigation, cooling or other industrial applications, or wastewater that has already been treated in a plant, good filtration treatment can never be ignored before it can be used, after disinfection where necessary.
SERECO's filters cover every request, offering equipment for filtration on sand, on activated carbon or through stainless steel cloths or special fabric, and on trapezoidal bar filters as well as the use of filter beds suitable for iron removers and demanganisers.
All filters designed in SERECO can be supplied as prefabricated and self-supporting units complete with automatic controls of operation, backwash, and possible blockage; the filters can also be integrated with SCADA, remote control and similar controls already present on treatment plants.
They have been designed aiming to obtain filters with small dimensions but with high specific flow rates, minimum installed and absorbed power, and for some models minimum head loss.
SERECO's solutions are available in 304/304L, 316/316L, DUPLEX and SUPERDUPLEX stainless steel according to application and customers' requirements.
SERECO has a great experience in designing and installation of gravity sand or activated carbon beds, with a traditional backwashing system, carried out by interrupting the filtration and blowing air and backwash water from the bottom of the tank through suitable nozzles.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND READY FOR SHIPMENT AND SHIPPED FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

FDG

Gravity disc filter

WHEN TO USE IT

The gravity disc filter is mainly used in tertiary treatments for the primary waters and sewage filtration for civil and industrial application. It is used in the event it is necessary to obtain an effluent to be reused, therefore particularly clear and with a reduced presence of organic and suspended matters.

HOW IS IT MADE

The FDG is housed in a tank in which it is assembled in a smart and functional way and it is composed of:

- a rotating shaft;
- a series of discs made up of circular sectors panels, which can be dismantled individually, with a polypropylene honeycomb structure;
- a felt-polyester filtering cloth covers the panels on both sides;
- a gear motor for the shaft rotation;
- a backwashing system consisting of a pump every 2 discs and 2 suction boxes for each disc;
- a manual and electro-pneumatic valves required for the correct operation;
- a bottom sludge extraction pump;
- a pump suitable for a deep washing of the cloths on a monthly basis;
- a control panel.

HOW DOES IT WORK

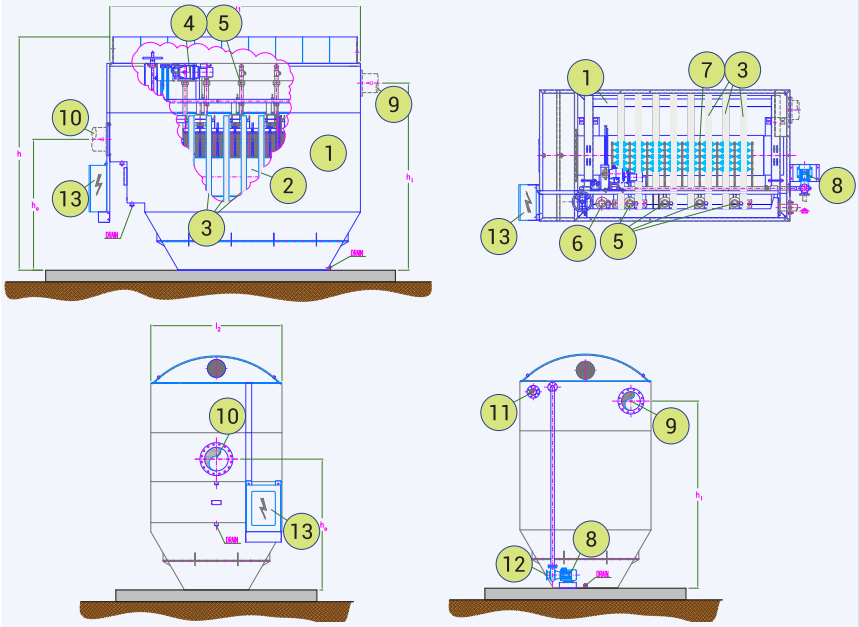
During the normal filtration, the shaft and the filtering discs are still and completely underwater. The felt cloth maximizes the filtering surface and allows keeping off the suspended solids whose diameter is even smaller than the nominal gap. The fluid to be filtered passes through the disc surface from the outside to the inside and is conveyed towards the discharge by means of the central shaft. The discs are stationary for most of the time and this not only involves an energy save, but also produces the effect of increasing the pressure gradient necessary to ensure the desired flow rate up to the pre-set maximum value; as soon as the pre-set maximum value is reached, the backwashing starts without interrupting the filtration process. During the normal operation, the backwashing system is far from the discs filtering surface in order to have always the maximum of the useful filtration surface; only during the backwashing phase the pump is activated and the suction boxes are approached until they touch the discs and allow the

STRENGTHS FDG

- BACKWASH WATER LOSSES LESS THAN 5%;
- REDUCED OVERALL DIMENSIONS AND HIGH SPECIFIC FLOW RATES;
- BACK WASHING CARRIED OUT WITHOUT INTERRUPTING THE FILTRATION PROCESS;
- NO REDUCTION OF THE FILTERING SURFACE DUE TO THE PRESENCE OF THE BACK WASHING SYSTEM;
- VERY LOW ENERGY REQUIREMENTS;
- LIMITED HEADLOSSES;
- THE FILTRATION SYSTEM FROM THE OUTSIDE TO THE INSIDE ALLOWS THE PARTS OF THE EQUIPMENT IN CONTACT WITH THE DIRTY WATER TO BE ALWAYS AT SIGHT, EASILY INSPECTED AND WASHABLE, AVOIDING FORCED STOPS DUE TO CLOGGING OF INTERNAL PARTS;
- SMART OPERATION BY PLC EQUIPPED WITH DEDICATED SOFTWARE;
- STURDINESS AND RELIABILITY.

Gravity disc filter

Gravity disc filter



LEGEND

1. TANK
2. ROTATING SHAFT
3. FILTERING DISCS
4. GEARMOTOR
5. BACKWASHING SYSTEM
6. SLUDGE EXTRACTION PUMP
7. SECONDARY WASHING SYSTEM
8. SECONDARY WASHING PUMP
9. WATER TO BE TREATED INLET
10. TREATED WATER OUTLET
11. BACKWASH WATER OUTLET
12. SECONDARY WASHING WATER INLET
13. CONTROL PANEL

sludge deposited on the cloths to be detached and sucked. In the discs interested in backwashing only, the already filtered water passes through the felt from the inside to the outside of the discs, performing an energetic washing in the opposite direction to that of normal filtration. Backwashing takes place without interruption of normal filtration affecting only a small zone of the total filtration surface. Only during the backwashing phase, the gear motor starts and allows the slow rotation of the shaft and of the discs in order to reach and clean the entire surface of each disc. The operation is automatic and managed by a PLC, but manual operation is also allowed.

VARIATIONS

The package system of 2 or more pairs of discs can be supplied complete with carbon steel or stainless steel tank of various grades, but the version for installation in a concrete tank is also available on request.

MAIN FEATURES	U.M.	DIMENSIONAL DATA									
MODEL FDG		**21_02**	**21_04**	**21_06**	**21_08**	**21_10**	**21_12**	**21_14**	**21_16**	**21_18**	**21_20**
DISCS DIAMETER (d)	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
DISCS NUMBER	n°	2	4	6	8	10	12	14	16	18	20
TOTAL LENGTH (l_1)	mm	2100	3100	3700	4300	4900	5500	6100	6750	7300	7900
TOTAL WIDTH (l_2)	mm	2250	2250	2250	2250	2250	2250	2250	2250	2250	2250
TOTAL HEIGHT (h)	mm	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
INLET HEIGHT (h_i)	mm	3210	3210	3210	3210	3210	3210	3210	3210	3210	3210
OUTLET HEIGHT (h_o)	mm	2245	2245	2245	2245	2245	2245	2245	2245	2245	2245
ACTUAL FILTERING SURFACE	m^2	11.2	22.4	33.6	44.8	56.0	67.2	78.4	89.6	100.8	112.0
NOMINAL FILTERING GAP	m	20	20	20	20	20	20	20	20	20	20
HEAD LOSS	m.c.a.	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
NOMINAL FLOW RATE	m^3/h	100	200	300	400	500	600	700	800	900	1000

FDGIE

Gravity disc filter with in to out filtration

The FDGIE gravity disc filter differs from the other SERECO FDG model because it has two main characteristics that make it unique on the market. The first is the direction of filtration from inside to outside of the discs; the second is the great resistance and durability over the time, thanks to a robust filter media made of special stainless steel fabric.
The FDGIE filter is the result of years of filtration tests in laboratory and decades of experience on field that carry on to the today arrangement of the filtration system FDGIE which is characterized by its simplicity of operation, for its reduced overall dimensions with the same flow rate compared to traditional filtration methods and compared to similar models of the competition and for its flexibility of application.

STRENGTHS FDGIE

- THE EQUIPMENT IS TOTALLY MADE OF RECYCLABLE MATERIALS AS STAINLESS STEEL;
- VERY LOW CONSUMPTION OF WASHING WATER;
- CONTINUOUS FILTRATION EVEN DURING THE AUTOMATIC WASHING;
- VERY HIGH SPECIFIC FILTRATION SPEEDS THANKS TO THE SPECIAL WEAVING OF THE STAINLESS STEEL FILTER FABRIC;
- WIDE OPTION OF NOMINAL FILTERING LIGHT RANGING FROM 5 TO 100 MICRON;
- GREAT FLEXIBILITY OF USE DUE TO THE AVAILABILITY OF 3 DIFFERENT DIAMETERS OF DISKS THAT CAN BE ARRANGED FROM IN PARALLEL FROM A MINIMUM OF 2 TO A MAXIMUM OF 36 DISCS.

Gravity disc filter

MAIN APPLICATIONS

1. Drinking water filtration;
2. Primary water filtration;
3. Tertiary filtration of treated wastewater;
4. Water filtration for irrigation use;
5. Filtration of sea water for specific applications.

VERSIONS

The FDGIE filter is produced in two versions, one with a reinforced concrete tank and a compact and pre-fabricated one with a tank supplied by SERECO that in the version with standard materials is in stainless steel.
Each version is available in three sizes, that is SMALL, MEDIUM and LARGE:

SMALL

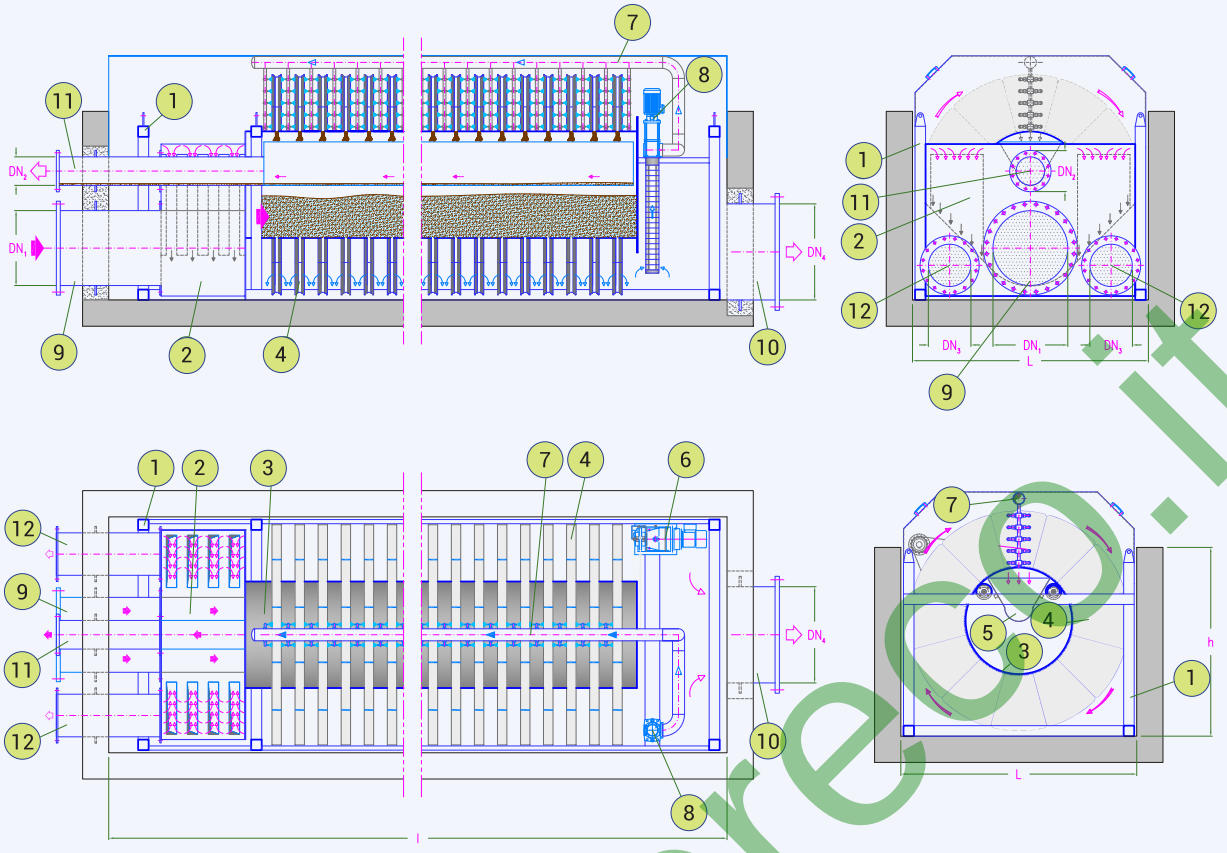
It is with disc diameter of 1600 mm, number of discs ranging from a minimum of 2 to a maximum of 18 and flow rates that, with a nominal filtering light of 10 microns, range from a minimum of 67 m3/hr to a maximum of 604 m3/h.

MEDIUM

It is with disc diameter of 2100 mm, number of discs ranging from a minimum of 2 to a maximum of 36 and flow rates that, with a nominal filtering light of 10 microns, range from a minimum of 112 m3/h to a maximum of 2013 m3/h.

LARGE

It is with disc diameter of 2800 mm, number of discs ranging from a minimum of 2 to a maximum of 36 and flow rates that, with a nominal filtering light of 10 microns, range from a minimum of 264 m3/h to a maximum of 4760 m3/h.



LEGEND

1. SUPPORTING FRAME
2. INLET TANK
3. ROTATING SHAFT
4. FILTERING DISCS
5. BACKWASH HOPPER
6. GEARMOTOR
7. COUNTER-WASHING SYSTEM
8. COUNTER-WASHING PUMP
9. WATER TO BE FILTERED INLET
10. FILTERED WATER OUTLET
11. COUNTER WASHING WATER OUTLET
12. OVERFLOW OUTLET

Overview of the plant with gravity disc filter

Gravity drum filter

WHEN TO USE IT

The gravity drum filter is usually used in tertiary treatments of primary and sewage water filtration for civil and industrial application. They are used in the event it is necessary to obtain an effluent to be reused, therefore particularly clear and with a reduced presence of organic and suspended substances.

HOW IS IT MADE

This type of filter consists of a sturdy cylinder around which a special polypropylene felt cloth is wound, a gear motor, a complete backwashing system consisting of spray nozzles, back washing pump, piping and relevant valves, pneumatically controlled valves, compressor interlocked with the valves, electric control panel.

HOW DOES IT WORK

The filtering drum is usually housed in a fully enclosed structural metal tank; the type for installation in concrete tanks can be supplied, on request. During the normal operation, the cylinder is motionless and the filtration occurs from the outside to the inside. The special felt allows the trapping of the suspended solids whose diameter is equal to or greater than the filtering gap. At this stage, there is no energy consumption. When, due to the progressive deposit of retained solids on the cloth, the level of water in the tank reaches an established value, the backwashing stage is activated automatically without any interruption of the filtration process. The spray nozzles, placed inside the drum in a non-waterlogged position, clean the drum with a pressurized water jet from the inside to the outside. The particles removed by means of the backwashing are sent away through piping. The whole back washing stage occurs with the drum in slow rotation, in order to clean the whole filtering surface.

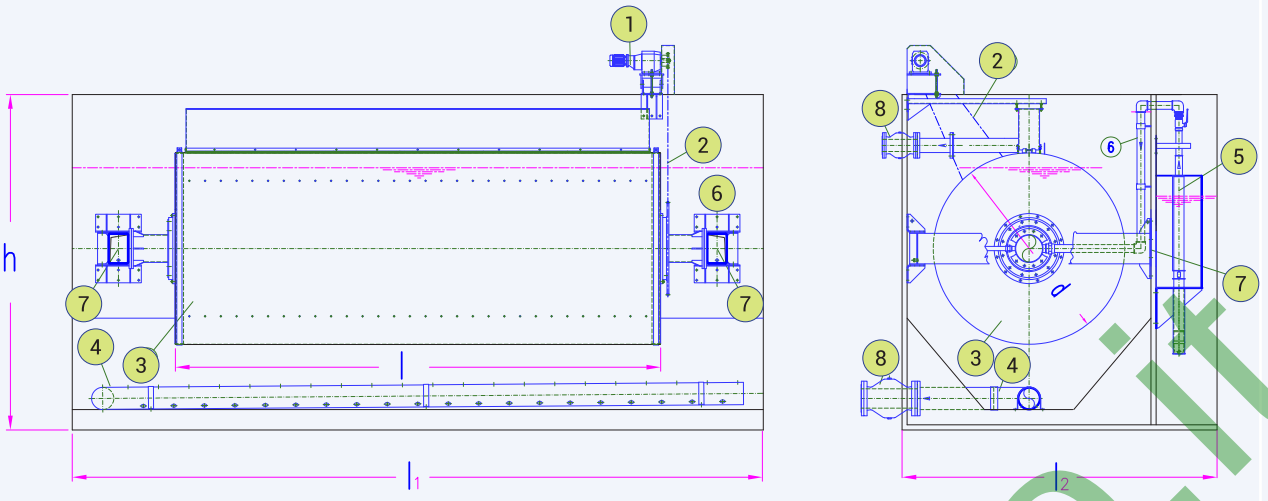
VARIATIONS

The standard construction is in stainless steel complete with the containment tank, but it can also be supplied with a reinforced concrete tank and internal equipment in galvanised steel.

STRENGTHS FTG

- BACK WASHING CARRIED OUT WITHOUT INTERRUPTING THE FILTRATION PROCESS;
- VERY LOW ENERGY REQUIREMENTS;
- LIMITED HEADLOSSES;
- COMPLETELY AUTOMATIC OPERATION;
- MINIMUM MAINTENANCE REQUIREMENTS;
- LONG LIFE;
- STURDINESS AND RELIABILITY.

Overview of the plant with gravity drum filter



LEGEND

1. GEARMOTOR
2. DRIVING CHAIN
3. FILTERING DRUM
4. BOTTOM SLUDGE EXTRACTION PIPE
5. FELT BACKWASHING PUMP
6. BACKWASH WATER MANIFOLD
7. FILTERED WATER OUTLET
8. PNEUMATIC VALVE

MAIN FEATURES	U.M.	DIMENSIONAL DATA										
MODEL FTG		**19_30**	**19_35**	**19_40**	**19_45**	**19_47**	**19_50**	**25_50**	**25_70**	**25_90**	**25_110**	**25_130**
DRUM DIAMETER (d)	mm	1890	1890	1890	1890	1890	1890	2500	2500	2500	2500	2500
DRUM LENGTH (l)	mm	3000	3500	4000	4500	4700	5000	5000	7000	9000	11000	13000
TOTAL LENGTH (l_1)	mm	4000	4500	5000	5500	5700	6000	6000	8000	10000	12000	14000
TOTAL WIDTH (l_2)	mm	2500	2500	2500	2500	2500	2500	3300	3300	3300	3300	3300
TOTAL HEIGHT (h)	mm	3000	3000	3000	3000	3000	3000	3800	3800	3800	3800	3800
FILTERING GAP	µm	25 ÷ 40										
NOMINAL FLOW RATE	m^3/h	80	93	107	120	125	133	384	538	692	846	1000
WEIGHT	kg	4050	4700	5300	6000	6250	6650	8100	11300	14500	17800	21000
POWER SUPPLY	kW	7,5	7,5	9,5	9,5	11	11	12	12	18	22	25

GRSIS

Compact rotating drum filter

WHEN TO USE IT

The GRSIS is a small rotating drum filter which is particularly suitable for the filtration of small flow rates (some hundreds of m3/h) of wastewater to be purified, sea, lake or river water, destined for industrial processes, potabilization, irrigation or production processes in general.

HOW IS IT MADE

The exterior of the machine is a completely closed and compact parallelepiped and is essentially composed of: a sturdy structure in closed steel sheet which acts as a container for the whole machine; a horizontal cylinder stiffened by means of steel profiles arranged in a radial pattern, suitable for having a large free cylindrical surface which is at the same time very robust and able to withstand heavy loads such as rotation in water and the thrusts of the hydraulic flow; a series of filter panels bolted to the above structure and easily removable, each panel consists of a frame and a filtering panel in square mesh or perforated sheet metal; a fixed shaft supporting the entire structure; two sturdy supports mounted on the sides of the drum and equipped with special self-lubricating bushings for continuous operation even in water, suitably sized to support the drum during rotation with respect to the fixed shaft; a gearmotor with cylindrical gears for the rotation of the drum by means of a pinion which meshes with the rack; a counter-current washing bar of the filtering surface, from the inside to the outside, complete with high pressure nozzles; a hopper for collecting the removed material and washing water; a sealing system composed of gaskets mounted between the rotating drum and a fixed part constituted by the container wall. Protection against overloads is guaranteed by standard dynamometric devices or, on request, by electronic absorption limiters.

The simplicity of its design and the fully automatic cleaning allow this unit to always guarantee high performance and reliability over time.

HOW DOES IT WORK

The water flow enters in an axial direction with respect to the drum through a flanged connection; the flow of water to be filtered crosses the cylindrical surface, made up of filter panels, from the outside to the inside. The water recombines after filtration and continues its motion along the axis of the drum to exit from the container through a flanged connection. The screened material held on the outside of the filter is pushed into a hopper by the washing water which sprays from the inside to the outside of the drum and flows out also by means of a flanged connection. The machine is also a provided with a filter on the washing water pipe, an overflow flanged connection, a bottom discharge and an electrical control panel.

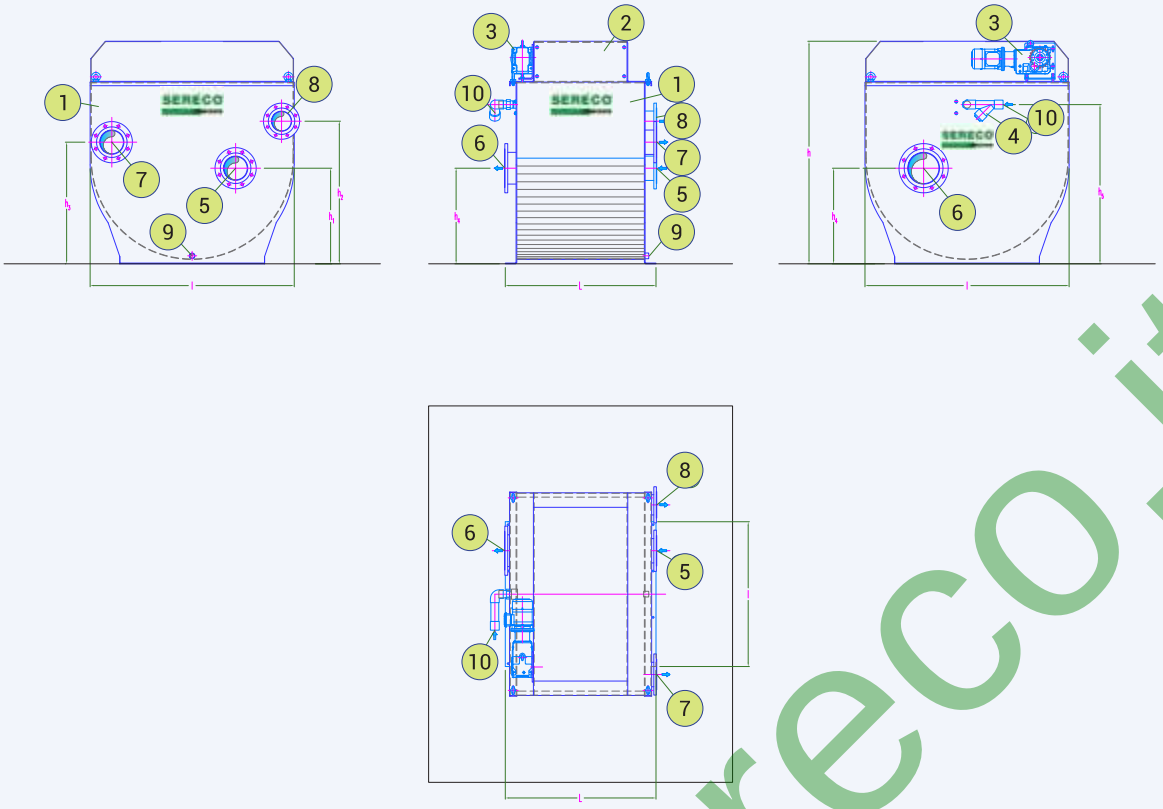
VARIATIONS

The standard machine is built in one size only. It can be made in various types of stainless steel available on the market and for specific cases, the mesh of panels can be replaced with perforated sheet upon request.

STRENGTHS GRSIS

- COMPACT AND EASILY MOVABLE MACHINE;
- BUILT ENTIRELY OF STAINLESS STEEL;
- POSSIBILITY OF CHANGING THE FILTERING OPENING AT ANY TIME;
- NO ROUTINE MAINTENANCE REQUIRED.

Compact rotating drum filter GRSIS testing phase



LEGEND

1. TANK
2. SAFETY COVER
3. GEARMOTOR
4. PANEL
5. WATER INLET
6. WATER OUTLET
7. OVERFLOW
8. SCREENED MATERIAL OUTLET
9. BOTTOM DRAIN
10. WASHING WATER INLET

MAIN FEATURES	U.M.	DIMENSIONAL DATA
DRUM DIAMETER	mm	1000
DRUM WIDTH	mm	500
FILTERING GAP	mm	da 0.05 a 5
NOMINAL FLOW RATE	mc^3/h	da 80 a 500
INLET DIAMETER	DN	da 100 a 300
OUTLET DIAMETER	DN	da 150 a 400
POWER SUPPLY	kW	0,37
WEIGHT APPROX.	kg	450

Automatic backwash water filter

WHEN TO USE IT

The automatic ABSWF filter is usually used for large flow rates on medium and big size plants with sea, river or lake water intakes, when an easy in-line installation by flanged connections and a great reliability for solid-liquid separation are required. The ABSWF filter is used to separate sand, suspended organic substances, algae etc. from the water.

MAIN FEATURES

The main and most important feature of this type of filter is that it can treat large flow rates ranging from a minimum of about 0.2 m3/s to a maximum of about 6 m3/s for each filter. The filtration openings usually vary from a minimum of 50 microns to a maximum of 100 microns, while the working pressure runs from a minimum of a few bars to a maximum of around 20 bars.

HOW IS IT MADE

The ABSWF filter is mainly composed of:

- a sturdy cylindrical chamber composed of two compartments flanged in the centre line, one for raw water and the other one for filtered water; while the extreme parts are closed by convex bottom;
- a set of filtering cylindrical elements, composed of trapezoidal bars installed above a rotating plate with a central driving shaft;
- flanged connections for raw water and filtered water;
- a backwash system composed of a backwash collector and a motorized valve;
- a differential pressure switch to start the backwash cycle;
- a sturdy gearmotor installed on the rotating shaft complete with load limiter;
- a hydraulic seal suitable for the pressures acting on the rotating shaft;
- an on-board control panel;
- an access staircase and a maintenance walkway.

OPERATION

During the normal filtration process, the water crosses the filter elements using the pressure difference between the two compartments, which is always lower than 0.5 bar. When the differential pressure reaches the maximum set value, while the filter continues to filter, the backwashing of the filter elements begins; depending on the filter model, the backwash takes place in sequence at one, two, or three at a time until the pressure difference falls below the minimum differential pressure set point.

VARIATIONS

In addition to the various standard models in the table, the filter can be supplied in customised models of flow

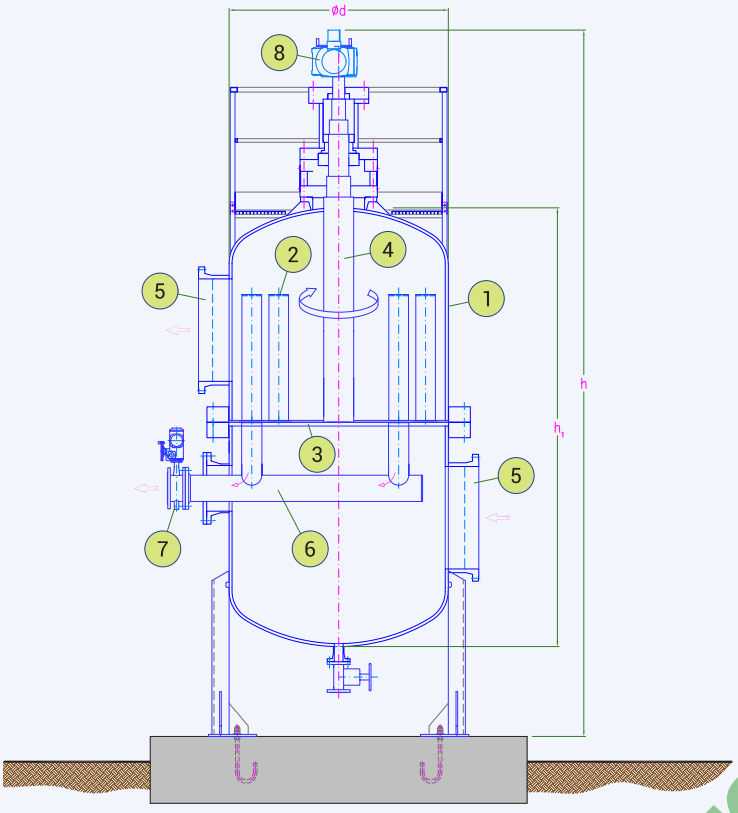
STRENGTHS ABSWF

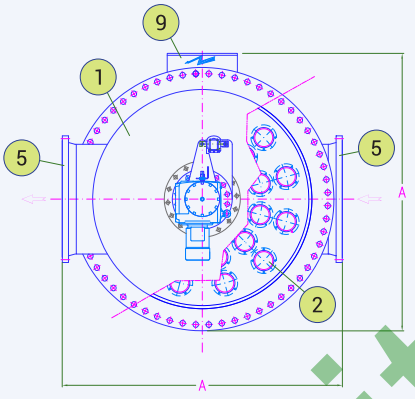
- SUITABLE FOR SEAWATER;
- PRESSURIZED FILTRATION WITH HIGH RESIDUAL PRESSURE;
- COMPLETELY AUTOMATIC OPERATION WITHOUT STOPPAGE IN FILTRATION;
- RELIABLE AUTOMATIC BACKWASH SYSTEM;
- LOW POWER CONSUMPTION;
- LOW ROUTINE MAINTENANCE.

Overview of the plant with automatic backwash water filter

Automatic backwash water filter

ABSWF





LEGEND

1. CYLINDRICAL CHAMBER
2. FILTERING CYLINDRICAL ELEMENT
3. ROTATING PLATE
4. DRIVING SHAFT
5. FLANGED CONNECTION IN/OUT
6. BACKWASH COLLECTOR
7. BACKWASH VALVE
8. GEAR MOTOR
9. CONTROL PANEL

rate and pressure. The filter elements are always provided in the various stainless steel types available on the market while the cover may be supplied in carbon steel or with corrosion-resistant treatment of the internal parts by means of ebonisation, GRP liner or other suitable corrosion-resistant materials.

MAIN FEATURES	U.M.	DIMENSIONAL DATA									
MODEL ABSWF		**08**	**10**	**12**	**14**	**16**	**18**	**20**	**21**	**23**	**25**
DIAMETER (d)	mm	800	1000	1200	1400	1600	1800	2000	2100	2300	2500
TOTAL HEIGHT (h)	mm	4250	4450	4650	4950	5650	5950	6250	6750	7050	7550
FILTRATION CHAMBER HEIGHT (h_1)	mm	2250	2450	2650	2950	3650	3950	4250	4750	5050	5550
OVERALL WIDTH (A)	mm	1300	1500	1700	1900	2100	2400	2600	2700	3000	3200
DESIGN PRESSURE (P)	bar	5 ÷ 20									
TEST PRESSURE	bar	1.5*P									
IN/OUT FLANGED CONNECTIONS	DN	500	550	600	700	800	900	1000	1200	1300	1500
BACKWASH FLANGED CONNECTION	DN	150	150	150	200	200	200	200	250	250	300
MAX FLOW RATE (1 mm FILTERING GAP) (*)	m^3/h	1750	2300	2900	4100	5800	7000	8200	11650	14000	17500
MAX FLOW RATE (0.5 mm FILTERING GAP) (*)	m^3/h	1500	2000	2500	3500	5000	6000	7000	10000	12000	15000
GEARMOTOR POWER SUPPLY	kW	0.25	0.25	0.25	0.37	0.37	0.37	0.37	0.55	0.55	0.75
BACKWASH VALVE POWER SUPPLY	kW	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
EMPTY WEIGHT	kg	Depending on the design pressure.									

(*) On request, filters with different filtration openings are available.

Activated carbon water filter

WHEN TO USE IT

Water filters are equipment used for the primary water and sewage filtration for civil and industrial application. They are used in the event it is necessary to obtain an effluent to be reused, therefore particularly clear and with a reduced presence of organic matters.

The FCA type filter uses the activated carbon as filtering medium; its operation combines the mechanical filtration due to the filter bed with the adsorption power of the activated carbon. In fact, the carbon, thanks to its considerable porosity and therefore wide specific surface of contact with the water, adsorbs the suspended particles in the water to be treated. On request, it is possible to use multi media filtering layers (FSD).

HOW IS IT MADE

The filter consists of a vertical cylindrical container complete with drain at the bottom, support feet, manhole, lifting eyebolts, flanged inlet and outlet piping, nozzles, diffusers, valves, pressure gauges and electro-pneumatic panel.

HOW DOES IT WORK

The filtration is carried out according to a discontinuous cyclic process: a differential pressure gauge stops the flow of water to be filtered as soon as the pressure difference reaches an established limit value; at the same instant the filter back washing cycle is automatically activated and a water and air flow put in from the bottom.

The standard execution provides for a base plate as support for the filter bed, on which the nozzles for back washing are seated.

VARIATIONS

Upon request, a pneumatic system can also be supplied for the emptying and filling of activated carbon, procedure necessary for the periodic regeneration of activated carbon.

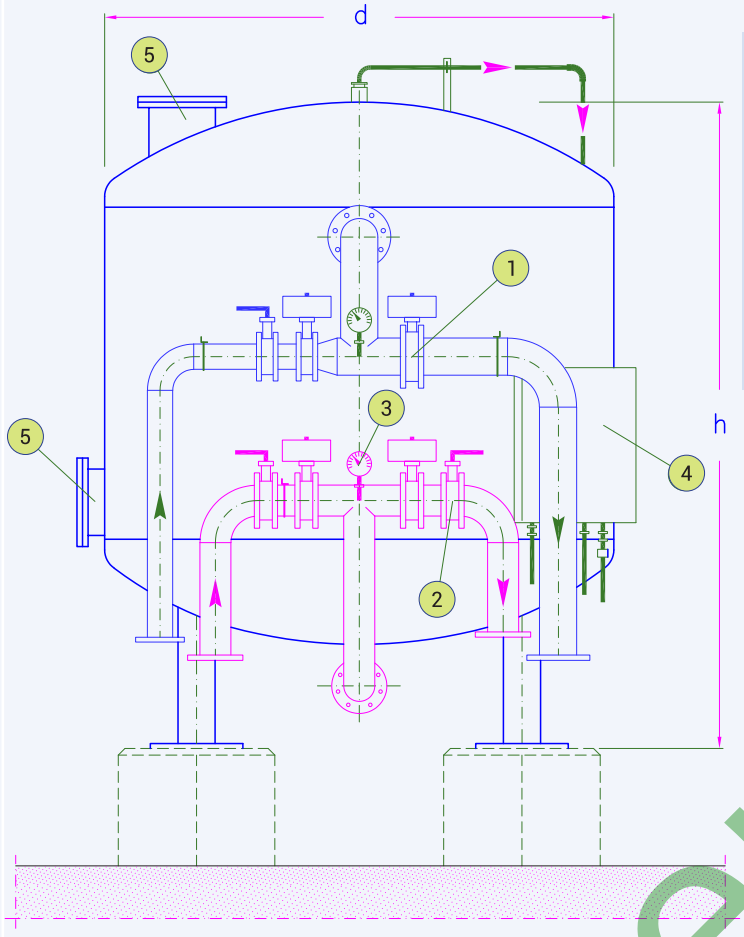
The standard construction is in carbon steel. On request, it is possible the construction in carbon steel, protected by hot dip galvanization for diameters up to two meters and painted both internally and externally with paint cycles specific to the quality of the water to be treated, for larger diameters.

STRENGTHS FCA

- PRESSURIZED FILTRATION WITH HIGH RESIDUAL PRESSURE;
- ACTIVATED CARBON FILTER BED;
- COMPLETELY AUTOMATIC OPERATION;
- VERY SHORT BACKWASHING TIME;
- MINIMUM MAINTENANCE REQUIREMENTS;
- SMOOTH OPERATION OVER TIME.

Overview of the plant with activated carbon water filter

Activated carbon water filter



LEGEND

1. PNEUMATIC VALVE
2. HAND OPERATED VALVE
3. MANOMETER
4. ELECTROPNEUMATIC CONTROL PANEL
5. MANHOLE

MAIN FEATURES	U.M.	DIMENSIONAL DATA									
MODEL FCA		**05**	**10**	**15**	**20**	**25**	**30**	**38**	**45**	**70**	**96**
DIAMETER (d)	mm	800	1200	1400	1600	1800	2000	2200	2400	3000	3500
HEIGHT (h)	mm	1900	2000	2200	2600	2800	3000	3900	4100	4500	4700
FLANGED CONNECTIONS	DN	50	65	80	100	125	150	150	150	200	250
FILTER BED SURFACE	m2	0,50	1,13	1,54	2,01	2,54	3,14	3,80	4,52	7,07	9,62
EMPTY WEIGHT	kg	486	872	1043	1389	1713	2072	2767	3220	4661	5964
WORKING WEIGHT	kg	1140	2456	3506	5410	7312	9611	15311	19053	32228	45411

FSQ

Quartz sand water filter

WHEN TO USE IT

Water filters are equipment used for the primary waters and sewage filtration for civil and industrial application. They are used in the event it is necessary to obtain an effluent to be reused, therefore particularly clear and with a reduced presence of organic substances. The FSQ type filter employs the quartz sand as filter medium. On request, it is possible to use multi media filtering layers (FSD).

HOW IS IT MADE

The filter consists of a vertical cylindrical container complete with bottom drain, support feet, manhole, lifting eyebolts, flanged inlet and outlet piping, nozzles, diffusers, valves, pressure gauges and electro-pneumatic panel.

HOW DOES IT WORK

The filtration is carried out according to a discontinuous cyclic process: a differential pressure gauge stops the flow of water to be filtered as soon as the pressure difference reaches a pre-set threshold level; at the same instant, the filter back washing cycle is automatically activated, with air and water being introduced from below.

The standard execution provides for a base plate as support for the filter bed, on which the nozzles for back washing are seated. The high filter reliability is ensured by the automatic backwashing system and by the short time required to restore the filter medium.

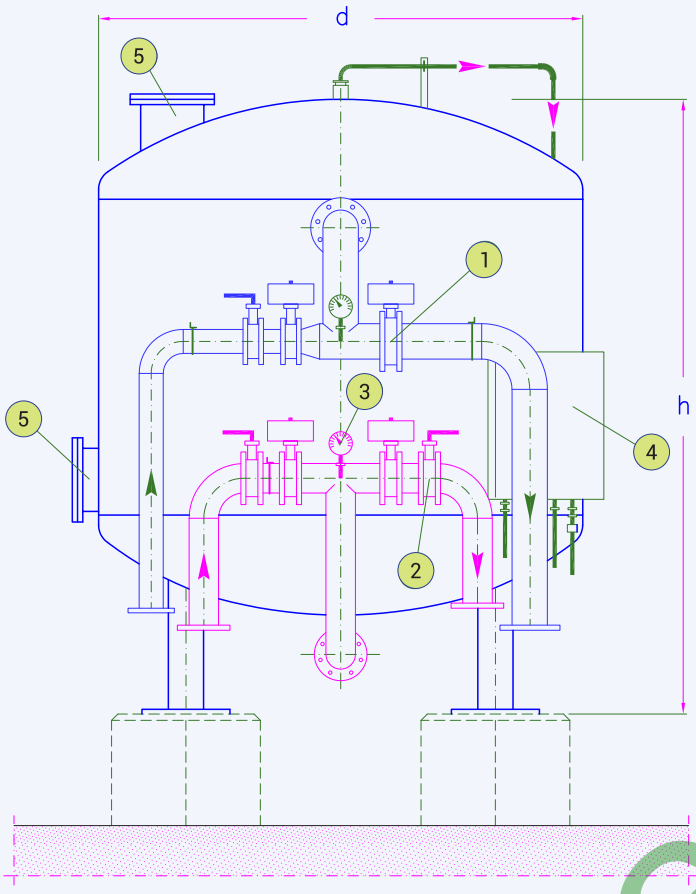
VARIATIONS

The standard construction is in stainless steel. On request, it is possible the construction in carbon steel, protected by hot dip galvanization for diameters up to two meters and painted both internally and externally with paint cycles specific to the quality of the water to be treated, for larger diameters.

STRENGTHS FSQ

- FILTRATION UNDER PRESSURE;
- QUARTZ SAND FILTER BED;
- COMPLETELY AUTOMATIC OPERATION;
- VERY SHORT BACK-WASHING TIME;
- MINIMUM MAINTENANCE REQUIREMENTS;
- SMOOTH OPERATION OVER TIME.

Overview of the plant with quartz sand water filter



LEGEND

1. PNEUMATIC VALVE
2. HAND OPERATED VALVE
3. MANOMETER
4. ELECTRO PNEUMATIC CONTROL PANEL
5. MANHOLE

MAIN FEATURES	U.M.	DIMENSIONAL DATA									
MODEL FSQ		**05**	**10**	**15**	**20**	**25**	**30**	**38**	**45**	**70**	**96**
DIAMETER (d)	mm	800	1200	1400	1600	1800	2000	2200	2400	3000	3500
HEIGHT (h)	mm	1900	2000	2200	2600	2800	3000	3900	4100	4500	4700
FLANGED CONNECTIONS	DN	50	65	80	100	125	150	150	150	200	250
FILTER BED SURFACE	m^2	0,50	1,13	1,54	2,01	2,54	3,14	3,80	4,52	7,07	9,62
EMPTY WEIGHT	kg	486	872	1043	1389	1713	2072	2767	3220	4661	5964
WORKING WEIGHT	kg	1336	2931	4245	6617	8991	11873	19075	23804	40499	57245

Sludge thickeners and dewaterers

- IFCC
- IFTP
- IFD
- ING
- NPF
- NPF_MP
- NPF_HP

The sludge line in a civil or industrial sewage treatment plant is important and has management costs that sometimes are the same as those for the water line. It is therefore very important to be able to thicken the sludge before conveying it to the subsequent treatment cycles and free it as much as possible from the water before the final disposal.

The range of **SERECO** products includes gravity thickeners, dynamic thickeners and belt presses for the final dewatering.

In particular, the gravity thickeners are with central (IFCC) or peripheral (IFTP) drive.

The dynamic rotating drum thickener (IFD) is generally used to reduce the water percentage in the sludge before the putting into the belt presses for dewatering.

Actually, the belt presses NPF_MP and NPF_HP types allow the sludge to contain high water percentages at the inlet, nevertheless reaching high dry content at the outlet. This is due to the presence of an initial gravity table, integral with the belt press, which carries out a drastic reduction of the water percentage in the sludge before being submitted to the rollers pressure.

The belt press NPF type offers instead the great advantage of the compactness and completely closed execution which are a guarantee of hygiene and safety.

The NPF_MP and NPF_HP types are recommended for the treatment of big quantities of sludge, with belt up to 3 m wide.

The NPF_HP type is the leading model of our current production, with wide working area of the belts, huge initial gravity table, first drainage roller with big diameter to treat also sludge difficult to be dewatered, nine smaller rollers with high pressure required to achieve high performance in dried products at the outlet.

Any belt press models can be supplied with a sludge pre-reactor dimensioned from time to time to ensure a contact time between sludge and polyelectrolyte adequate for the obtainment of an optimum flocculation.

SERECO, which has been since long operating in the treatment field, always aiming at solving any problem and minimizing the management costs of the plants, has decided to offer the sludge belt press dewatering system which currently is the technological product that, for the same sludge load, boats the lowest energy consumption, the greatest operating reliability and a reduced ordinary maintenance that can be easily carried out by the technicians entrusted with the plant maintenance, without resorting to expensive and frequent shipments of the equipment to the manufacturer. A comparison with the operation and maintenance costs for centrifuges, plate filter presses or other sludge dewatering system is even inconceivable.

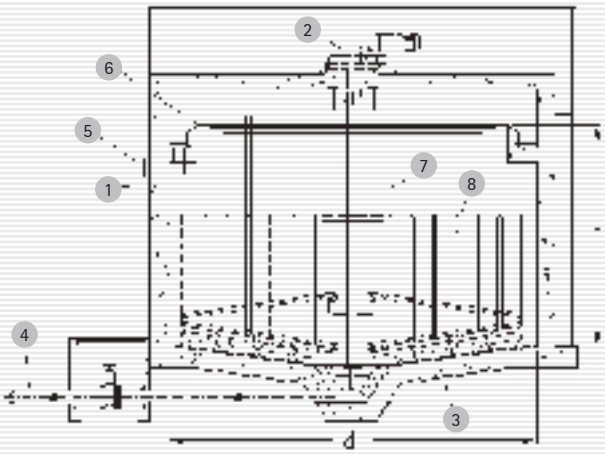
SERECO sludge line also comprises further machines that are not included in this section dedicated to thickeners and dewaterers only. In particular, the anaerobic sludge digesters (DACS) and the sludge heat exchangers (SCF) are present in the section dedicated to digesters-gasometers-exchangers, and the polyelectrolyte preparation and dosing unit (PDP, PDPA) in the section dedicated to dissolution groups.

IFCC Sludge thickener with central drive

The sludge thickener with central drive IFCC type is installed on medium and large size treatment plants if a substantial reduction of the percentage of water contained in the organic or inorganic sludge is desired. The thickener consists of a rotation unit with central drive, comprising an electric motor, a multistage reducing unit, baffle cylinder, shaft and scraping system consisting, in its lower part, of a couple of blade holder arms and, in its higher part, of a set of pickets. The multistage reducing unit is planetary type. The shaft is suspended in line with the unit. The sludge inlet is in the middle, but the flow is deviated by the baffle in order to optimise the thickening. The sludge scraper blades, made in standard section, remove the sludge accumulated on the bottom and collect it in a central pit wherefrom, by a piping, is conveyed to the outlet. Blades and pickets are adjustable. The protection against overloads is carried out by an adjustable torque limiting switch, complete with alarm signal to be displayed on the control panel. The walkway can be made in concrete or metal structure.
The standard construction is in carbon steel. On request it is possible the construction in stainless steel.

Strengths

- HIGH SLUDGE THICKENING THANKS TO AN ADEQUATE ROTATION SPEED.
- ADJUSTABLE BLADES AND PICKETS.
- MINIMUM ENERGY CONSUMPTION.



Legend

1. TANK
2. DRIVE UNIT
3. BOTTOM SCRAPER
4. SLUDGE OUTLET
5. WATER OUTLET
6. WATER OUTLET NOTCH WEIR
7. FEEDING CYLINDER
8. PICKETS

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA													
IFCC	TANK DIAMETER (d)	mm	2500	3000	4000	5000	6000	7000	8000	9000	10000	12000	14000	16000	18000	20000
	HEIGHT (h)	mm	3000	3000	3000	3000	3000	3000	3000	4000	4000	4000	4500	4500	4500	4500
	TANK SURFACE	m^2	4,9	7,0	12,6	19,6	28,3	38,5	50	64	78	113	154	201	254	314
	TANK VOLUME	m^3	15	21	38	59	85	115	150	256	312	452	693	904	1143	1413
	NOMINAL ROTATION UNIT TORQUE	daNm	175	252	448	700	1008	1372	1792	2268	2800	4032	5488	7168	9072	11200
	PERIPHERAL SPEED	m/min	0,86	1,0	1,0	1,0	1,0	1,2	1,2	1,2	1,2	1,2	1,3	1,3	1,4	1,4
	STEEL PARTS WEIGHT (*)	daN	935	1077	1350	1712	1991	2315	2694	3117	3496	4440	6869	7397	8190	8850
	STEEL PARTS WEIGHT (**)	daN	460	507	590	762	851	985	1174	1407	1596	2160	4209	4357	4770	5050
	POWER SUPPLY	kW	0,185	0,185	0,185	0,185	0,185	0,185	0,185	0,185	0,185	0,25	0,37	0,55	0,55	0,75

(*) Weight referred to the basin with steel walkway.
(**) Weight referred to the basin with concrete walkway.

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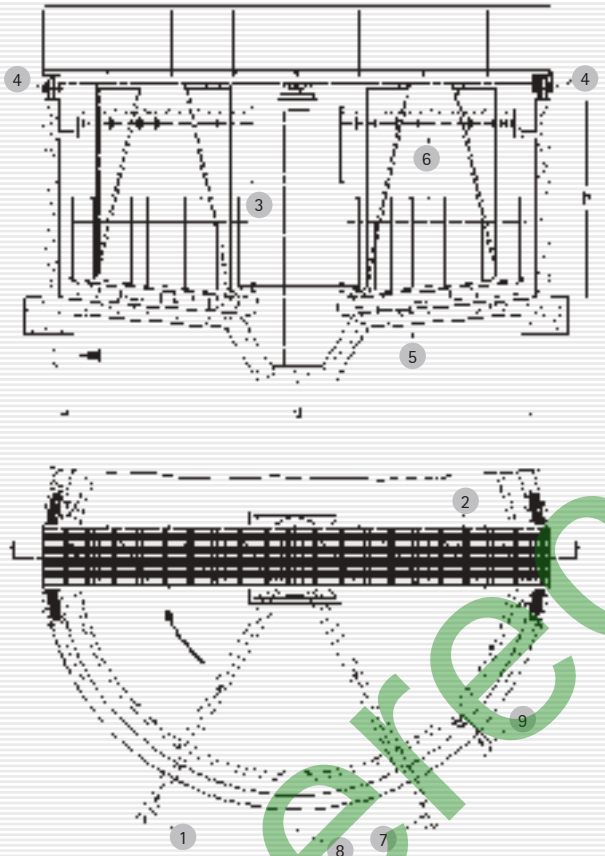
IFTP Sludge thickener with peripheral drive

The sludge thickener with peripheral drive IFTP type is installed on medium and large size treatment plants if a substantial reduction of the percentage of water contained in the organic or inorganic sludge is desired. This type of thickener consists of a mobile steel girder, a baffle cylinder, a scraping system with two blade holder arms in the lower part and a set of pickets in the higher part, double lateral trolley, two rotation units with peripheral drive, each complete with an electric motor and a gear box.
The sludge inlet is in the middle, but the flow is deviated by the baffle in order to optimise the thickening. The sludge scraper blades, made in standard section, remove the sludge accumulated on the bottom and collect it in a central pit wherefrom, by a piping, is conveyed to the outlet. Blades and pickets are adjustable.
The standard construction is in carbon steel. On request it is possible the construction in stainless steel or aluminium.

Strengths

- HIGH SLUDGE THICKENING THANKS TO AN ADEQUATE ROTATION SPEED.
- ADJUSTABLE BLADES AND PICKETS.
- MINIMUM ENERGY CONSUMPTION.



Legend

1. SLUDGE INLET
2. MOBILE BRIDGE
3. CENTRAL DEFLECTOR
4. DRIVE TROLLEY AND GEARMOTOR
5. BOTTOM SCRAPER
6. NOTCH WEIR
7. SLUDGE OUTLET PIPE
8. ELECTRIC CONDUIT
9. WATER OUTLET PIPE

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA											
IFTP	TANK DIAMETER (d)	mm	5000	6000	8000	10000	12000	14000	16000	18000	20000	22000	26000	30000
	HEIGHT (h)	mm	3000	3000	3000	4000	4000	4000	4500	4500	4500	4500	5000	5000
	TANK SURFACE	m^2	19	28	50	78	113	154	201	254	314	380	531	706
	TANK VOLUME	m^3	57	84	150	312	452	616	904	1143	1413	1710	2655	3530
	RESISTING TORQUE	daNm	700	1008	1792	2800	4032	5488	7168	9072	11200	13552	18928	25200
	PERIPHERAL SPEED	m/min	1,5											
	STEEL PARTS WEIGHT	daN	1298	1456	1802	2279	2664	2960	3049	3242	3498	4661	5348	6094
	POWER SUPPLY	kW	0,18x2	0,18x2	0,18x2	0,18x2	0,18x2	0,18x2	0,25x2	0,25x2	0,37x2	0,37x2	0,37x2	0,55x2

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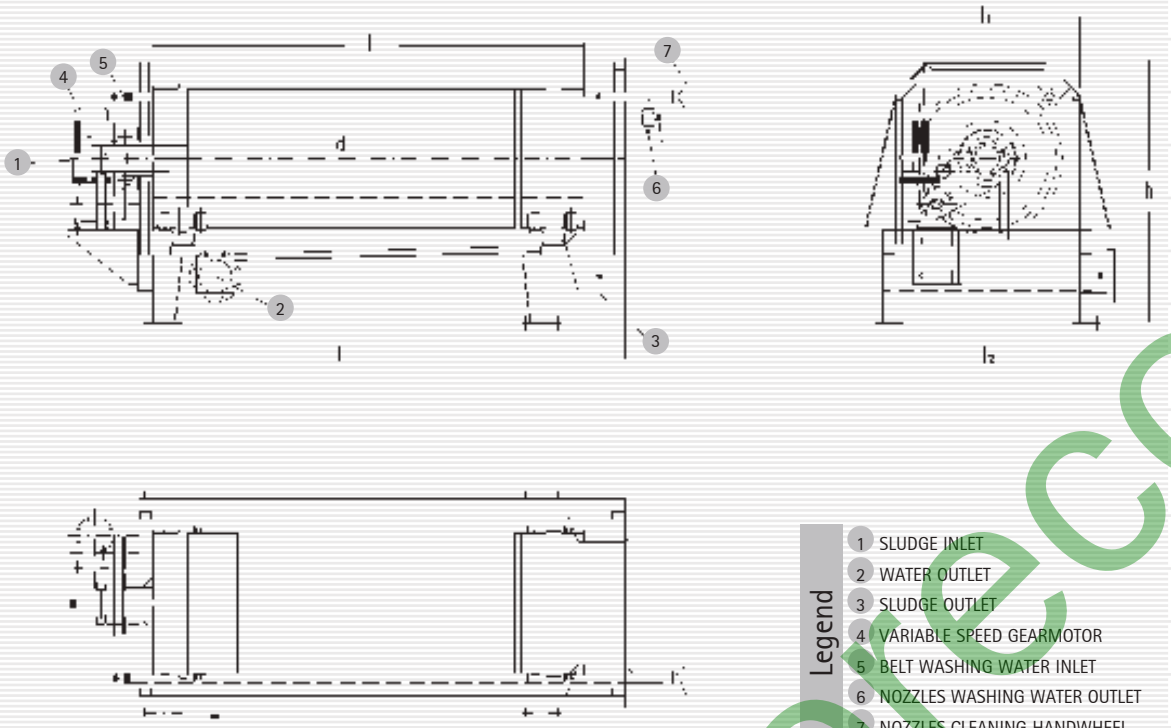
IFD Dynamic sludge thickener

The dynamic sludge thickener IFD type is installed whenever it is necessary to reduce the percentage of water contained in the organic or inorganic sludge. It consists of a frame, a drum comprising a filtering net and a stationary screw for the sludge conveying, a discharge hopper and a variable speed drive. The sludge entering the drum losses about the 90% of its water contents through the filtering net. The thickened sludge is moved toward the discharge by means of the screw which is integral with the drum. A special sludge mixer is provided on the drum head, while the remaining surface is covered with a filtering sheet. During the rotation, the drum is sustained by nylon wheels supported by bearings and its speed can be controlled thanks to the variable speed drive which ensures the running speed suitable for the type of sludge to be thickened. The filtering net of the thickener is self-cleaning as it is continuously washed by the drain water; the equipment is however provided with nozzles which allow the periodical cleaning of the screen with pressurized water. Moreover, the brush system operated by means of a handwheel allows nozzles cleaning. The frame is made of closed and shaped sections. During the operation the equipment is completely closed for the operators' safety but the cover can be opened easily for internal inspections.
The standard construction is in stainless steel.

Strengths

- HIGH SLUDGE THICKENING WITH LIMITED OVERALL DIMENSIONS.
- VARIABLE DRUM SPEED.
- SELF-CLEANING FILTERING NET THANKS TO THE DRAIN WATER.
- ADDITIONAL NET CLEANING SYSTEM WITH NOZZLES.
- MACHINE COMPLETELY CLOSED.
- MINIMUM ENERGY CONSUMPTION.



Legend

1. SLUDGE INLET
2. WATER OUTLET
3. SLUDGE OUTLET
4. VARIABLE SPEED GEARMOTOR
5. BELT WASHING WATER INLET
6. NOZZLES WASHING WATER OUTLET
7. NOZZLES CLEANING HANDWHEEL

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA		
IFD	MODEL		06	09	12
	DRUM DIAMETER (d)	mm	600	900	1200
	DRUM LENGTH (l)	mm	2800	2800	2800
	TOTAL LENGTH (L)	mm	3700	3700	3700
	WIDTH (l_1)	mm	902	1202	1502
	TOTAL WIDTH (l_2)	mm	1160	1460	1760
	HEIGHT (h)	mm	1580	1730	1880
	FILTERING SURFACE	m^2	3,7	5,5	7,3
	MAX FLOW RATE	m^3/h	50 ÷ 15	70 ÷ 25	100 ÷ 35
	INLET DRY PERCENTAGE	%	0,5 ÷ 1,5		
	OUTLET DRY PERCENTAGE	%	6 ÷ 10		
	EMPTY WEIGHT	daN	850	1150	1450
	WORKING WEIGHT	daN	1200	1550	1950
	POWER SUPPLY	kW	1,5	2,2	3,0

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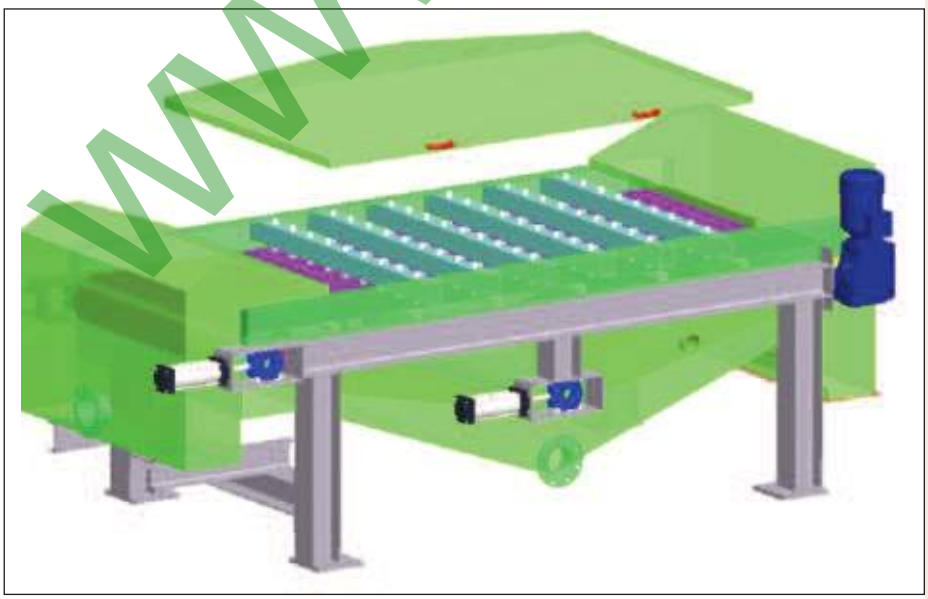
ING Gravity belt thickener

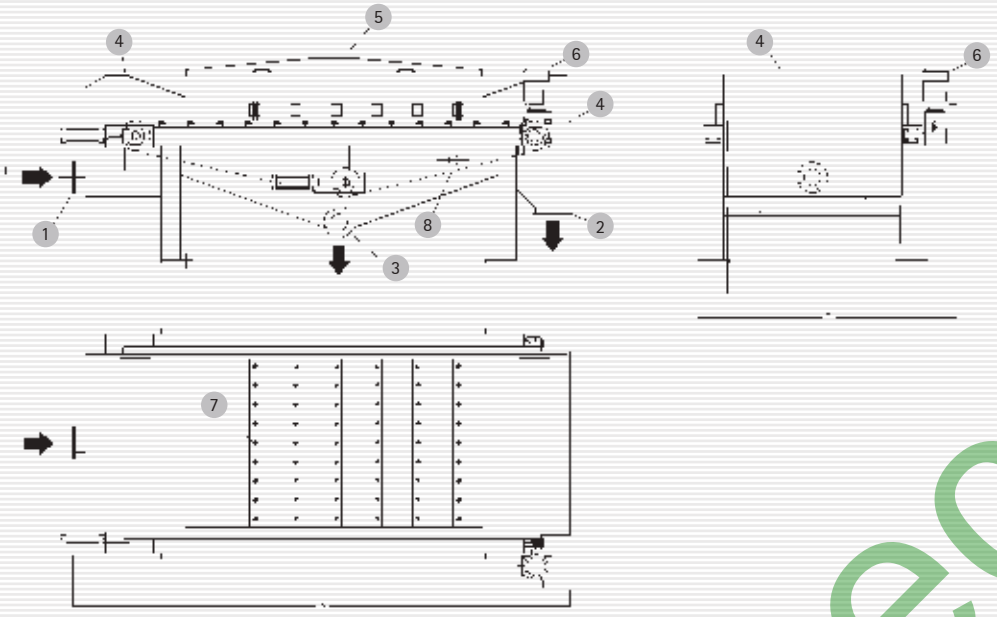
The gravity belt thickener, ING type, is installed on medium and large treatment plants, generally upstream sludge digestion systems.
This machine is mainly composed of:
- a sturdy frame in metallic carpentry, having a profile suitable for belt sliding;
- a belt, closed ring type, for the transport of sludge to be dewatered;
- a motorized roller with power-operated variable-speed drive for belt pulling;
- two rollers having the function of belt movement transmission and pulling of the same;
- a system of ploughshares increasing the efficiency of dewatering by gravity;
- a flanged connection for the inlet of sludge to be dewatered;
- a lower tank for the collection of drainage water;
- a flanged connection for dewatered sludge outlet;
- an internal system for belt washing by high pressure nozzles;
- a carter of complete closing of the machine provided with suitable opening for the connection of the possible deodorization suction plant.

The sludge, through a flanged connection, reaches a static distributor, distributing the sludge equally on the surface of moving belt. The water streams for gravity through the belt and it is collected in one or more tanks beneath.
A system of ploughshares tuning over the sludge, creates further inter-spaces for the filtration, facilitating and improving the dewatering.
The dewatered sludge, when reaches the last horizontal part of the belt run, is discharged by a rectangular flange.
The belt is washed along the back lower part towards the zone of charge of the machine, by a system of high pressure nozzles.
Then the washing water is collected with the drainage water into the tank beneath.
The simplicity of construction of the machine and the high quality of all the components assure always high performances and reliability.
The standard construction is with hot dip galvanized steel frame while other parts in contact with water in stainless steel. On demand, it is possible the construction with particular protection or completely made of stainless steel.



Strengths

- HIGH RATE OF SLUDGE DEWATERING.
- MACHINE COMPLETELY CLOSED, GUARANTEE OF HYGIENE AND SAFETY.
- VARIABLE BELT SPEED.
- PULLING AND WASHING OF BELT COMPLETELY AUTOMATIC.
- EFFICIENCY, RELIABILITY AND LONG LIFE.



Legend

1 SLUDGE INLET
2 SLUDGE DISCHARGE
3 DRAINAGE WATER OUTLET
4 CLOSING CARTER
5 UPPER COVER
6 POWER-OPERATED VARIABLE-SPEED DRIVE
7 PLOUGHSHARES
8 WASHING WATER INLET

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA								
	MODEL		**15**	**20**	**25**	**30**	**40**	**80**	**110**	**140**	**170**
	FILTERING BELT WIDTH (I)	mm	600	800	1000	1200	1200	1500	2000	2500	3000
	FILTERING BELT LENGTH (L)	mm	2500	2500	2500	2500	3200	5500	5500	5500	5500
	FILTERING SURFACE	m^2	1,5	2	2,5	3	4	8	11	14	17
	TOTAL WIDTH (B)	mm	1150	1350	1550	1750	1750	2150	2650	3150	3650
	TOTAL LENGTH (A)	mm	3100	3100	3100	3100	3800	6100	6100	6100	6100
	TOTAL HEIGHT (H)	mm	1500	1500	1500	1500	1500	1500	1500	1500	1500
	INLET DRY PERCENTAGE	%	0,5 ÷ 1,5								
ING	OUTLET DRY PERCENTAGE	%	5 ÷10								
	MAX DRY FLOW RATE	Kg/h	180	240	300	360	461	990	1320	1650	1980
	MAX INLET FLOW RATE	m^3/h	36	48	60	72	72	90	120	150	180
	MIN INLET FLOW RATE	m^3/h	12	16	20	24	24	30	40	50	60
	SLUDGE INLET	DN	80	100	100	125	125	125	150	200	200
	WATER DRAINAGE	DN	100	125	125	150	150	150	200	250	250
	INSTALLED POWER	kW	0,25	0,37	0,37	0,55	0,55	0,75	1,1	1,5	2,2
	EMPTY WEIGHT	kg	1450	1800	2200	2600	3150	3800	4100	4450	4950
	WORKING WEIGHT	kg	1700	2050	2450	2850	3400	4050	4350	4750	5250

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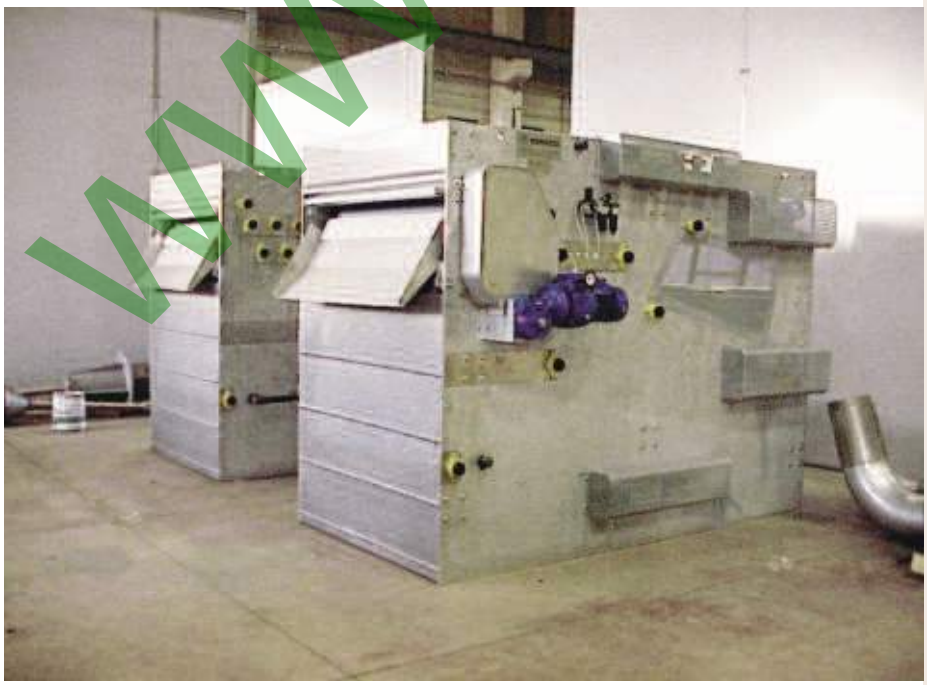
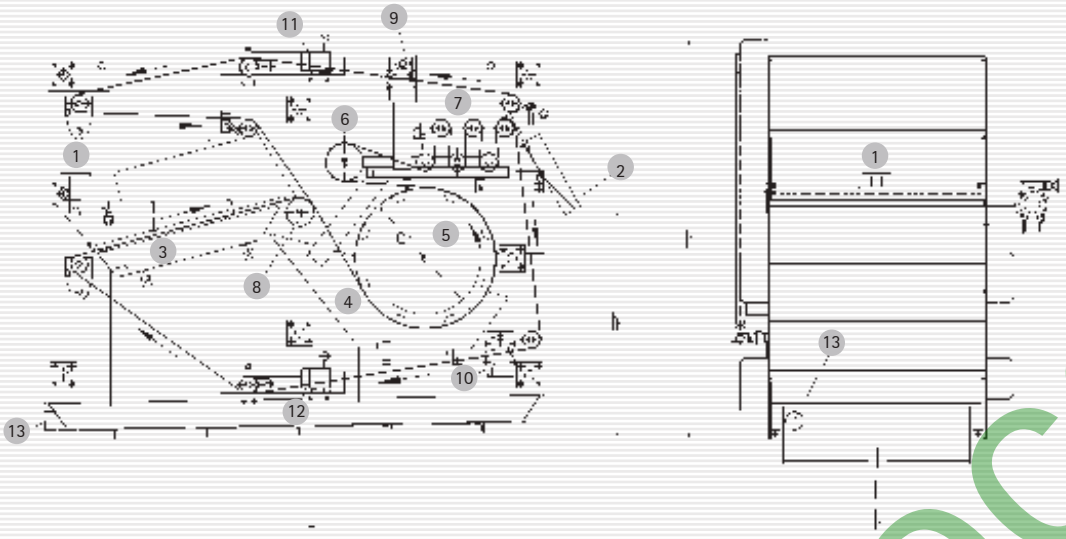
NPF Sludge belt press

The sludge belt press NPF type is recommended for medium-small sludge treatment plants. Generally it is installed downstream the sludge treatment lines and consists of a frame with two stiffed lateral sides suitably connected to each other, storage and drain tanks for the filtered water, two joined belts through which the sludge to be dewatered passes, a roller assembly used to drain and press the sludge, belt puller, belt centring and transmission rollers, a washing system with nozzles for each belt and a variable speed drive. The roller assembly includes a big diameter roller for the drain, a low pressure roller and six high pressure rollers two of which also for transmission, two belt pullers, two belt centring rollers, three return rollers and one roller for the inlet to the working area. The sludge enters the hopper of the belt press through a delivery piping and is distributed on the lower belt by a baffle; successively it meets the upper belt and helped by the inlet roller is conveyed to the pressure zone.
The sludge goes in contact with the drain roller which has a big diameter and allows a slight compression of the sludge. The sludge is then compressed at an increasingly higher pressure up to the high pressure zone. After the sludge evacuation, the two belts are washed for the residual material removal. The variable speed drive, which transmits the motion to the two transmission rollers, allows the belt speed adjustment according to the type of sludge to be treated.
The main characteristic of this equipment lays in the compactness and completely closed execution which avoids any water sprays and meets the hygiene requirements in the working place.
The standard type of construction is with hot dip galvanized carbon steel frame while the other parts in contact with the water, the tanks and all the rollers are in stainless steel. Moreover, the transmission rollers and the belt centring elements are covered with a rubber layer in order to ensure the friction required for transmission and control. On request it is possible the construction with particular protections or completely in stainless steel.

Strengths

- HIGH SLUDGE DEWATERING.
- COMPACTNESS.
- MACHINE COMPLETELY CLOSED FOR HEALTH AND SAFETY.
- VARIABLE BELT SPEED.
- WASHING, PULLING AND CENTRING OF BELTS COMPLETELY AUTOMATIC.
- ENERGY CONSUMPTION MUCH LOWER THAN THAT OF THE OTHER SLUDGE DEWATERING SYSTEMS.





Legend

1 SLUDGE TO BE DEHYDRATED INLET
2 DEHYDRATED SLUDGE OUTLET
3 GRAVITY DRAINAGE TANK
4 SOFT DEHYDRATATION TANK
5 DRAINAGE ROLLER
6 LOW PRESSURE ROLLER
7 HIGH PRESSURE ROLLERS
8 INLET ROLLER
9 UPPER BELT WASHING CHAMBER
10 LOWER BELT WASHING CHAMBER
11 UPPER BELT CENTRING SYSTEM
12 LOWER BELT CENTRING SYSTEM
13 DRAIN OUTLET

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA			
NPF	MODEL		NPF 06	NPF 08	NPF 10	NPF 12
	BELTS WIDTH (l)	mm	600	800	1000	1200
	UPPER BELT LENGTH (lts)	mm	9735	9735	9735	9735
	LOWER BELT LENGTH (lti)	mm	11035	11035	11035	11035
	REAL FILTERING SURFACE	m^2	5,5	7,3	9,1	10,9
	FIRST DRAINAGE ROLLER DIAMETER (d_1)	mm	800	800	800	800
	HIGH PRESSURE ROLLERS DIAMETER (d_a)	mm	101,6	101,6	101,6	101,6
	MAX OVERALL LENGTH (L)	mm	3000	3000	3000	3000
	MAX OVERALL WIDTH (l_1)	mm	1470	1670	1870	2070
	WIDTH BETWEEN COVERS (l_2)	mm	1150	1350	1550	1750
	MAX HEIGHT (h)	mm	2260	2260	2260	2260
	DISCHARGE HEIGHT (h_s)	mm	1300	1300	1300	1300
	INLET DRY PERCENTAGE	%	1,5 ÷ 6			
	OUTLET DRY PERCENTAGE	%	17 ÷ 23			
	INLET DRY FLOW RATE (*)	kg/h	72 ÷ 120	96 ÷ 160	120 ÷ 200	144 ÷ 240
	EMPTY WEIGHT	daN	2100	2300	2500	2700
	WORKING WEIGHT	daN	2600	2850	3100	3350
	POWER SUPPLY	kW	0,55	0,75	0,75	1,1

(*) Flow rates valid for biologic sludge.

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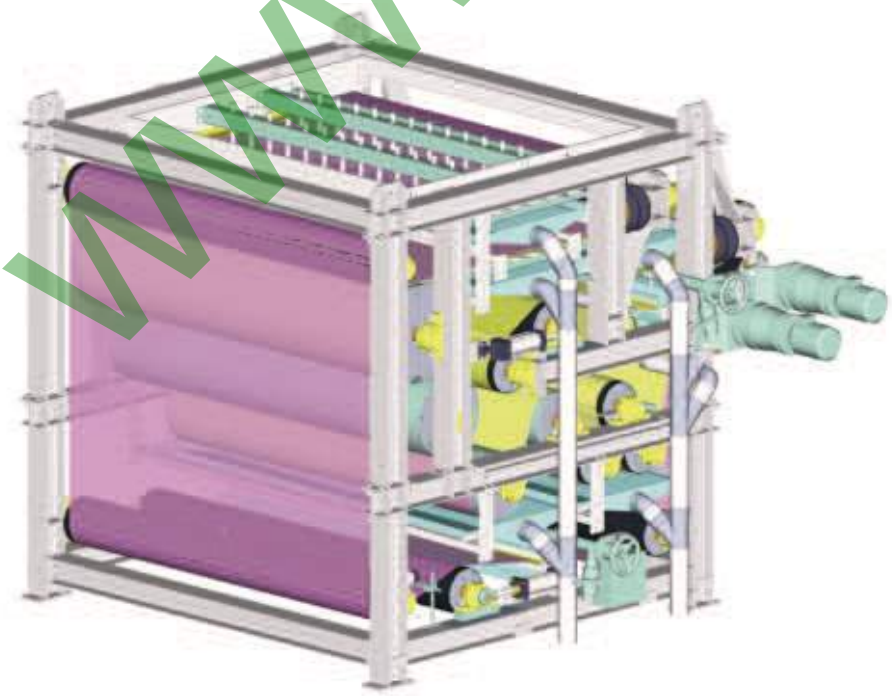
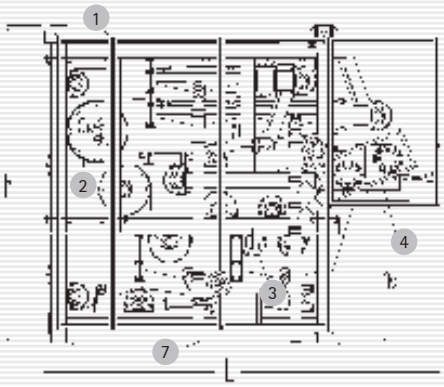
NPF_MP Medium pressure belt press for sludge

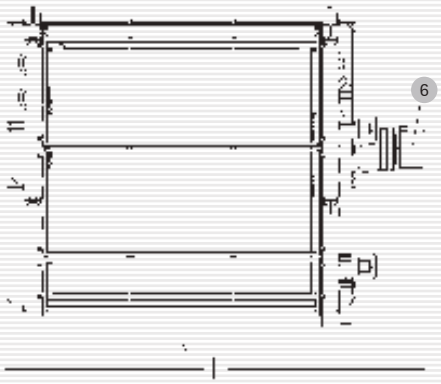
The medium pressure belt press NPF_MP type is recommended when it is necessary to obtain a reduction of the water content in sludge. Generally it is installed downstream the sludge treatment lines and consists of a frame in standard section, storage and drain tanks for the filtered water, two joined belts through which the sludge to be dewatered passes, a roller assembly used to drain and compress the sludge, belt puller, belt centring and transmission rollers, a washing system with nozzles for each belt and two sturdy gear motors. The roller assembly comprises one first drainage roller, one second drainage roller, one low pressure roller, one medium pressure roller, three high pressure rollers, two transmission rollers, two belt pullers, two belt centring rollers and four return rollers. The sludge goes in touch with the belt in the higher part of the belt press, crosses the higher length of the belt along which the water drips by gravity and successively falls on the second belt and goes on flowing into a wedge which facilitates the very delicate removal of the water from the sludge. Subsequently the sludge goes into the first drainage roller zone which allows a first slight sludge pressure. The sludge is then submitted to increasingly higher pressures up to the high pressure zone. Roller with small diameters allow high pressures on sludge.
After the sludge evacuation, the two belts are submitted to washing for the residual material elimination. All this occurs with a continuous and completely automatic operation. On request, a ploughshare system, installed on board of the belt press to increase the efficiency of the first stage of gravity dripping, can be supplied. This is particularly useful for the sludge difficult to be treated.
The standard construction is with hot dip galvanized carbon steel frame while the other parts in contact with the water, the tanks, the drainage rollers, low and medium pressure rollers are in stainless steel. Moreover, high pressure, transmission, return, pulling and centring rollers are covered with a rubber layer. On request it is possible the construction with particular protections or completely in stainless steel.

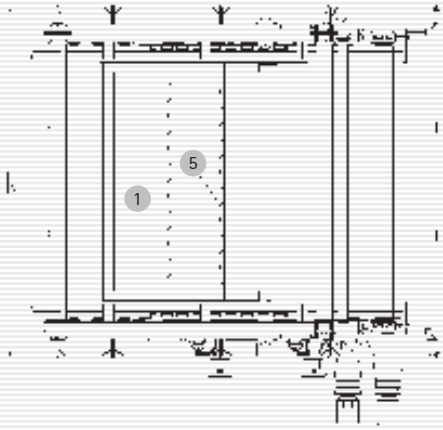
Strengths

- HIGH SLUDGE DEWATERING.
- GRAVITY THICKENING BELT INTEGRAL WITH THE BELT PRESS.
- HIGHLY EFFECTIVE FILTRATION SURFACE.
- POSSIBILITY OF PLOUGHSHARE SYSTEM INSTALLATION TO INCREASE THE GRAVITY DRIPPING EFFICIENCY.
- CONSIDERABLE STURDINESS DUE TO THE FRAME IN STURDY STANDARD SECTION.
- VARIABLE BELT SPEED.
- WASHING, PULLING AND CENTRING OF BELTS COMPLETELY AUTOMATIC.
- ENERGY CONSUMPTION MUCH LOWER THAN THAT OF THE OTHER SLUDGE DEWATERING SYSTEMS.
- EFFICIENCY, RELIABILITY AND LONG LIFE.









Legend

1. SLUDGE TO BE DEHYDRATED INLET
2. BIG DRAINAGE ROLLER
3. HIGH PRESSURE ROLLERS
4. DEHYDRATED SLUDGE OUTLET
5. PLOUGHSHARES
6. GEARMOTORS
7. DRAIN OUTLET

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA				
NPF_MP	MODEL		NPF 12 MP 07R	NPF 15 MP 07R	NPF 20 MP 07R	NPF 25 MP 07R	NPF 30 MP 07R
	BELTS WIDTH(l)	mm	1200	1500	2000	2500	3000
	UPPER BELT LENGTH (lts)	mm	14714	14714	15006	15504	15504
	LOWER BELT LENGTH (lti)	mm	17338	17338	17631	18060	18060
	REAL FILTERING SURFACE	m^2	19	24	32	40	48
	FIRST DRAINAGE ROLLER DIAMETER (d_1)	mm	600	600	600	600	600
	HIGH PRESSURE ROLLERS DIAMETER (d_a)	mm	178	178	229	283	283
	MAX OVERALL LENGTH (L)	mm	3818	3818	3818	3818	3818
	MAX OVERALL WIDTH (l_1)	mm	2534	2834	3364	4043	4543
	WIDTH BETWEEN NETS (l_2)	mm	2094	2394	2894	3394	3894
	MAX HEIGHT (h)	mm	3078	3078	3078	3078	3078
	DISCHARGE HEIGHT (h_s)	mm	1300	1300	1300	1300	1300
	INLET DRY PERCENTAGE	%	1,5 ÷ 6				
	OUTLET DRY PERCENTAGE	%	17 ÷ 23				
	INLET DRY FLOW RATE (*)	kg/h	180 ÷ 360	225 ÷ 450	300 ÷ 600	375 ÷ 750	450 ÷ 900
	EMPTY WEIGHT	daN	4995	5740	7231	9141	10455
	WORKING WEIGHT	daN	5845	6798	8637	10894	12556
	POWER SUPPLY	kW	2 x 0,75	2 x 0,75	2 x 1,1	2 x 1,5	2 x 1,5

(*) Flow rates valid for biologic sludge.

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Cap. Soc. Euro 2.500.000,00 i.v.

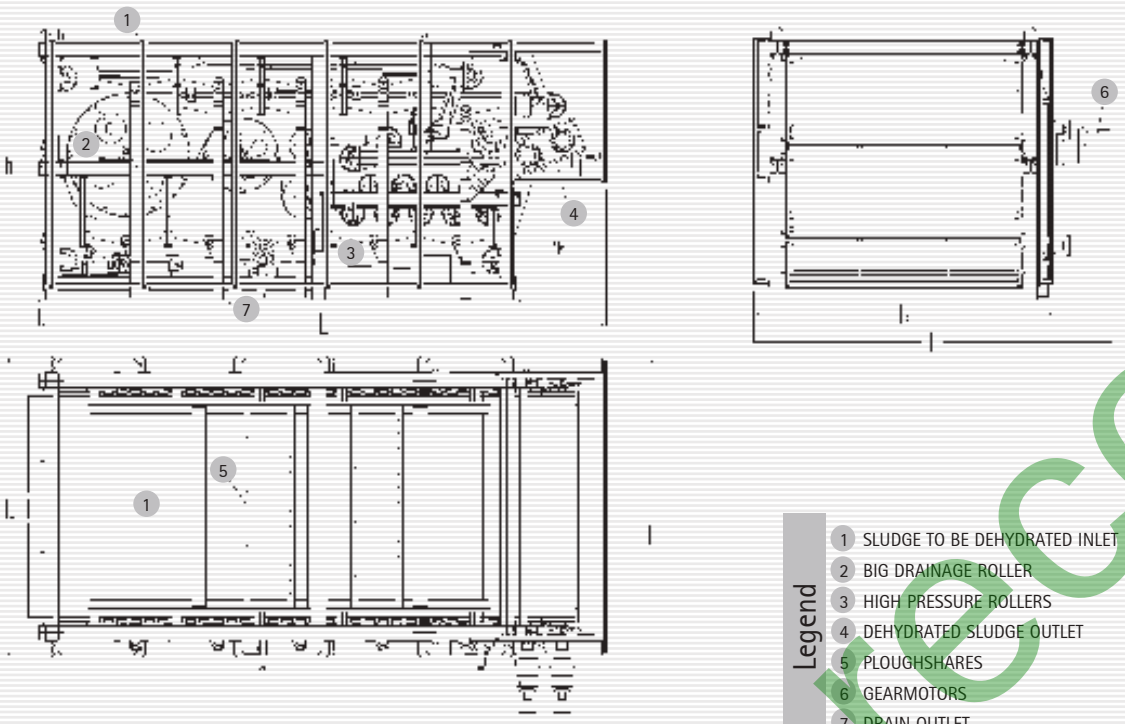
NPF_HP High pressure belt press for sludge

The high pressure belt press NPF_HP type is recommended when it is necessary to obtain a strong reduction of the water content in sludge. Generally it is installed downstream the sludge treatment lines and consists of a frame in normal profile, a sludge load hopper, storage and drain tanks for the filtered water, two joined belts through which the sludge to be dewatered passes, a roller assembly used to drain and press the sludge, belt puller, belt centring and transmission rollers, a washing system with nozzles for each belt and two sturdy planetary gear motors. The roller assembly comprises one first big diameter drainage roller, one second drainage roller, one low pressure roller, one medium pressure roller, nine high pressure rollers, two transmission rollers, two belt pullers, two belt centring rollers and four return rollers. The sludge goes in touch with the belt in the higher part of the belt press, goes through a long section where the water drips by gravity and successively falls on the second belt and goes on flowing into a wedge which facilitates the very delicate removal of the water from the sludge. Subsequently, the sludge goes into the first drainage roller zone, which allows a first slight sludge pressure thanks to its big diameter. The sludge is then submitted to increasingly higher pressures up to the high pressure zone. The large quantity of small diameter rollers allows high pressures on sludge together with a long time of retention. After the sludge discharge, the two belts are submitted to washing for the residual material elimination. All this occurs with a continuous and completely automatic operation. The main characteristic of this belt press is given by the possibility to successfully treat also the sludge difficult to be dewatered, the initial low pressures and the long stabilization time; in fact the sludge flocks, the high final pressures and the long high pressure time moreover allow to reach an excellent degree of dewatering of the sludge. The standard construction includes the supply of an inverter for the belt speed adjustment.
Moreover, on request, a ploughshare system, installed on board of the belt press to increase the efficiency of the first stage of gravity dripping, can be supplied. This is particularly useful for the sludge difficult to be treated.
The standard construction is with hot dip galvanized carbon steel frame while the other parts in contact with the water, the tanks, the drainage rollers, low and medium pressure rollers are in stainless steel. Moreover, high pressure, transmission, return, pulling and centring rollers are covered with a rubber layer. On request it is possible the construction with particular protections or completely in stainless steel.

Strengths

NPF_HP, IS THE TOP ON THE BELT PRESS MARKET:

- HIGH DRY DEGREE IN THE CAKE.
- BIG DRAINING SURFACE ON ROLLERS.
- BIG NUMBER OF HIGH PRESSURE ROLLERS.
- SUITABLE FOR SLUDGE WHOSE DEWATERING IS DIFFICULT.
- INTEGRAL GRAVITY THICKENING TABLE.
- HIGHLY EFFECTIVE FILTRATION SURFACE.
- PLOUGHSHARES TO INCREASE THE GRAVITY DRIPPING EFFICIENCY.
- FRAME MADE OF STURDY STANDARD SECTIONS.
- BELT SPEED THAT CAN BE ADJUSTED ELECTRONICALLY.
- WASHING, PULLING AND CENTRING OF BELTS COMPLETELY AUTOMATIC.
- ENERGY CONSUMPTION MUCH LOWER THAN THAT OF THE OTHER SLUDGE DEWATERING SYSTEMS.
- EFFICIENCY, RELIABILITY AND LONG-TERM MAINTENANCE.



Legend

1. SLUDGE TO BE DEHYDRATED INLET
2. BIG DRAINAGE ROLLER
3. HIGH PRESSURE ROLLERS
4. DEHYDRATED SLUDGE OUTLET
5. PLOUGHSHARES
6. GEARMOTORS
7. DRAIN OUTLET

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA			
NPF_HP	MODEL		NPF 15 HP 13R	NPF 20 HP 13R	NPF 25 HP 13R	NPF 30 HP 13R
	BELTS WIDTH (l)	mm	1500	2000	2500	3000
	UPPER BELT LENGTH (lts)	mm	25119	25908	27050	27050
	LOWER BELT LENGTH (lti)	mm	31865	32654	33726	33726
	REAL FILTERING SURFACE	m^2	51	68	85	102
	FIRST DRAINAGE ROLLER DIAMETER (d_1)	mm	1400	1400	1400	1400
	HIGH PRESSURE ROLLERS DIAMETER (d_a)	mm	178	229	283	283
	MAX OVERALL LENGTH (L)	mm	6415	6415	6415	6415
	MAX OVERALL WIDTH (l_1)	mm	2834	3364	4043	4543
	WIDTH BETWEEN NETS (l_2)	mm	2394	2894	3394	3894
	MAX HEIGHT (h)	mm	3078	3078	3078	3078
	DISCHARGE HEIGHT (h_s)	mm	1300	1300	1300	1300
	INLET DRY PERCENTAGE	%	1,5 ÷ 6			
	OUTLET DRY PERCENTAGE	%	17 ÷ 23			
	INLET DRY FLOW RATE (*)	kg/h	375 ÷ 525	500 ÷ 700	625 ÷ 875	750 ÷ 1050
	EMPTY WEIGHT	daN	8777	11378	14665	16863
	WORKING WEIGHT	daN	11307	14748	18875	21913
	POWER SUPPLY	kW	2 x 1,1	2 x 1,5	2 x 2,2	2 x 2,2

(*) Flow rates valid for biologic sludge.

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Cap. Soc. Euro 2.500.000,00 i.v.

SOILAR T

Natural drying system by solar radiation of sludge from WTP and WWTP

WHEN IT IS USED

SERECO eco-sustainable system for the natural drying of previously dehydrated sludge from WTP and WWTP "SOILAR T" type transforms a big environmental and ecological problem both in terms of environmental protection and in a business. This system, without the need for external heat, is able to reduce the volume and weight of the dehydrated sludge by about four times. The use of this system is perfect when it is necessary to avoid handling sludge in favour of a product that is grainy, dry, free from unpleasant odours and above all easy to handle, to store and reusable as organic fertilizer.

MAIN FEATURES

The main features of the SOILAR T system that make it better and differentiate it from other similar systems are several, we list only a few:

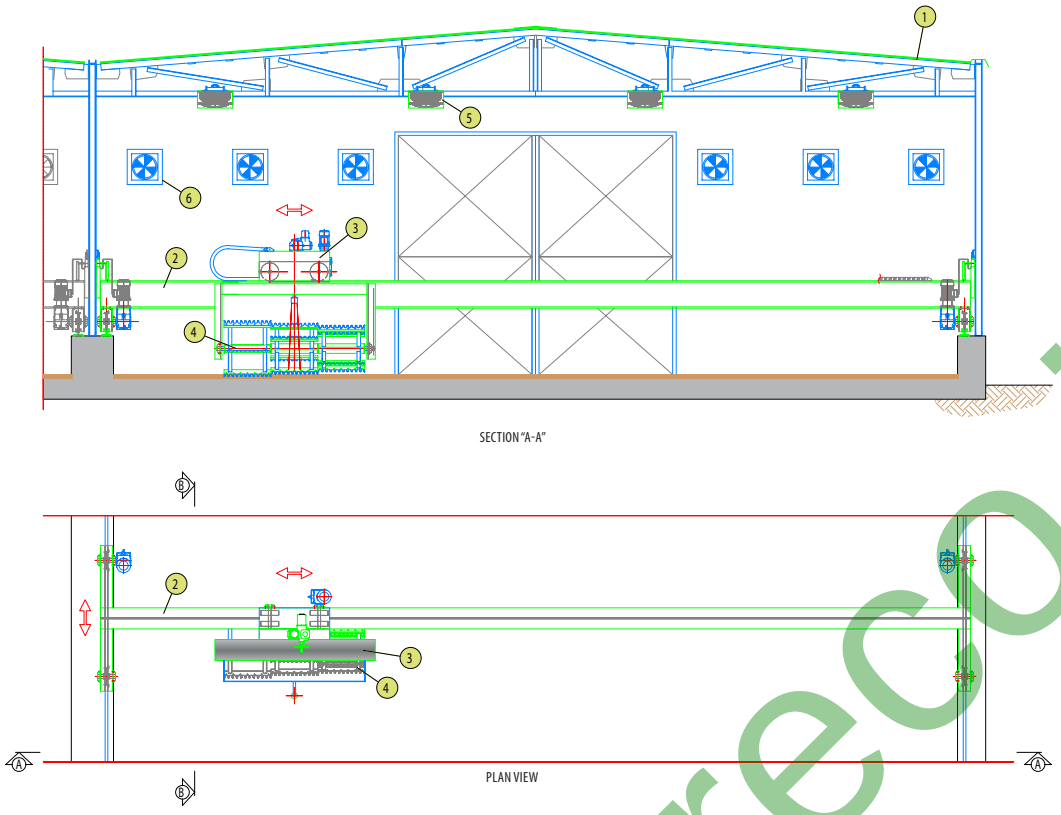
- it works only with solar rays;
- the operation does not require any type of chemical products;
- the eco-sustainability of the system is improved with the use of an aerator-turner that moves in all directions;
- the very high evaporation efficiency is ensured by the use of suitable tempered glass whose transparency is guaranteed for 20 years by special fans operating under inverter and by the "SOILAR software" which guarantees optimal humidity and temperature control at all times;
- 99.5% of the materials used for the construction are 100% recyclable without special processing (steel and glass).

HOW IT IS MADE

The SOILAR T system consists of one or more parallel drying corridors on a flat concrete slab bounded on all sides by a low wall with the sole exception of the sections where the entrance and exit gates are present; from a steel and greenhouse of the same dimensions in plan of the perimeter wall and of height calculated specifically according to the environmental conditions of the installation site; from a sludge handling system, implemented by SERECO on pilot plants, SOILARR model that travels on rails with the possibility of movement in six directions; by a sludge ventilation system with variable flow rate fans mounted in strategic points inside the greenhouse and suitable for optimizing the degree of sludge drying; from a system of continuous extraction of the humid air from inside the greenhouse that allows maintaining the right level of humidity set inside; from an internal and an external weather station; from a PLC and from the dedicated SOILAR software, suitable for managing the entire automatic drying system.

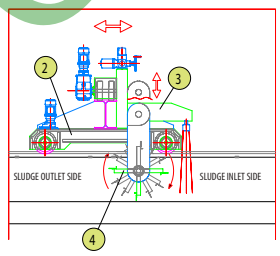
HOW IT WORKS

The sludge loading into the system can take place in a discontinuous way, by wheelbarrow, trailer or tipping truck, mechanical shovel or similar, or automatically by feeding screws suitable for the distribution of sludge at the entrance of the greenhouse. The sludge is taken up by the SOILARR machine and slowly distributed over the entire surface of the greenhouse, at the same time it is aerated, turned over and transported slowly towards the exit side. The SOILARR moving machine is able to make a complete cycle even in a few minutes in the smallest greenhouses and in a maximum of two hours in the larger ones. Normally from a minimum of two to a maximum of six complete daily cycles are performed according to the climatic



LEGEND

1. GREENHOUSE
2. MOBILE BRIDGE
3. TURNING HEAD TROLLEY
4. TURNING HEAD
5. INTERNAL VENTILATION
6. AIR EXCHANGE SYSTEM



conditions. The internal ventilation system is always in operation, if there is sludge to be dried in the greenhouse, but the number of fans in operation and their flow rate is always adjusted according to the climatic conditions. Instead, the air extraction system starts and regulates itself according to the internal and external climatic conditions.

Even the dried sludge can be drained either manually or automatically. Being dry and odor-free material there are no particular precautions so the same can be stored in pile on the inner side of the greenhouse exit and then be loaded on trucks and removed if necessary for its reuse. Alternatively, the dry sludge can be continuously extracted by means of belt and/or screw conveyors for removal or store in suitable storage silos for specific needs.

10 ANSWERS ON WHY TO USE SOILAR T SYSTEM

1. High drying performance that can reach well over 80% with solar energy only and a low consumption of electricity that, if necessary, can be produced on site with photovoltaic panels;
2. it is an eco-sustainable system that does not use fossil energy;
3. it is a system entirely built from recyclable materials;
4. versatile use of the sludge feeding and discharge system;
5. it uses a handling system that can work in all directions;
6. the movement system can be controlled manually by remote control;
7. the degree of sludge drying can be adjusted and programmed without additional external energy;
8. on grey days and on colder and wetter days, the sludge is accumulated in the greenhouse, increasing the thickness of the layer of sludge and then being dried and removed during better climatic conditions periods;
9. the system allows a greenhouse storage of dried sludge without the use of external tools, mechanical shovels or other;
10. the hardware and management software are set up to use the dryer even in places where solar energy is insufficient and thermal integration is required.

SERECO®

OCU - ODOUR CONTROL UNIT GENERAL CATALOGUE

Together with you for a sustainable future

Clean air

Liquid and solid treatment processes often emit unpleasant odours of biological origin that sometimes become a health hazard.
Generally, the main odour compounds coming from water and waste treatment plants are: hydrogen sulphide, mercaptans, dimetil-sulphures and ammonia. These compounds can cause breathing difficulties for the plant workers and problems to people living nearby if their concentration exceeds the human tolerability limits.
SERECO's range of air filters aims to provide a reliable, energy-efficient and easy-to-use solution. Therefore, air biofilters, designed for application in wastewater treatment plant, represent the solution with the lowest environmental impact as they only use biological filter materials, which are easily available when replacement is necessary and easily disposed of.
When necessary, biofilters can be integrated with other types of filters to ensure the odour substances elimination in structures with high variability of flow or polluting compounds or other problems which can are faced at each individual project.
Therefore, the following filters can be combined in series, in the most suitable way to always guarantee the expected treatment results.

ALL SERECO PRODUCTS ARE DESIGNED, MANUFACTURED, TESTED AND READY FOR SHIPMENT AND SHIPPED FROM THE FACTORY IN NOCI (BARI) ITALY, BY SERECO'S PERMANENT STAFF.
THE COMPANY HAS BEEN OPERATING SINCE 1975 AND THE QUALITY AND RANGE OF THE PRODUCTS OFFERED HAS GROWN CONSTANTLY.
A NETWORK OF EXPERTS COLLABORATE WITH SERECO ON VARIOUS FOREIGN MARKETS TO BE CLOSER TO CUSTOMERS.

Biofilter for odour treatment

WHEN TO USE IT

The biofilter for odour treatment BFT type is used to control unpleasant and unhealthy odour emissions, coming from liquid and solid treatment processes of biologic origins

HOW IS IT MADE

The biofilter for odour treatment BFT type is mainly composed of: a tank containing the whole system, composed of standard panels assembled with bolts to the final site; a filter bed support system made of profiles and suitable screened material to sustain the weight of the filter bed under normal operating conditions and semi-permeable containment fabric;
the filter bed composed of a calibrated mix of high quality wood chipper characterized by a high degree of porosity, high humidity retention and with chemical-physical features suitable for the growth and the catching on of a wide range of bacteria able to metabolize the odorous substances of natural origins or inorganic, aromatic or aliphatic synthesis; one or more centrifugal pumps to suck the air to be deodorized and feed it into the biofilter; an odour pre-abatement and air humidification system through a mini scrubber fed with service water and assembled directly onto the air delivery pipe to the biofilter; an automatic humidification system of the filter bed made of PVC pipings, spray nozzles and a start up operation solenoid valve; a biofilter cover which allows the maintenance of the ideal conditions for the survival of the bacterial flora, avoiding the direct exposition to the sunlight which would be responsible for the uncontrolled drying of the bed; a system to control the biofilter operating parameters composed of temperature sensor and relative humidity sensor of the filter bed, directly connected to the local control panel; local electric control panel installed on board.

HOW DOES IT WORK

In general, the main odorous compounds coming from water and waste treatment plants are: hydrogen sulphide, mercaptans, dimethyl sulphides and ammonia. These compounds can cause breathing difficulties for the plant workers and problems to people living nearby if their concentration exceed the human tolerability limits.
The odour treatment system consists in removing or transforming the odorous compounds in order to reduce their concentration below the perception limit. This result is easily achieved by using BFT biofilters.
The flow rates to be treated swing about 4-6 changes per hour for places not subject to the entry of the staff; whereas the flow rates swing about 10-12 changes per hour for places where the staff is allowed to enter.
The extractor fan is conceived to suck the air to be treated and send it first to an odour pre-abatement and humidification system and then from there to the biofilter. The air is fairly distributed under the bed and crosses the bed from the bottom upwards thanks to the overpressure generated by the discharge of the suction unit. The bacterial flora nested on the filter bed cleans the air from the odorous compounds and the purified air goes out from the top of the biofilter. The bacterial growth is automatically removed by the drainage water surplus which comes back at the beginning of the water treatment plant.
The biofiltration system achieves excellent results (>99% reduction of unpleasant odours), with low management and maintenance costs. The BFT biofilter works very well in treating hydrogen sulphide with an entry concentration of 400 ppm maximum. The acidification tendency of the filter bed due to the air to be treated is hindered by the filter bed itself, as a consequence the pH control of the bed should only be carried out from time to time by laboratory tests or by the use of simple field instrumentation.
The temperature sensor and residual humidity sensor control the correct operation of the biofilter, regulating automatically the opening time of the water solenoid valve according to the bed humidification degree.

VARIATIONS

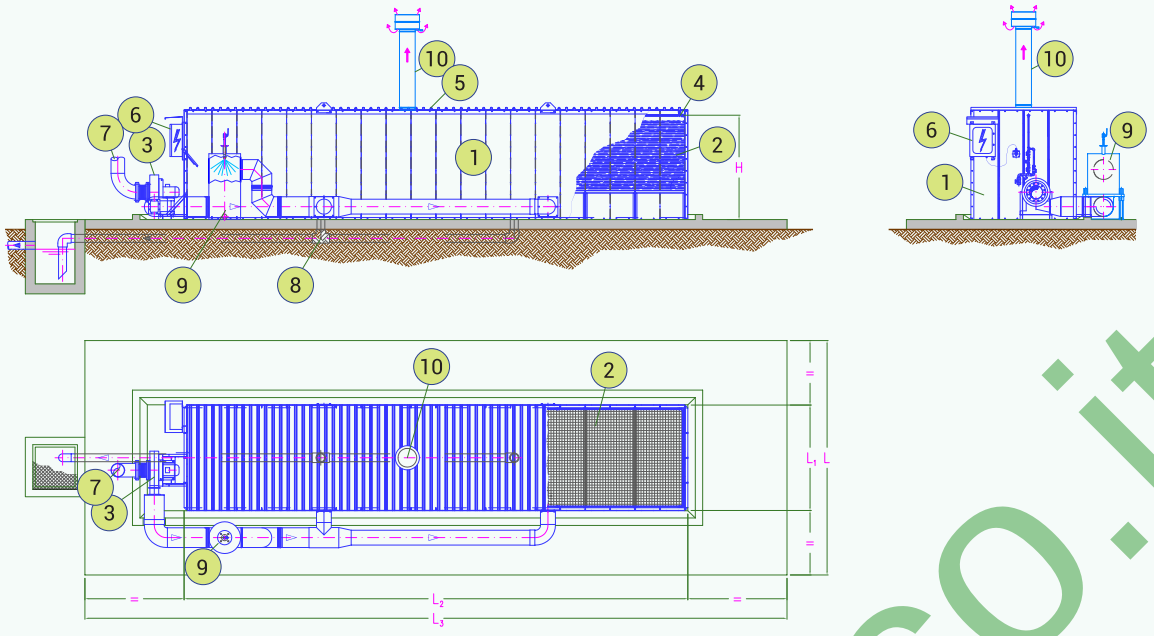
The standard variation is without chimney. A chimney is available on request. The dimensional characteristics which appear in the table are approximated, because the containment tank is modulated with almost infinite combinations of flow rates, widths and lengths on request.

STRENGTHS BFT

- LOW MANAGEMENT COSTS;
- LOW ENVIRONMENTAL IMPACT;
- NO USE OF CHEMICAL PRODUCTS;
- LOW AND VERY EASY MAINTENANCE;
- HIGH TREATMENT EFFICIENCY.

Biofilter for odour treatment

BFT



LEGEND

1. TANK
2. FILTER BAD
3. CENTRIFUGAL BLOWER
4. AUTOMATIC HUMIDIFICATION SYSTEM
5. COVER
6. LOCAL CONTROL PANEL
7. AIR INLET
8. DRAINAGE WATER OUTLET
9. PRE-SCRUBBER
10. CHIMNEY

MAIN FEATURES	U.M.	DIMENSIONAL VALUES						
MODEL BFT		**010**	**020**	**030**	**050**	**100**	**150**	**200**
WIDTH (L_1)	mm	2128	2128	2128	4136	6144	6144	6144
LENGHT (L_2)	mm	3634	3634	10160	8654	11666	17690	23212
HEIGHT (H)	mm	2262						
BASE WIDTH (L)	mm	4733	4733	4733	6736	8744	8744	8744
BASE LENGHT (L_3)	mm	7634	7634	14160	12654	15666	21690	25690
TREATABLE AIR FLOW RATE	m^3/h	980	1800	2700	4500	9500	13700	18000
FILTER BED SURFACE	m^2	7,73	14,14	21,62	35,79	75	109	143
FILTER BED VOLUME	m^3	10,83	19,8	30,27	50,11	105	152	200
SPECIFIC SURFACE LOAD	$m^3/m^2/h$	125						
APPROXIMATE CONTACT TIME	sec	40						
BLOWER POWER	kW	4	5,5	5,5	7,5	15	22	30
EMPTY WEIGHT (EXCLUDING BED)	kg	944	1555	2207	2597	4109	5775	7307
WEIGHT IN OPERATION	kg	9655	17395	26444	42685	84386	127505	167035

Biotrickling odour treatment filter

WHAT IS IT ABOUT

The odour treatment system BFTT type is a biofilter combined with a counter current scrubber in order to gather in a unique tank an efficient system for the unpleasant air treatment.

WHEN TO USE IT

The biotrickling filter can be used in many cases of civil, agricultural and industrial settlements producing unpleasant odours such as:
in waste water treatment;
in solid waste treatment;
in food production companies;
in composting;
in sewage lifting stations;
in leather industries;
in tobacco industries;
in various industries.

REMOVED COMPONENTS

Sulfured-based components such as H2S, mercaptans, heterocyclic sulphur compounds, carbon disulphide, etc;
NH3-based components such as amines, heterocyclic nitrogen components, etc;
Chlorine-based components such as chlorophenols, trichloroethylene, monovinyl chloride, dichloroethane, dichloromethane, etc.

HOW IS IT MADE

The biotrickling odour treatment filter BFTT type is mainly composed of: one or more identical process towers and assembled in parallel; each tower contains a suitable false bottom to sustain the media in which the bacterial flora grow; the media is made of special plastic material with a particular design having a large surface characterized by a high degree of adherence, small volume, high humidity retention and with chemical-physical features suitable for the growth and the catching on of a wide range of bacteria able to metabolize odorous substances of natural origins or inorganic, aromatic or aliphatic synthesis; one or more centrifugal blowers, with direct transmission, to the suction of the air in areas subject to the release of odorous substances and feed it into the biofilter; a piping system for connecting the blower to the biofilter; an automatic and continuous spraying system of the filter bed consisting of pipes, valves and spray nozzles, recirculation electro-pump and water make-up and pH stabilization solenoid valve; a system to control the operating parameters of the biofilter composed of temperature sensor and pH control sensor, directly connected to the local control panel; a caustic soda dosing system for pH stabilization; a nutrient dosing system to be used in case of need; local control and power panel.

STRENGTHS BFTT

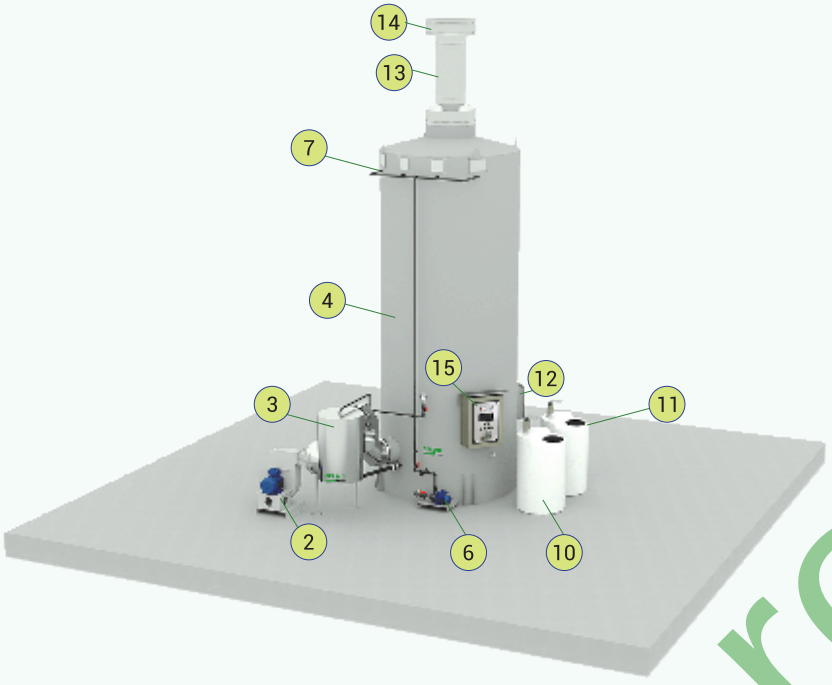
- REDUCED OCCUPIED SPACE;
- BIOLOGICAL DECOMPOSITION OF ODORIFEROUS SUBSTANCES;
- SUITABLE FOR DECOMPOSITION OF ACIDIC SUBSTANCES;
- LOW PRESSURE DROP;
- NO CHANGE OF FILTER MATERIAL IS REQUIRED;
- LOW MANAGEMENT COSTS.

HOW DOES IT WORK

The odour treatment system BFTT type is a biofilter and a scrubber combination. The centrifugal blower, installed on board, sucks the air in the areas subject to the release of odorous substances and sends it to the tower(s). When the

Filter for odour treatment biotrickling type

Filter for odour treatment biotrickling type



LEGEND

1. AIR PIPE INLET FLANGE
2. CENTRIFUGAL FAN
3. PRE-SCRUBBER
4. FILTER HOLDING TANK
5. FILTER BED MEDIA BIOTRICKLING
6. RECIRCULATION PUMP
7. HUMIDIFICATION AUTOMATIC SYSTEM
8. PH METER
9. DRAINAGE WATER OUTLET
10. NAOH TANK, ADJUSTMENT AND DOSING SYSTEM BY PH METER
11. NUTRIENT ADDING SYSTEM
12. MANHOLES
13. CHIMNEY
14. TREATED AIR OUTLET
15. CONTROL PANEL

airflow crosses the media, from the bottom to the top, it meets the bacteria responsible for decomposition and that are fixed on it. The media is always wet, therefore in the opposite direction to the airflow. When necessary, nutrients are dosed in the recirculation water in order to feed the biomass and keep it always active. Since the recirculation water needs to be changed often, a part of it is drained daily together with inactive sludge, leaving the media and being reintegrated with new water.

The estimated lifetime of the filter bed is about ten to twenty years. The BFTT is very efficient in treating hydrogen sulphide (entry concentration of 200 ppm.) The acidification tendency of the filter bed due to the air to be treated is hindered by the make-up water flow rate, used for humidification and feeding of micro-organisms; therefore the bed pH is controlled by the make-up water flow rate and the caustic soda dosing system. The temperature and pH sensors control the correct operation of the biofilter, regulating automatically the make-up water flow rate, whereas the recirculation flow rate for humidification is always steady.

VARIATIONS

The standard tower is manufactured in GRP but it is also possible to make it in stainless steel, whereas the standard blower and piping material is SS 316L but, upon specific request, they can be provided in GRP.

The BFTT is also available in the combined variation BFTTOTAC where the biotrickling system is followed by an air filtration system on active carbon OTAC that could be used as a second stage of refinement and reach destruction of up to 99.9% or alternatively, when necessary operate it as the main treatment in case of maintenance of the BFTT.

Activated carbon air filter

WHAT IS IT ABOUT

The OTAC system is an activated carbon filter conceived to treat unpleasant air coming from civil and industrial processes.

WHEN TO USE IT

The OTAC filter can be used in many cases of civils, agricultural and industrials settlements, which produce unpleasant odours such as:
in waste water treatment;
in solid waste treatment, including composting;
in food production companies;
in sewage lifting stations;
in the organic and inorganic chemical industry;
in various industries.

HOW IS IT MADE

The activated carbon filter OTAC type is mainly composed of:
one or more circular or ovoid towers to contain the filter bed; a support structure for the filter bed consisting of self-supporting screened material and semi-permeable fabric; filter bed composed of activated carbon with a high degree of porosity; one or more centrifugal fans, directly coupled to the engine, used to suck air from sections, which are sources of odorous substances release and convey it to the filter; a stainless steel piping system for the connection between the centrifugal fan and the tower; a treated air outlet chimney; useful instrumentation for the automatic control of the system.

HOW DOES IT WORK

The blower sucks the air to be treated and sends it to the filter, below the filter bed. The air is fairly distributed under the filter bed and, thanks to the overpressure generated by the blower, it crosses the bed from the bottom upwards. The filter bed, made of activated carbon, absorbs the odorous compounds and the purified air goes out from the filter summit, thanks to the special chimney.
The flow rates of polluted air to be treated swing around 4-6 changes per hour for places not subject to the staff entry; whereas the flow rates swing around 12 changes per hour for places where the staff is allowed to enter.
The absorption system on activated carbon allows to reach excellent results (>99% H2S reduction), with low management and maintenance costs. For this reason, this technology is commonly used in wastewater treatment system with excellent results.
Depending on pollutant concentration and sizing, at intervals ranging from 1 to several years, the activated carbon is replaced while the used carbon is regenerated for reuse the next time;
The regenerated activated carbon works well for limitless time unless the losses are made up during regeneration and its handling.

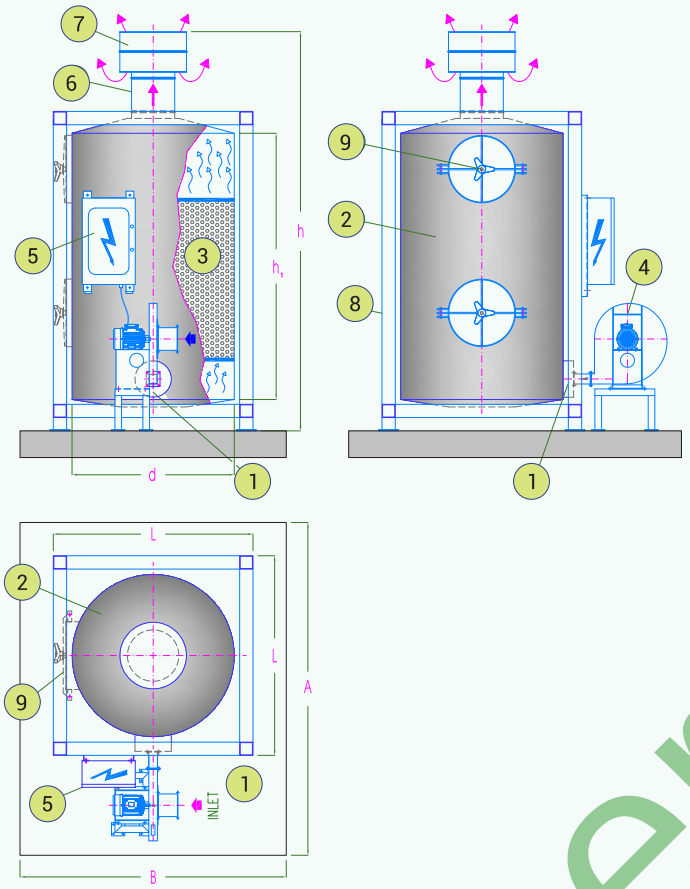
VARIATIONS

The standard construction of the tower is SS 316L, only on specific request it is possible in GRP; whereas the standard material of the blower and piping is SS 316L but, upon specific request, they can be provided in GRP.
The OTAC system is also available in the combined variation BFTTOTAC where the biotrickling system is followed by an air filtration system on activated carbon OTAC that can be used as a second stage of refinement and reach destruction of up to 99.9% or alternatively, when necessary operate it as the main treatment in case of maintenance of the BFTT.

STRENGHTS OTAC

- CONSTRUCTION AND OPERATION EASINESS;
- REDUCED OCCUPIED SPACE;
- LOW PRESSURE DROP;
- SUSTAINABLE FILTER MATERIAL;
- LOW MANAGEMENT COSTS.

Activated carbon air filter



LEGEND

1. AIR INLET TO BE TREATED
2. TANK
3. CARBON ACTIVATED BED
4. BLOWERS
5. ELECTRICAL PANEL
6. CHIMNEY
7. TREATED AIR OUTLET
8. FRAME
9. MANHOLE

MAIN FEATURES	U.M.	DIMENSIONAL VALUES						
MODEL OTAC (*)		**044**	**092**	**138**	**183**	**229**	**275**	**368**
DIAMETER	mm	750	1080	1325	1525	1710	1875	2165
HEIGHT (H)	mm	3500						
BASE WIDTH (L)	mm	1750	2080	2325	2525	2710	2875	3165
BASE LENGHT (L_3)	mm	2750	3080	3325	3525	3710	3775	4265
TREATABLE AIR FLOW RATE	m^3/h	500	1000	1500	2000	2500	3000	4000
FILTER BED SURFACE	m^2	0,44	0,92	1,38	1,83	2,29	2,75	3,68
FILTER BED VOLUME	m^3	0,44	0,92	1,38	1,83	2,29	2,75	3,68
SPECIFIC SURFACE LOAD	$m^3/m^2/h$	0,31						
APPROXIMATE CONTACT TIME	sec	3,3						
BLOWER POWER	kW	1,1	2,2	3	4	4	5,5	7,5
EMPTY WEIGHT (EXCLUDING BED)	kg	462	760	1029	1421	1755	2083	2727

(*)The models are approximate, please ask SERECO for more details .

Air scrubber for H_2S abatement

WHAT IS IT ABOUT

RUH2S system is a scrubber for the unpleasant air treatment coming from solid or liquid waste treatment plants or various civils or industrial processes.

WHY TO USE IT

Normally, sulphides in waste originate from anaerobic biological processes through sulphate reduction. Solid or liquid waste containing H2S cause significant quality of life problems. Moreover, since the olfactory perception level of H2S is very low, it is difficult verify the emissions at source, thus causing both patrimonial and sanitary damages. Using a system who grabs the polluted air and a scrubber treatment RUH2S type, both sanitary damages and the real estate depreciation of the area where the source of odour is present can be avoided.

HOW IS IT MADE

The scrubber for odour treatment RUH2S type is mainly composed of: two towers in series of H2S chemical abatement consisting of a lower air inlet connection; a set of filling material useful to distribute and bring into contact the incoming air which flows upwards and the washing liquid which flows downwards, optimizing the maximum contact; a suitable bearing structure for the filling material; a well-designed distributor of washing liquid, placed on the top of the column, which sprays the liquid on top of the filling material layer; washing liquid pumps; visual level indicators; level gauges useful to control and protect the respective washing liquid pumps against dry operation; centrifugal fan used to suck the polluted air and convey it to the scrubber;
a caustic soda storage and dosing system; a sodium hypochlorite storage and dosing system; recirculation flow rate indicators; pack drop separator at scrubber outlet; outlet chimney.

HOW DOES IT WORK

The odour treatment system consist in removing or transforming the odorous compounds in order to reduce their concentration below the perception limit. This result is easily achieved by using the RUH2S system. A signal from the control chamber or from the local panel activates the chemical scrubber and the blower is immediately activated in order to suck the air to be treated and send it to the deodorising system. Also, the washing liquid pumps are immediately activated and start pumping the washing liquid (only caustic soda in the first process compartment, caustic soda and sodium hypochlorite in the second process compartment). The distributors spread the washing liquid in a shower of fine drops that fall on the alveolar material filling the towers. The incoming air to be treated enters in the washing tower from the tower connection with the blower outlet at the bottom of the first tower. Later, the air flows upwards in the first tower, crossing the support structure. When the air crosses the filling material, it is distributed in the column volume, coming into contact with the washing liquid, which flows downwards. Chemical abatement takes place in this contact volume. The air moves toward the top of the column, while the washing liquid goes down, crossing the support structure and later it falls back into the washing liquid collection tank. The air to be treated is sent to the second process tower of the scrubber through a service manifold that connects the outlet connection of the first tower to the inlet connection of the second tower. The second section operates in the same way as the first but with different washing liquid characteristics. The air coming out of the second tower passes through the droplet separator and, after being purified, exits from the top of the scrubber through the chimney.

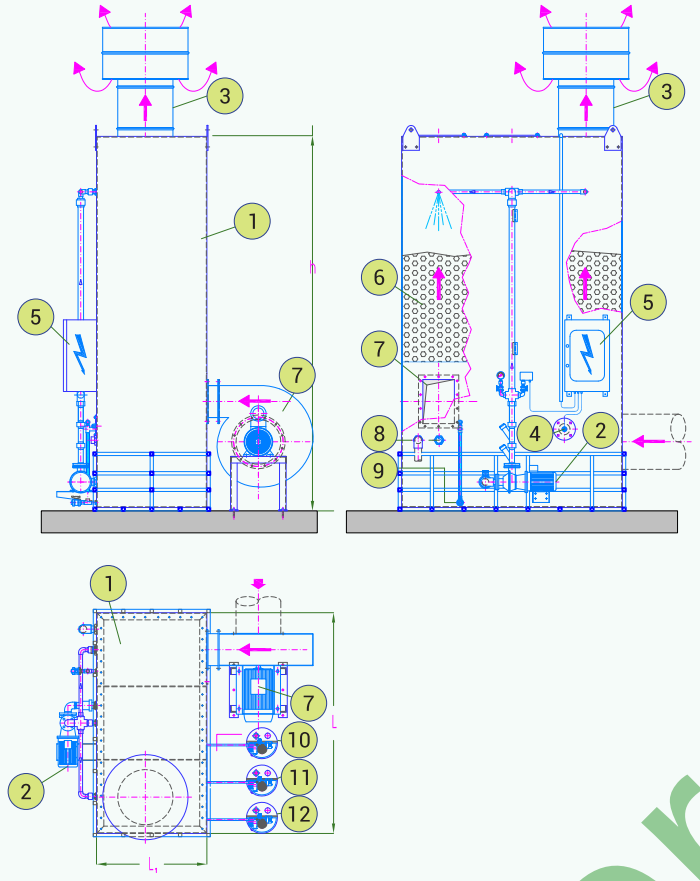
VARIATIONS

The standard construction of the towers is GRP, whereas the standard material of

STRENGTHS RUH2S

- CONSTRUCTION AND OPERATION EASINESS;
- REDUCED OCCUPIED SPACE;
- LOW PRESSURE DROP;
- POSSIBILITY TO MANAGE THE PROCESS IN TOTAL COMPUTERIZED AUTONOMY;
- LOW MANAGEMENT COSTS .

Air scrubber for H2S abatement



LEGEND

1. TANK
2. RECIRCULATION PUMP
3. AIR OUTLET
4. VISUAL LEVEL INDICATOR
5. LEVEL PROBE
6. COMMAND AND CONTROL PANEL
7. FILTER BED
8. CENTRIFUGAL BLOWER
9. OVERFLOW
10. BOTTOM DRAIN
11. NAOH STORAGE AND DOSING
12. H_2SO_4 STORAGE AND DOSING
13. NAOCL STORAGE AND DOSING

the blower and piping is SS 316L but, upon specific request, they can be provided in GRP.
The RUH2S is also available in the RUOTACH2S variation where the RUH2S system is followed by the OTAC (activated carbon filter) that can be used as a second stage of refinement and reach abatement of up to 99.9% or alternatively, when necessary operate it as the main treatment in case of maintenance of the RUH2S.

MAIN FEATURES	U.M.	DIMENSIONAL VALUES						
MODEL RUH2S		**10**	**20**	**30**	**40**	**50**	**75**	**100**
HEIGHT h	mm	4700						
WIDTH L_1	mm	1340	1480	1580	1670	1750	1920	2060
LENGTH L	mm	3000	3440	3740	4010	4250	4760	5180
TREATABLE AIR FLOW RATE	m^3/h	1000	2000	3000	4000	5000	7500	10000
FILTER BED VOLUME	m^3	0,50	0,98	1,42	1,90	2,38	3,58	4,76
APPROXIMATE CONTACT TIME	Sec	1,7						
BLOWER POWER	kW	2,2	4	5,5	7,5	9,2	15	18,5
EMPTY WEIGHT	kg	1052	1362	1599	1823	2030	2497	2910

RUHCl2

Scrubber for Cl2 abatement in air

WHAT IS IT ABOUT

The RUCI2 system is a scrubber for the air treatment coming from chlorine gas chlorination plants.

WHY TO USE IT

Chlorine gas is very harmful to health and it damages the respiratory system, even at very low concentrations; therefore, it is extremely important prevent that chlorine gas polluted air spread in the environment. By using a system who grabs the chlorine gas polluted air and a scrubber treatment type RUCI2, both health and legal problems are avoided.

HOW IS IT MADE

The scrubber for the chlorine gas treatment RUCI2 type is mainly composed of:
two towers in series for Cl2 chemical abatement consisting of a lower air inlet connection; a set of filling material useful to distribute and bring into contact the incoming air, which flows upwards, and the washing liquid, which flows downwards, optimizing the maximum contact; a suitable bearing structure for the filling material; a well-designed distributor of washing liquid, placed on the top of the column, which sprays the liquid on top of the filling material layer; washing liquid pumps; visual level indicators; level gauges useful to control and protect the washing liquid pump against dry operation; centrifugal fan to suck the chlorine gas polluted air and convey it to the scrubber;
a caustic soda storage and dosing system; recirculation flow rate indicators; pack drop separator at scrubber outlet; outlet chimney.

HOW DOES IT WORK

A signal coming from the control chamber or from the chlorine leakage sensors activates the chemical scrubber and the blower is immediately activated in order to suck the polluted air into the washing system. Also, the washing liquid pump is immediately activated and start pumping the washing liquid (that is sodium solution) from the bottom of the tank to the top of each of the two washing towers, where the distributors spread the washing liquid in a shower of fine drops that fall on the alveolar material filling. The incoming air to be treated enters in the first washing tower from the connection flange through the intake pipe. Later, the air flows upwards into the first tower, crossing the support structure, designed to improve air distribution. When the air crosses the filling material, it is distributed in the column volume by coming into contact with the washing liquid, which flows downwards. Chemical abatements takes place in this contact volume. Immediately after cleaning, the air moves towards the top of the column, while the washing liquid goes down, crossing the support structure and later it falls back into the washing liquid collection tank. The air to be treated is sent to the second tower through a service manifold that connects the outlet connection of the first stage (upper part of the first compartment) to the inlet connection of the second stage (lower part of the third compartment). The second tower operates in the same way as the first. The outlet connection of the second tower is also the outlet of the entire scrubber. The air rising from the top of the second tower is filtered by a droplet remover, which removes all finely dispersed washing liquid.

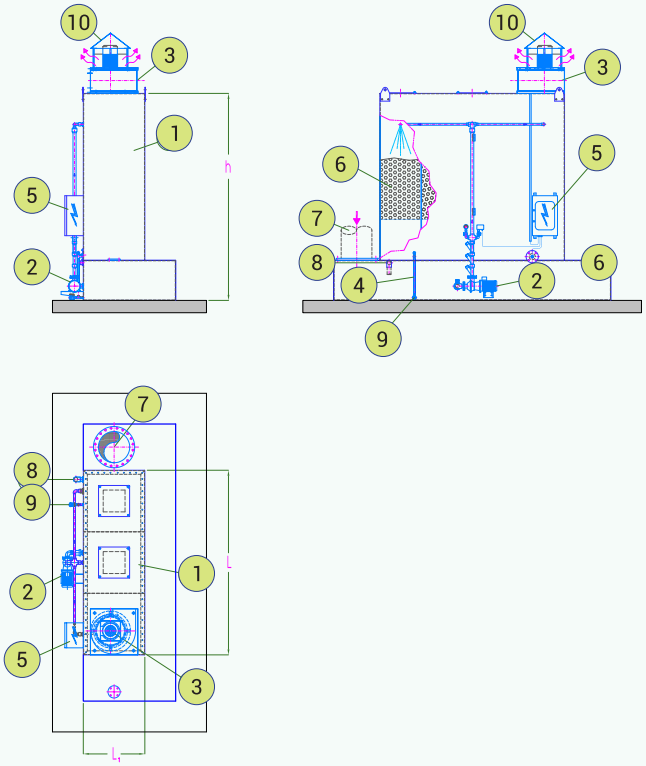
VARIATIONS

The standard construction of the towers, blower and piping is GRP but upon specific request, they can be supplied in SS904L.

STRENGTHS RUHCl2

- CONSTRUCTION AND OPERATION EASINESS;
- REDUCED OCCUPIED SPACE;
- LOW PRESSURE DROP;
- POSSIBILITY TO MANAGE THE PROCESS IN TOTAL COMPUTERIZED AUTONOMY;
- LOW MANAGEMENT COSTS.

Scrubber for CI2 abatement in air



LEGEND

1. TANK
2. RECIRCULATION PUMP
3. CENTRIFUGAL BLOWER
4. LEVEL
5. ELECTRICAL PANEL
6. FILTER BED
7. AIR INLET
8. OVERFLOW
9. BOTTOM DRAIN
10. AIR OUTLET

MAIN FEATURES	U.M.	DIMENSIONAL VALUES	
MODEL RUHCl2		**050**	**100**
TOWER	mm	750	1060
HEIGHT (H)	mm	4700	
WIDTH	mm	1750	2060
LENGHT	mm	4250	5180
TREATABLE AIR FLOW RATE	m^3/h	5000	10000
FILTER BED VOLUME	m^3	2,38	4,76
APPROXIMATE CONTACT TIME	Sec	2	
BLOWER POWER	kW	9,2	18,5
EMPTY WEIGHT	kg	2030	2910

Aluminium covers

WHEN TO USE THEM

Aluminium covers CVCa type are used in water purification plants, for treatment tanks in order to protect the contents from external contaminations such as bad weather, dusts, leaves, etc. otherwise to protect the nearby environment from unpleasant odorous emitted by the tank contents. Aluminium covers CVCa type are used for both quadrangular and circular tanks.

HOW ARE THEY MADE

In both types of use, the covers are made of tiles which fit together to create a rigid roof, that can also be walked upon request, suitable for air-tightness at pressures close to atmospheric pressure and at the same time able to withstand the typical loads of wind, snow and earthquakes.

APPLICATIONS

For quadrangular basins, tiles with light can be supplied and they can vary continuously from 1 to 20 meters.
For circular basins, tiles with light can be supplied, which can cover a variable diameter from 6 to 48 meters.

HOW ARE THEY PROPOSED

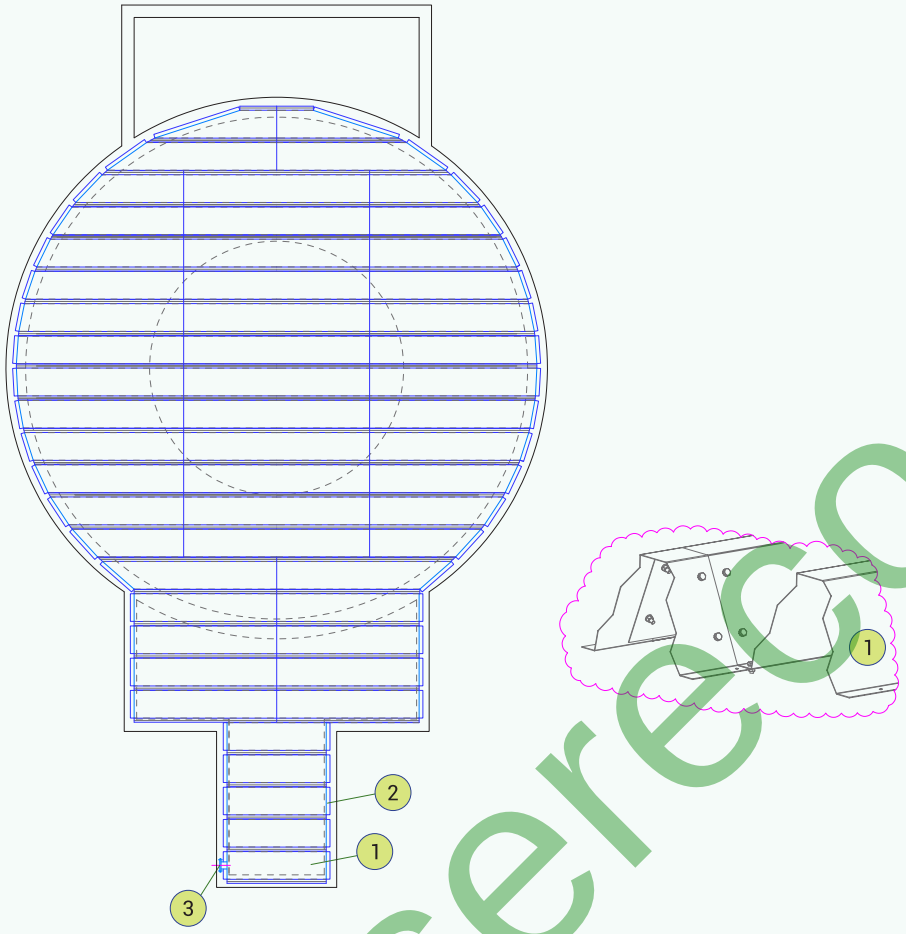
SERECO offers the complete solution of engineering, supplying and installation assistance, useful to solve all the problems that arise case-by-case in order to conciliate the needs of civil and electromechanical works reaching the expecting result of the cover use.

STRENGTHS CVCa

- EASY ASSEMBLY AND DISASSEMBLY;
- VERY LIGHT SELF-SUPPORTING TILES;
- CORROSION RESISTANCE;
- RESISTANT MATERIALS TO CONTINUOUS AND ACCIDENTAL STRIKES AND LOADS;
- MANHOLES CAN BE INSTALLED;
- POSSIBILITY OF COMBINING INSULATION FOR THERMAL PROTECTION;
- POSSIBILITY OF SEALING TO MAKE THE COVER WATERTIGHT.

Aluminium covers

Aluminium covers



LEGEND

1. COVER
2. CLOSING PANEL
3. ODOUR OUTLET FLANGE

Centrifugal fan for odour control

WHEN TO USE IT

The centrifugal fan VC type is a blower designed specifically for use in OCU sector (odour control system).

HOW IS IT MADE

The aspirator VC type is mainly composed of: a specific electric motor for direct coupling to the fan; flanged suction nozzle; scroll; impeller with curved blades statically and dynamically balances; flanged delivery nozzles.

CHARACTERISTICS

The centrifugal fan for OCU VC type is completely made of stainless steel 316L, except for the electric motor, in order to better react to the aggressiveness of polluted air, especially when in presence of substances such as H2S, NH3, volatile fatty acids or other corrosive substances. Impeller and scroll have been designed and tested to meet all the requirements for variable suction, pressure, and flow rates that arise in the field of odor control.

VARIATIONS

On request, it is possible to supply the fan with a motor under inverter in order to optimize the airflow rate to the specific needs of the plant.

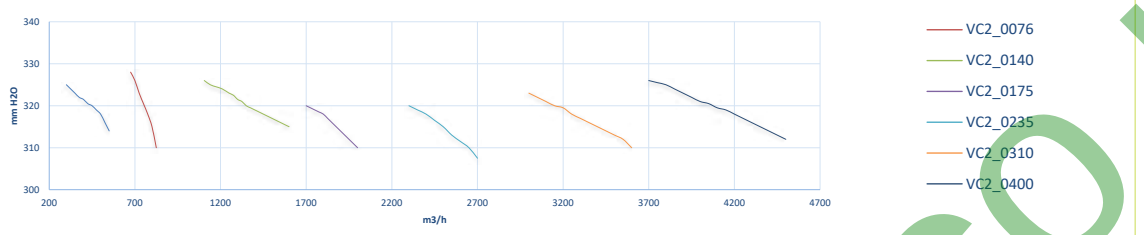
STRENGTHS VC

- HIGH PERFORMANCE;
- MINIMIZED VIBRATIONS DUE TO THE SHAPE AND ARRANGEMENT OF THE BLADES;
- POSSIBILITY OF CONTINUOUSLY VARYING FLOW RATE AND HYDRAULIC HEAD;
- SILENT OPERATION;
- STURDINESS AND RELIABILITY.

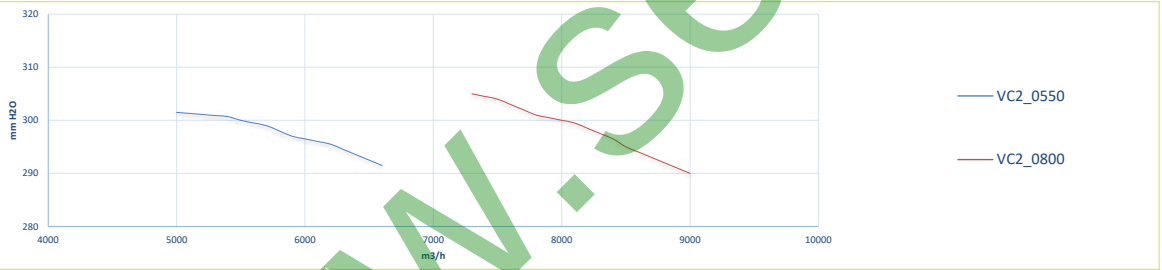
Centrifugal fan (aspirator) for odour control

Centrifugal fan (aspirator) for odour control

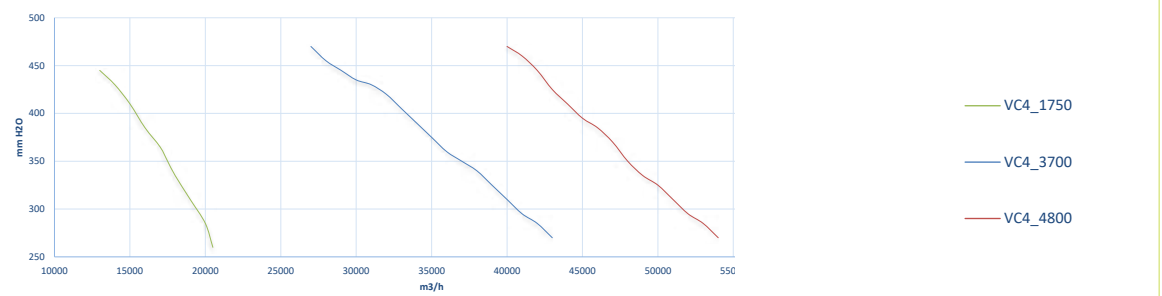
MAIN FEATURES	U.M.	PERFORMANCE						
MODEL VC2		0040	0076	0140	0175	0235	0310	0400
FLOW RATE	m³/h	400	760	1400	1750	2350	3100	4000
HYDRAULIC HEAD	Da PA	320	320	320	320	320	320	320
POWER CONSUMPTION	kW	0,42	0,79	1,46	1,83	2,45	3,23	4,17
POWER INSTALLED	kW	0,75	1,1	1,5	2,2	3	4	4
WEIGHT	kg	66	78	90	109	133	156	204



MAIN FEATURES	U.M.	PERFORMANCE	
MODEL VC2		0550	0800
FLOW RATE	m³/h	5500	8000
HYDRAULIC HEAD	Da PA	300	300
POWER CONSUMPTION	kW	5,38	7,82
POWER INSTALLED	kW	5,5	9,2
WEIGHT	kg	350	500

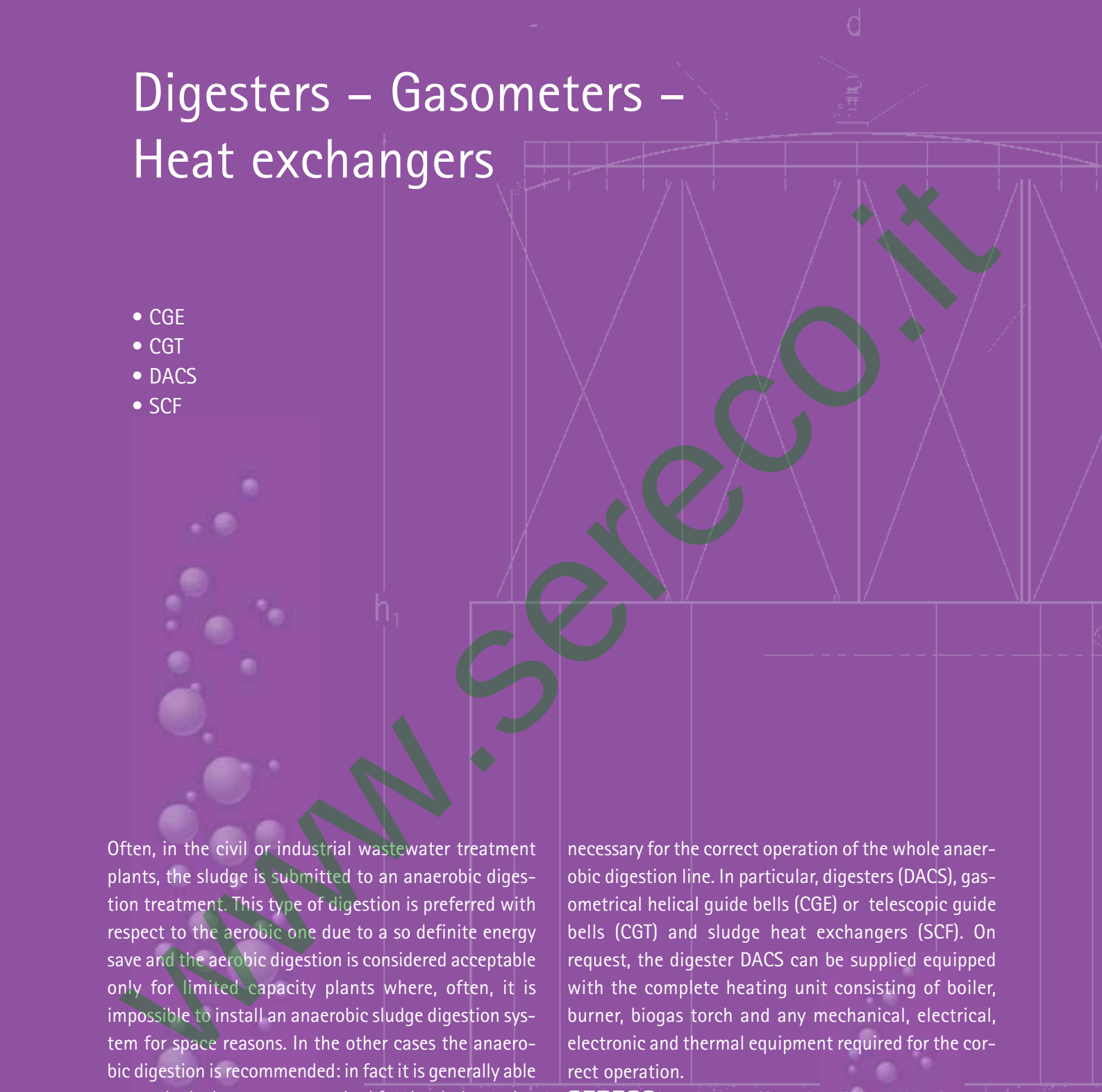


MAIN FEATURES	U.M.	PERFORMANCE		
MODEL VC4		1750	3700	4800
FLOW RATE	m³/h	17500	37000	48000
HYDRAULIC HEAD	Da PA	350	350	350
POWER CONSUMPTION	kW	19,96	42,19	54,74
POWER INSTALLED	kW	22	55	75
WEIGHT	kg	760	965	1130



Digesters – Gasometers – Heat exchangers

- CGE
- CGT
- DACS
- SCF



Often, in the civil or industrial wastewater treatment plants, the sludge is submitted to an anaerobic digestion treatment. This type of digestion is preferred with respect to the aerobic one due to a so definite energy save and the aerobic digestion is considered acceptable only for limited capacity plants where, often, it is impossible to install an anaerobic sludge digestion system for space reasons. In the other cases the anaerobic digestion is recommended: in fact it is generally able to supply the heat energy required for the sludge maintenance in the temperature condition ideal for the development of the anaerobic digestion processes. Sometimes, in the big plants, it is possible to use also the residual biogas produced for the electric power generation.

This section of **SERECO** catalogue offers any items necessary for the correct operation of the whole anaerobic digestion line. In particular, digesters (DACS), gasometrical helical guide bells (CGE) or telescopic guide bells (CGT) and sludge heat exchangers (SCF). On request, the digester DACS can be supplied equipped with the complete heating unit consisting of boiler, burner, biogas torch and any mechanical, electrical, electronic and thermal equipment required for the correct operation.

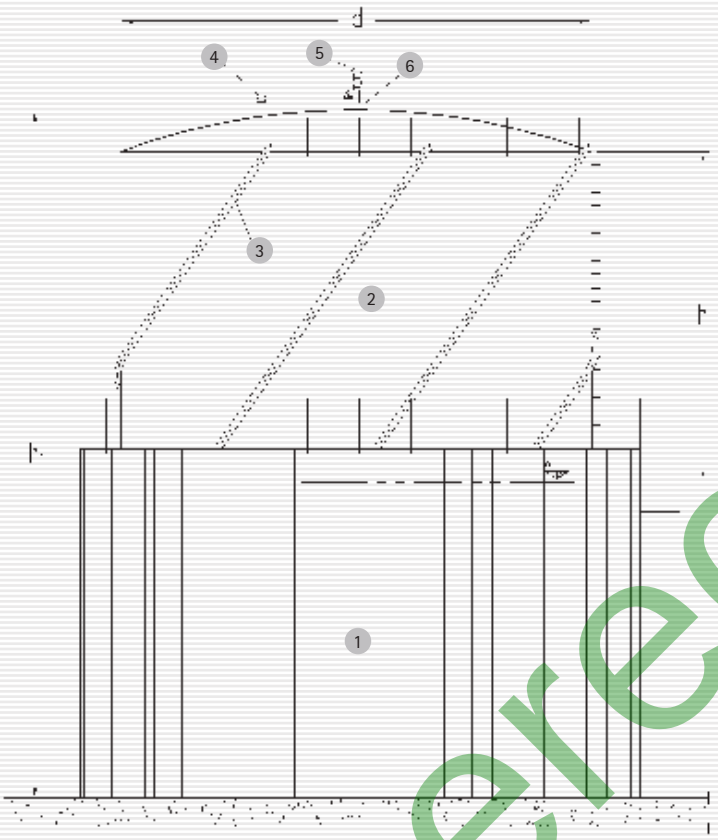
SERECO catalogue offers also different equipment useful for the sludge line that is not included in this section dedicated exclusively to digesters, gasometers and heat exchangers. In particular there are also equipment for the sludge dehydration which are dealt with in the section dedicated to sludge thickeners and dewateres.

CGE Gasometric bell with helical guides

The wet gasometer with helical guides CGE type is used on sludge treatment plants when it is necessary to store and at the same time supply at constant pressure the gas produced by the anaerobic decomposition of the sludge. It consists of a cylindrical bell which vertically slides on helical guides and a cylindrical concrete tank which is the stationary part of the gasometer wherein the bell slides. The volumetric variations of the gasometer allow variable flows of the inlet gases coming from the anaerobic digesters and also variable flows, but at constant pressure, of the outlet gas to the distribution network. The bell top is provided with a couple of manholes, a vacuum-breaking valve and a safety valve with flame trap. Moreover the concrete tank is equipped with a ladder to approach the roof, while the roof and the bell have a safety handrail all along the higher perimeter. The gasometer is provided with a level glass with local alarm and level switch.
The standard construction is in carbon steel. On request it is possible the construction in stainless steel.

Strengths

- HIGH SAFETY STANDARDS COMPLIED WITH.
- HELICAL GUIDES PARTICULARLY SMOOTH WHICH AVOID ANY JAM OF THE BELL MOTION.
- BIOGAS STORAGE AT A PERFECTLY CONSTANT AND ADJUSTABLE PRESSURE.
- VISUAL AND ELECTRONIC LEVELS.



Legend

1. CONCRETE TANK
2. MOBILE BELL
3. GUIDE
4. SAFETY VALVE
5. VACUUM BREAKING VALVE
6. MANHOLE

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA									
CGE	**MODEL**		CGE 02	CGE 04	CGE 05	CGE 07	CGE 10	CGE 15	CGE 20	CGE 25	CGE 30	CGE 35
	DIAMETER (d)	m	8	11	12	14	16,4	16,8	16,8	23,4	23,4	23,4
	GASOMETER USABLE HEIGHT (h)	m	4	4,2	4,5	4,5	4,7	6,7	9,0	5,8	7,0	8,1
	MAX HEIGHT (h_1)	m	9,4	9,8	10	10,4	11,5	13,8	22	15,8	18,0	20,3
	GASOMETER VOLUME	m^3	200 11000	400	500	700	1000	1500	2000	2500	3000	3500
	STEEL PARTS WEIGHT	daN		17000	19000	24000	30000	35000	65000	96000	120000	135000

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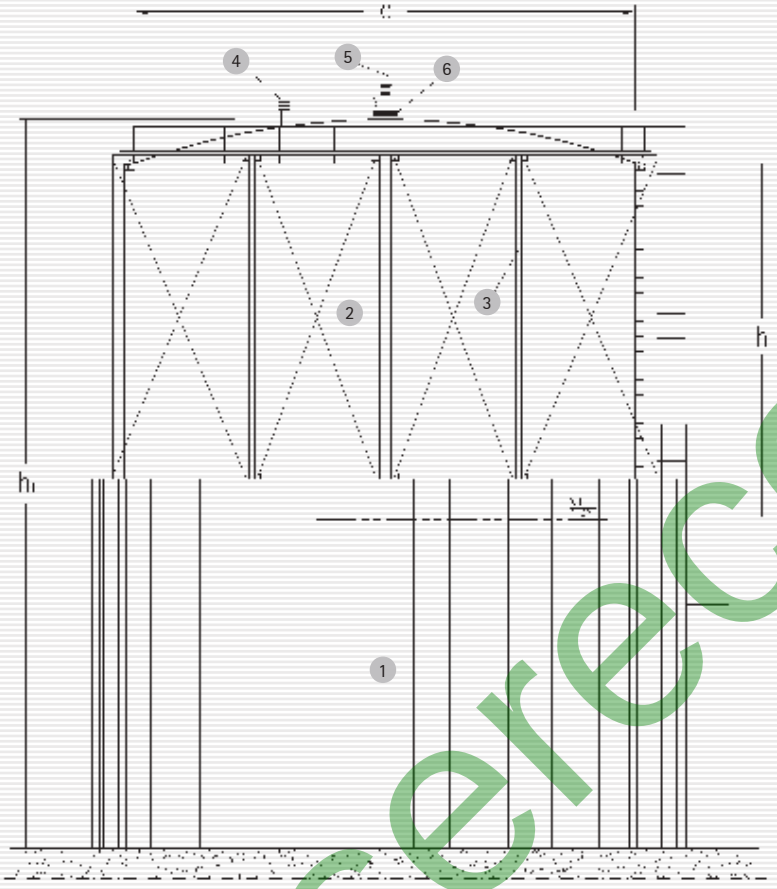
CGT Gasometric bell with telescopic guides

The wet gasometer with telescopic guides CGT type is used on sludge treatment plants when it is necessary to store and at the same time supply at constant pressure the gas produced by the anaerobic decomposition of the sludge. It consists of a cylindrical bell which vertically slides on right guides and a cylindrical concrete tank which is the stationary part of the gasometer wherein the bell slides. The volumetric variations of the gasometer allow variable flows of the inlet gases coming from the anaerobic digesters and also variable flows, but at constant pressure, of the outlet gas to the distribution network. The bell top is provided with a couple of manholes, a vacuum-breaking valve and a safety valve with flame trap. Moreover the concrete tank is equipped with a ladder to approach the roof, while the roof and the bell have a safety handrail all along the higher perimeter. The gasometer is provided with a level glass with local alarm and level switch.
The standard construction is in carbon steel. On request it is possible the construction in stainless steel.

Strengths

- HIGH SAFETY STANDARDS COMPLIED WITH.
- BIOGAS STORAGE AT A PERFECTLY CONSTANT AND ADJUSTABLE PRESSURE.
- VISUAL AND ELECTRONIC LEVELS.



Legend

1. CONCRETE TANK
2. MOBILE BELL
3. GUIDE
4. SAFETY VALVE
5. VACUUM BREAKING VALVE
6. MANHOLE

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA									
CGT	**MODEL**		CGT 02	CGT 04	CGT 05	CGT 07	CGT 10	CGT 15	CGT 20	CGT 25	CGT 30	CGT 35
	DIAMETER (d)	m	8	11	12	14	16,4	16,8	16,8	23,4	23,4	23,4
	GASOMETER USABLE HEIGHT (h)	m	4	4,2	4,5	4,5	4,7	6,7	9,0	5,8	7,0	8,1
	MAX HEIGHT (h_1)	m	9,4	9,8	10	10,4	11,5	13,8	22	15,8	18,0	20,3
	GASOMETER VOLUME	m^3	200	400	500	700	1000	1500	2000	2500	3000	3500
	STEEL PARTS WEIGHT	daN	11600	17700	19800	25000	31200	36400	67600	100000	125000	140500

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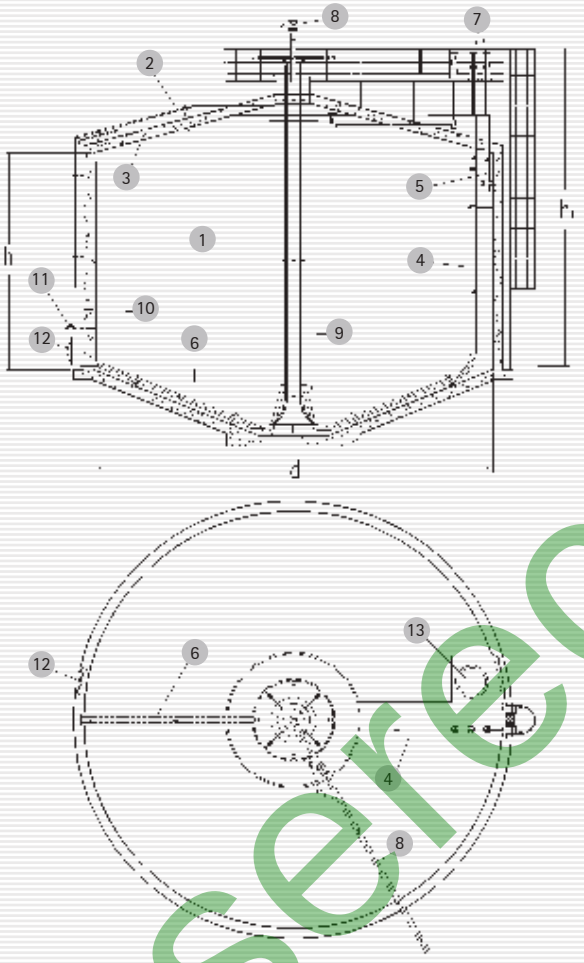
DACS Anaerobic sludge digester

The anaerobic digester DACS type is used for the sludge treatment when it is necessary to obtain the anaerobic biological decomposition of the organic matters contained in the sludge, according to a mineralization, humidification and gasification process. The digester consists of a cylindrical concrete tank; on request, the digesters can be of small size, prefabricated in steel, for which the supply includes the piping for sludge inflow, extraction and handling, excess water and biological gas, moisture separator, grit filter and ceramic filter, sludge extraction telescopic valves, overflow and extraction of excess water valves, biogas compressor and any measuring and control equipment required for the good digester operation. The sludge remains within the digester the time required for the anaerobic biological decomposition, and produces methane and carbon dioxide. Stirring of the sludge contained in the digester and then mixing with the fresh one are carried out by putting into the digester, by means of a compressor, the biologic gas previously produced. The discharge of the digested gas occurs in the most thickened shape, while the overflow drain is carried out by the control or adjustment of one of the telescopic valves. The gas is collected in the higher part of the digester whereto it is conveyed through specific pipes. The digester is provided with walkways, ladders and service galleries. On request, the complete heating plant for the heating of the sludge contained in the digester can be supplied.
The standard construction is in stainless steel.

Strengths

- COMPLETELY AUTOMATIC OPERATION.
- HIGH SAFETY STANDARDS COMPLIED WITH.
- SUPPLY ON "TURN-KEY" BASIS WITH ANY ACCESSORIES REQUIRED FOR THE CORRECT AND SAFE OPERATION.
- SLUDGE MIXING CARRIED OUT WITH THE SAME BIOGAS PRODUCED AND/OR WITH MECHANICAL MIXER.
- VERSATILITY AND RELIABILITY.



Legend

1. DIGESTER TANK
2. SLUDGE INLET
3. RECYCLED SLUDGE INLET
4. BOTTOM SLUDGE OUTLET
5. MIDDLE SLUDGE OUTLET
6. RECYCLING SLUDGE OUTLET
7. TELESCOPIC VALVES
8. BIOLOGICAL GAS OUTLET
9. MIXING BIOLOGICAL GAS INLET
10. INSULATION
11. SAMPLES ACCESS
12. BOTTOM MANHOLE
13. TOP MANHOLE

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA											
DACS	**MODEL**		0400	0800	1000	1500	2000	2500	3000	3500	4000	5000	6000	8000
	DIGESTER VOLUME	m^3	400	800	1000	1500	2000	2500	3000	3500	4000	5000	6000	8000
	DIGESTER DIAMETER (d)	m	9	12	12,5	14	15	16	17	19	19	20	22	24
	HEIGHT (h)	m	5,5	6	7	8,5	10	11	11,7	10,7	12,5	14,2	13,8	15,5
	MAX HEIGHT (h_1)	m	8,9	9,9	11	12,7	14,4	15,6	16,4	15,7	17,5	19,4	19,3	21,3
	POWER SUPPLY	kW	5,5	7,5	11	18,5	22	30	30	37	45	45	55	90
	STEEL PARTS WEIGHT	daN	5700	7500	8200	8800	9500	10700	11500	12000	12500	13200	14500	15500

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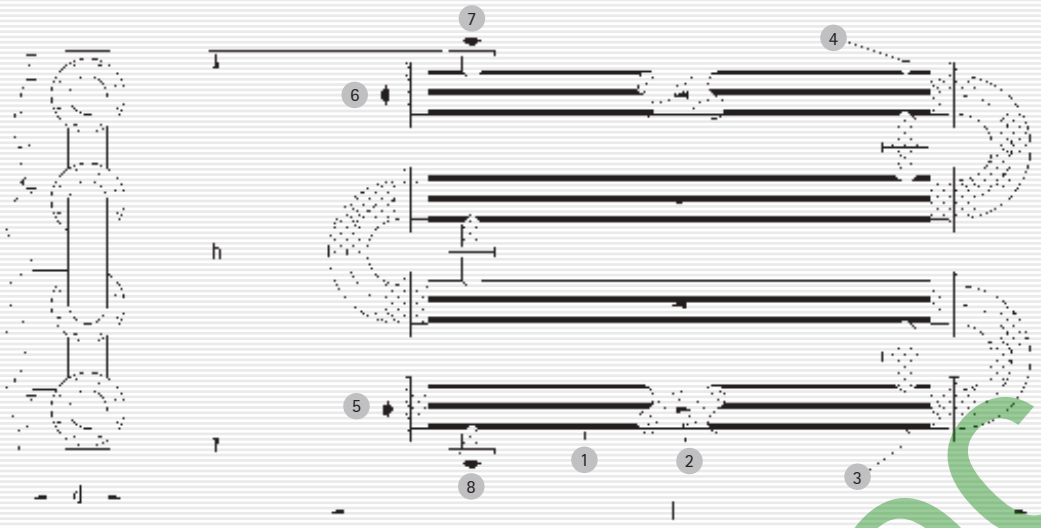
SCF Sludge heat exchanger

The heat exchanger for biological sludge SCF type is installed when it is necessary to keep the operating temperature of the sludge digester constant in order to avoid any sudden thermal changes higher than 2 or 3 °C. The exchanger consists of a set of concentric pipes joined with 180° elbows. The sludge circulates in the internal piping, while the water runs externally, reverse current with respect to the sludge stream, and has a heat flywheel function. The inlet sludge temperature is about 30-32 °C, while that of the outlet sludge is 37-40 °C. The sludge speed inside the exchanger is about 1.5 m/s. The maximum heat exchange capability is about 22.500 kcal/m^{2}xh.
A vent valve and an exhaust valve in correspondence of the top and bottom sections of pipings assure the maximum efficiency. The exchanger is completely demountable to allow pipes easier internal cleaning operations.
The standard construction is in carbon steel. On request it is possible the realization in stainless steel for all the parts or the construction of models with internal tubes in stainless steel and external tubes in carbon steel.

Strengths

- HIGH HEAT EFFICIENCY.
- HIGH HEAT EXCHANGE CAPABILITY.
- MINIMUM OVERALL DIMENSIONS.
- COUNTER-CURRENT OPERATION.
- EXCHANGER FULLY DEMOUNTABLE FOR CLEANING EASINESS.



Legend

1. INSULATED WATER PIPE
2. SLUDGE PIPE
3. DRAIN
4. VENT
5. SLUDGE INLET
6. SLUDGE OUTLET
7. WATER INLET
8. WATER OUTLET

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA												
SCF	**MODEL**		01	02	05	06	08	10	15	20	25	30	40	50	60
	THERMAL EXCHANGE SURFACE	m^2	1	2	5	6	8	10	15	20	25	30	40	50	60
	SLUDGE PIPE	DN	50	50	65	65	65	80	100	125	125	150	150	200	200
	SLUDGE FLOW RATE	m^3/h	3	5	13	16	21	27	40	55	65	80	105	130	155
	MAX LENGTH (l)	m	2	3,5	4,7	5,8	7,5	8,2	7,0	5,5	6,5	6,5	8,5	8,5	9,7
	MAX HEIGHT (h)	m	0,8	0,8	1,5	1,5	1,5	1,6	1,4	2,5	2,5	3,0	3,0	4,0	4,0
	MAX WIDTH (d)	mm	350	350	350	350	350	500	800	800	800	1000	1000	1300	1300
	EMPTY WEIGHT	daN	94	157	501	616	809	962	1540	2362	3782	4302	5648	8017	9559
	WORKING WEIGHT	daN	122	201	727	902	1168	1349	2217	3494	6158	6699	8785	12748	15192

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Dissolving units

- PDC
- PDP
- PDPA

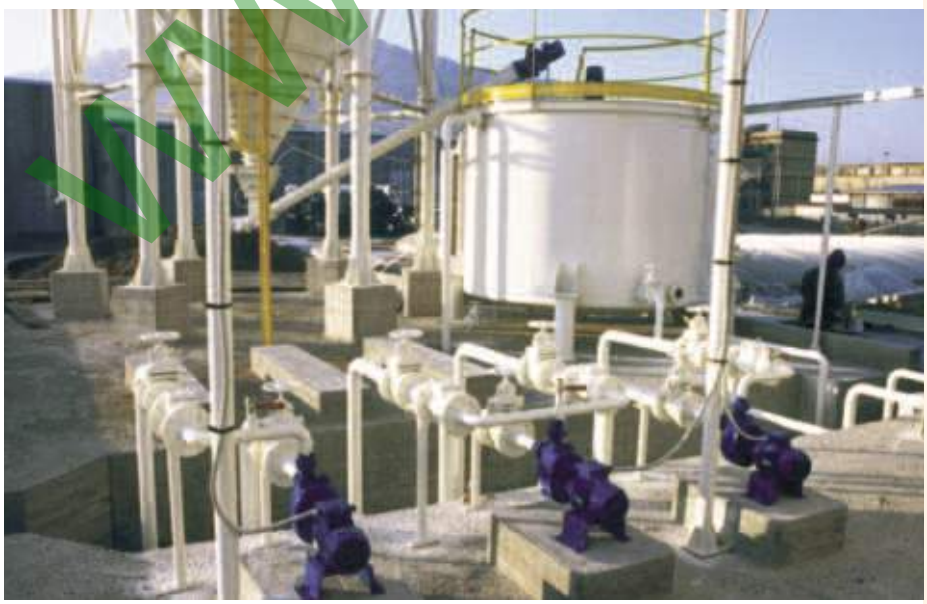
In the civil or industrial waste water treatment plants it is often necessary to have an equipment for the dissolution of pulverized products such as polyelectrolyte or lime. In **SERECO** catalogue you can find a dissolving unit for lime or other powder products to be turned into solution and/or suspension PDC type often installed in the immediate vicinity of the powder product storage silo (therefore easy to be handled once empty), simple to operate, that can be used as dissolver for any powder product. The PDPA has been instead designed specifically for the storage and dosing of the polyelectrolyte in a completely automatic way and is generally used to serve the **SERECO** belt presses.

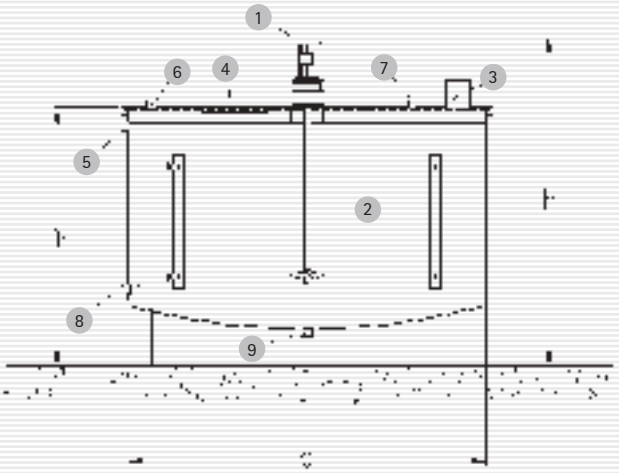
PDC Lime preparation and dissolving unit

The lime preparation and dissolution unit PDC type is employed if the lime milk has to be used. The dissolving unit consists of a cylindrical tank, an electric motor, a lantern, a shaft with marine screw propeller and a probe indicating the maximum level complete with electrode holder. The tanks is provided with lime loading opening, water inlet connecting flange, manhole, overflow pipe and lifting eyebolts; all these items are located in the higher part of the tank, while the intake and bottom drain are provided on the lower part. The perfect lime dissolution is ensured by the shaft-marine screw impeller mixing system, which works continuously, fitted vertically in the middle of the dissolver, able to completely dissolve the lime, keeping it in suspension and avoiding the formation of lumps.
The standard construction is in carbon steel protected by an epoxy painting cycle. On request, it is possible the realization in stainless steel.

Strengths

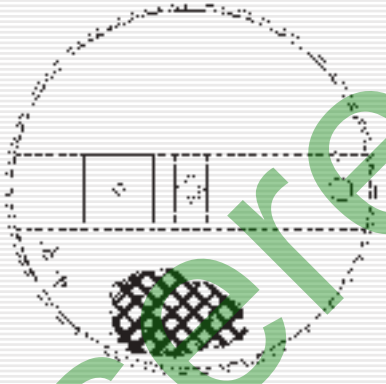
- PERFECT LIME DISSOLUTION WITHOUT ANY LUMPS THANKS TO THE MARINE SCREW IMPELLER.
- HIGH STRENGTH AND LIGHTNESS OF THE AGITATOR SHAFT IN ORDER TO AVOID ANY VIBRATIONS.
- MINIMUM ENERGY CONSUMPTION.





Legend

1. MIXER
2. TANK
3. LIME INLET
4. MANHOLE
5. OVERFLOW
6. LEVEL CONTROLLER CONNECTION
7. WATER INLET
8. PUMPS CONNECTION
9. BOTTOM OUTLET



SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA						
PDC	**MODEL**		01	02	03	04	05	06	08
	VOLUME	m^3	1	2	3	4	5	6	8
	DIAMETER (d)	mm	1200	1900	1900	1900	2500	2500	3000
	TANK HEIGHT (h^1)	mm	1460	1460	1660	1860	1660	1860	1860
	TOTAL HEIGHT (h)	mm	1950	1950	2150	2350	2150	2350	2350
	IMPELLER SPEED	r.p.m.	1400	1400	1400	1400	1400	1400	1400
	EMPTY WEIGHT	daN	205	390	416	502	785	846	970
	POWER SUPPLY	kW	0,75	0,75	1,1	1,1	1,1	1,5	1,5

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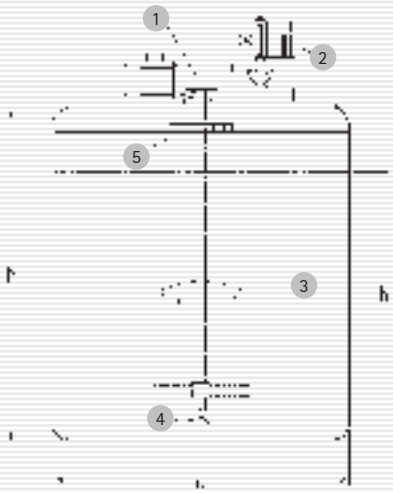
PDP Polyelectrolyte preparation and dosing unit

The polyelectrolyte preparation and dosing unit PDP type is used in small and medium size treatment plants. It consists of a cylindrical polypropylene tank, an electric motor complete with gearbox, a shaft with special profile impeller and a polyelectrolyte dosing pump. The tank has a feeding openings, with relevant lid, on the top for the polyelectrolyte loading, while the bottom is provided with a drain valve. The polyelectrolyte mixing is carried out by the shaft-impeller system, while a variable-flow dosing pump ensures the pumping of dosed material.

Strengths

- PERFECT MIXING OF THE POLYELECTROLYTE.
- LIGHTNESS AND RESISTANCE TO ATMOSPHERIC AGENTS.
- MINIMUM ENERGY CONSUMPTION.



Legend

1. MIXING UNIT
2. VARIABLE FLOW DOSING PUMP
3. TANK
4. OUTLET
5. LOAD OPENING WITH LID

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA				
PDP	**MODEL**		120	250	300	500	1000
	VOLUME	lt	120	250	300	500	1000
	DIAMETER (d)	mm	480	595	670	760	1085
	TOTAL HEIGHT (h)	mm	715	870	950	1185	1220
	MAX LEVEL (h')	mm	670	825	890	1115	1130
	MAX FLOW RATE	lt/h	2	5	10	15	20
	POWER SUPPLY	kW	0,18	0,18	0,37	0,37	0,55

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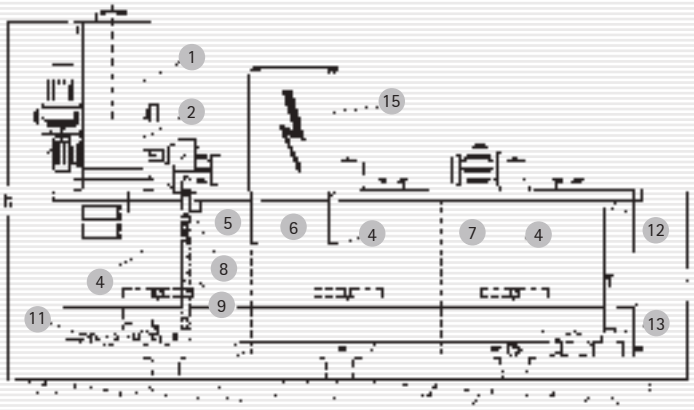
PDPA

Automatic polyelectrolyte preparation and dosing unit

The automatic polyelectrolyte preparation and dosing unit PDPA type consists of a rectangular tank divided into three compartments. The first compartment, for dilution, is complete with polyelectrolyte loading hopper, micro-screw batcher and relevant variable speed drive, fast stirrer for the polyelectrolyte mixing, inflow system for the dilution water and relevant solenoid valve, flow meter and pressure relief; the second compartment, for the polyelectrolyte mixture ageing, is equipped with slow stirrer and bottom suction and drain system. The third compartment, for ageing and storage, is used for the mixture storing and is provided with slow stirrer and suction and delivery system for the polyelectrolyte solution.
Every stirrer has two impellers fitted on its shaft, each one with four sloping blades. The polyelectrolyte preparation occurs automatically: in fact, once the concentration (from 0.05% to 0.5% by weight) has been established, the dosing of dilution water and polyelectrolyte starts automatically. The solution at the PDPA outlet can be further diluted in the network, if required. The preparation unit is provided with alarms activated by the failure of the dosing screw or shortage of dilution water, insufficient level of polyelectrolyte in the hopper, faulty operation of the stirrer. The standard construction is in stainless steel.

Strengths

- COMPLETELY AUTOMATIC OPERATION.
- PRESENCE OF THREE COMPARTMENTS, ONE FOR DILUTION, ONE FOR AGEING AND ONE FOR STORAGE.
- PERFECT POLYELECTROLYTE DILUTION.
- PRESENCE OF ALARM SIGNALS FOR OPERATION IN ABSOLUTELY SAFE CONDITION.



Legend

1. LOADING HOPPER
2. MICRO SCREW BATCHER
3. DOSING PUMP
4. STIRRER
5. DILUTION TANK
6. AGEING TANK
7. AGEING AND STORAGE TANK
8. SOLENOID VALVE
9. FLOWMETER
10. DOSING PUMP SUCTION
11. WATER INLET
12. OVERFLOW
13. DRAIN
14. DELIVERY PIPE
15. CONTROL PANEL

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA							
	MODEL		0100	0200	0300	0400	0500	1000	2000	3000
	LENGTH (l)	mm	1180	1580	1880	2280	2480	3080	3680	4580
	WIDTH (l')	mm	430	580	730	780	880	1080	1280	1530
	MAX HEIGHT (h)	mm	1940	1940	1940	2135	2135	2435	2835	2835
PDPA	TANK HEIGHT (h')	mm	1100	1100	1100	1100	1100	1400	1800	1800
	NOMINAL FLOW RATE (0,3%)	lt/h	300	600	900	1200	1500	3000	6000	9000
	EMPTY WEIGHT	daN	150	180	230	300	350	520	890	1250
	WORKING WEIGHT	daN	450	780	1130	1500	1850	3520	6890	10250
	POWER SUPPLY	kW	0,54	0,54	0,54	0,6	0,93	2,1	4,6	4,8

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Sluice gates - Valves

- PI
- SRC
- SRP
- VT

Sluice gates, weirs, telescopic valves are accessories always present in the civil or industrial waste water treatment plants.
In **SERECO** catalogue you can find a wide range of sluice gates for cutting off the sewage flowing channels. There are models with double screws (P2V), recommended for large cut-off surfaces and sluice gates with one only screw (PV, PVR) for the most frequent uses. **SERECO** can also supply manual stop logs (PI).
The wide range of sluice gates allows the closing of channels with high hydraulic head, therefore with high hydrostatic thrusts. On request, sluice gates withstanding hydrostatic thrusts up to 15 m of water column can be designed and manufactured. Any gates are designed in accordance with the specifications recommended by ANSI / AWWA C 560-00, particularly as regards the calculation of the necessary lifting force and the hydraulic seal limits.

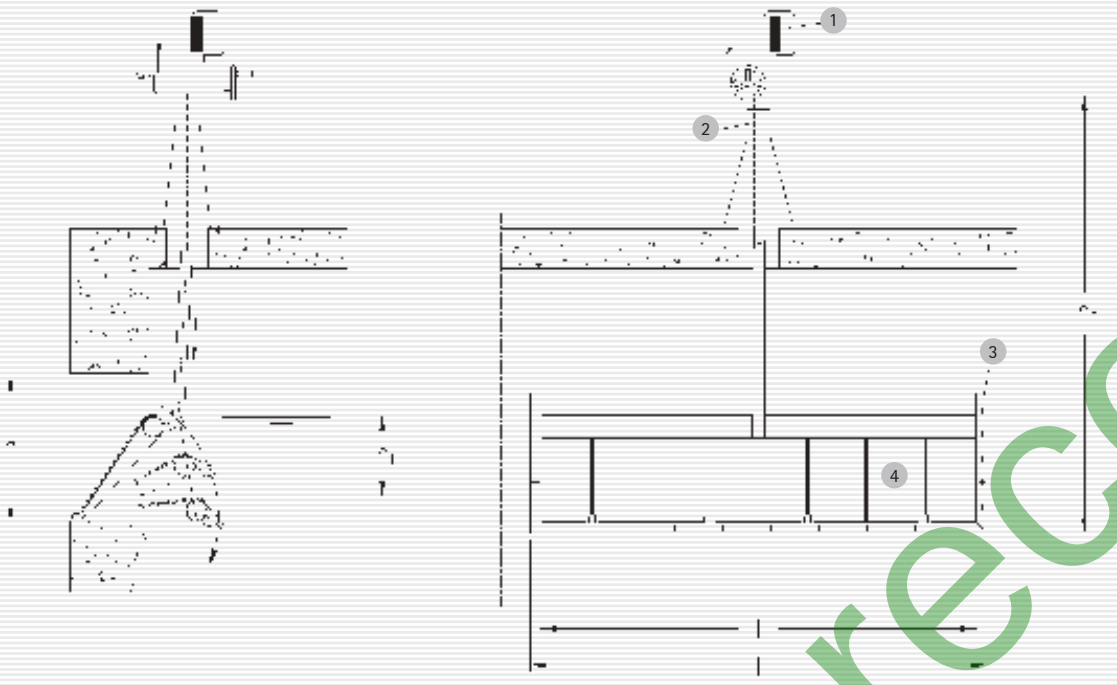
The proposed line of weirs includes two types of adjustable weirs, one with hinge adjustment (SRC) and another with gate style adjustment (SRP).
Both of them boast an optimum adjustment sensitivity.
We wish to remind you that **SERECO** is also in a position to supply fixed V-notch weirs, generally included in the supply of clariflocculators, clarifiers and settlers.
The proposed range of telescopic valves includes a model (VT) available in several sizes.
SERECO that has always taken care of the problems of the plant operators and aims at improving the working conditions in general, has studied for any equipment controlled by screw and handwheel, the possibility to minimize the effort to exert by proposing models with manually operated gearbox or, even better, an electric actuator; in this case the plant can be highly automated with considerable reduction of attending personnel.

SRC Adjustable hinged weir

The adjustable hinged weir SRC type is used when it is necessary to control the level with continuous outlet of high flow rates. It consists of a steel diaphragm with lateral seals, a frame, a driving rod and a handwheel with control unit. The weir works letting the diaphragm rotate around a base hinge with adjustable minimum and maximum amplitude. The driving rod has bronze supports, a screw, a stem cover and a handwheel which operates the diaphragm through a screw-nut screw system. If necessary, a gearbox can be supplied. A second version of the adjustable hinged weir is the type SRCA which differentiates for the presence of an electric actuator for the motorized control.
The standard construction is in carbon steel. On request it is possible the realization in stainless steel.

Strengths

- HINGE ADJUSTMENT.
- HIGH ADJUSTMENT SENSITIVITY.
- POSSIBILITY OF ADJUSTMENT BY MEANS OF SIMPLE HANDWHEEL, MANUAL GEAR BOX OR ELECTRIC ACTUATOR.



Legend
1. ELECTRICAL ACTUATOR
2. CONTROL ROD
3. SUPPORT FRAME
4. DIAPHRAGM

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA	
SRC / SRCA	MODEL		SRC	SRCA
	DIAPHRAGM WIDTH (l)	mm	1000 ÷ 8000	1000 ÷ 8000
	WIDTH (l_1)	mm	l + 300	l + 300
	RUN HEIGHT (h_1)	mm	100 ÷ 500	100 ÷ 500
	OPENING HEIGHT (h)	mm	h_1 + 300	h_1 + 300
	TOTAL HEIGHT (h_2)	mm	VARIABLE	VARIABLE
	POWER SUPPLY	kW	//	0,37 ÷ 2,2
	WEIGHT (*)	daN	l x h_1 x 0,38	l x h_1 x 0,41

(*) Insert in the formula the values l in m and h_1 in mm

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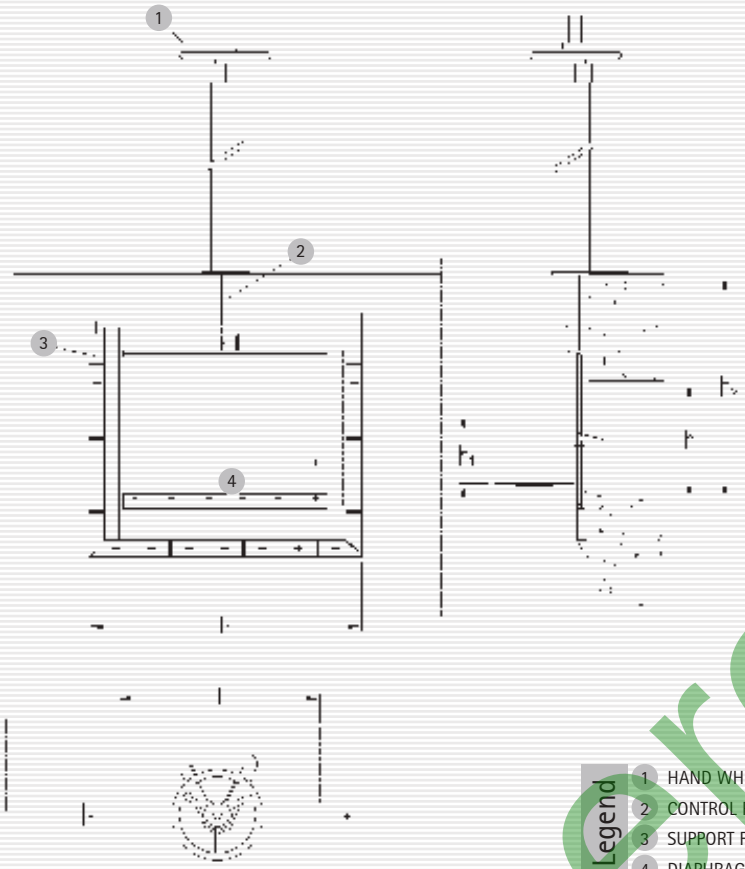
SRP Gate style adjustable weir

The gate style adjustable weir SRP type is used when it is necessary to control the levels both continually and discontinuously. It consists of a diaphragm with SBR elastomer flat lateral seals, a frame, driving rod and a driving handwheel. The weir operation is very easy: the diaphragm slides downwards or upwards along the frame guides, respectively pushed or pulled by the driving rod which is, in its turn, is operated by the handwheel. If necessary, a gearbox can be supplied.
The weir operation in the SRPA version is by means of an electric actuator for the motorized control.
The standard construction is in carbon steel. On request it is possible the use of stainless steel.

Strengths

- ADJUSTMENT BY RISING BLADE.
- HIGH ADJUSTMENT SENSITIVITY.
- POSSIBILITY OF ADJUSTMENT BY MEANS OF SIMPLE HANDWHEEL, MANUAL GEAR BOX OR ELECTRIC ACTUATOR.



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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA	
SRP / SRPA	MODEL		SRP	SRPA
	WIDTH (l)	mm	300 ÷ 1000	300 ÷ 1000
	WIDTH (l_1)	mm	l + 200	l + 200
	RUN HEIGHT (h_1)	mm	100 ÷ 500	100 ÷ 500
	OPENING HEIGHT (h)	mm	h_1 + 200	h_1 + 200
	HEIGHT (h_2)	mm	VARIABLE	VARIABLE
	POWER SUPPLY	kW	//	0,37 ÷ 1,5

WEIGHT TABLE OF SRP (daN)								
	WIDHT (l) mm							
RUN (h_1) mm	300	400	500	600	700	800	900	1000
100	39	42	44	47	51	54	58	62
200	41	46	51	56	61	65	70	76
300	49	54	59	65	72	77	83	88
400	55	62	68	75	82	88	96	101
500	62	68	76	84	92	100	108	117

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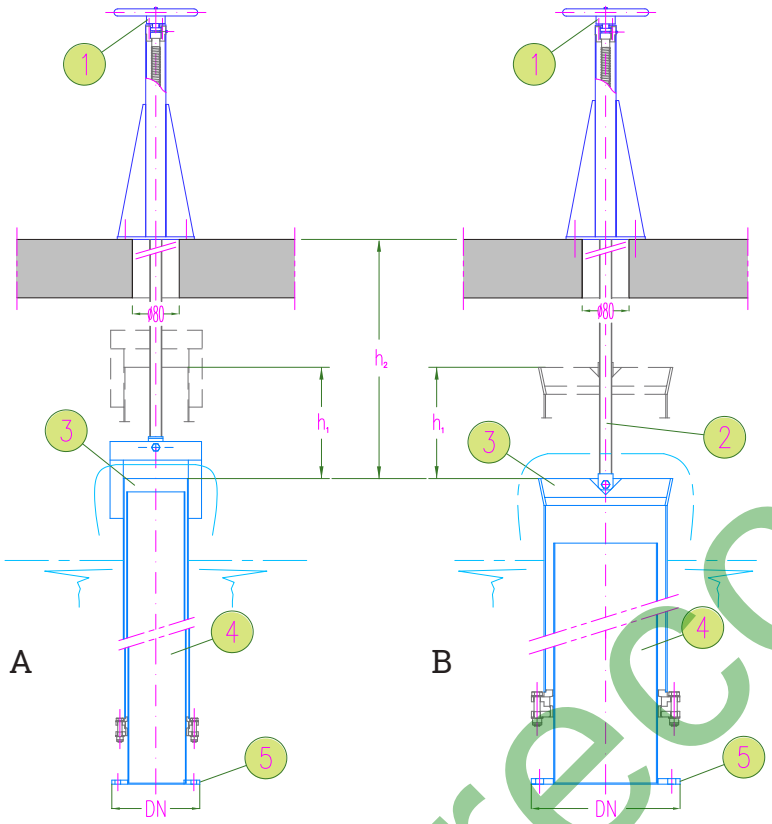
Telescopic valve

The telescopic valve "VT" model is applied for the overflow of liquids in surface for both level regulation or for emptying purposes. The main parts are a double telescopic pipe, a manoeuvre rod and a drive system.
The double telescopic pipe is properly sized, stiffened and equipped with packing concentric seals made of square plait in Teflon graphitised with flanged stuffing box.

The telescopic pipe is actioned by the drive rod complete with the necessary supports and a system of screw and nut screw. The action of the telescopic pipe can be manual or by electric actuator in the version VTA
The standard production is in stainless steel 316L. On demand it is possible the manufacturing in steel of different grade, as 304, 304L, 316, duplex or superduplex and others, or for easiest solutions in carbo steel epoxy painted or hot dip galvanized.
We can manufacture telescopic valve having size and dimensions and according to specifications provided by Clients to be in compliance with the factors that can influence the operation, as special applications or environmental conditions.
Just as an example, the telescopic valve that in a special application shall work at dry can be equipped with a lubrication system with a dedicated pump.

STRENGTHS VT

- GREAT SENSIBILITY IN LEVEL VARIATION THANKS TO THE ORIGINAL SIZING OF THE DRIVE SYSTEM.
- SELF-LOCKING IN THE SELECTED POSITION, FOR A GOOD OPERATION AND SAFETY TO AVOID THE POSSIBILITY THAT THE VALVE LOWERING ITSELF.
- CORROSION RESISTANT, IN THE STANDARD MANUFACTURING VERSION ALL COMPONENTS ARE IN AISI 316L SS INCLUDED THE HANDWHEEL.
- THE SPECIAL MATERIAL OF THE SEALING ALLOWS ACCURACY AND FAST MANOEUVRE FOR BOTH REGULATION AND REPLACEMENT OF THE SEALING ITSELF.
- HIGH ADAPTABILITY AND FLEXIBILITY AS EACH UNIT CAN BE COMPLETED WITH VARIOUS ACCESSORIES SUITABLE FOR THE APPLICATIONS, LIKE V NOTCH OR RECTANGULAR NOTCH FOR OVERFLOW, CONICAL SCUM BLADES WITH OR WITHOUT NOTCHES, ACTUATORS WITH VARIOUS SIGNALS, WARNING AND OTHER ACCESSORIES.



LEGEND

1. DRIVE SYSTEM (MANUAL HANDWHEEL OR ELECTRIC ACTUATOR)
2. CONTROL ROD
3. TELESCOPIC PIPE
4. FIXED PIPE
5. CONNECTION FLANGE
6. SPECIAL SEALING

MAIN FEATURES	UNIT.	DIMENSIONAL DATA													
NOMINAL DIAMETER	DN	80	100	125	150	200	250	300	350	400	450	500	600	700	on demand
RUN (h_1)	mm	0 ÷ 700													
HEIGHT (h_2)	mm	VARIABLE													
VALVE WEGHT (*)	kg	55	62	70	82	85	115	130	155	170	190	200	225	260	on demand
RELEVANT FIGURE		A					B								

(*) weight of standard valve only, it is necessary to add the weight of drive system required and the variable control rod.

Penstocks
technical characteristics

Penstocks are machines always present in any water system; their presence allows to control the passage of fluid through the interception and their conveyance. Penstocks allow, in fact, the opening and closing of passages inside the plant, being therefore of great importance in its management.

It is possible to manufacture **penstocks of various types**, each of them suitable to specific installation conditions. The main distinction in the classification of the penstocks regards the type of installation, which can be **channel** or **wall** mounted.

In the **channel installation** type the frame of the penstock is inserted and fixed inside a channel.
To make the anchoring of the frame possible and make sure that the net cross section of the penstock is not less than the dimensions of the channel itself, it is necessary to realize an external slot in the walls of the channel next to the point of installation. The frame of the penstock will be housed in the slot that will be later filled with grout. The frame of the channel mounted penstocks is suitably designed for this specific application to ensure a solid anchorage to the channel.

The driving control of the channel mounted penstocks can be supported by **an upper crossbar** or **by a maneuvering column**.
If the height of the channel is such that the door of the penstock completely lifted exceeds the operating floor it is necessary the use of **an upper crossbar**.
This case usually occurs for channels where the height of the channel is not so high than the water depth of the flow to intercept, and this is the most common case.

If the height of the channel is such that the door of the penstock completely lifted does not exceed the operating floor it is appropriate to use the **maneuvering column**. This case, less frequently, occurs if the channel is very deep and the water depth in the channel is not very high.
If the maneuvering column is used it is necessary to bear in mind that it can be **wall** mounted or **floor** mounted.
The **wall mounting** is realized when the column is anchored with a "L" shaped support on the final part of a wall, its fastening takes place with anchors on both the top of the wall and on its vertical part. In the case of **floor mounting** the column base plate is square and it is anchored and placed on the floor. In this last case the control rod of the penstock passes through a hole in the floor placed at the center of the column.
In the case of channel mounted penstocks the gasket is usually placed on 3 sides of the door (the bottom and the two vertical sides).

In the **wall installation** the **frame** is fixed to **wall** to allow the interception of fluid from pipes or openings in the mounting wall. The frame in this case is suitably shaped for this application and the fixing to the wall is not made by grout but by means of anchors. The wall mounted penstock can be also used if the lower part of the pipe or the opening to close coincides with the bottom of the tank. In such a case to ensure that the net cross section of the penstock is not less than the dimensions of the pipe/opening, it will be necessary to realize a slot on the bottom of the tank to house the lower part of the frame. In this case the frame will be fixed by means of anchors all along its entire perimeter except for the bottom which

Penstocks
technical characteristics

will be casted in the slot by means of filling concrete. The fixing of the bottom by anchors would not be possible, in fact, for the difficulty (sometimes impossibility) to make the fastening holes.
Also for wall mounted penstock the driving control can be supported **by an upper crossbar** or **by a maneuvering column**. If the installation level is such that the door of the penstock completely lifted exceeds the operating floor it is necessary the use of an upper crossbar. This case usually occurs for openings or pipes placed in shallow tanks. If the installation level is such that the door of the penstock completely lifted does not exceed the operating floor it is possible to use a maneuvering column. This case, certainly more frequently, occurs if wall mounted penstock is installed to close pipes or openings placed at a certain depth, even very high, inside a tank. If the maneuvering column is used it is necessary to define if the maneuvering column is wall mounted or floor mounted.
In the case of wall mounted penstocks the gasket is mounted on the door and placed on 4 sealing sides of the same. In some cases the realization is 3-sided seal if the fourth side, the upper one, is not necessary.

Another important distinction to be made in the choice of a penstock regards its degree of automation, as it is possible to realize penstocks with manual control or by means of an actuator.

The **manual penstocks** are realized when the low degree of automation of the plant and the low drive frequency of the penstock make acceptable the fact that the same is **manually controlled by an operator**. They can be made in the **version with handwheel**, or with **gearbox and**

handwheel. The choice of the presence or not of the gearbox **is carried out directly by SERECO technicians** according to the force required for the operation and according to standards ANSI/AWWA C560-00, C540-02, C561-04 and C513-05. On request it is possible to install the gearbox even if it is not strictly necessary from the calculation.

Actuated penstocks are instead realized in case it is required an automated operation and the remote control. In this case it is possible to use a **ON / OFF type control** (standard solution) for the opening / closing of the penstock, or on request the **modulating service by analog signal 4÷20 mA**, that allows the continuous control on the position of the door. The actuated penstocks, finally, are always equipped with emergency handwheel mounted on the actuator. Penstocks made by SERECO are designed and manufactured according to the directions of standards ANSI/AWWA C560-00, C540-02, C561-04 and C513-05. The main directions provided for by these standards are:

- minimum thickness for frame and door 6,35 mm (realized with 8 mm in SERECO penstocks);
- allowable deflection of the door not higher than 1/360 of the width of the door to the maximum water head as per design conditions;
- minimum safety factor of 4 for the breaking load of the material used, and minimum safety factor of 2 on the yield point;
- leakage in the design conditions not exceeding 1.24 l/min per meter of gasket perimeter;
- maximum allowable force to the hand wheel not exceeding 178 N.

In the construction of penstock **the gasket is fixed to the door** so as to make the replacement easier when necessary, while **the sealing surface is provided**

Penstocks
technical characteristics

by the frame. The door gasket used by SERECO in the standard construction of penstocks is EPDM *(Ethylene-Propylene Diene Monomer)* extruded with **hollow music note shape**. It is a polymer with excellent deformability and high mechanical resistance which make it then suitable for the application.

The **gasket**, in fact, being a hollow profile, deforming and compressing during the closing of the door ensures the seal in any operation condition.
The chosen material is also very resistant to any climatic condition, and it is able to work at temperatures ranging from +150°C to -50°C. Finally, it is suitable for aggressive fluids such as domestic sewage and various types of industrial sewage. For applications with presence of solvents or fuels it is normally used the hollow profile gasket but in NBR instead of EPDM. The size of the section of the gasket is chosen by SERECO each time according to the actual operating conditions of the penstock and according to the selected model.
The penstocks manufactured by SERECO are **rising screw type** in the standard construction. This design choice is linked to the greater simplicity of detection of the current position of the penstock. In rising screw type solution, in fact, **the screw is visible inside the transparent cover** that allows to determine immediately the current position of the penstock door even in cases where this is not immediately visible. The maneuvering screw is in left-handed **TPN profile**, so as to ensure that the **opening of the penstock takes place by turning the handwheel counter-clockwise** as per standards ANSI/AWWA C560-00, C540-02, C561-04 and C513-05. The standard construction

of manoeuvring screw is AISI 420. This material is suitable because its martensitic structure ensures high mechanical properties and at the same time **reduces the risk of seizure** even in conditions of poor lubrication.
The penstocks can be manufactured with different types of materials and surface treatments depending on the type of fluid to intercept. The main realizations are in carbon steel hot dip galvanized, painted, stainless steel AISI 304, AISI 316L, DUPLEX or aluminum. Construction in other materials is possible on demand.

Common features to all types of SERECO penstocks

SERECO penstocks are mainly composed of:

a welded metal door suitably shaped and stiffened;

a gasket with hollow music note shape, fixed on the door to guarantee the seal on the four sides. The standard construction is in EPDM elastomer; different materials are possible on demand;

sturdy frame that allows the fixing by anchors. The seal of the penstocks is guaranteed in both directions and it is achieved by wedges and/or a system of wheels and guides that compress the music note shape gasket of the door against the sealing surface of the frame;

maneuvering column fixed to wall or floor suitable to carry the weight of the entire driving system;

control rod composed by TPN screw that connects the door to the driving system by transmitting the necessary force for the tightening or the lifting of the door. The standard construction is rising screw;

driving system which can be manual by handwheel or handwheel with gearbox or electric actuator and emergency handwheel on board of the actuator. The standard version of the actuator is with ON/OFF signal, for opening/closing service. On demand it is possible to equip the penstocks PV4A model with modulating service electric actuators by analog signal 4÷20 mA.

The penstocks are manufactured according to standards ANSI/AWWA C560-00, C540-02, C561-04 and C513-05 and the thickness of all the components of door and frame are not less than 8 mm.

The dimensional and constructional characteristics vary according to the dimensions of the openings and the head and they can be grouped, as already indicated, in a maximum of 5 series: **S**, **L**, **M**, **P** and **PT**. The selection of the series according to the specific application is at SERECO's care. The client may carry out a general selection by looking at diagrams at page 12 and 13.

Penstocks can be realized with materials and surface treatments suitable to the most various types of fluid to intercept.
The most common solutions are in carbon steel hot dip galvanized, epoxy painted, stainless steel in its various types or aluminum.
On demand other types of materials are possible.

SERECO®
quality equipment manufacturer

Photo gallery

In SERECO factory

SERECO penstocks can be manufactured with materials and finishing of the surfaces suitable to the various type of fluid to intercept. The most common solutions are in carbon steel hot dip galvanized, painted, various types of stainless steel or aluminum.

SERECO skilled welders at work with some penstocks to be installed in a wastewater treatment plant.

Test of penstock in factory
Besides visual, dimensional and dry running tests, it is carried the hydrostatic test, the seal test and the maneuvering system test by spot-checks or on client's request.

Special execution of penstock supplied for a water treatment plant.

Checking phase of the construction of some penstocks.

Photo gallery

Jubail seawater intake, Saudi Arabia

SERECO penstocks, P2V4 model, various series, installed at Jubail seawater intake in Saudi Arabia

Photo gallery

KAUST Wastewater treatment plant, Saudi Arabia
(King Abdullah University of Science and Technology)

Sulaibya wastewater treatment and reuse plant, Kuwait

SERECO penstocks, PV4 model, installed at KAUST WWTP in Saudi Arabia

SERECO penstocks. PV4 model, installed at Sulaibya WWTP in Kuwait

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Photo gallery

Idar Bologna wastewater treatment plant, Italy

Missanello water treatment plant, Italy

SERECO penstocks, P2V3 model, installed at IDAR BOLOGNA Municipal WWTP in Italy

SERECO penstocks, P2V3 model, installed at Missanello WTP in Italy

Storage and dosing plants

- SC
- SF

Often the civil or industrial waste water treatment plants require the installation of dosing and storing plants. Typical applications of such a requirement are the silos for the storage and dosing of powder products such as lime, pulverized carbon, calcium carbonate, and the silos for the storage of dewatered sludge.

For the storage of powder products, **SERECO** catalogue offers a unit which can be completed with a dissolver of SCD type. All the models are designed and constructed with a special care in order to avoid any material packing inside it, with even and complete emptying of the silo.

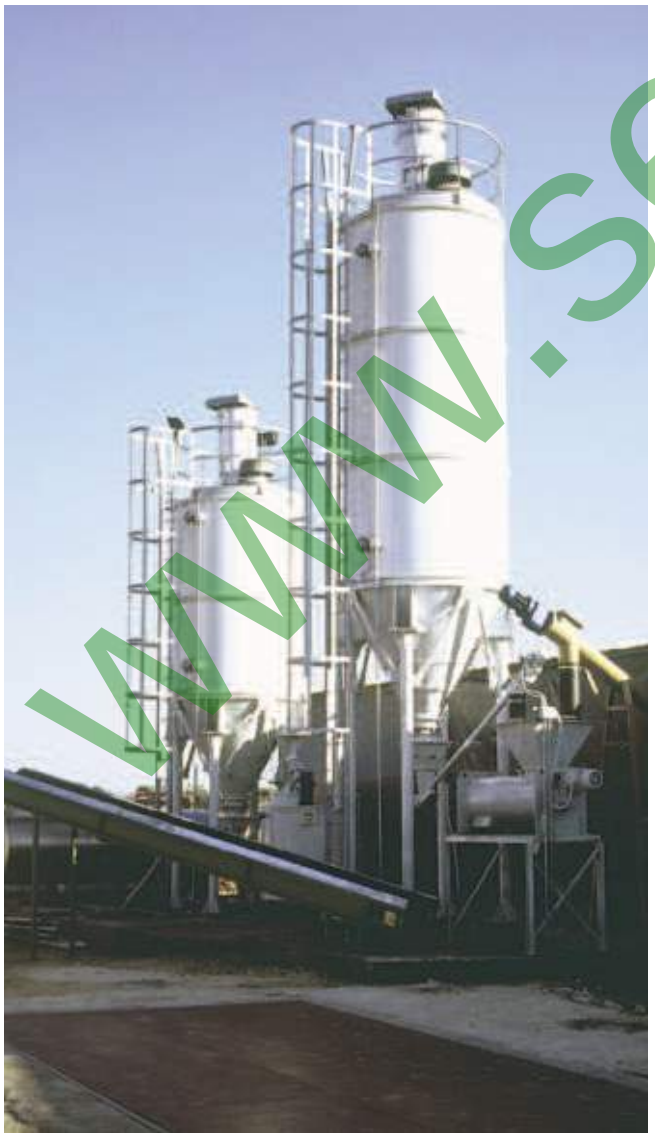
With regard to the dewatered sludge storage and discharge, **SERECO** catalogue offers the silo SF type characterized by a high storage capacity and a discharge system able to avoid any bridge and preferential flowing channels. The execution is completely closed in order to ensure the required safety and hygiene in the installation place.

SC Lime silo

The system for pulverized lime storage SC type is commonly used for feeding treatments such as the flocculation, the pH correction and the sludge dewatering. It is also fit for the storage of pulverized carbon, calcium carbonate or other powder products used in the water treatment plants. It consists of a carbon steel silo with anchorage legs, complete with manhole, service gallery with handrail, ladder, over-vacuum valve, minimum and maximum level probes, fluidification system with plates, butterfly valve, assorted fittings, mechanically-shaken static filter and air blower. The silo can be supplied complete with extraction screw and relevant gear motor; with regard to the SCD type, also a preparation and storage tank for the lime milk complete with an electric stirrer is included in the supply. The pulverized lime is stored in the circular-plan silo, extracted by means of the extraction screw and conveyed to the dissolution tank. On request, the silo can be provided with motor driven butterfly valve, motor driven gate valve and/or micro dosing unit.
The standard construction is in carbon steel. On request, it is possible the construction in stainless steel.

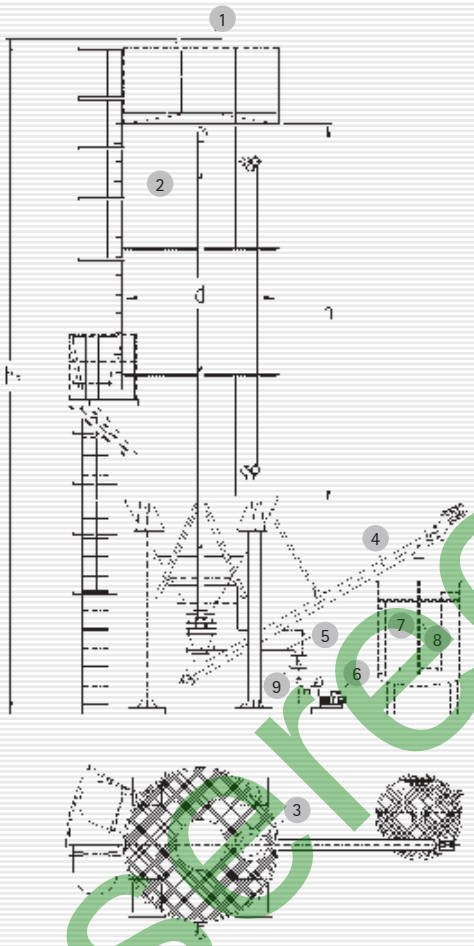
Strengths

- POSSIBILITY TO STORE BIG QUANTITIES OF PULVERIZED PRODUCTS.
- PLATE TYPE FLUIDIFICATION SYSTEM TO AVOID THE MATERIAL PACKAGING.
- EASY TO USE.



Legend

1. FILTER
2. SILO
3. SAFETY VALVE AND MANHOLE
4. SCREW
5. FLUIDIFICATION AIR MAIN
6. BLOWER
7. LIME PREPARATOR AND DISSOLVER (SCD)
8. MIXER (SCD)
9. ELECTROPNEUMATIC CONTROL PANEL



SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA										
SC	MODEL		010	016	020	025	030	036	043	050	060	080	100
	SILO NOMINAL VOLUME	m^3	10	16	20	25	30	36	43	50	60	80	100
	NOMINAL DIAMETER (d)	mm	2000	2000	2000	2400	2400	2400	2400	2800	2800	3000	3000
	PLATING HEIGHT (h)	mm	3000	4500	6000	5000	6000	7500	9000	7500	9000	10500	13500
	TOTAL HEIGHT (h_2)	mm	8270	9768	11270	10100	11600	13100	14600	13500	15100	16600	19600
	DISSOLVER VOLUME (SCD)	m^3	1÷2	1÷3	1÷5	2÷6	2÷8	2÷10	2÷10	2÷10	2÷12	2÷12	2÷12
	FLUIDIFICATION AIR FLOW RATE	m^3/h	16	16	16	16	16	16	16	16	16	28	28
	EMPTY WEIGHT (*)	daN	1700	1950	2250	2450	2890	3170	3550	3910	4380	5250	6500
	WORKING WEIGHT (*)	daN	6700	9950	12250	15000	18000	21200	25000	29000	34500	45300	56500
	POWER SUPPLY (*)	kW	0,75	0,75	0,75	0,75	0,75	1,1	1,1	1,1	1,1	1,5	1,5

(*) Refers to SC model.

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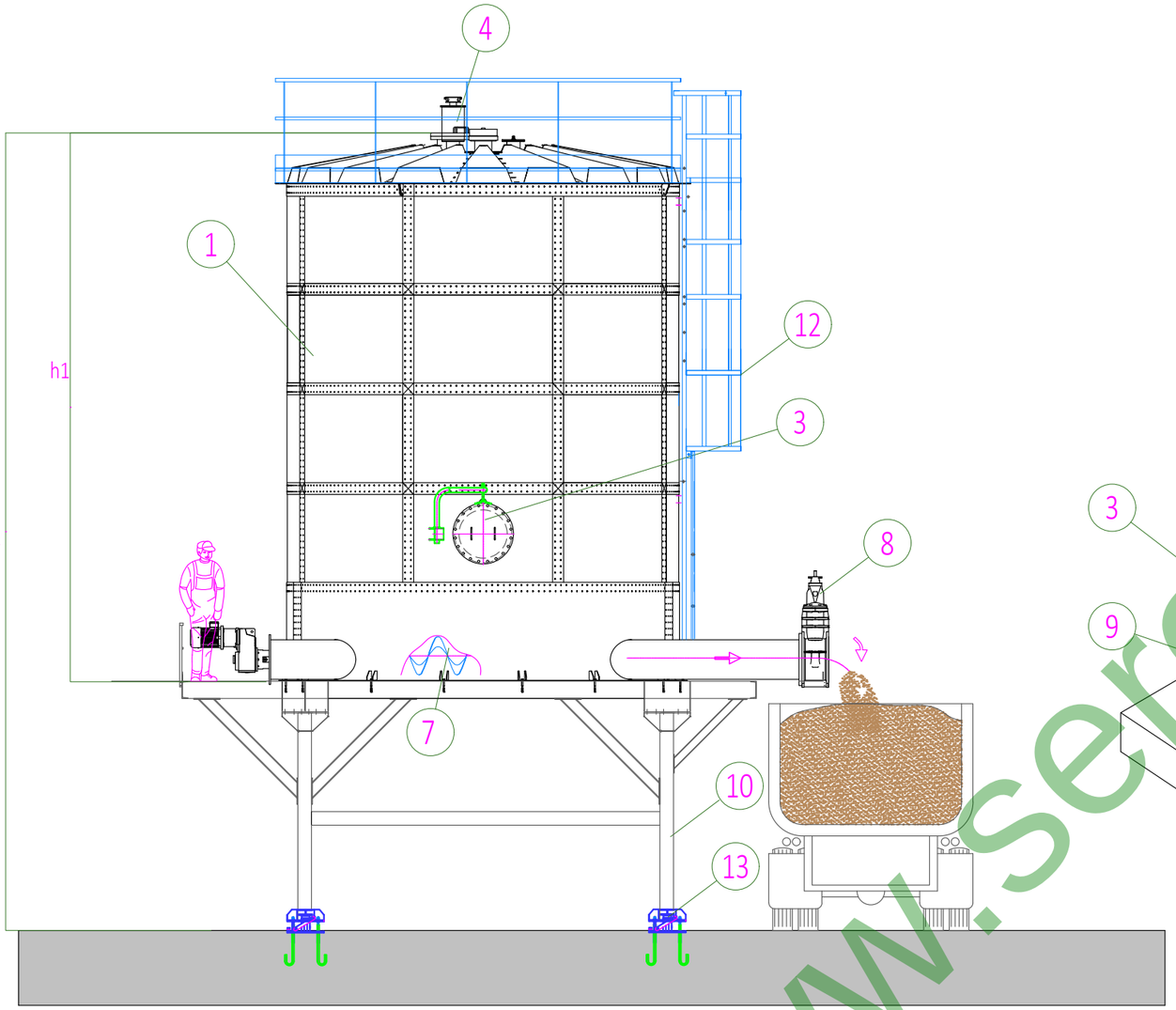
SF Sludge silo

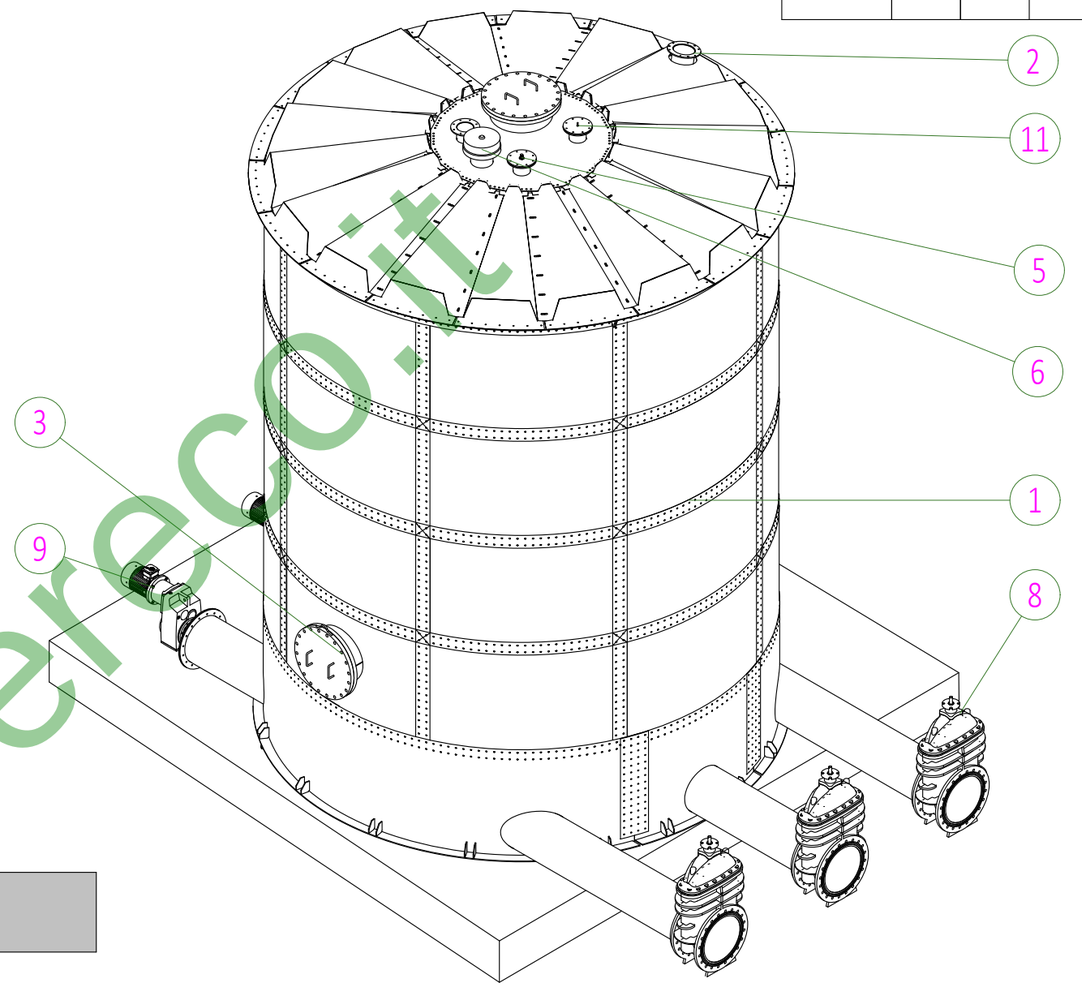
The sludge storing silo SF type is used in medium and large size treatment plants for the storage of the sludge which has been already dewatered, after thickening and treatment with belt presses or centrifuges. The silo consists of a parallelepiped shaped tank, a truncated-cone discharge hopper, a higher distribution screw, two lower extraction screws, manhole, walkways with handrail and service ladders, support legs. On request, the silo can be supplied complete with sloping screw for the loading on transport trucks. The tank is made of an adequate thick metal sheet, reinforced along the higher and lower perimeter by specific ribs, the support legs are complete with base plates and log bolts. At the inlet, the sludge has a dry concentration ranging from 18 to 30% and is distributed all along the silo length by the distributing screw which is of the type with shaft. The discharge hopper wall inclination, which concerns the whole silo length, is such as to ensure the sludge fall into the lower part of the silo, in correspondence of the two extraction screws of shaftless type. In order to ensure the required hygiene in the installation place, the silo is provided with cover. The main characteristic of this sludge silo is the rectangular base and the innovative discharge system which, unlike the cylindrical silos, avoids the creation of bridges and preferential flowing channels, even with sludge having a high percentage of dry product. On request, the silo can be provided with ultrasound level meters and/or weighing cells, in correspondence of the support legs, for the continuous measurement of the quantity of sludge in the silo. Considering its big size, the silo is pre-assembled and tested at shop and supplied in separate parts that can be easily transported and then welded or, on request, bolted at site.
The standard construction is in stainless steel. On request, it is possible the use of carbon steel.

Strengths

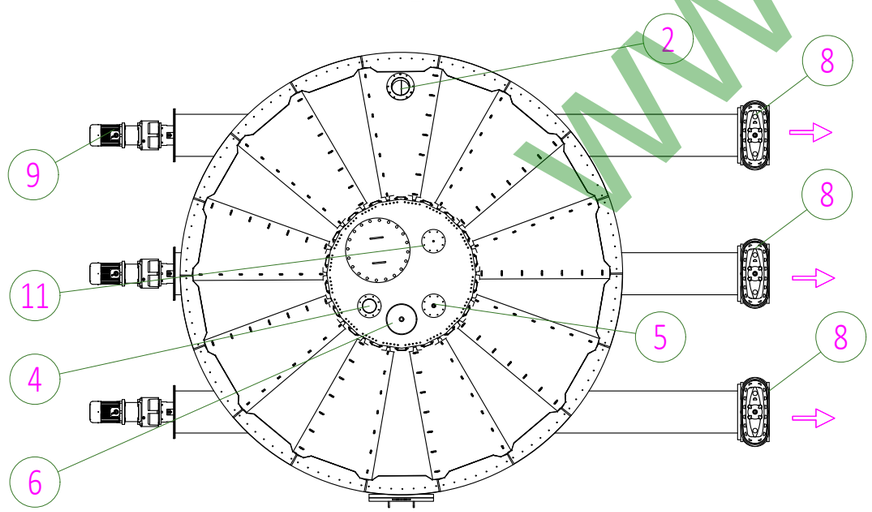
- POSSIBILITY TO STORE BIG QUANTITIES OF SLUDGE WITH HIGH DRY PERCENTAGE.
- DISCHARGE SYSTEM WHICH PREVENTS THE FORMATION OF ANY PREFERENTIAL FLOWING CHANNELS AND BRIDGES.
- MACHINE COMPLETELY CLOSED FOR HEALTH AND SAFETY SAKE.
- EASY TO BE TRANSPORTED AND ASSEMBLED IN SPITE OF ITS BIG DIMENSIONS.
- MODULARITY AND POSSIBILITY TO ADD SIMILAR UNITS IN CASE OF REVAMPING.

TYPE	USABLE VOLUME m^3	ød mm	h_1 mm	h_2 mm
SFT	-	-	-	-





VIEW A



13	WEIGHING SYSTEM WITH LOAD CELL (OPTIONAL)
12	SERVICE LADDER
11	EMERGENCY LEVEL METER - FLOAT TYPE
10	SUPPORT STRUCTURE
9	SCREW GEARMOTOR
8	ACTUATED VALVE
7	SLUDGE EXTRACTION SCREW
6	SAFETY VALVE FOR OVERPRESSURE/UNDERPRESSURE
5	MAIN LEVEL METER - RADAR TYPE
4	ACTIVATED CARBON FILTER FOR AIR DEODORIZATION (OPTIONAL)
3	MANHOLE
2	SLUDGE INLET
1	SILO STEEL BODY
DESCRIPTION	

Rev.	Description	Date	Designed	Checked	Approved
2					
1					
0	ISSUED FOR BID	25/09/2023	DEMARINIS	Notarangelo	M. Mottola

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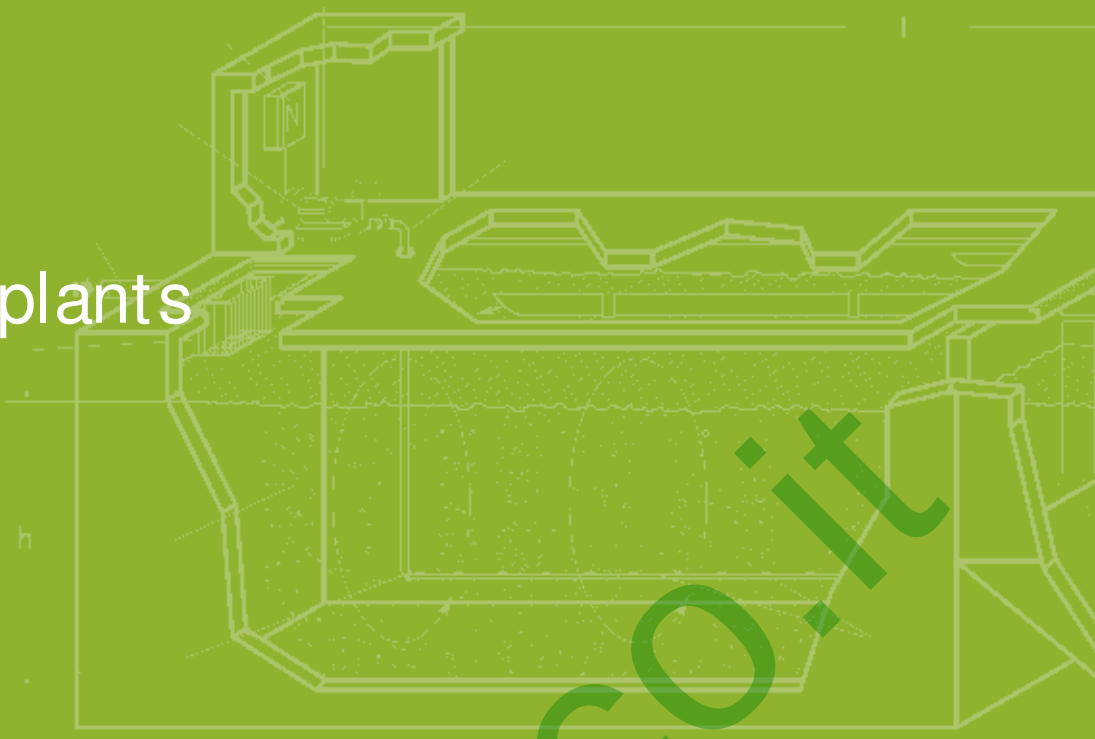
Job: - - - - - - - | Prog. | Dwg: S F T | SCALE ---

DRAWING TITLE:

CYLINDRICAL SLUDGE SILO - ASSEMBLY
"SFT" TYPE

Compact plants



- DBF
- CF
- VERDE
- VERDE MIA
- AQUA HS
- AQUA LS

SERECO has always considered very important to install compact plants for both biological and physical-chemical treatment. In the catalogue there are three different types of compact plants: DBF, VERDE and CF (each one with the relevant options).

The type DBF is a biological plant, very compact, with integral aerobic sludge digestion. It is typically installed for the biological treatment of sewages, with a very high quantity of organic pollutants that can be promptly biodegraded; in fact it is preferred for the treatment of wastewater coming from slaughterhouses, milk transformation industries, food industries in general and the like. The inlet sewage characteristics require a biological treatment to be carefully studied from time to time; this will allow to minimize the overall dimensions and limit the quantity of produced sludge, thanks to the aerobic digestion.

The VERDE type is a biological plant with total oxidation. Its typical installation is for the treatment of civil sewage of small communities which do not have the possibility of connection to the city sewer. In fact it is very used for the treatment of civil wastewater of hotels, holiday villages, communities and the like. For this type of applications, the compact VERDE type plant offers another advantage: it can make use of the treated water to irrigation purposes for the gardens pertaining to the building. The big quantity of water necessary every day for the garden keeping is often sufficiently supplied by the treated water. Moreover the high treatment efficiency of these plants totally excludes the possibility of any bad smell diffusion.

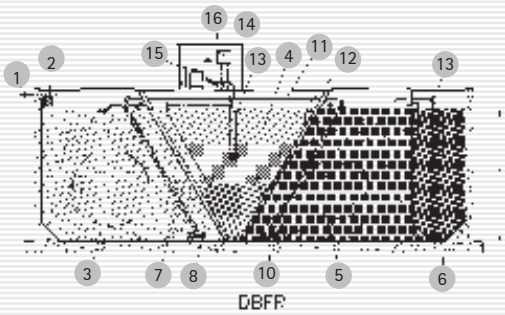
The CF type plant is instead a compact plant for the chemical-physical treatment. Its use is recommended whenever the installation of a biological plant is disadvantageous. This is the case of wastewater containing toxic pollutants which may inactivate the biological mass or when the flows are very irregular and do not allow an adequate time of growth and acclimatization of the bacterial mass. It is in fact very used for the treatment of the wastewater from car washing, laundries, chemical industries and the like. It is also very used for the treatment of the first rain water from yards, for which the gathering and subsequent treatment is required by law. An appreciated merit of the chemical-physical treatments is in fact the property of working in normal condition just after its putting into operation, unlike the biological treatments that require a long start-up time. Just for this reason, the chemical-physical treatment is the only system that can be assumed suitable for the early stormwater treatment. Finally, the CFF type has, as supplement, a sand and/or activated carbon filtration bed for a further decrease of the organic load and suspended solids.

DBF Biological compact plant with aerobic sludge digester

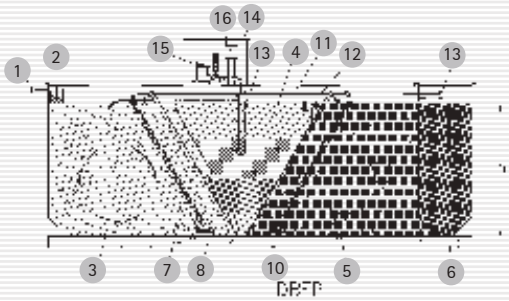
The compact activated sludge plant DBF type is a compact plant suitable for the treatment of waste water from civil, industrial and agricultural source with biodegradable pollutant. The plant consists of a tank divided into four compartments, oxidation, settlement, sludge digestion and sludge thickening.
The treatment process is articulated into subsequent stages: the raw inlet water is submitted to a first fine screening stage and then conveyed to the oxidation process; the air required for the oxidation is ensured by one or several blowers and a set of manifolds, distribution ramps and air diffusers, suitable for the development of aerobic bacterium colonies able to metabolize the organic substances contained in the water and sludge.
The subsequent stage is the settlement by which the waters freed from the sludge are recycled to the head of the first compartment. A part of the sludge is conveyed to the third compartment to be submitted to the digestion stage and, then, to the fourth compartment for the thickening process. The settlement compartment and the thickening tank are provided with skimmer units to remove scum which form in the oxidation compartment and the excess water in the thickening tank. A specific room will house the blowers and electric control panel. Two versions are available: the DBFR type made of reinforced concrete and the DBFP type totally prefabricated in carbon steel, stainless steel or synthetic materials (PRFV, HDPE, etc.).

Strengths

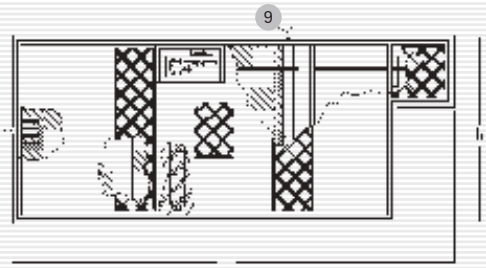
- CONSIDERABLE CONSTRUCTIONAL COMPACTNESS.
- EXCELLENT TREATMENT EFFICIENCY AND HIGH ORGANIC LOAD ELIMINATION.
- COMPLETELY AUTOMATIC OPERATION.
- SLUDGE TREATMENT INTEGRATED WITH AEROBIC DIGESTION AND THICKENING.
- POSSIBILITY OF UNDERGROUND INSTALLATION.

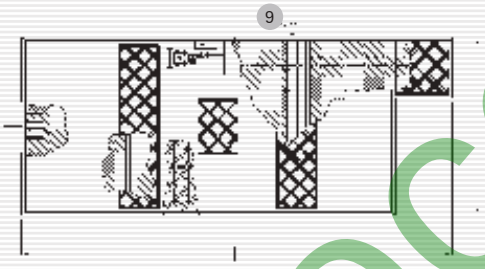


DBFR



DBFP





Legend

1 WATER INLET
2 SCREEN
3 OXIDATION SECTION
4 SETTLING SECTION
5 SLUDGE DIGESTION SECTION
6 SLUDGE THICKENING
7 CALM DEFLECTOR
8 AIR DIFFUSERS
9 TREATED WATER OUTLET
10 AIR DISTRIBUTION RAMP
11 AIR COLLECTOR
12 SKIMMING BLADE
13 SKIMMER UNIT
14 UTILITY HOUSE
15 BLOWER
16 CONTROL PANEL

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TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA										
DBFR	MODEL		0300	0500	0600	0800	1000	1250	1500	1750	2000	2500	3000
	INHABITANTS	n°	300	500	600	800	1000	1250	1500	1750	2000	2500	3000
	BOD_5 INLET	kg/d	18	30	36	48	60	75	90	105	120	150	180
	BOD_5 REDUCTION	%	90%										
	AVERAGE INLET FLOW RATE	m^3/d	72	120	144	192	240	300	360	420	480	600	720
	LENGTH (l)	m	11,6	11,6	11,6	12,6	12,6	12,6	15,1	15,1	15,1	15,1	15,1
	WIDTH (l_1)	m	2,4	3,6	4,2	4,7	5,75	7,0	6,1	7,0	7,9	9,8	11,6
	WATER HEIGHT (h)	m	2,5	2,5	2,5	3,0	3,0	3,0	3,5	3,5	3,5	3,5	3,5
	POWER SUPPLY	kW	3	3	4	7,5	9,2	11,5	13	22,5	22,5	24,2	30

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA										
DBFP	MODEL		0300	0500	0600	0800	1000	1250	1500	1750	2000	2500	3000
	INHABITANTS	n°	300	500	600	800	1000	1250	1500	1750	2000	2500	3000
	BOD_5 INLET	kg/d	30	30	36	48	60	75	90	105	120	150	180
	BOD_5 REDUCTION	%	90%										
	AVERAGE INLET FLOW RATE	m^3/d	72	120	144	192	240	300	360	420	480	600	720
	LENGTH (l)	m	10	10	10	11	11	11	13,5	13,5	13,5	13,5	13,5
	WIDTH (l_1)	m	1,8	3	3,6	4,8	6	7,5	7,2	8,5	9,7	12,5	14,5
	WATER HEIGHT (h)	m	2,5										
	STEEL VERSION WEIGHT	daN	6100	7800	8700	11500	14100	16900	19700	22800	25100	31600	39500
	WORKING WEIGHT	daN	52900	82900	98800	131500	164200	206000	250800	289000	325400	408900	501500
	POWER SUPPLY	kW	3	3	4	5,5	7,5	8,5	11,5	11,5	11,5	16,5	18,5

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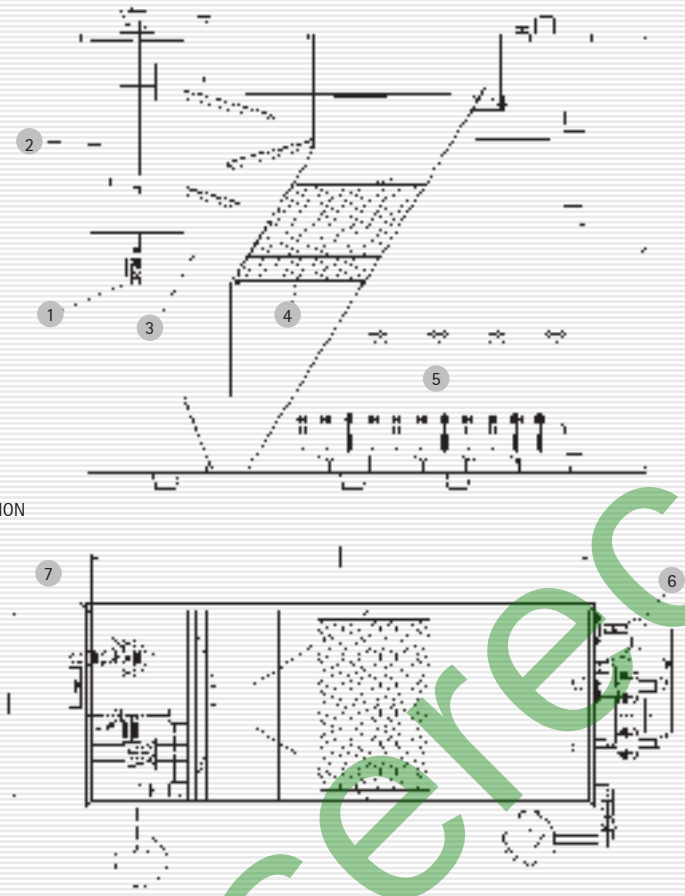
CF Chemical-physical compact plant

The chemical-physical plant CF type is a small compact plant totally made in steel, suitable for the treatment of sewage from industrial plants. It is particularly suitable for the treatment and recycle, if any, of water coming from mechanical shops, chemical and food industries, laundries, car washing and painting boots.
The plant consists of a tank subdivided into compartments: the raw inlet water is first conveyed into a first compartment inside which it is mixed with chemical reagents (inorganic flocculating agents); then it passes into a second compartment where is submitted to a coagulation-flocculation process. In the third compartment, thanks to a lamella settler, it provides for the clarification which consists in separating the water from the sludge. With regard to the CFF model, the water, after the clarification, is submitted to a filtration process with sand or activated carbon, particularly recommended if the treated water has to be reused. The whole plant works by gravity with the minimum head loss.
Any models are provided with an external compartment for the removal and dewatering of the sludge gathered on the settler. A PLC ensures the automatic operation of the plant.
The management costs for this type of unit are very low due to the fact that even the plant start-up and the shut-down are automatic, according to the quantity of water to be treated, the installation requires the only connection to the power and water utilities and the chemical reagent filling is periodic.
The standard construction is in carbon steel. On request it is possible the construction of all the plant in stainless steel or synthetic materials (PRFV, HDPE, etc.).

Strengths

- CONSIDERABLE CONSTRUCTIONAL COMPACTNESS.
- EXCELLENT TREATMENT EFFICIENCY AND CUT DOWN OF POLLUTANTS BY MEANS OF CHEMICAL-PHYSICAL TREATMENT.
- COMPLETELY AUTOMATIC OPERATION.
- POSSIBILITY TO REUSE THE WATER.



Legend

1. RAW WATER INLET
2. MIXING SECTION
3. FLOCCULATION SECTION
4. LAMELLA CLARIFICATION
5. SAND AND/OR ACTIVATED CARBON FILTRATION
6. TREATED WATER OUTLET
7. SLUDGE EXTRACTION AND DEWATERING WITH FILTER BAG

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA								
CF / CFF	MODEL		01	02	03	04	05	07	10	15	20
	INLET FLOW RATE	m^3/h	1	2	3	4	5	7	10	15	20
	EXTERNAL LENGTH CF (l)	m	2,27	2,27	2,9	3,45	3,95	5,35	6,95	9,5	12
	EXTERNAL LENGTH CFF (l)	m	2,7	2,7	3,8	5	6	8,5	12	9,5 (*)	12 (*)
	TANK EXTERNAL WIDTH (l_1)	m	1,1	2,1	2,25	2,25	2,25	2,25	2,25	2,25	2,25
	TANK HEIGHT (h)	m	2,25	2,25	2,25	2,25	2,25	2,25	2,25	2,25	2,25
	STEEL VERSION WEIGHT CF	daN	1030	1550	1900	2500	2800	3800	4900	7000	7550
	STEEL VERSION WEIGHT CFF	daN	1210	1870	2500	3200	3900	5400	7600	8000	8550
	WORKING WEIGHT CF	kN	40	45	104	120	144	210	290	430	545
	WORKING WEIGHT CFF	kN	47	49	136	160	185	270	390	460	570
	POWER SUPPLY	kW	2	2	3	3	3	5	10	15	20

(*) For these models the filtration on sand and/or activated carbon is carried out with pressure filters.

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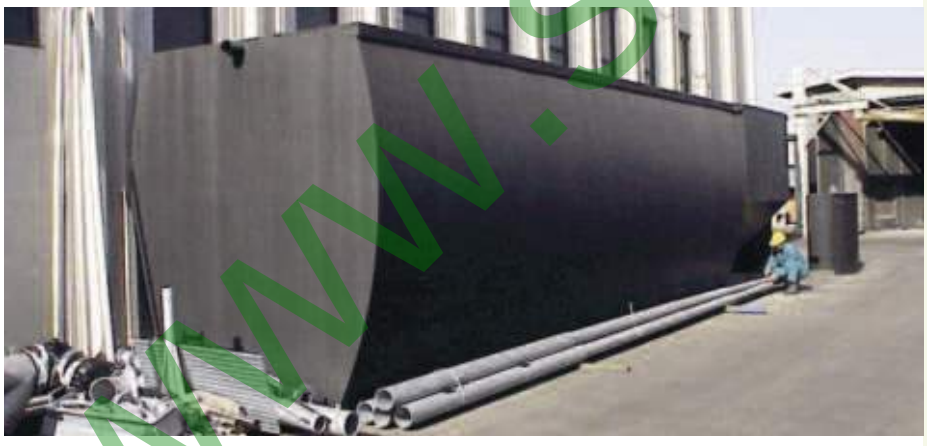
Cod.Fisc./P.IVA/Reg. Impr. di Bari n° 04018100729
R.E.A. di Bari n° 288801
Cap. Soc. Euro 2.500.000,00 i.v.

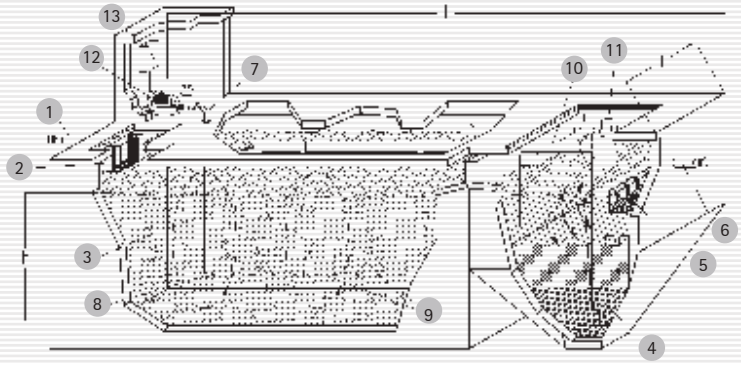
VERDE Compact total oxidation plant

The VERDE type activated sludge plant is a compact plant used for the treatment of the waste water from civil, industrial and agricultural origin with biodegradable pollutant. The treatment process consists of two subsequent stages: oxidation stage and decantation stage.
The treatment process is subdivided into subsequent stages: the raw inlet water is submitted to a first fine screening stage and then conveyed to the actual oxidation process; the air necessary for the process is supplied by one or more blowers and is distributed through several supply ramps provided with diffusers for the development of aerobic bacterial colonies able to metabolize the organic substances present in the sewages.
The second stage occurs in a settlement tank and it consists in separating the sludge from the treated water. The sludge is conveyed to the oxidation tank top by means of recycle water ejectors, the treated water instead flows in a lateral channel. The settlement compartment is provided with skimmer units to remove the floating substances. Blowers and electric control panel are housed in a specific room located over the oxidation tank. The plant can be supplied complete with disinfection and filtering unit on sand and/or activated carbon in order to comply with the emission limits allowed by the current regulations even if the plant does not discharge into the sewer. This plant is available in two versions: VRIO and VPIA, the first one with reinforced concrete tank, the second one with prefabricated carbon steel tank. On request, the VPIA version can be produced completely in stainless steel or synthetic materials (PRFV, HDPE, etc).

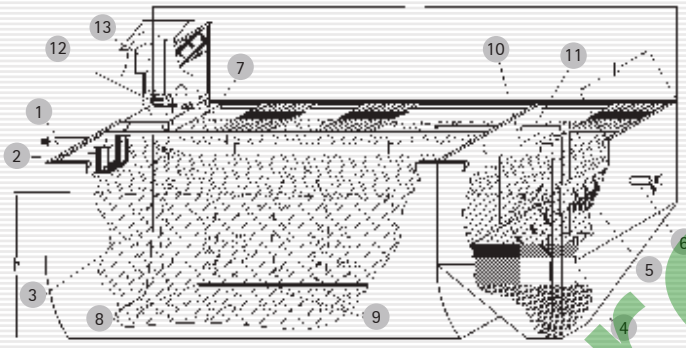
Strengths

- TOTAL OXIDATION PLANT.
- CONSIDERABLE CONSTRUCTIONAL COMPACTNESS.
- EXCELLENT TREATMENT EFFICIENCY AND HIGH ORGANIC LOAD ELIMINATION.
- COMPLETELY AUTOMATIC OPERATION.
- POSSIBILITY ALSO OF UNDERGROUND INSTALLATION.
- MODULARITY WITH POSSIBILITY TO ADD FURTHER LINES IN CASE OF FLOW INCREASE.





VRIO



VPIA

Legend

1 WATER INLET
2 SCREEN
3 OXIDATION SECTION
4 SETTLING SECTION
5 TREATED WATER CHANNEL
6 TREATED WATER OUTLET
7 AIR DISTRIBUTION COLLECTOR
8 AIR DISTRIBUTION RAMP
9 AIR DIFFUSERS
10 SLUDGE RECYCLING HYDROEJECTOR
11 SKIMMER UNIT
12 BLOWER
13 CONTROL PANEL

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA																							
VRIO	MODEL		0020	0030	0040	0050	0060	0080	0100	0150	0200	0250	0300	0350	0400	0450	0500	0600	0800	1000	1200	1400	1600	1800	2000	3000
	INHABITANTS	n°	20	30	40	50	60	80	100	150	200	250	300	350	400	450	500	600	800	1000	1200	1400	1600	1800	2000	3000
	INLET FLOW RATE	m^3/h	0,17	0,25	0,33	0,42	0,50	0,67	0,83	1,25	1,6	2,08	2,5	2,92	3,3	3,75	4,2	5	6,7	8,3	10	11,7	13,3	15	16,7	25
	BOD_5 INLET	daN/d	1,2	1,8	2,4	3,0	3,6	4,8	6,0	9,0	12	15	18	21	24	27	30	36	48	60	72	84	96	108	120	180
	BOD_5 REDUCTION	%	≥ 90%																							
	LENGTH (l)	m	2,3	2,9	3,7	3,9	4,2	5,4	4,6	6,4	8,3	6,1	8,3	9,6	10,9	6,5	7,2	8,5	10,9	13,4	8,5	9,7	10,9	13,2	13,4	13,4
	WIDTH (l_1)	m	1,9	1,9	1,9	2,4	2,4	2,4	3	3	3	3,6	3,6	3,6	3,6	6,6	6,6	6,6	6,6	6,6	12,9	12,9	12,9	12,9	12,9	19,2
	WATER HEIGHT (h)	m	2	2	2	2	2	2	2,5	2,5	2,5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	POWER SUPPLY	kW	0,37	0,37	0,55	0,55	0,55	1,1	1,5	2,2	2,2	2,2	3	3	4	4	4	5,5	2x4	9,2	9,2	15	4x4	2x9,2	2x9,2	3x9,2

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA																							
VPIA	MODEL		0020	0030	0040	0050	0060	0080	0100	0150	0200	0250	0300	0350	0400	0450	0500	0600	0800	1000	1200	1400	1600	1800	2000	3000
	INHABITANTS	n°	20	30	40	50	60	80	100	150	200	250	300	350	400	450	500	600	800	1000	1200	1400	1600	1800	2000	3000
	INLET FLOW RATE	m^3/h	0,17	0,25	0,33	0,42	0,50	0,67	0,83	1,25	1,6	2,08	2,5	2,92	3,3	3,75	4,2	5	6,7	8,3	10	11,7	13,3	15	16,7	25
	BOD_5 INLET	daN/d	1,2	1,8	2,4	3,0	3,6	4,8	6,0	9,0	12	15	18	21	24	27	30	36	48	60	72	84	96	108	120	180
	BOD_5 REDUCTION	%	≥ 90%																							
	LENGTH (l)	m	1,7	2,3	3,1	3,2	3,6	4,8	3,9	5,7	7,6	9,6	11,3	6,5	7,4	8,2	9,1	11	9,7	11,9	10,9	8,6	9,7	10,8	11,9	11,9
	WIDTH (l_1)	m	1,5	1,5	1,5	2	2	2	2,5	2,5	2,5	2,5	2,5	5	5	5	5	5	7,5	7,5	10	15	15	15	15	22,5
	WATER HEIGHT (h)	m	2	2	2	2	2	2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
	STEEL VERSION WEIGHT	kN	9,5	12,9	16,7	18,9	21,3	24,5	28,2	36,0	42,6	48,0	54,0	62,0	70,5	75,0	79,0	95,0	120	156	190	218	240	280	321	462
	WORKING WEIGHT	kN	52	81,9	101	138	159	214	271	394	512	594	674	832	990	1070	1150	1300	1450	2350	2920	3490	3890	4290	5000	7500
	POWER SUPPLY	kW	0,37	0,37	0,55	0,55	0,55	1,1	1,5	2,2	2,2	2,2	3	3	4	4	4	5,5	2x4	9,2	9,2	15	4x4	2x9,2	2x9,2	3x9,2

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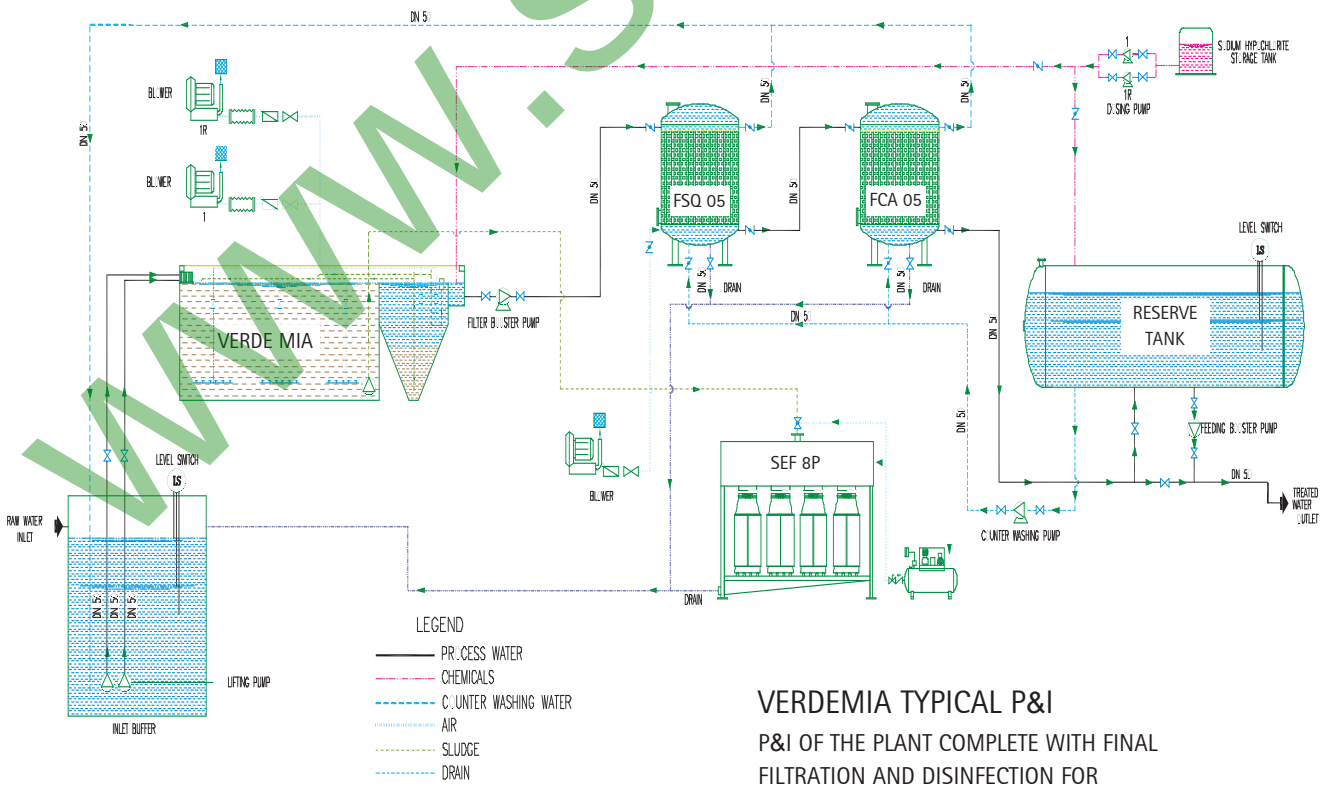
VERDE MIA

Movable total oxidation plant

The VERDE type activated sludge plant is a compact plant used for the treatment of the waste water from civil, industrial and agricultural origin with biodegradable pollutant. The treatment process consists of two subsequent stages: oxidation stage and decantation stage.
The oxidation process happens in a first tank, called the oxidation ditch, in it the raw wastewater undergoes to a primary screening and after it undergoes to the actual oxidation process; the air necessary for the process is supplied by one or more blowers and is distributed through several supply ramps provided with diffusers for the development of aerobic bacterial colonies able to metabolize the organic substances presents in the sewages.
The second stage occurs in a settlement tank and it consists in separating the sludge from the treated water. The sludge is conveyed to the oxidation tank top by means of recycle water ejectors, the treated water instead flows in a lateral channel.
The settlement compartment is provided with skimmer units to remove the floating substances. Blowers and electric control panel are housed in a specific room.
The plant can be supplied in three models, each of them modular and containerised in 20' and 40' box and in 40' HC style, process tanks can be supplied in carbon steel, stainless steel or GRP internal lined carbon steel.
These three models can be connected in parallel, without limits in number of units connected, in order to face the any required capacity.

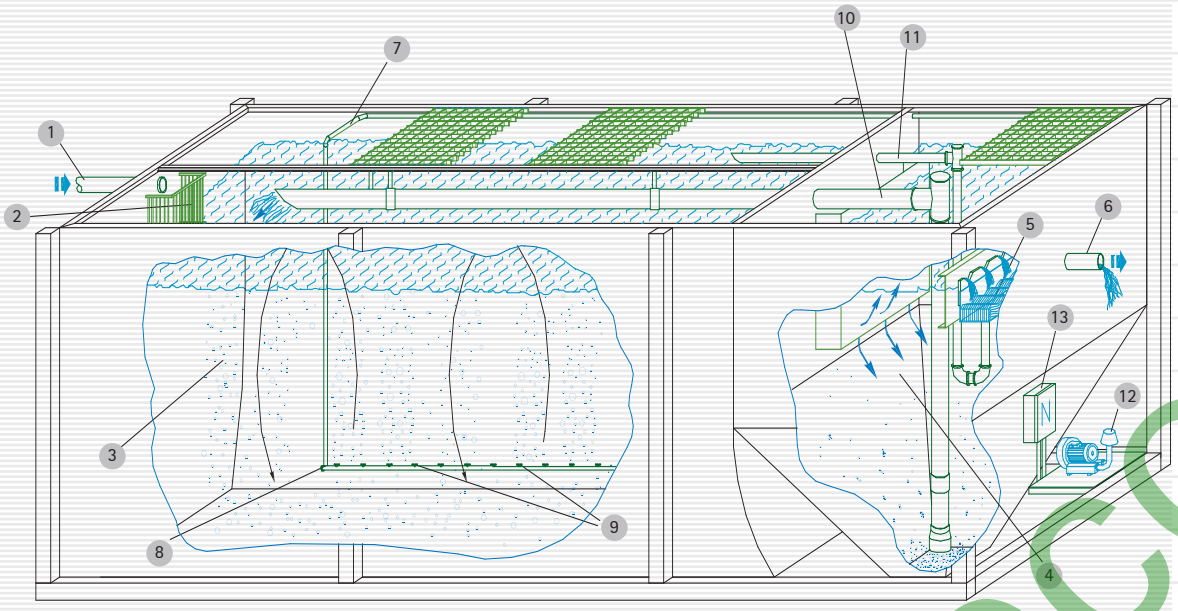
Strength

- EASY TO BE MOVED AT TRANSPORT AND WORKING STAGE;
- TOTAL OXIDATION PLANT;
- CONSIDERABLE CONSTRUCTIONAL COMPACTNESS;
- EXCELLENT TREATMENT EFFICIENCY AND HIGH ORGANIC LOAD ELIMINATION;
- COMPLETELY AUTOMATIC OPERATION;
- STURDY AND RELIABLE.



VERDEMIA TYPICAL P&I

P&I OF THE PLANT COMPLETE WITH FINAL FILTRATION AND DISINFECTION FOR RECYCLING OF TREATED WATER AND WITH SLUDGE BAGGING SYSTEM



Legend

1. WATER INLET
2. SCREEN
3. OXIDATION SECTION
4. SETTLING SECTION
5. TREATED WATER CHANNEL
6. TREATED WATER OUTLET
7. AIR DISTRIBUTION COLLECTOR
8. AIR DISTRIBUTION RAMP
9. AIR DIFFUSERS
10. SLUDGE RECYCLING HYDROEJECTOR
11. SKIMMER UNIT
12. BLOWER
13. CONTROL PANEL

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA		
	MODEL		**0100**	**0200**	**0250**
	INHABITANTS	n°	100	200	250
	INLET FLOW RATE	m^3/h	0,83	1,60	2,08
	BOD_5 INLET	daN/g	6,0	12,0	15,0
VMIA	20FT CONTAINER BOX	n°	1	0	0
	40FT CONTAINER BOX	n°	0	1	0
	40FT CONTAINER HC STYLE	n°	0	0	1
	POWER SUPPLY	Kw	1,5	2,2	3
	WEIGHT	daN	3200	4900	5500

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AQUA LS mobile drinking water unit for water with low salinity

The drinking water system for superficial fresh water or well water AQUA LS type is a containerised compact unit able to solve both permanent drinking water shortage problems and to provide for temporary needs due to natural disasters or emergencies.

The unit is capable of removing from water various contaminations due to suspended solids, organic and chemical micro pollutants, bacteria and make it suitable for human consumption, according to the drinking water parameters guidelines set by WHO.

DESCRIPTION AND APPLICATION PROCESS

The unit is composed mainly of one or more 20' and/or 40'containerised modules that will be, time by time, tropicalized, insulated and conditioned according to the environment and the working condition.
Time by time the unit could be equipped with an autonomous power generator unit, automatization and computerized control of the process.
The turbid water, drawn from the river and/or lake by motor pumps is pumped in the first chemical conditioning and mixing compartment, then by gravity passes in the second flocculation compartment and the following compartment with lamella settling. Raw water, coming from wells and/or lakes, having low turbidity or with most of suspended solids being removed in the treatment previously described, is stored in an intermediate disinfections and storing tank. The storing is able to allow a suitable contact time for disinfections and enough storing volume for filters washing. Disinfected water, by motor pump, is pumped in one or more sand and/or activated carbon filters, for removing on the sand bed residual suspended solids and on the activated carbon bed organic micro pollutants and chlorine. The system is always equipped with units for storing and dosing chemicals, automatic filters washing and UV system for removing bacteria contamination. After UV treatment will be available water complying with the parameter set by WHO.

Main components of the process

- MOTOR PUMP FOR RAW WATER DRAWING;
- CHEMICAL CONDITIONING;
- LAMELLA SETTLING;
- INTERMEDIATE SETTLING AND DISINFECTIONS;
- INTERMEDIATE LIFTING;
- FILTRATION WITH SAND AND ACTIVATED CARBON;
- BACTERIA REMOVAL BY UV.

Lifting units

- PVA
- AL

In several points of a plant for the treatment of civil or industrial waste water it is necessary to lift more or less considerable quantities of sewage. Moreover the lifting units often absorb most of the total energy required by the plant. It is therefore more and more necessary to maximize the relevant hydraulic efficiency.

SERECO catalogue offers, as lifting units, two models symbolizing the whole category: the Archimedean screw pump (PVA) typical for the lifting of very high flow rates and the air-lift (AL) used for the lifting of fluids full of sands or suspended solids.

The Archimedean screw pump plants (PVA) are generally used at the inlet or at the intermediate stages of the plant, for the lifting of the whole inflow and/or for the sludge recycle and transfer. They shall be preferred to the standard centrifugal pumps due to the very large flow clearance which makes the clogging practically impossible, the high hydraulic efficiency and the particular characteristic of flow self-adjustment according to the water level in the suction well.

The air-lift (AL) pumps are instead used prevalently for the lifting of water and sand or water and sludge mixtures from the sand remover or clarifiers bottom. They have to be preferred to the standard centrifugal pumps for their easy operation, absence of mechanical moving parts in contact with the fluid to be lifted and therefore extreme reliability, flow clearance that practically coincides with the delivery piping cross section.

Both lifting units require a tailored design from time to time in order to maximize the hydraulic efficiency. Just for this reason the dimensions proposed in the data sheets are only indicative and approximate and do not absolutely cover the whole range of the available products.

We wish also to remind you that, on request, **SERECO** can also design specific lifting plants with centrifugal pumps.

PVA

SERECO®

LIFTING UNIT

Archimedean screw pump

WHEN IT IS USED

The Archimedean screw pump is used for lifting of: rainwater containing sludge and solids due to the leaching of soils of various kinds; drainage seawater; municipal and/or industrial wastewater; fresh water for irrigation; water and sludge in municipal and industrial wastewater treatment plants; whenever it is necessary to lift water or other liquids with a large flow rate and low head.

MAIN FEATURES

The main features of its operation are the big flow clearance which meet the lifting requirements for water containing sludge, and the automatic flow control which automatically occurs according to the height of the water present in the loading well, the possibility of varying the flow rate by varying the rotation speed without the variation of head, all combined with a good hydraulic efficiency compared to centrifugal pumps with the same flow and head characteristics.

HOW IT IS MADE

The standard Archimedean screw pump consists of a central shaft of high thickness on which the screws are wound, in the standard execution the screw is three flights but in some cases it can also be supplied to one or two flights.

Shaft and screws welded together are supported by two special supports at the upper and lower ends which discharge radial and axial forces and allow rotation. At the upper end a joint allows the coupling with the drive gearmotor unit, consisting of an electric motor and a gearbox coupled in the standard version by means of pulleys and V belts and in some cases by an elastic coupling. The lower support is most of the cases of the oscillating type, and it is equipped with suitable seals to prevent infiltration of water and sand. It can be of the greased type lubricated by means of a piping and forced lubrication pump, or it can be life lubricated type. A splash guard, besides preventing splashes of water coming out the channel, serves to maximize the hydraulic efficiency of the pump. The standard inclination of the screw is 38°, other inclinations are available on demand.

Shaft, screws, supports and driving unit are housed in a reinforced concrete channel but on request it is possible to supply a steel trough.

The standard construction is in carbon steel epoxy painted, after sandblasting. On request, stainless steel construction is possible.

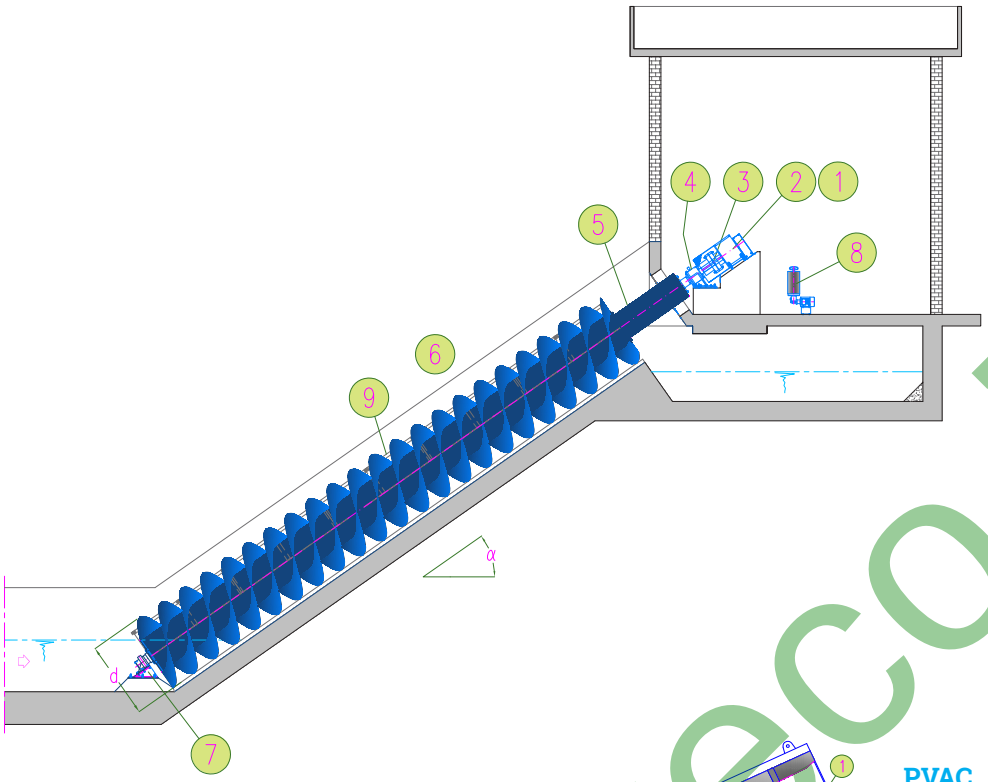
STRENGTHS PVA

- ECO BEARING LIFE LUBRICATED;
- HIGH CONSTANT HYDRAULIC EFFICIENCY EVEN WHEN THE FLOW RATE VARIES;
- POSSIBILITY TO LIFT SMALL AND VERY LARGE FLOW RATE;
- NO LIMIT OF FLOW CLEARANCE;
- LOW MAINTENCACE;
- EXCELLENT SELF-REGULATION FEATURE OF THE FLOW RATE;
- HIGH STURDINESS AND RELIABILITY.

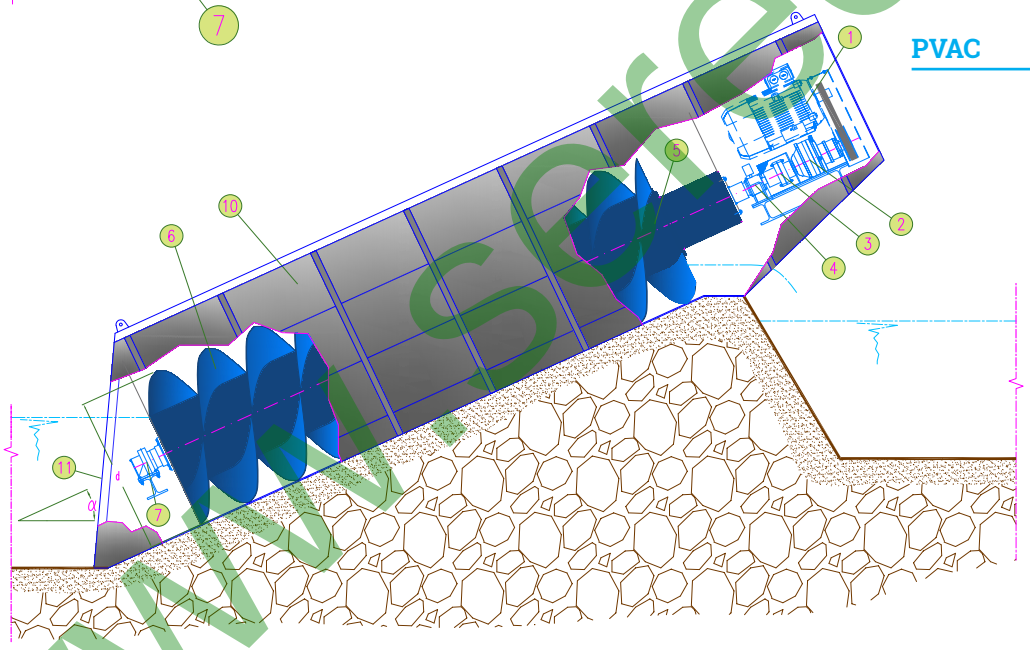
VERSIONS

In addition to the standard model of Archimedean screw pump "PVA" type to be installed in a concrete channel or in a steel channel, there is also the completely prefabricated "PVAC" model in carbon steel or stainless steel; this version, if necessary, can be moved from one site to another and when necessary, within certain limits, it is possible to vary the prevalence by changing the inclination.

PVA



PVAC



LEGEND

1. ELECTRIC MOTOR
2. GEARBOX
3. COUPLING
4. UPPER SUPPORT
5. SHAFT
6. SCREW
7. LOWER SUPPORT
8. GREASE PUMP
9. SPLASHGUARDS
10. CHANNEL AND FRAME IN STEEL
11. FIXED SCREEN

MAIN FEATURES	UNIT	DIMENSIONAL DATA								
SCREW DIAMETER (d)	mm	400	800	1200	1600	2000	2400	2800	3400	4000
NOMINAL FLOW RATE	m³/h	90	500	1300	2550	4300	6500	9400	14000	22500

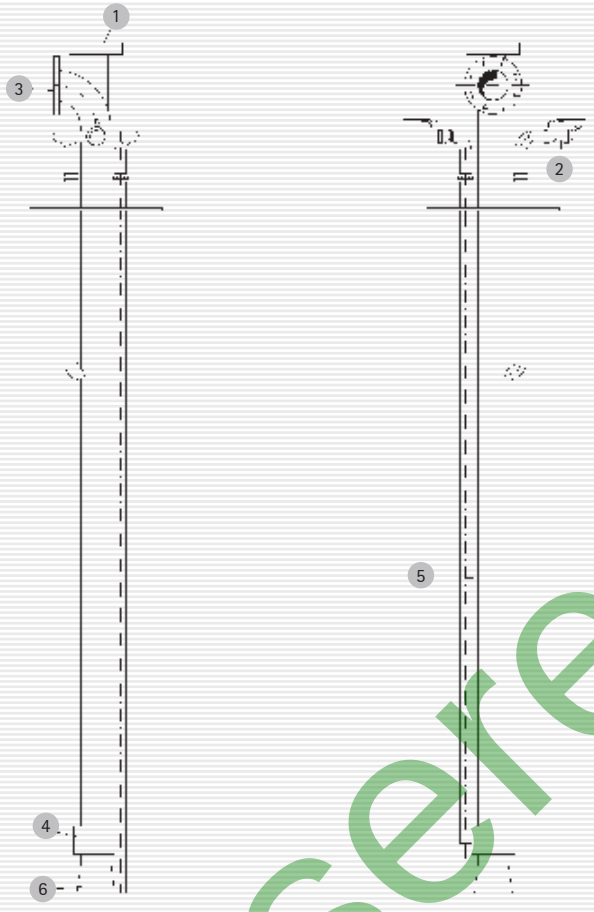
(*) The table includes only approximate values of diameters and flow rate inside a wide range of models and head.

AL Air lift

The air-lift AL type is generally used for the lifting of water and sludge or water and sands. The air that has entered the pump through many calibrated orifices, causes the formation of a water column which tends to go upwards. The air-lift unit consists of an intake orifice, a lifting pipe with cut-off valve, an air-lift valve and a piping system for the delivery of extraction air and washing water. The main characteristics of this type of pump are the absence of mechanical moving parts in contact with the fluid to be lifted and the presence of a flow clearance practically the same as the delivery pipe diameter. The piping diameter of the piping changes according to the quantity and type of liquid to be lifted. The quantity of air to be introduce for the lifting strongly depends on the head required and the head-immersion ratio. The data supplied below are indicative, a thorough study is made from time to time according to the specific requirements. The pump can be made of PVC, carbon steel or stainless steel.

Strengths

- ABSENCE OF ANY MECHANICAL MOVING PART IN CONTACT WITH THE FLUID TO BE LIFTED.
- LARGE FLOW CLEARANCE, PRACTICALLY THE SAME AS THE NOMINAL DIAMETER.
- EASY OPERATION.
- MINIMUM MAINTENANCE REQUIREMENTS.



Legend

1. BLIND FLANGE
2. THREE WAYS BALL VALVE
3. OUTLET CONNECTION
4. AIR-LIFT VALVE UNIT
5. AIR INLET PIPE
6. SUCTION END

SERECO

TYPE	MAIN FEATURES	UNIT	DIMENSIONAL DATA													
AL	DIAMETER	DN	80		100		125		150		175		200		250	
	WATER FLOW RATE	m^3/h	15		30		45		65		90		115		175	
	LIFT MIN/MAX	mm	500	4500	500	4500	500	4500	500	4500	500	4500	500	4500	500	4500
	IMMERSION DEPTH MIN/MAX	mm	1500	6500	1500	6500	1500	6500	1500	6500	1500	6500	1500	6500	1500	6500
	AIR FLOW RATE MIN/MAX	m^3/h	40	40	80	80	120	120	175	175	240	240	310	310	470	470

Approximate values valid for specific values of heads and immersion only.