

FACET

ENVIRONMENTAL

Improve process performance,
contribute towards a better world



ООО «ТИ-СИСТЕМС» ИНЖИНИРИНГ И ПОСТАВКА ТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ

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TABLE OF CONTENTS

About Us

Section 1 - Oil Water Separators

MAS Series - Steel Construction

MAS Series - Concrete Construction

MAS Series - GFRP Construction

MCP Series

MPP Series - Polypropylene Construction

Oil level control system for Oil Water Separators

MPak® Coalescing Plates

MPak® Cleaning Wand

Section 2 - Sewage Treatment Plants

STP Series

STP-HA Series

STP-HB Series

SMS Series

Section 3 - Systems

UTS Series - For Marinas and/or Fishing Ports

UTR Series - For Marinas and/or Fishing Ports

Jet Recovery System - JRS 01.01.02

UR Series - Car Washing Recycling Systems



Facet and Jonell Systems Have Formed Process Technologies.

With a passionate team, global footprint and leading technology, Filtration Group is driving innovation and developing unparalleled filtration and separation solutions. Filtration Group serves a highly diverse set of customers with offerings that span life science, process technologies, fluid and indoor air quality applications.

Now, we have integrated decades of experience and exceptional knowledge to provide filtration and separation solutions that are innovative and unprecedented. By combining Facet and Jonell Systems resources, strengths and experience we deliver innovative products and services that go beyond our customer's imaginations.

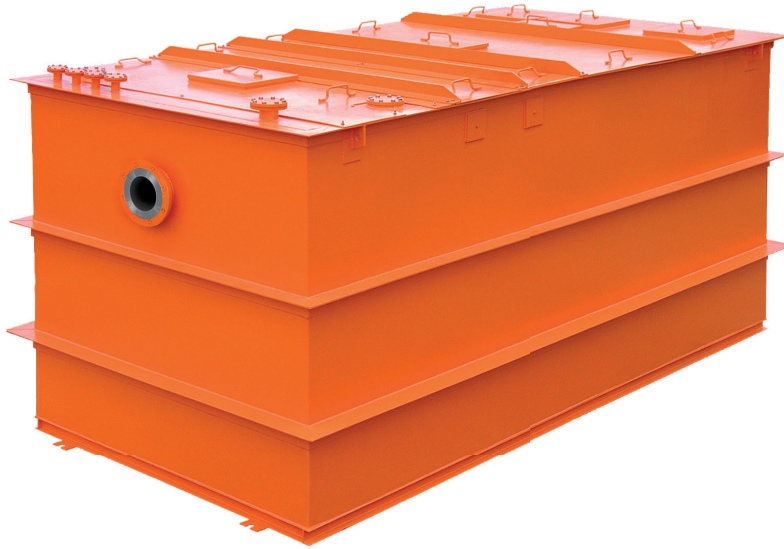
We optimize filtration and separation processes to improve safety, reliability, productivity and ultimately profitability to make the world safer, healthier and more productive.



75 years providing superior filtration and separation solutions.

Facet has approved aviation fuel filtration and separation solutions and diesel fuel filtration and separation solutions for mining, heavy equipment industries, rail and marine applications among others. With a wide range of vessels and innovative elements with multiple media options, talk to us to solve your filtration challenge.

MAS Series Oil Water Separators - Steel Construction



Facet MAS Series oil water separators are designed to treat hydrocarbon water both by gravity or pumping. These units perform the separation by physical means, do not require any consumables and have no mobile parts, so no maintenance is needed and their operation is free of failures.

Inside are housed the coalescing doubly corrugated plates Facet MPak®, which are supplied in modular packages installed within the separators together with an adjustment device which ensures that all of the fluid to be treated flows through the plates.

Each MAS Series oil water separator can be equipped with an oil storage chamber and/or with adjustable skimmers for removing the separated hydrocarbons.

Standard Features

- Access covers for easy adjustment of oil skimmers
- Epoxy coating interior and exterior
- MPak® plate packs: frame in steel and plastic hardware media is oleophilic polypropylene
- Clean plate packs in place (no need to remove from unit)
- Solids collection connections built into all units
- ¾", ¼" or ½" MPak® coalescing plate spacing
- Computerized effluent predictions for accurate sizing
- Skid in carbon steel

Engineering Specifications

- Flanges: ANSI B16.5
- Material of construction: carbon steel
- Hydrostatically tested for ½ hour
- Welding in accordance with the latest edition of A.W.S.

Standard Connections

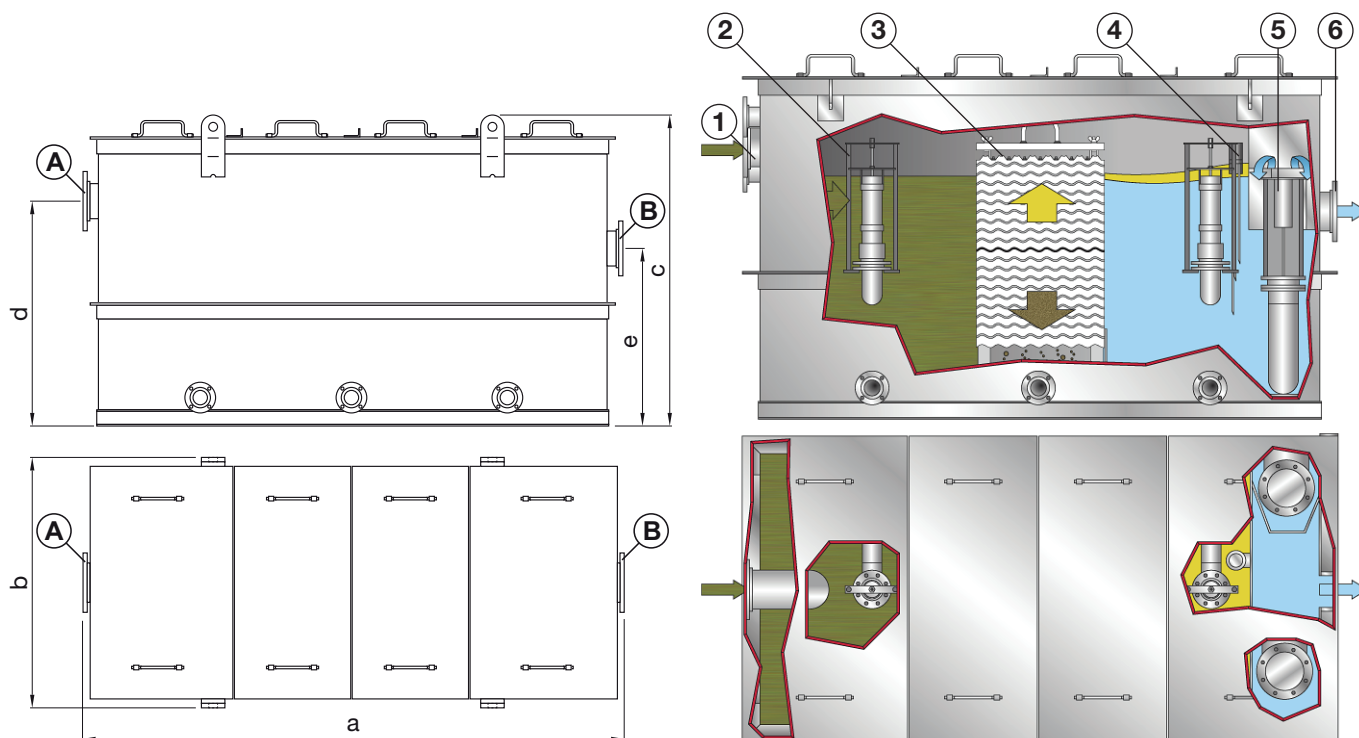
- Inlet and outlet: 150# R.F.S.O.
- Solids cleanout: 150# R.F.S.O.
- Drain: 150# R.F.S.O.
- Heater: 2 ½" NPT coupling (heaters optional)

Options

- Two adjustable oil skimmers for oil removal
- Safety closure device in the outlet
- Oil storage tank
- Oil pump control station: includes pump and motor, control panel, high and low level float switches
- Immersion heater: Available in various ratings
- Gasketed covers
- Access ladder
- Handrail

MAS Series

Oil Water Separators - Steel Construction



MODEL	DIMENSIONS (mm)					EMPTY WEIGHT (Kg)	FLOW (m³/h)	CONNECTIONS	
	a	b	c	d	e			A (Inlet)	B (Outlet)
MAS 22.1	2800	860	1563	1180	813	1052	15-23	DN150	DN150
MAS 22.2	3400	860	1563	1180	813	1323	15-23	DN150	DN150
MAS 22.3	4300	860	1563	1180	813	1601	15-23	DN150	DN150
MAS 32.1	2800	1190	1563	1180	813	1449	20-35	DN150	DN150
MAS 32.2	3400	1190	1563	1180	813	1824	20-35	DN150	DN150
MAS 32.3	4300	1190	1563	1180	813	2170	20-35	DN150	DN150
MAS 52.1	2820	1747	1838	1185	910	1784	35-55	DN150	DN150
MAS 52.2	3420	1747	1838	1185	910	2314	35-55	DN150	DN150
MAS 52.3	4320	1747	1838	1185	910	2841	35-55	DN150	DN150
MAS 53.1	2820	1747	2144	1525	1185	2105	50-85	DN200	DN200
MAS 53.2	3420	1747	2144	1525	1185	2698	50-85	DN200	DN200
MAS 53.3	4320	1747	2144	1525	1185	3290	50-85	DN200	DN200
MAS 64.1	3620	2250	2274	1752	1302	3463	80-135	DN250	DN250
MAS 64.2	4230	2250	2274	1752	1302	4402	80-135	DN250	DN250
MAS 64.3	4670	2250	2274	1752	1302	5344	80-135	DN250	DN250
MAS 74.1	3930	2411	2274	1752	1302	3845	95-160	DN250	DN250
MAS 74.2	4230	2411	2274	1752	1302	4869	95-160	DN250	DN250
MAS 74.3	4750	2411	2274	1752	1302	5893	95-160	DN250	DN250
MAS 75.1	3930	2411	2520	2057	1607	4150	120-200	DN250	DN250
MAS 75.2	4230	2411	2520	2057	1607	5298	120-200	DN250	DN250
MAS 75.3	4750	2411	2520	2057	1607	6447	120-200	DN250	DN250
MAS 76.1	3930	2411	3050	2452	1985	4547	140-235	DN300	DN300
MAS 76.2	4230	2411	3050	2452	1985	5847	140-235	DN300	DN300
MAS 76.3	4750	2411	3050	2452	1985	7146	140-235	DN300	DN300

ITEM	DESCRIPTION
1	Inlet
2	Skimmer (optional)
3	Facet MPak® Plates
4	Oil level probe (optional)
5	Automatic closure device
6	Outlet

MAS Series Oil Water Separators - Concrete Construction



Facet MAS Series oil water separators are designed to treat hydrocarbon water both by gravity or pumping. These units perform the separation by physical means, do not require any consumables and have no mobile parts, so no maintenance is needed and their operation is free of failures.

Inside are housed the coalescing doubly corrugated plates Facet MPak[®], which are supplied in modular packages installed within the separators together with an adjustment device which ensures that all of the fluid to be treated flows through the plates.

Each MAS Series oil water separator can be equipped with an oil storage chamber and/or with adjustable skimmers for removing the separated hydrocarbons.

Standard Features

- Class I Separators, according to EN-858, effluent less than 5 ppm
- Safety closure device in the outlet
- MPak[®] plate packs: frame in steel and plastic hardware media is oleophilic polypropylene
- Clean plate packs in place (no need remove from unit)
- 3/4", 1/4" or 1/2" MPak[®] coalescing plate spacing
- Computerized effluent predictions for accurate sizing

Engineering Specifications

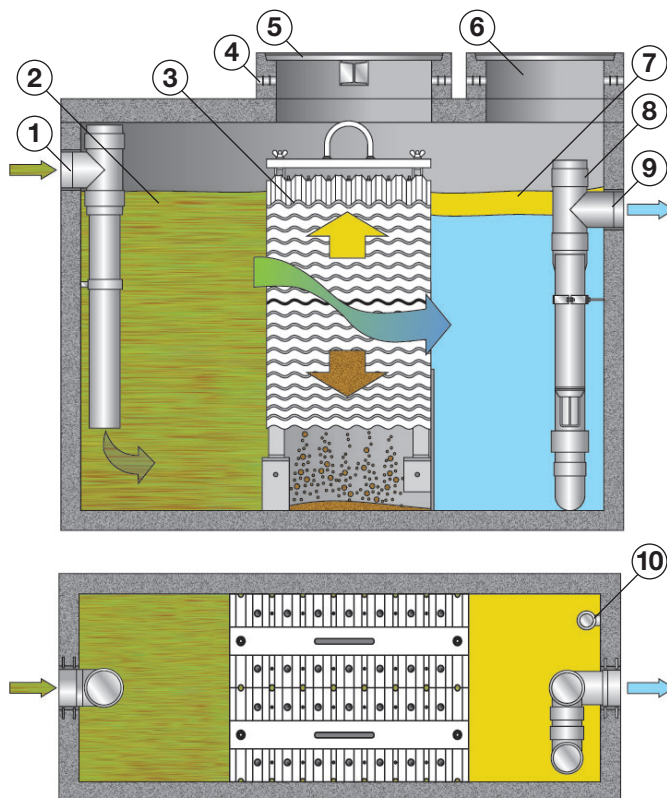
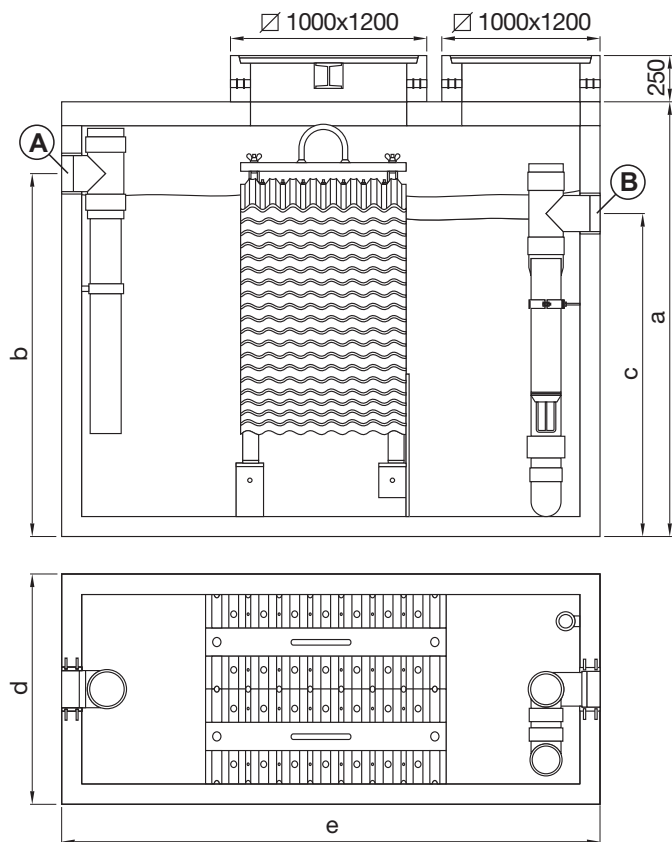
- Material of construction: prefabricated reinforced concrete
- Hydrostatically tested for 1/2 hour
- Covers in cast iron Class D400 according to EN-124

Options

- Adjustable oil skimmers for oil removal
- Oil storage chamber
- Inlet solids chamber
- Oil pump control station: includes pump and motor, control panel, high and low level float switches
- Automatic warning device for light liquid Ex(i) execution

MAS Series

Oil Water Separators - Concrete Construction



MODEL	DIMENSIONS (mm)					FLOW (l/s)	CONNECTIONS	
	a	b	c	d	e		A (Inlet)	B (Outlet)
MAS 11.1	1000	725	615	1200	1000	1.5	DN100	DN100
MAS 12.1	1000	725	615	1200	1000	3	DN100	DN100
MAS 13.1	1500	1320	1160	1200	1000	6	DN150	DN150
MAS 23.1	2010	1460	1250	820	2835	10	DN150	DN150
MAS 24.1	2310	1780	1530	820	2835	15	DN200	DN200
MAS 25.1	2705	2175	1925	820	2835	20	DN200	DN200
MAS 35.1	2800	2250	1900	1135	2910	30	DN250	DN250
MAS 45.1	2800	2250	1945	1440	2910	40	DN300	DN300
MAS 55.1	2850	2225	1875	1750	3035	50	DN300	DN300
MAS 75.1	2850	2275	1925	2360	3035	65	DN300	DN300
MAS 76.1	3100	2610	2260	2360	3035	80	DN300	DN300
MAS 75.2	2850	2275	1925	2360	4620	100	DN300	DN300
MAS 76.2	3100	2610	2260	2360	4620	125	DN400	DN400
MAS 96.2	2900	2475	1792	2100	4650	150	DN400	DN400

ITEM	DESCRIPTION
1	Inlet
2	Inlet chamber
3	Facet MPak® Plates
4	Vent
5	Cover
6	Manhole
7	Outlet chamber
8	Automatic closure device
9	Outlet
10	Oil level probe (optional)

MAS Series Oil Water Separators - GFRP Construction



Facet MAS Series oil water separators are designed to treat hydrocarbon water both by gravity or pumping. These units perform the separation by physical means, do not require any consumables and have no mobile parts, so no maintenance is needed and their operation is free of failures.

Inside are housed the coalescing doubly corrugated plates Facet MPak®, which are supplied in modular packages installed within the separators together with an adjustment device which ensures that all of the fluid to be treated flows through the plates.

Standard Features

- Class I Separators, according EN-858, effluent less than 5 ppm
- Safety closure device in the outlet
- MPak® plate packs
- ¾", ¼" or ½" MPak® coalescing plate spacing
- Computerized effluent predictions for accurate sizing
- Solids removal connection with cover
- Vent connection
- Oil removal through manhole

Engineering Specifications

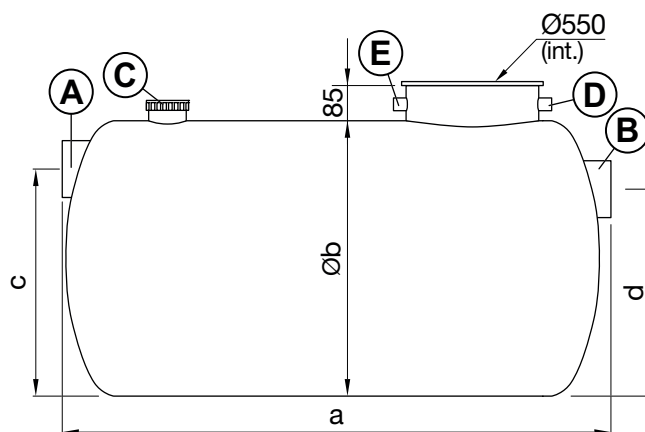
- Material of construction: GFRP according to EN-976-1
- Hydrostatically tested for ½ hour
- Covers in PVC Class A15, according to EN-124
- Connections according to DIN

Options

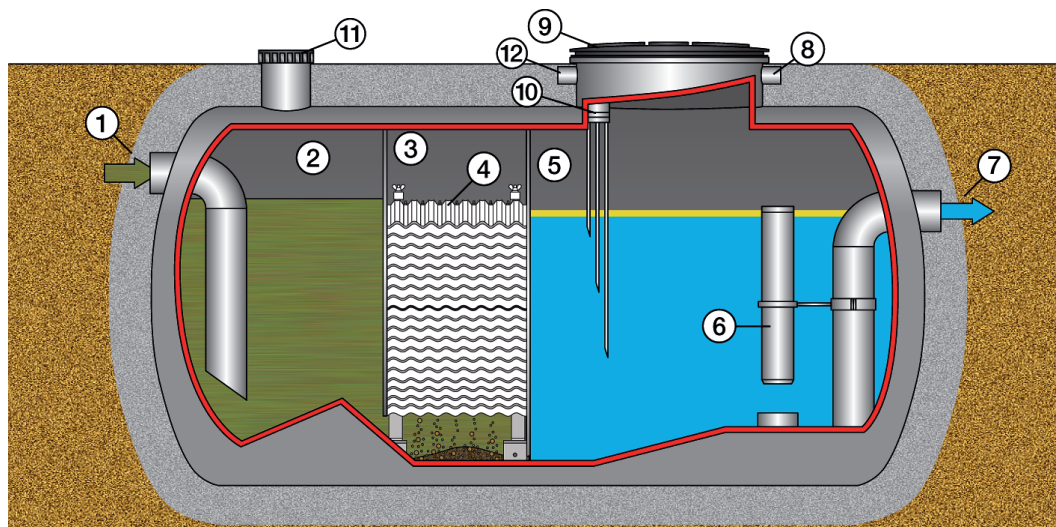
- Adjustable oil skimmers for oil removal
- Oil storage chamber
- Inlet solids chamber
- Oil pump control station: includes pump and motor, control panel, high and low level float switches
- Automatic warning device for light liquid, Ex(i) execution
- Automatic warning device for solids level

MAS Series

Oil Water Separators - GFRP Construction

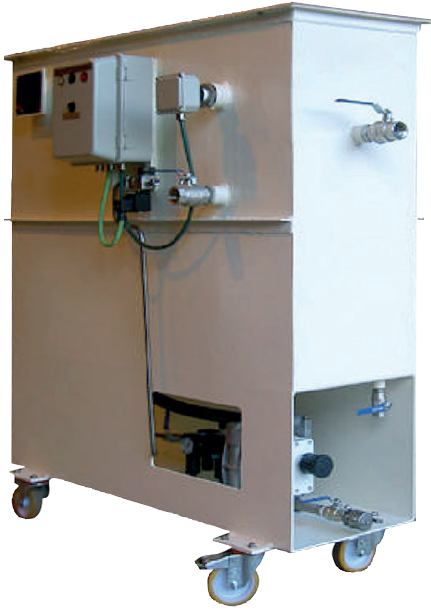


MODEL	Q l/s	a mm	Øb mm	c mm	d mm	WEIGHT Kg	V l	A DN	B DN	C DN/(mm)	D mm	E mm
MAS-11.1-GF	1.5	2330	1000	895	815	140	1830	110	110	90/(80)	25	25
MAS-12.1-GF	3	2330	1000	895	815	140	1830	110	110	90/(80)	25	25
MAS-13.1-GF	6	2330	1000	895	815	150	1830	160	160	90/(80)	25	25
MAS-23.1-GF	10	2330	1300	1170	1090	260	3100	160	160	90/(80)	40	25
MAS-24.1-GF	15	2460	1600	1450	1350	330	4950	200	200	90/(80)	40	25
MAS-25.1-GF	20	2460	1600	1450	1350	340	4950	200	200	90/(80)	40	25
MAS-35.1-GF	30	2590	2000	1825	1700	470	8100	250	250	90/(80)	40	25
MAS-45.1-GF	40	2760	2400	2200	2050	720	12500	315	315	90/(80)	40	25
MAS-55.1-GF	50	2760	2400	2200	2050	750	12500	315	315	90/(80)	40	25



ITEM	DESCRIPTION
1	Inlet
2	Inlet chamber
3	Plate chamber
4	MPak® plates
5	Outlet chamber
6	Automatic closure device
7	Outlet
8	Vent connection
9	Manhole
10	Oil level probe (optional)
11	Solids removal connection (with cover)
12	Connection for oil level probe wiring

MCP Series Oil Water Separators



Facet's new Model MCP Oil Water Separators are versatile, compact, high efficiency units designed for small flow rates. They are complete with a simple and reliable pneumatic pump to bring the liquid into the separator and Facet's patented MPak® coalescing plate technology to remove the oil from the water. Each separator has a small oil reservoir to accumulate the unwanted oil for disposal and an alarm system to alert the operator it is time to remove the oil. Two sizes are available. Optional wheels make easy to roll the MCP from one task to another within the plant.

Applications

The MCP separators are great for use in removing tramp oils from machine tool coolants, floor washing or parts washing water garages, auto dealers, or other equipment service facilities. They can even be used for (land-based) processing of oily bilge water from boats. In most any situation where there is a relatively small quantity of water containing unwanted oils a MCP unit can be a cost effective, space effective solution to the problem. And the MCP unit uses no filter cartridges or other disposables to increase costs and cause disposal problems. The recovered oil can sometimes be reused or recycled.

Operation Description

The MCP unit pumps the contaminated water through the patented MPak plate pack. As the water passes through the plate pack, oil droplets in the water rise up and meet the undersides of the plates, where they are removed from the water. The droplets eventually coalesce and form large drops which rise to the surface and are automatically skimmed off of the surface into the oil reservoir. Cleaned water passes through the plates and exits the separator. After the liquid is pumped into the system, the operation of the separator is purely by gravity – clean, efficient, and very reliable.

Options

- Available in two sizes: 1,6 gpm and 3,2 gpm nominal flow rates
- Floating inlet skimmers and level switches for use un sumps
- Wheels for easy portability
- Alarm bell in addition to standard alarma light

MCP Series

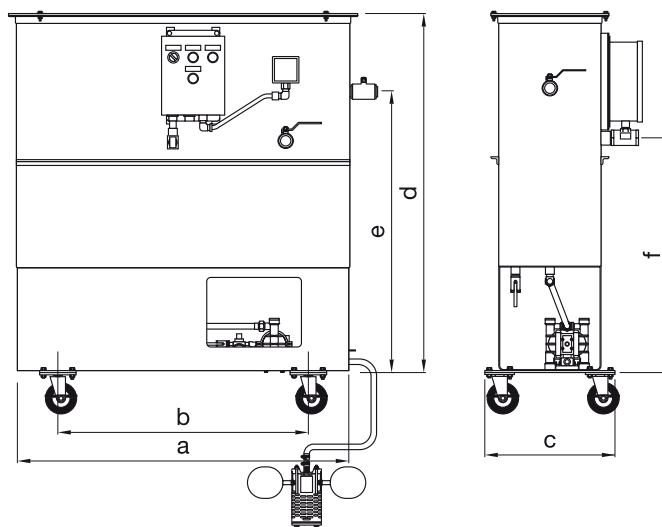
Oil Water Separators

Specifications

- Inlet connection: 3/8" (10 mm) hose type
- Outlet connection: 1" (45 mm) NPT
- Drain connection: 1" (45 mm) NPT
- Oil drain: 1" (45 mm) NPT
- Electrical: 110-120 - 220 Vol. AC
- Pump: Pneumatic

Standard Materials

- Vessel and Stand: Carbon Steel
- Coating: Flexible Epoxy
- Coalescing Plates: Calcium Carbonate-filled Polypropylene



MODEL	MAX FLOW		SHIP WEIGHT		a		b		c		d		e		f	
	gpm	lpm	lbs	kg	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
MCP-11	1.6	6.0	590	267	42	1067	30	762	16	406	36	914	30½	775	23½	600
MCP-12	3.2	12.0	670	304	42	1067	30	762	16	406	48	1219	34½	877	32½	825

All dimensions are for estimating purposes only.

MPP Series Oil Water Separators - Polypropylene Construction



Facet's MPP Series Oil Water Separators utilize the most efficient oil and water separation technology available.

Now, this breakthrough in environmental clean-up technology is available in a lightweight, polypropylene housing. These polypropylene oil/water separators are flexible, cost-effective, and up to the challenge — wherever oil and water hit the floor.

From big machine shops to single-bay quick lubes, tooling companies to oil change centers, the MPP oil/water separators are the clear and simple solution in virtually any application.

Simple, streamlined inlet/outlet piping connections allow gravity driven or pumped flow operation. Adjustable water outlets make Model MPP flexible and feasible, regardless of foundation discrepancies and irregularities.

With polypropylene construction, the new MPP oil/water separators are lightweight and portable when empty, and corrosion resistant. These units can be installed inside or outside.

The unique Polypropylene Oil/Water Separator features the large surface area of Facet's patented MPak® technology for optimum coalescence of oils and hydrocarbons as well as efficient removal and storage of solids.

MPak® coalescing plates need very little maintenance. When necessary, cleaning is quick and easy with the MPak® Cleaning Wand.

Oil level control system for Oil Water Separators



The Facet Oil Control and Alarm System for MAS/MCS/MPP/NG/MCPS Oil Water Separators is designed to optimize the maintenance costs, reducing to the maximum the number of controls, saving time and unnecessary displacements. This way, it is possible to discharge the oil collected only when it is near its maximum recommended level.

The Control System monitors two situations: Warning and Alarm. The first level (Warning) is activated when the oil collected reaches its maximum recommended level to plan its removal; whereas the second level (Alarm) indicates that the critical oil level has been reached and it is imperative to discharge the oil collected in the Separator in order to prevent it from being discharged outwards.

The above mentioned situations are reported through indicators, luminous and acoustic, installed into the Control Panel, so it is known clearly and in all times the level status of the collected oil without the constant supervision by an operator.

The system consists of:

- One set of Level Probes to be installed inside the Separator or inside the Oil Chamber, depending on the model.
- One Control Panel with pilots and acoustic alarm which indicates the above mentioned situations.

Standard Features

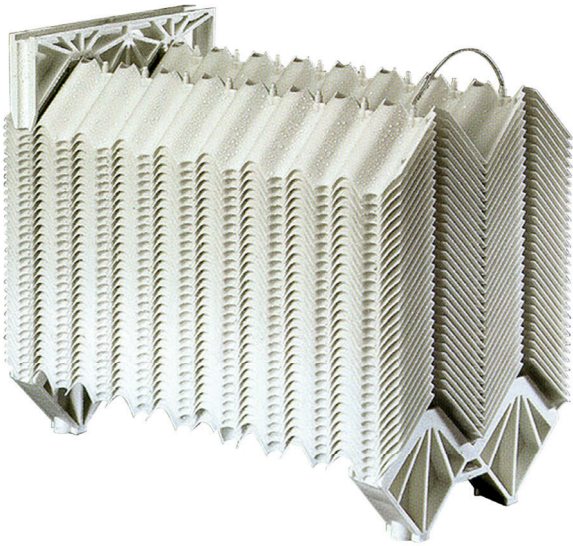
- Possibility of installation in Separators series MAS/MCS/MPP/NG/MCPS with or without oil chamber
- Indication of two situations: Warning and Alarm, with visual and audible alert. Warning situation can be disconnected with a switch
- Power supply 230V/1Ph/50Hz/25W
- IP-65 Control Panel in polyester, for wall mounting in control room for operator supervision
- Wide range of operating temperatures (-20°C to +50°C)
- Distance of level probes to Control Panel 100m maximum
- Intrinsically safe Ex(i)

Options

- Galvanized carbon steel support for Control Panel to be installed outdoors
- Sunshade for the Control Panel in polyester/stainless steel
- Control Panel in stainless steel
- SPDT voltage free contact

Technical Features

- Control Panel (IP-65)
 - Polyester box in RAL 7032, with translucent cover to be set up on wall, of 270x180x180 mm and 2.55 kg, IP-65
 - 2 metal cable glands PG11
 - 1 Main switch
 - 1 Reset button for audible alarm
 - 2 pilots (red)
 - 1 acoustic buzzer, 72 db(A)@1m
 - 1 Amplifier barrier [Ex ia] IIC with two input and 2 output channels
- Level Probe (in oil water separator)
 - Oil resistant synthetic head
 - 3 stainless steel sensors
- Level Probe (in oil chamber)
 - Steel connection box, protected inside and outside with polyester epoxy paint RAL-7032, IP 55 protection, 85x85 mm, and connection through metal cable glands IP 68
 - 2 polysulfone floating sensor, hydrocarbon resistant. Highly sensitive and maintenance free
- Cable signal from level probe to control panel (not supplied by Facet), it is recommended:
 - Maximum length: 100 m
 - Regulation: EN 21123-4 / IEC 60502-1
 - Type: RZ1.K - 0.6/1kV
 - Conductors: 3x 1.5 mm² copper, flexible class 5
 - Insulation: Reticulated polyethylene (XLPE)
 - External coating: halogen free
 - Flame retardant (EN 60332-1-2 / IEC 60332-1-2)
 - Fire retardant (EN60332-3-24/25) / IEC60332-3-24/25)



Facet's NEW HIGH-PERFORMANCE MPak® COALESCING PLATES PROVIDE SUPERIOR PERFORMANCE IN REAL-WORLD ENVIRONMENTAL CLEAN-UP.

Facet's patented MPak® coalescing plates are designed to separate oil and solids from water using the differences in their specific gravities. The plates MPak® are installed in packages with a predetermined spacing therebetween, so as to enable the space required for retention of solids.

The adaptability of the plates makes of them the most appropriate system for both the conversion of existing devices and for new facilities.

Features

- Reduces oil contamination to limits as low as 5 ppm
- Virtually self-cleaning -solids fall to the bottom, oil weeps to the top
- Modular construction -retrofits existing API separators and tanks
- New support system that allows access for solids removal
- ¾", ¼" and ½" spacing
- Computer sizing –guarantees effluent quality
- Operating temperature 40° F to 208° F
- pH range from 2 to 12
- Oleophilic material
- Surface area per 2 ft³: 186 ft² is greater than any competitor

Applications

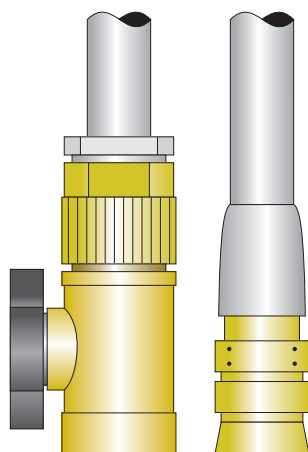
Facet's MPak® coalescing plates have hundreds of environmental applications, including:

- Rainwater run-off clean-up
- Maintenance washdown clean-up
- Heavy equipment and transportation washdown facilities
- Groundwater remediation clean-up
- Machine tool coolant recovery
- Manufacturing facility effluent water
- Oil refinery/storage terminal effluent water
- Offshore and onshore oil production facilities
- Marine applications
- General industry



Facet MPak® oil water separator plate packs are self-cleaning, but under determined adverse conditions can become plugged with solids.

Considering these situations, the plate packs have been designed so that can be cleaned in place using the special cleaning wand and city water pressure. This device includes an ordinary connection of 1/2", topped with a small conical strainer that releases the cleaning holes.



Guidelines For Using The Device

Although the plates are designed to be cleaned in situ, it is possible to remove the packages of plates for cleaning operations.

In both cases, before you start cleaning, you must stop the flow in the unit, remove the oil and drain the water.

In case you opt for in situ cleaning, connect the special cleaning device to a water hose pressure (60 psig at least).

After this, the next step is to open the water so that a stream in spray is produced and insert the end of the device slowly into each hole of the plate package, starting from the inlet side of the package.

As the water flushes the dirt out of the plate packs it should be removed by a vacuum system or transferred to an oil water sewer.

In case you opt for cleaning outside of the vessel, you must remove by using a crane the plate packs and other internal elements (except bolted-in internals). Flush with hose and clean, once cleaning is complete, return to their original position all the elements.

ITEM	DESCRIPTION
1	1/2" Hose
2	"Garden" hose shut-off valve
3	Special hose nozzle
4	Hose barbs
5	Water jets (typical)

Note: The spray wand produces a vigorous spray. Operators should wear waterproof clothing and goggles or face masks.



Facet's sewage treatment plants Model STP for inland applications have been designed for gravity or pumping treatment of domestic sewage, and built to be installed above the ground.

The purification mechanism is based on a biological process of active sludge with extended aeration: the microorganisms in the biomass purify the water, so that no additional chemical treatment throughout the process is necessary.

Manufactured in compliance with the requirements of the standard 97/271/EC, the STP plants consist of a single-built module of closed steel. This modular design allows to increase treatment capacity by installing multiple units in parallel, while providing transportation, re-location and installation (enabling installation in a single day).

The container interior is divided into three chambers (aeration, settling and discharge/disinfection), each of them with their respective inspection access.

In the aeration chamber are housed the air diffusers which provide the necessary oxygenation for the microorganisms and generate the agitation that homogenizes the content of the reactor.

The settling chamber, pressurized to improve the process of deposition of solids, contains the biological filter and the sludge recirculation connections and greases toward the aeration chamber.

The system also features a anti-vandal cabin, connected to the plant, where all the elements and control instruments are included in order to facilitate the proper operation of the unit.

The low records of noise in operation (less than 55 dB (A) to 6 meters from the cabin) and that they do not generate odors or sludge that should be removed, make our plants one of the equipment with less environmental impact of the market.

Standard Features

- Meet the performance requirements of 91/271/EC regulation
- Sound level < 55 dB(A) (6 meters from the cabinet)
- No sludge generation
- No odour generation
- Automatic operation driven by PLC
- Inner protection: 250 micron epoxy paint
- External protection: three layers of 250 micron paint and RAL 6002 finish
- Aeration system composed by blower, air supply pipe, bubble diffusers, filter and air relief valve
- Automatic sludge recirculation system
- Access and inspection manholes in every chamber
- Anti-vandal resistant cabin, with inner sound insulation and the same external finish as the plant. Self-supporting baseframe for direct installation onto the floor and lifting lugs
- IP-55 electric control panel, including operation synoptic panel below

STP Series

Sewage Treatment Plants

Materials

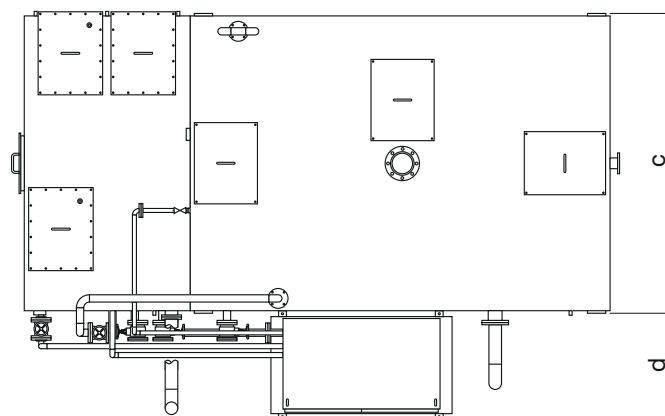
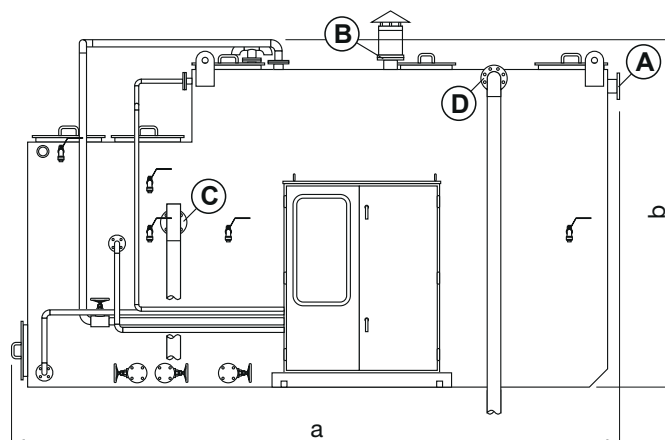
- Vessel: S-275-JR carbon steel
- Cabin and baseframe: S-275-JR carbon steel
- Air diffusers: AISI-304 stainless steel
- Air diffusers pipe: AISI-304 stainless steel
- Ozonization circuit piping: AISI-304 stainless steel (optional)

Standard Connections

- Inlet: DIN 2576 PN10
- Outlet: DIN 2576 PN10
- Air vent: DIN 2576 PN10
- Overflow: DIN 2576 PN10
- Sampling: 1/2" NPT

Options

- Two elevating grinding-pumping group of submersible type, with level start up/stop automatic control
- Electromagnetic flow rate meter and flow totalizer
- Disinfection circuit by ozonization, composed by air refrigerated ozone generator, blower, and ceramic diffusers
- BioFAST™
- Variable speed drive (VSD) for air blower
- Uninterruptible power supply (UPS) for PLC
- Remote communication system
- Anoxic chamber
- Ladder and handrails



MODEL	DIMENSIONS							
	A		B		C		D	
	in	mm	in	mm	in	mm	in	mm
STP-10	179¼	4553	93⅝	2379	88	2235	31½	800
STP-16	216⅞	5508	101⅞	2575	95¾	2430	31½	800
STP-25	216⅞	5508	117⅞	2988	100	2540	31½	800
STP-50	363	9220	131¾	3345	83⅞	3130	31½	800

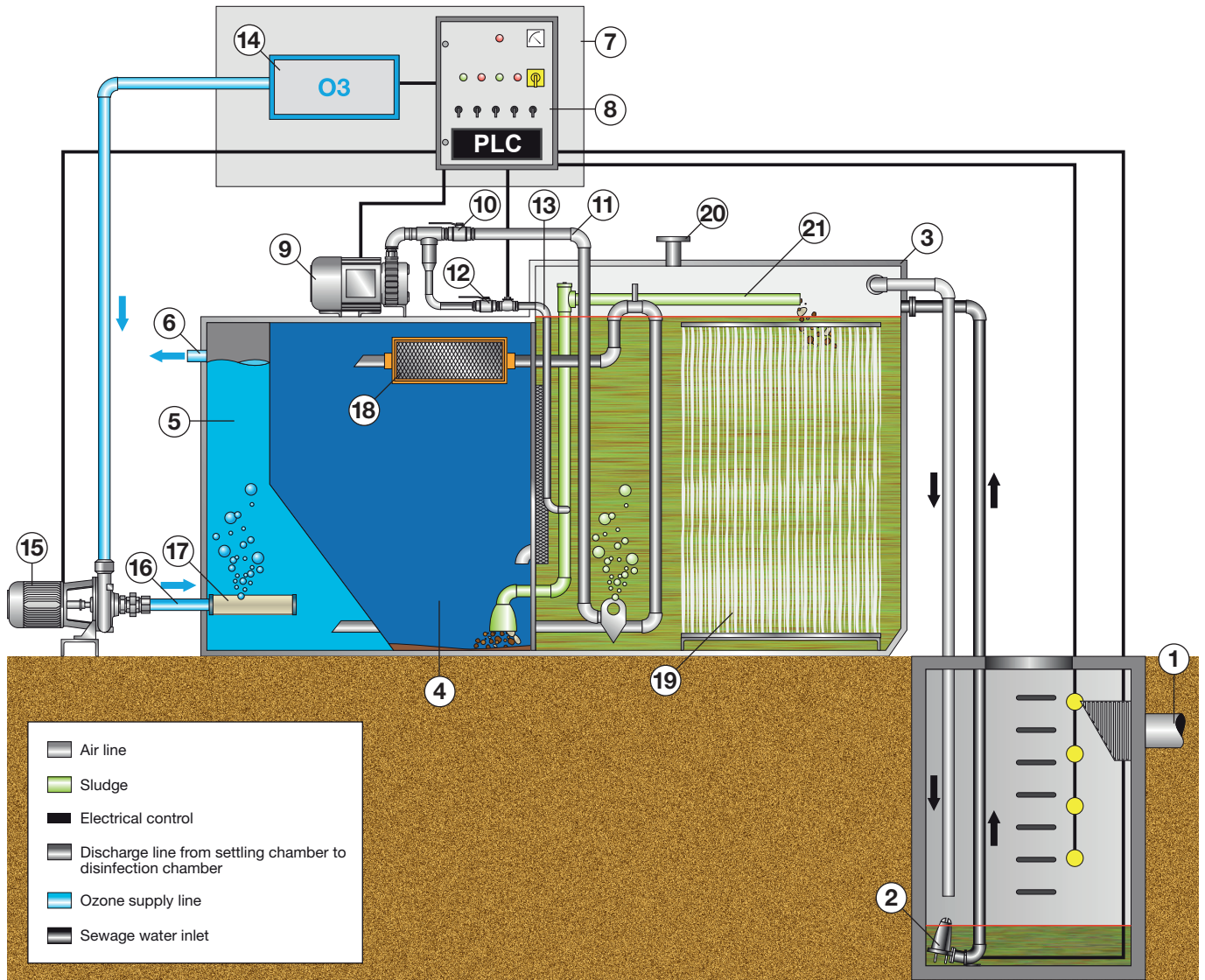
MODEL	CONNECTIONS			
	A (Inlet)	B (Air Vent)	C (Discharge)	D (Overflow)
STP-10	DN100	DN150	DN80	DN100
STP-16	DN100	DN150	DN80	DN100
STP-25	DN100	DN150	DN100	DN100
STP-50	DN100	DN200	DN150	DN100

MODEL	MAXIMUM DAILY FLOW RATE (m³/day)	INSTALLED POWER ⁽¹⁾ (kW)	EFFLUENT CHARACTERISTICS ⁽²⁾				MINIMUM PUMPING WELL VOLUME (m³)
			pH	BOD ₅ (mg/l)	COD (mg/l)	TSS (mg/l)	
STP-10	25	4.5	6.8 - 8	<25	<125	<35	4
STP-16	40	4.5	6.8 - 8	<25	<125	<35	4
STP-25	62.5	4.5	6.8 - 8	<25	<125	<35	7.5
STP-50	125	8	6.8 - 8	<25	<125	<35	12

(1) Without options

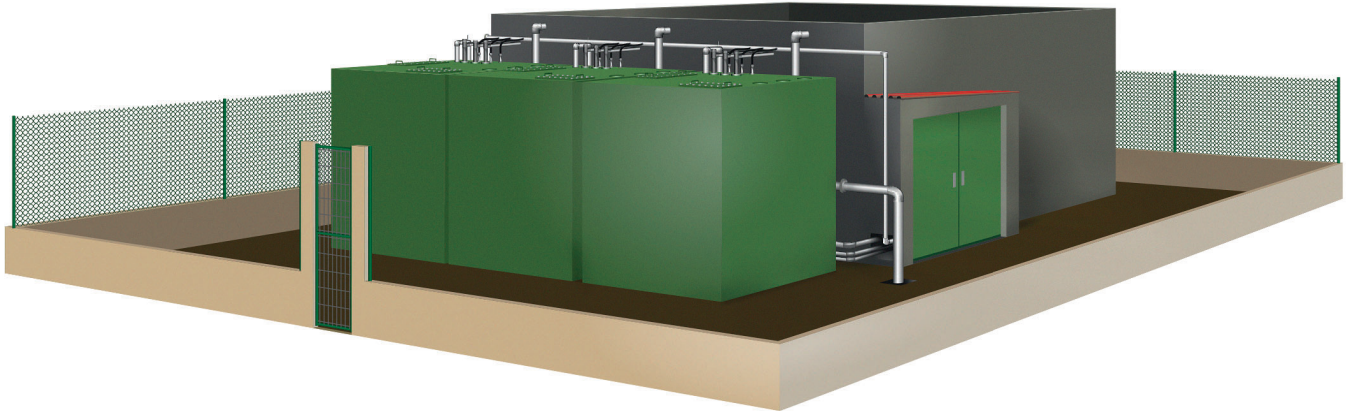
(2) According to directive 91/271/EEC

STP Series Sewage Treatment Plants



ITEM	DESCRIPTION
1	Black water inlet
2	Submersible elevating grinding-pup
3	Aeration chamber
4	Settling chamber
5	Discharge-disinfection chamber
6	Discharge
7	Anti-vandal control cabinet
8	PLC
9	Air blower
10	Manual valve (air supply)
11	Air supply line
12	Manual valve (sludge recirculation)
13	Air injection in sludge return
14	Ozone generator (optional)
15	Ozone blower (optional)
16	Ozone supply line (optional)
17	Ozone diffuser (optional)
18	Lamellar biological filter
19	BioFAS (optional)
20	Vent
21	Recirculation line

STP-HA Series Sewage Treatment Plants Population Areas



Facet's sewage treatment plants STP-HA for inland applications have been designed for gravity or pumping treatment of domestic sewage, and built to be installed above the ground.

The purification mechanism is based on a biological process of active sludge with extended aeration: the microorganisms in the biomass purify the water, so that no additional chemical treatment throughout the process is necessary.

Manufactured in compliance with the requirements of the standard 97/271/EC, Facet STP-HA plants consist of a prefabricated steel module closed (settling and disinfection chambers) with a concrete structure built in situ (aeration chamber). This modular design allows to increase treatment capacity by installing multiple units in parallel, while eases their transportation in standard 40' containers.

In the aeration chamber are housed the air diffusers which provide the necessary oxygenation for the microorganisms and generate the agitation that homogenizes the content of the reactor.

The settling chamber, pressurized to improve the process of deposition of solids, contains the biological filter and the sludge recirculation connections and greases toward the aeration chamber.

The system also features an annexed cabin, connected to the plant, where all the elements and control instruments are included in order to facilitate the proper operation of the unit.

The low records of noise in operation (less than 55 dB (A) to 6 meters from the cabin) and that they do not generate odors or sludge that should be removed, make our plants one of the equipment with less environmental impact of the market.

Standard Features

- Meet the performance requirements of 91/271/EEC regulation
- Sound level < 55 dB(A) (6 meters from the cabin)
- No sludge generation
- No odour generation
- Automatic operation driven by PLC
- Inner protection of prefabricated steel module: 250 micron epoxy paint
- External protection of prefabricated steel module: three layers of 250 micron protection and RAL 6002 finish
- Aeration system composed by blower, air supply pipe, bubble diffusers, filter and air relief valve
- Automatic sludge recirculation system
- Access and inspection manholes
- Self-supporting baseframe with lifting lugs for installation in the inside of the cabin. Baseframe protection: three layers of 250 micron paint and RAL 6002 finish
- IP-55 electric control panel, including operation synoptic panel

STP-HA Series

Sewage Treatment Plants

Population Areas

Options

- Two elevating grinding-pumping group of submersible type, with level start up/stop automatic control
- Electromagnetic flow rate meter and flow totalizer
- Disinfection circuit by ozonation, composed by air refrigerated ozone generator, blower, and ceramic diffusers
- BioFAST™
- Variable speed drive (VSD) for air blower
- Uninterruptible power supply (UPS) for PLC
- Remote communication system
- Anoxic chamber

Materials

- Prefabricated steel module: S-275-JR carbon steel
- Baseframe: S-275-JR carbon steel
- Air diffusers: AISI-304 stainless steel
- Air diffusers pipe: AISI-304 stainless steel

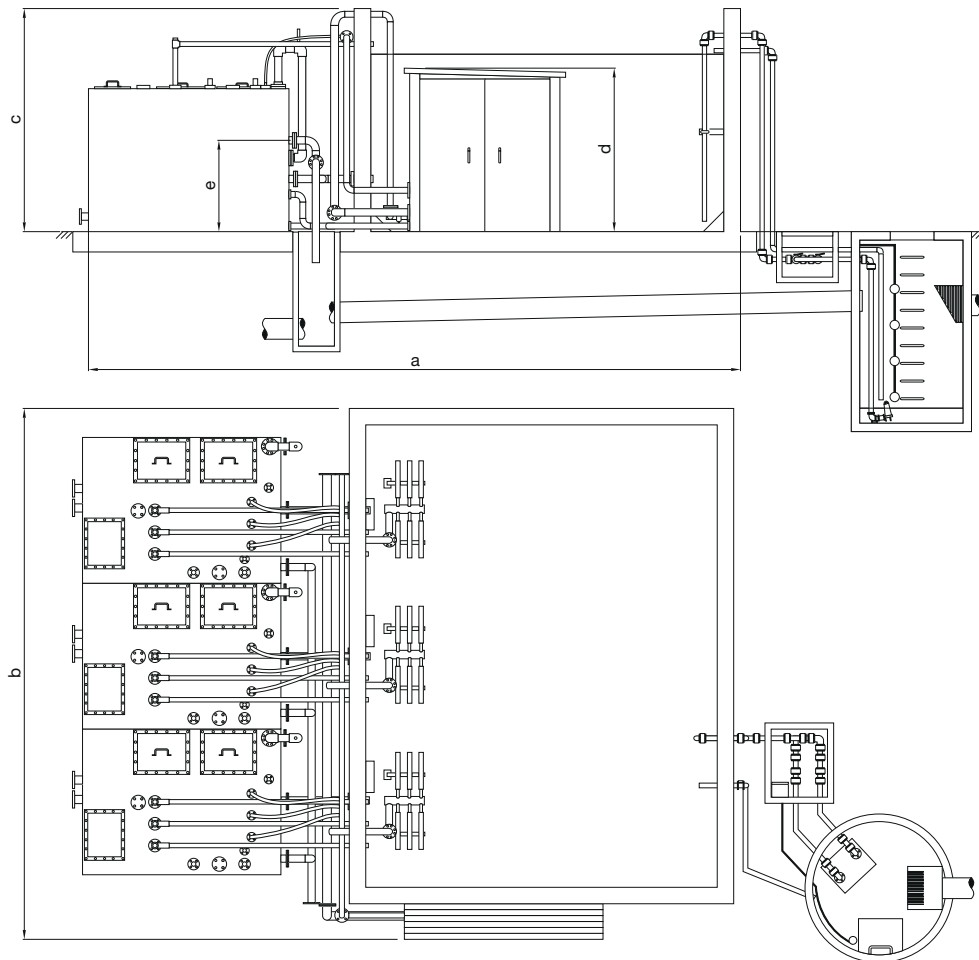
MODEL	MAXIMUM DAILY FLOW RATE (m ³ /day)	DIMENSIONS (mm) ⁽¹⁾			INSTALLED POWER ⁽²⁾ (kW)	EFFLUENT CHARACTERISTICS ⁽³⁾			
		Length	Width	Height		pH	BOD ₅ (mg/l)	COD (mg/l)	TSS (mg/l)
STP-16HA	40	1380	2330	1720	4.5	6.8 - 8	< 25	< 125	< 35
STP-25HA	62.5	1380	2440	2136	4.5	6.8 - 8	< 25	< 125	< 35
STP-35HA	87.5	3450	2200	2200	4.5	6.8 - 8	< 25	< 125	< 35
STP-50HA	125	3450	2200	2200	8	6.8 - 8	< 25	< 125	< 35
STP-75HA	187.5	3450	2x2200	2200	8	6.8 - 8	< 25	< 125	< 35
STP-100HA	250	3450	2x2200	2200	15.5	6.8 - 8	< 25	< 125	< 35
STP-120HA	300	3450	3x2200	2200	15.5	6.8 - 8	< 25	< 125	< 35
STP-150HA	375	3450	3x2200	2200	23	6.8 - 8	< 25	< 125	< 35
STP-200HA	500	3450	4x2200	2200	30.5	6.8 - 8	< 25	< 125	< 35

(1) Prefabricated steel modules

(2) Without options

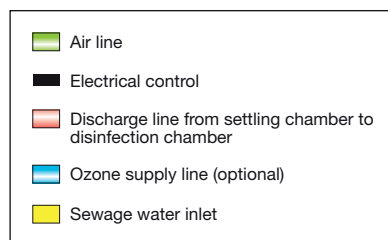
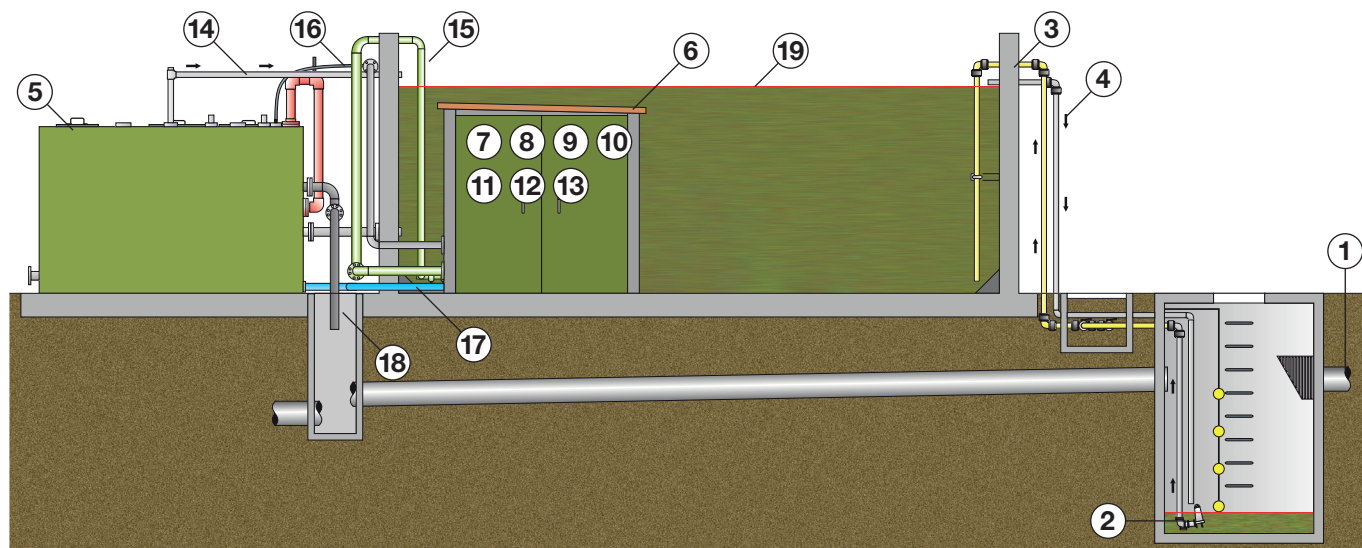
(3) According to directive 91/271/EEC

STP-HA Series
Sewage Treatment Plants
Population Areas



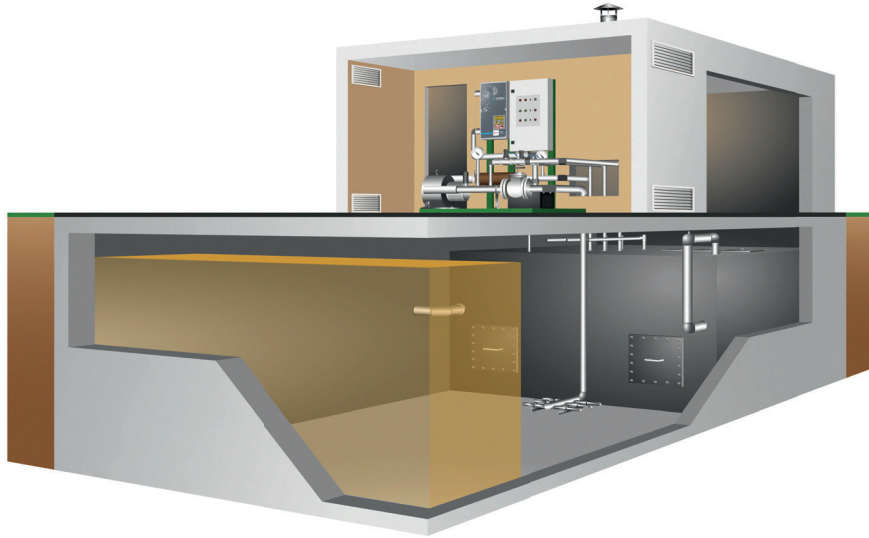
MODEL	DIMENSIONS					MINIMUM PUMPING WELL VOLUME (m³)
	a	b	c	d	e	
STP-16HA	9750	3030	2940	2500	963	4
STP-25HA	9750	3140	3350	2500	1376	7.5
STP-35HA	12700	3000	3500	2500	1400	12
STP-50HA	12700	3000	3500	2500	1400	12
STP-75HA	12700	5300	3500	2500	1400	12
STP-100HA	12700	5300	3500	2500	1400	12
STP-120HA	12700	7600	3500	2500	1400	12
STP-150HA	12700	7600	3500	2500	1400	12
STP-200HA	12700	9900	3500	2500	1400	12

STP-HA Series
Sewage Treatment Plants
Population Areas



ITEM	DESCRIPTION
1	Black water inlet
2	Submersible elevating grinding-pump (one operation, one stand by)
3	Aeration chamber
4	Overflow
5	Steel module
6	Control shed
7	Air blower
8	Manual valve (air supply)
9	PLC (Program Logic Controller)
10	Manual valve (sludge recirculation)
11	Aeration grid
12	Ozone blower (optional)
13	Ozone generator (optional)
14	Recirculation line
15	Air supply line
16	Air injection in sludge return
17	Ozone supply line (optional)
18	Discharge
19	Liquid level

STP-HB Series Sewage Treatment Plants Population Areas



Facet's sewage treatment plants STP-HB Series for inland applications have been designed for gravity or pumping treatment of domestic sewage, and built to be installed underground.

The purification mechanism is based on a biological process of active sludge with extended aeration: the microorganisms in the biomass purify the water, so that no additional chemical treatment throughout the process is necessary.

Manufactured in compliance with the requirements of the standard 97/271/EEC, Facet STP-HB plants consist of a prefabricated steel module closed (settling and disinfection chambers) with a concrete structure built in situ (aeration chamber). This modular design allows to increase treatment capacity by installing multiple units in parallel, while eases their transportation in standard 40' containers.

In the aeration chamber are housed, fixed to the steel module, the air diffusers which provide the necessary oxygenation for the microorganisms and generate the agitation that homogenizes the content of the reactor. The settling chamber, pressurized to improve the process of deposition of solids, contains the biological filter and the sludge recirculation connections and greases toward the aeration chamber.

To facilitate the control of the operation of the unit, all control elements and instruments are supplied on a prefabricated steel structure to be installed inside a concrete cabin built in situ.

The low records of noise in operation (less than 55 dB (A) to 6 meters from the cabin) and that they do not generate odors or sludge that should be removed, make our plants one of the equipment with less environmental impact of the market.

Standard Features

- Meet the performance requirements of 91/271/EEC regulation
- Sound level < 55 dB(A) (6 meters from the cabin)
- No sludge generation
- No odour generation
- Automatic operation driven by PLC
- Inner/external protection of prefabricated steel module: 250 micron epoxy paint
- Aeration system composed by blower, air supply pipe, bubble diffusers, filter and air relief valve
- Automatic sludge recirculation system
- Access and inspection manholes
- Self-supporting baseframe with lifting lugs for its installation inside of the concrete cabin. Baseframe protection: three layers of 250 micron paint and RAL 6002 finish
- IP-55 electric control panel, including operation synoptic panel

STP-HB Series

Sewage Treatment Plants

Population Areas

Options

- Two elevating grinding-pumping group of submersible type, with level start up/stop automatic control
- Electromagnetic flow rate meter and flow totalizer
- Disinfection circuit by ozonation, composed by air refrigerated ozone generator, blower, and ceramic diffusers
- BioFAST™
- Variable speed drive (VSD) for air blower
- Uninterruptible power supply (UPS) for PLC
- Remote communication system
- Anoxic chamber

Materials

- Prefabricated steel module: S-275-JR carbon steel
- Baseframe: S-275-JR carbon steel
- Air diffusers: AISI-304 stainless steel
- Air diffusers pipe: AISI-304 stainless steel

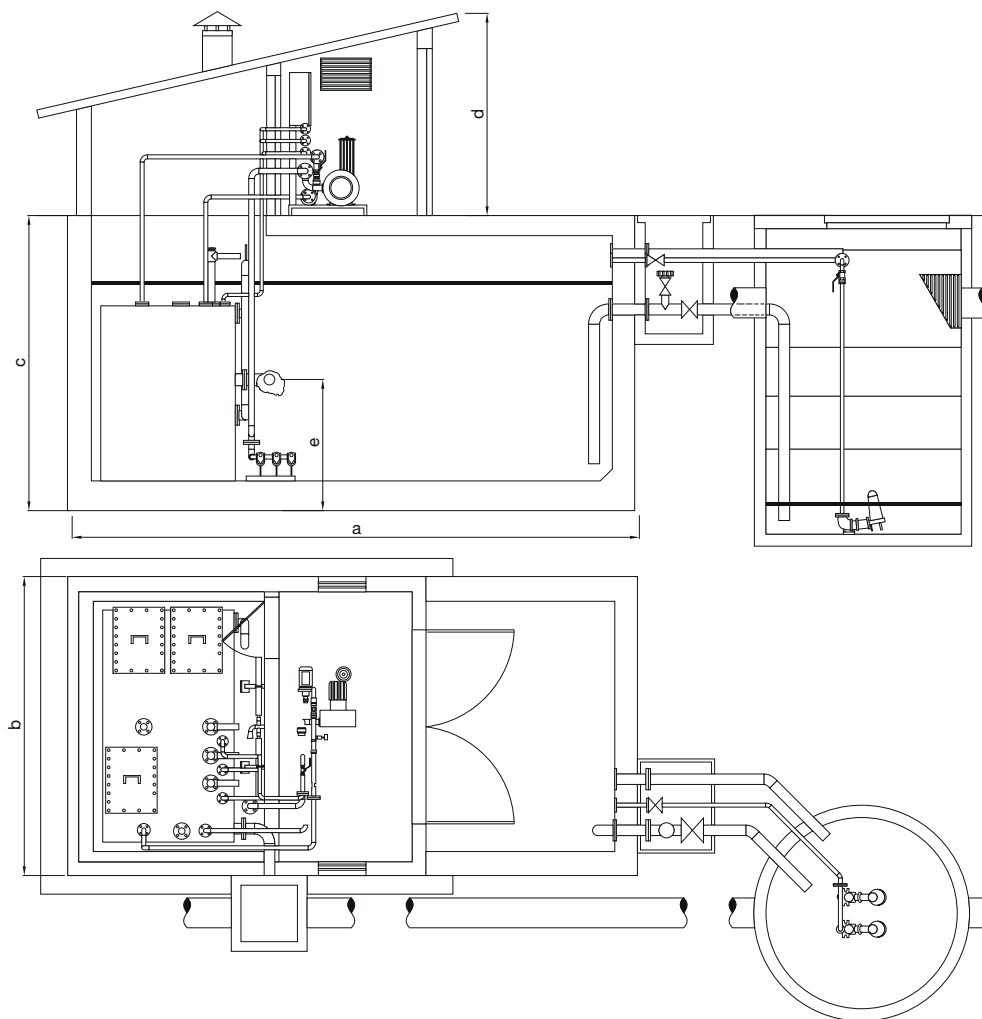
MODEL	MAXIMUM DAILY FLOW RATE (m ³ /day)	DIMENSIONS (mm) ⁽¹⁾			INSTALLED POWER ⁽²⁾ (kW)	EFFLUENT CHARACTERISTICS ⁽³⁾			
		Length	Width	Height		pH	BOD ₅ (mg/l)	COD (mg/l)	TSS (mg/l)
STP-16HB	40	1380	2330	1720	4.5	6.8 - 8	< 25	< 125	< 35
STP-25HB	62.5	1380	2440	2136	4.5	6.8 - 8	< 25	< 125	< 35
STP-35HB	87.5	3450	2200	2200	4.5	6.8 - 8	< 25	< 125	< 35
STP-50HB	125	3450	2200	2200	8	6.8 - 8	< 25	< 125	< 35
STP-75HB	187.5	3450	2x2200	2200	8	6.8 - 8	< 25	< 125	< 35
STP-100HB	250	3450	2x2200	2200	15.5	6.8 - 8	< 25	< 125	< 35
STP-120HB	300	3450	3x2200	2200	15.5	6.8 - 8	< 25	< 125	< 35
STP-150HB	375	3450	3x2200	2200	23	6.8 - 8	< 25	< 125	< 35
STP-200HB	500	3450	4x2200	2200	30.5	6.8 - 8	< 25	< 125	< 35

(1) Prefabricated steel modules

(2) Without options

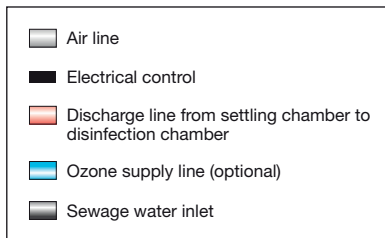
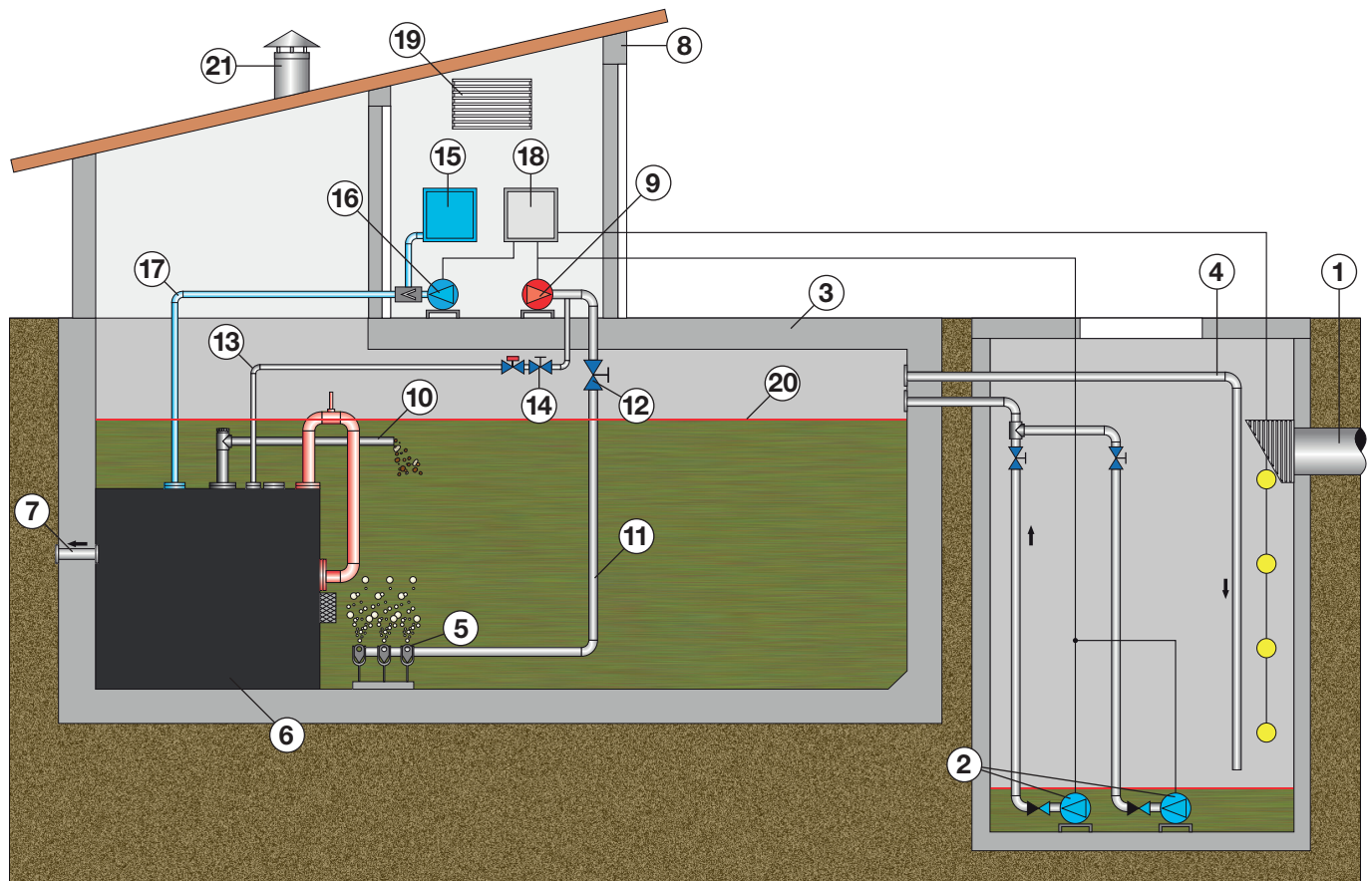
(3) According to directive 91/271/EEC

STP-HB Series
Sewage Treatment Plants
Population Areas



MODEL	DIMENSIONS					MINIMUM PUMPING WELL VOLUME (m ³)
	a	b	c	d	e	
STP-16HB	6700	3030	2940	2500	963	4
STP-25HB	6700	3140	3350	2500	1376	7.5
STP-35HB	12000	2900	3700	2500	1400	12
STP-50HB	12000	2900	3700	2500	1400	12
STP-75HB	12000	5200	3700	2500	1400	12
STP-100HB	12000	5200	3700	2500	1400	12
STP-120HB	12000	7500	3700	2500	1400	12
STP-150HB	12000	7500	3700	2500	1400	12
STP-200HB	12000	9800	3700	2500	1400	12

STP-HB Series
Sewage Treatment Plants
Population Areas



ITEM	DESCRIPTION
1	Black water inlet
2	Submersible elevating grinding-pump (one operation, one stand by)
3	Aeration chamber
4	Overflow
5	Air diffusers
6	Steel module
7	Discharge
8	Concrete cabin
9	Air blower
10	Recirculation line
11	Air supply line
12	Manual valve (air supply)
13	Air injection in sludge return
14	Manual valve (sludge recirculation)
15	Ozone generator (optional)
16	Ozone blower (optional)
17	Ozone supply line (optional)
18	PLC (Program Logic Controller)
19	Aeration grid
20	Liquid level
21	Vent



The purification mechanism of modular systems of wastewater treatment Facet SMS Series is based on a biological process of active sludge with extended aeration: the microorganisms in the biomass purify the water, so that no additional chemical treatment throughout the process is necessary.

Manufactured in compliance with the requirements of the standard 97/271/EEC, Facet SMS plants consist of a single steel module closed with the exterior dimensions of a 20' container. This modular design allows to increase treatment capacity by installing multiple units in parallel, while eases their transportation, relocation and installation (enabling installation in a single day).

The interior is divided into three chambers (aeration, settling and discharge/disinfection), each of them with their respective inspection access.

In the aeration chamber are housed the air diffusers which provide the necessary oxygenation for the microorganisms and generate the agitation that homogenizes the content of the reactor.

The settling chamber, pressurized to improve the process of deposition of solids, contains the biological filter and the sludge recirculation connections and greases toward the aeration chamber.

To facilitate control of the operation of the unit, all control elements and instruments are supplied fitted behind the access doors.

The low records of noise in operation (less than 55 dB (A) to 6 meters from the equipment) and that they do not generate odors or sludge that should be removed, make our plants one of the equipment with less environmental impact of the market.

Standard Features

- Meet the performance requirements of 91/271/EEC regulation
- The effluent can be reused
- Sound level < 55 dB(A) (6 meters from the equipment)
- No sludge generation
- No odour generation
- Automatic operation driven by PLC
- Inner protection: 250 micron epoxy paint
- External protection: three layers of 250 micron paint and RAL 6016 finish
- Aeration system composed by blower, air supply pipe, bubble diffusers, filter and air relief valve
- Automatic sludge recirculation system
- Access and inspection manholes
- IP-55 electric control panel, including operation synoptic panel
- Integrated steel ladder to access the top

SMS Series

Population Areas

Standard Features

- Meet the performance requirements of 91/271/EEC regulation
- The effluent can be reused
- Sound level < 55 dB(A) (6 meters from the equipment)
- No sludge generation
- No odour generation
- Automatic operation driven by PLC
- Inner protection: 250 micron epoxy paint
- External protection: three layers of 250 micron paint and RAL 6016 finish
- Aeration system composed by blower, air supply pipe, bubble diffusers, filter and air relief valve
- Automatic sludge recirculation system
- Access and inspection manholes
- IP-55 electric control panel, including operation synoptic panel
- Integrated steel ladder to access the top

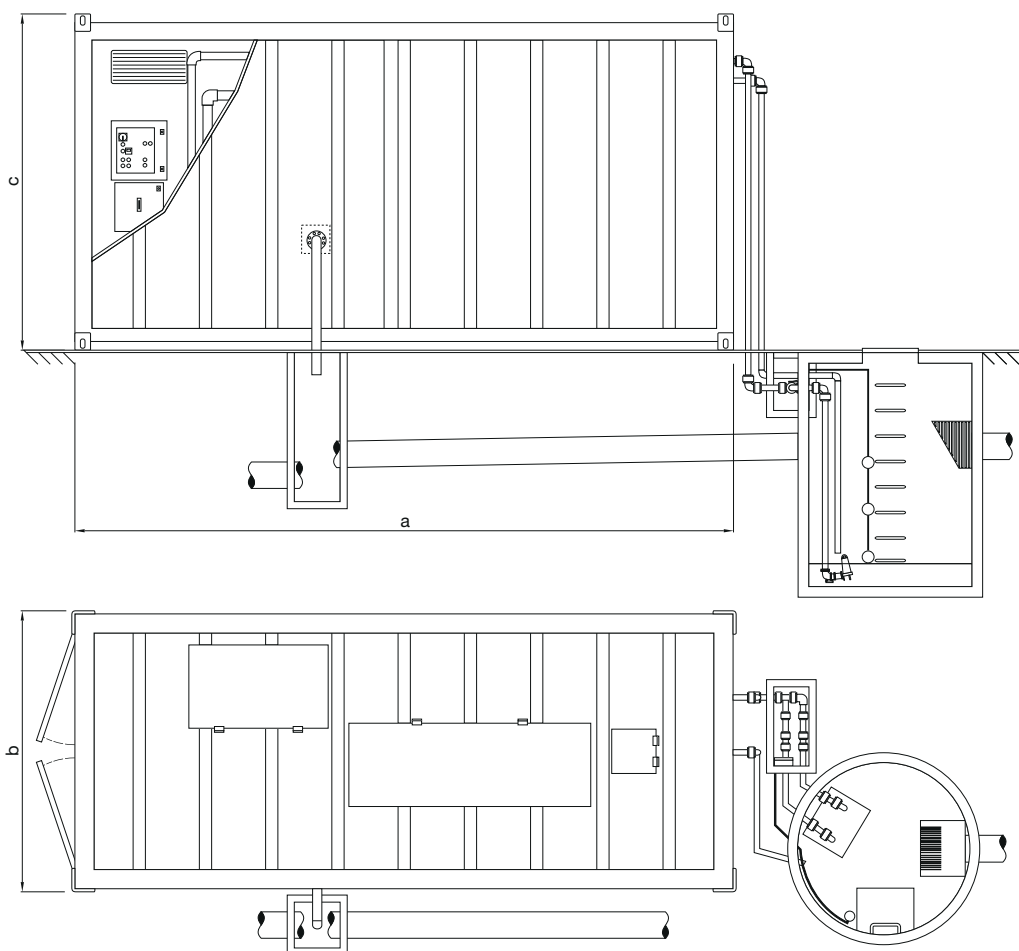
Materials

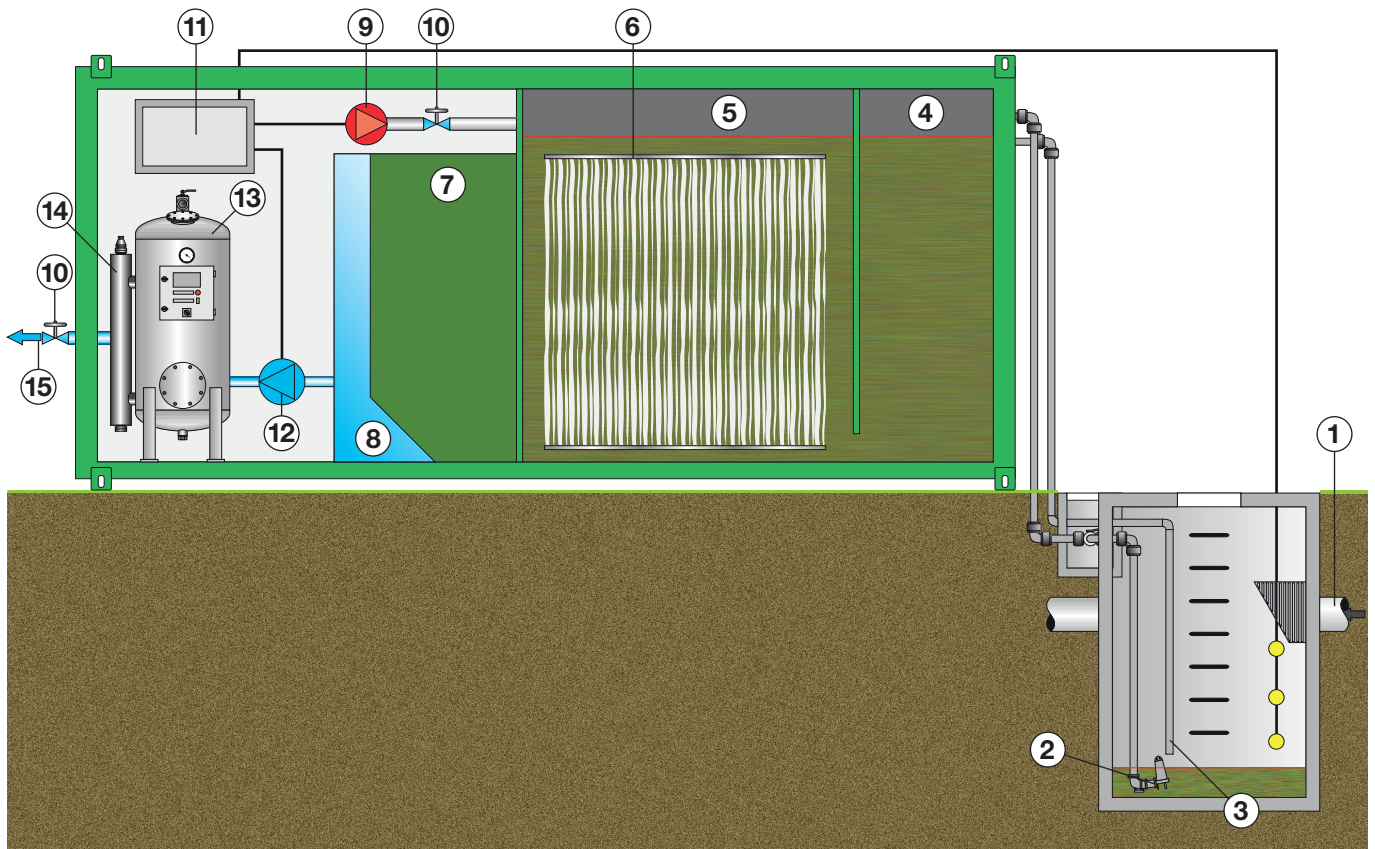
- Vessel: S-275-JR carbon steel
- Air diffusers: AISI-304 stainless steel
- Air diffusers pipe: AISI-304 stainless steel

Options

- Two elevating grinding-pumping group of submersible type, with level start up/stop automatic control
- Electromagnetic flow rate meter and flow totalizer
- Disinfection circuit by ozonation, composed by air refrigerated ozone generator, blower, and ceramic diffusers
- Disinfection circuit by UV: UV generator, sand filter and motorpump
- Anoxic chamber
- BioFAS

MODEL	DIMENSIONS (mm)			CONNECTIONS		
	Length	Width	Height	A	B	C
SMS-16	6058	2438	2591	DN32	DN80	DN80





Technical Specifications

Influent characteristics

- Equivalent inhabitants: 160
- Maximum daily flow rate: 40 m³/day
- BOD (Kg/day) according to 91/271/EC: 9.6

Capacities

- Aeration chamber: 17.4 m³
- Settling chamber: 2.85 m³
- Discharge chamber: 1.7 m³

Effluent characteristics

- pH: 6-8
- DBO₅: <20 - <25 mg/l
- DQO: <125 mg/l
- TSS: <20 - <35 mg/l
- O₂ dissolved: 6-10 mg/l
- Temperature: Ambient
- Aspect: Odourless and transparent

ITEM	DESCRIPTION
1	Black water inlet
2	Submersible elevating grinding-pump (one operation, one stand by)
3	Overflow
4	Anoxic chamber
5	Aeration chamber
6	BioFAS
7	Settling chamber
8	Discharge chamber
9	Blower
10	Manual valve
11	PLC (Program Logic Controller)
12	Circulation pump
13	Sand filter
14	UV generator
15	Discharge

UTS Series For Marinas and/or Fishing Ports



Bilges collect all the liquids spilt and/or fallen onboard ships, therefore they get together small quantities of hydrocarbons and oils mixed with seawater, rainwater and/or cleaning/washing water. If this mixture goes to the sea it is like pouring directly hydrocarbons and/or oils.

This kind of spills can be completely avoided using these Oils and Bilge Water Transfer Units together with a Coalescent Oil Water Separator Class I (effluent < 5 ppm).

Features

Facet Series UTS Transfer Units for Bilge Water and Oils are self-priming, designed to avoid emulsion of bilge hydrocarbons, noiseless, and able to handle small solids.

They can suction bilge water and/or oils of up to 7.5 m.w.c. and discharge them at a pressure of 15 m.w.c.

Electrical supply: 3ph/380V/50Hz. Connections: Universal conic coupling for any kind of mouths. Provided with an isolation valve at the end.

Facet Series UTS Units comprise:

- Universal conic suction connection
- 15 m of 1 ½" non collapsible, hydrocarbons proof, suction hose
- Isolation valves at both suction and discharge
- Vandal proof cabin in stainless steel which assures no corrosion
- Electrical control panel with start/stop leds, switches and vacuostat

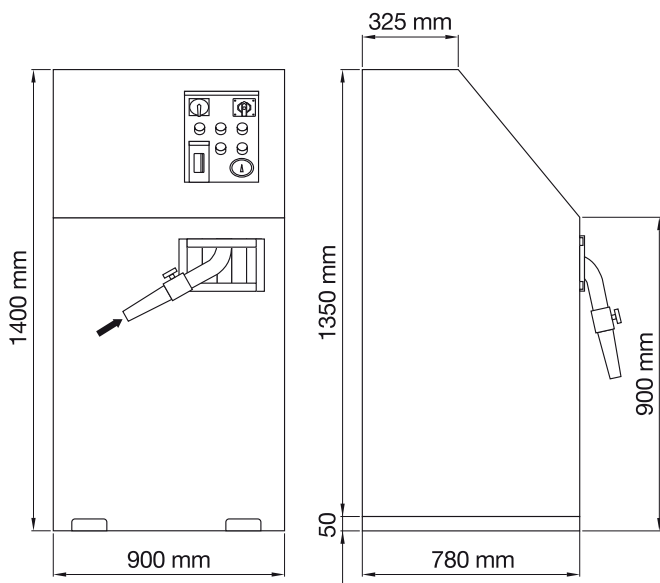
Results

To give an example, in a ship with a bilge of 80 liters, there is approx. a max. of 1% of oils (10000 ppm), that is: 0.8 liters of oils. If bilge waters go through the Oil Water Separator, only a 1% (the 0.8 liters of oil) will have to be treated by an authorized dealer.

If bilge waters do not go through the Oil Water Separator, for previous treatment, the whole 80 liters will have to be stored and then treated by an authorized dealer.

Therefore, the use of an Oil Water Separator Class I, will suppose savings of approx the 99 % on the cost of dealing with these oily water.

UTS Series For Marinas and/or Fishing Ports



MODEL	CONNECTIONS		POWER (kW)	FLOW (m ³ /h)
	Inlet	Outlet		
UTS-1800	Flexible 1½" PE	DN50 HDPE	1	1.8
UTS-4500	Flexible 2" PE	DN65 HDPE	2	4.5

Options

- Hose reel for suction hose (15 m x 1 ½") with automatic stop and withdrawal
- Card reader to allow access to the unit only to authorized staff as well as to have a register to know who and when has entered the system
- Discharge hose
- Kit of absorbent material for accidental spills
- Floating skimmer for suction of accidental spills

Operation

Water coming from bilges and oil chambers aboard ships go through the Oil and Bilge Water Transfer Unit towards the inlet of the Class I Coalescent Hydrocarbons Separator. In the oily water Separator the oils and hydrocarbons are separated from water and stored into the oil chamber.

Water already free of oils/hydrocarbons is discharged by gravity with a content of less than 5 mg/l, therefore can be discharged directly into the sea or into the sanitary collector in the port.

The oils/hydrocarbons stored in the oil chamber, once max. storage capacity has been reached, must be delivered to an authorized dealer for appropriate treatment.

With this process there are very important savings on the cost of dealing with these wastewaters since the authorized dealer only will have to take away the separated oils but not all the water coming from bilge. If there were no Oil Water Separator, all untreated bilge water would have to be stored and then delivered to an authorized dealer for appropriate treatment.

Suction and Treatment Operations carried out this way by these Units allow achieving a 99% saving on the cost of treatment of these wastewaters, as well as decrease to the minimum the space necessary for storage.

UTR Series For Marinas and/or Fishing Ports



In most of the ships, waters coming from urinals, W.C., showers and toilets (this is: black and grey waters) are discharged directly into the sea. Discharge of this sewage directly into the sea involves a very important harmful effect on ports and bathing areas.

To keep the quality of water everywhere and therefore also in ports and bathing areas is highly necessary by sanitary reasons, ecological reasons, social reasons and landscape reasons.

To avoid these harmful discharges you must use the Sewage Water Transfer Units together with an storage tank or a sewage treatment plant.

Features

Facet Model UTR Transfer Units for Sewage Water are self-priming, designed to help suction of these waters, noiseless and able to handle small solids. They can suction sewage water from up to 7.5 m.w.c. and discharge them at a pressure of 15 m.w.c.

Electrical supply: 3ph/380V/50Hz. Connections: Universal conic coupling for any kind of mouths. Provided with an isolation valve at the end.

Facet Model UTR Units comprise:

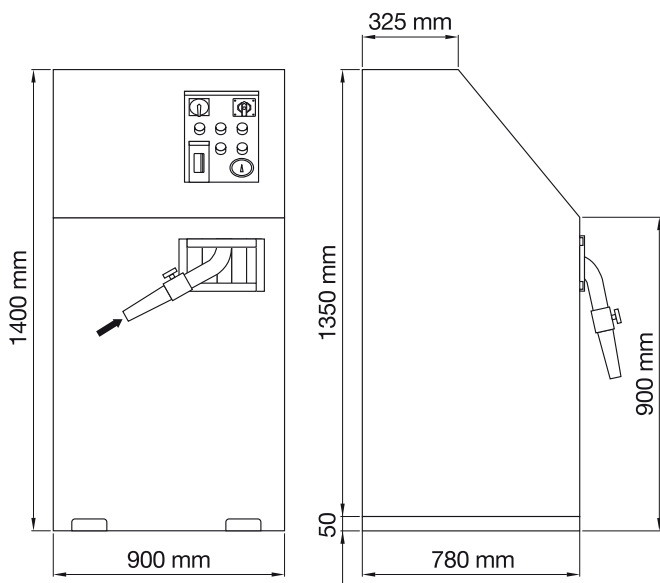
- Universal conic suction connection
- 15 m of 1 1/2" non collapsible suction hose
- Isolation valves at both suction and discharge
- Vandal proof cabin in stainless steel which assures no corrosion
- Electrical control panel with start/stop leds, switches and vacuostat

Results

To give an example, a ship with a crew of four people can generate in a journey up to 280 l of sewage. This sewage water cannot be discharged directly into the sea, so they must be stored onboard. Once in the dock they are discharged from the ship through the transfer unit to the corresponding treatment system.

UTR Series

For Marinas and/or Fishing Ports



MODEL	CONNECTIONS		POWER (kW)	FLOW (m ³ /h)
	Inlet	Outlet		
UTR-1800	Flexible 1½" PE	DN50 HDPE	1	1.8
UTR-4500	Flexible 2" PE	DN65 HDPE	2	4.5

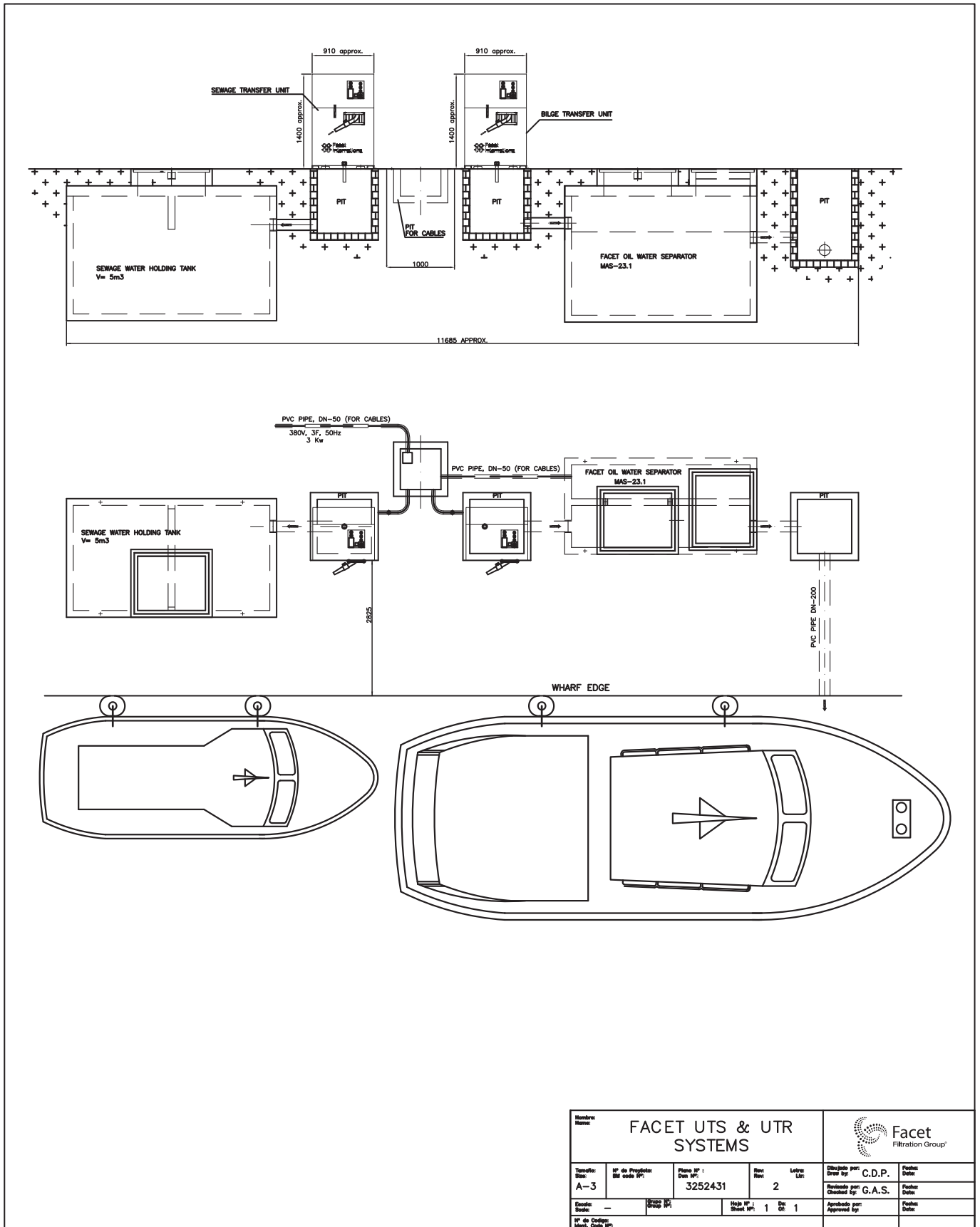
Options

- Hose reel for suction hose (15 m x 1 ½") with automatic hose stop and withdrawal
- Card reader to allow access to the unit only to authorized staff as well as to have a register to know who and when has entered the system
- Discharge hose

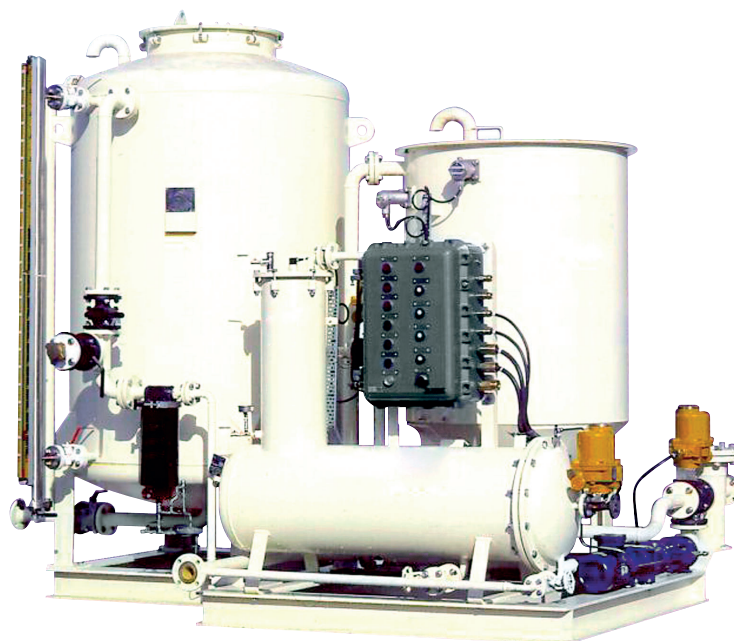
Operation

Water coming from sewage tanks of the ships goes through the Sewage Transfer Units to the sanitary collector in the port or to the Facet 5000 l storage tank.

Sewage stored in the tank, once max. storage capacity has been reached, must be delivered to an authorized dealer for appropriate treatment.



Nombre: Name:					FACET UTS & UTR SYSTEMS		Facet Filtration Group
Modelo: Size:	Nº de Proyecto: Proj code Nº:	Plano Nº: Plan Nº:	Rev: Rev:	Letras: Ltr:	Elabrado por: Draw by:	Fecha: Date:	
A-3		3252431	2		C.D.P.		
Escala: Scale:	Grupo Nº: Group Nº:	Hoja Nº: Sheet Nº:	De: Of:	1 1	Revisado por: Checked by:	Fecha: Date:	
Nº de Código: Ident. Code Nº:					G.A.S.	Aprobado por: Approved by:	
						Fecha: Date:	



The Jet Recovery System is a compact designed treatment unit to process the drainage of the tanks, whether they would be on surface, or underground. The connection between the unit and the tanks is carried out by an intermediate drain storage tank, or directly, depending on the operation selected.

This tank drainage treatment unit has two main functions:

1. To recover the product coming from the drain in the bottom of the tanks, clean it, and later returning it to the storage tanks once it complies with the required specifications.
2. To separate the water coming from the drains in the bottom of the tanks, and discharge it according to the safety conditions established by the standards of the Environmental Protection Regulations.

The product originating from the drain of the tank is introduced into the Primary Tank by a pump until it reaches its maximum level of operation. At this point the pump stops, and the Treatment Cycle of the accumulated product starts again.

The settling of the water is produced in the Primary Tank, depositing it into the cone – shaped part of the tank, where, first the water and later the fuel, will be discharged when the level is sufficient.

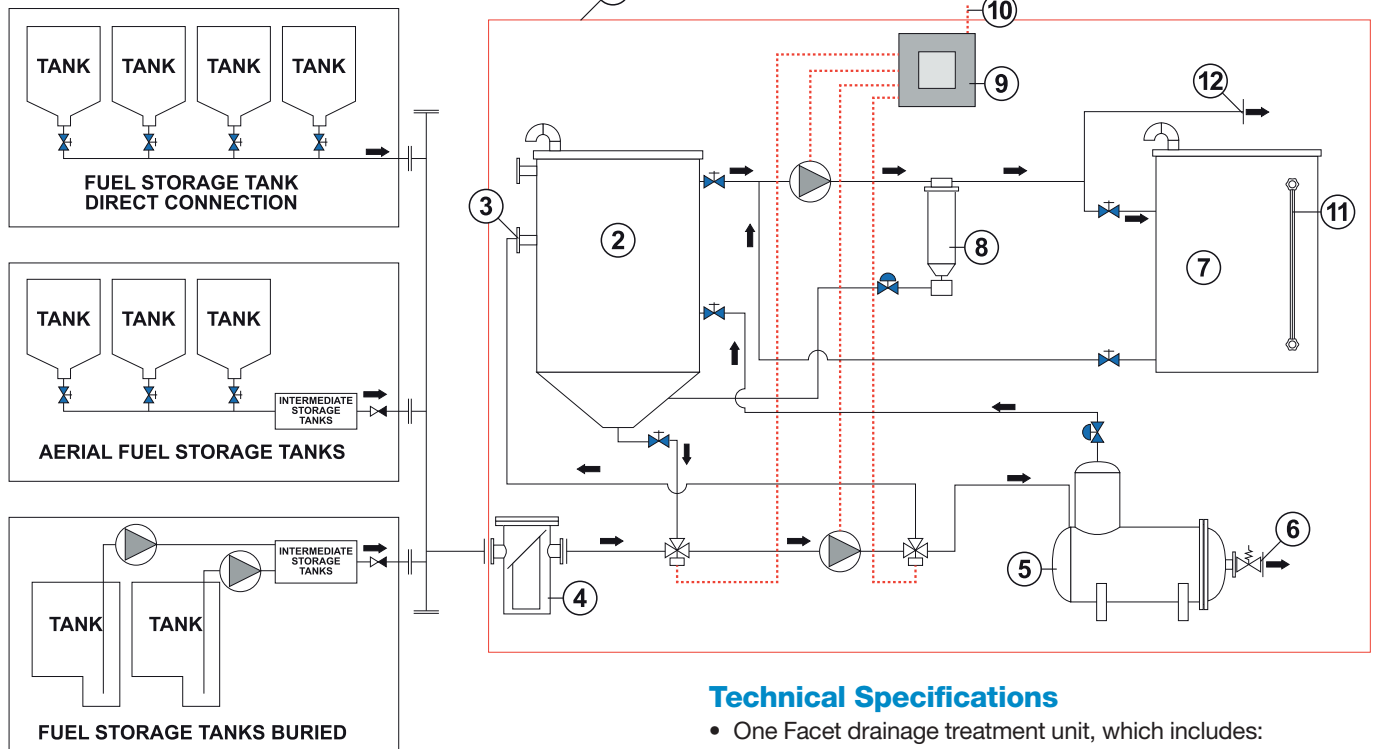
The discharge to the outside of the water deposited is carried out through the Oil / Water Separator where the water passes through the Facet MPak® Coalescent Plates, discharging the water free of fuel to the outside, and accumulating the separated fuel in the dome of the CPS Facet Separator. When the pre-established level is reached, it is again discharged to the Primary Tank.

The accumulated fuel is discharged by a fuel pump, making it pass through a coalescent microfilter separator before depositing it into the Product Recovery Tank, with the purpose of eliminating impurities and water from the recovered fuel.

The fuel stored in the Product Recovery Tank can be discharged with the fuel pump to a tank truck or any other tank.

Jet Recovery System

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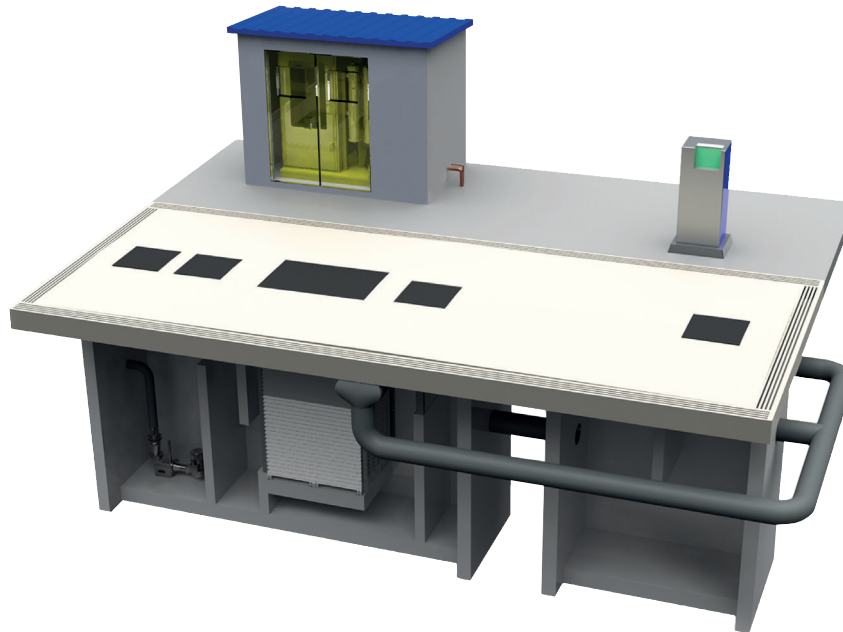


ITEM	DESCRIPTION
1	Facet scope of supply
2	Primary tank (1 m ³)
3	Purge inlet
4	Basket filter
5	Oil water separator
6	Clean water discharge
7	Storage tank (2 m ³)
8	Microfilter separator
9	Control Panel
10	Power supply
11	Level
12	Fast connection to tanks

Technical Specifications

- One Facet drainage treatment unit, which includes:
 - One Facet Basket Strainer BS-2 Pump Protection Filter
 - One screw pump with a capacity of 1 m³/h, driven by an explosion proof motor Ex (d) ITB-T3, of 0,5 hp. 3f., 50Hz.
 - One Carbon Steel Primary Tank, protected by epoxy paint, with 1000 lt. capacity. This tank receives the drainage from the different storage tanks, and retains it until the automatic treatment starts. In other words, until the adequate level of liquid is reached in it. There is also the possibility of starting the unit manually, so that it may operate, when convenient.
 - One Facet CPS- 5BL Oil Water Separator, for the separation of jet fuel from water prior to its discharge, with a 1000 l/h capacity. The separated jet fuel is then injected into the primary tank.
 - One Facet Fuel Gear Pump with a capacity of 3 m³/h, driven by an explosion proof motor Ex (d) ITB-T3, of 1,5 hp. 3f., 50Hz.
- One Facet Microfilter Separator, Model VFCS-22-7, to separate water from jet fuel before injecting it into the Fuel Recovery Tank. It will be supplied with an automatic drainage system that will discharge the separated water into the primary tank, a manual venting, draining valves, and a differential pressure gauge.
- One 2000 ltr. Fuel Recovery Tank to store the recovered product, with the possibility of a manual discharge by the Fuel Gear Pump, and the Microfilter Separator VFCS-22-7 to a tank truck or a fixed tank.
- One Ex(d) Control Panel for automatic operation (located in the unit), with the necessary logic for the automatic and manual operation of the unit. Tanks may be drained when operator wishes, or it may also have a timer in the control panel programmed to control its operation.

UR Series Car Washing Recycling Systems



The Facet Car Wash Water Reuse Systems UR Series, have been designed to treat water coming from car washes (manual, automatic, in boxes, washing tunnels...) of personal, industrial and agricultural vehicles, etc.

The fact that the Car Wash Water Reuse Systems have been designed for both over and under ground allows them to be easily fitted to the existing washing units.

The Facet UR system will allow you to meet the requirements of the Water Framework Directive, as well as the 91/271/CE Landfill Directive.

The installation of one Facet UR system will allow you to reuse 85% of car wash water, decreasing in the same percentage the discharge (landfill fee reduction) and the water consumption. In the same way, an important reduction in the consumption of waxes and detergents will be obtained in the different car washes.

The water Regeneration process is undertaken through totally physical procedures without the need of manpower or adding or regulating chemicals.

It basically consists of a continuous process of:

- Thick solid primary decanting
- Thin solid secondary decanting
- Oil and waxes emulsion breaking with the use of ozone
- Foam elimination
- Oil and fat elimination
- Thin membrane filtration (<10 microns)
- Disinfection and deodorization with the use of Ozone

UR Series

Car Washing Recycling Systems

The Facet Car Wash Water Reuse System is made up of: two prefabricated reinforced concrete tanks (sludge trap, lung chamber and Class I oil water separator, where the MPak[®] coalescent plates are kept according to the necessary capacity) and by the Facet Regenerative Compact Station built in galvanised steel.

As part of the Regenerative Station we can find the vandal proof cabin, where all the control elements are placed (the control PLC, which manages totally and automatically the unit operation).

Operation

The water from the car wash goes through a canal to the sludge decantation tank, where the separation of sedimentary solids in water takes place. Thereupon, the water goes to the Facet Class I oil water separator, in which the free oil (oil, diesel, petrol, waxes...) are separated thanks to the coalescent MPak[®] plates, after this process the water enters in the reinforced concrete lung chamber. Once there, the Compact Unit makes the water circulate through the thin filters of the regenerating station, from there it is supplied once again to the car wash machine with a pressure of 4 to 6 bars.

Part of the water from the lung chamber is cyclically circulated through the regeneration station conditioner and returned to the sludge decantation tank. While it is going through the conditioner it is sterilized by means of Ozone, which avoids the formation of bacteria colonies and the presence of odours and, at the same time, it oxidizes the detergents, waxes and oils present in water. They will be separated in the sludge decantation tank or in the oil separator tank.

Construction Materials

Prefabricated concrete deposits and oil separators:

- Body: reinforced concrete according to DIN 4281
- Covers: Cast iron (nodular cast iron) C250 class according to EN124
- Partitions: reinforced concrete
- Cable entries: PVC
- Class I Separator according to UNE-EN-858

Regenerative Compact Station:

- Cabin: galvanised and painted steel
- Structure: galvanised and painted steel
- Piping: galvanised steel
- Accessories: brass/polyethylene

Interconnection piping:

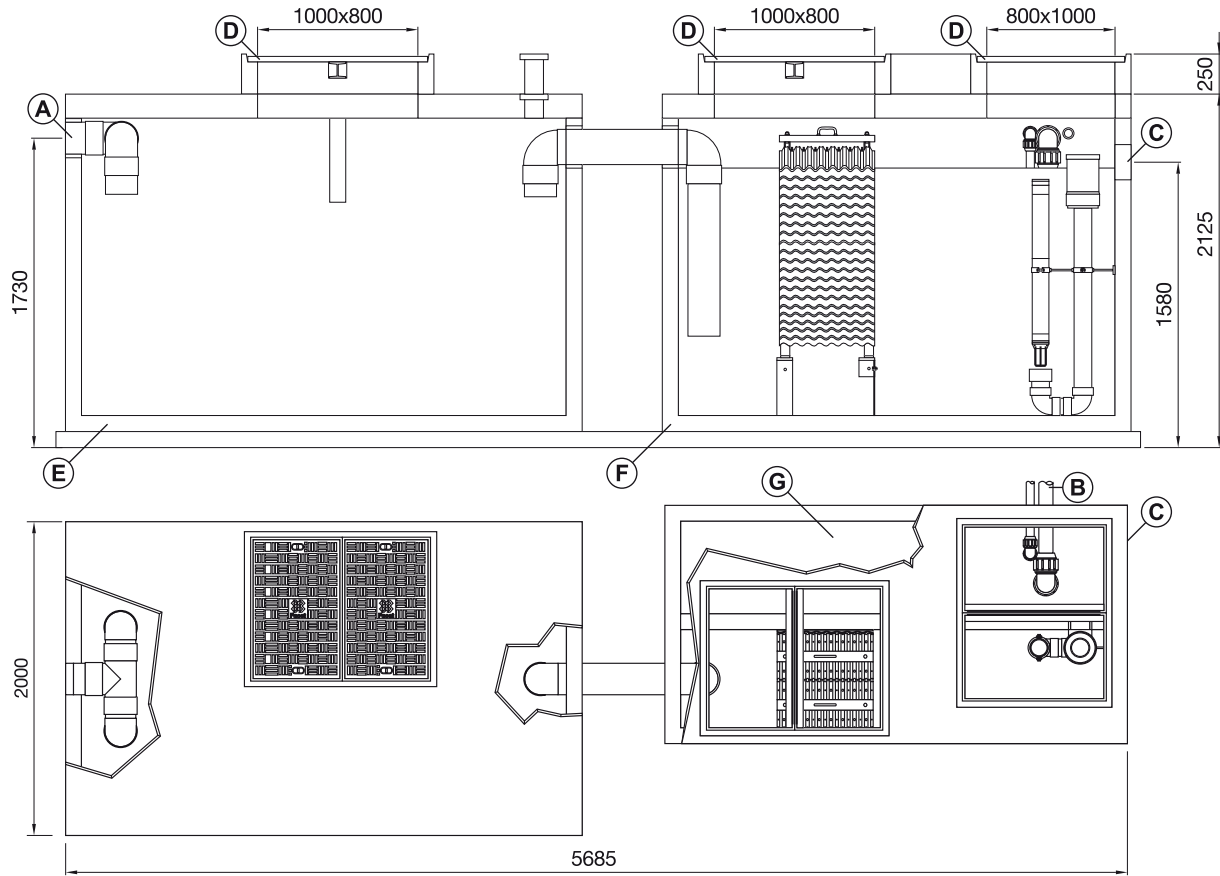
- Pipes: polyethylene
- Accessories: polyethylene

Standard Characteristics

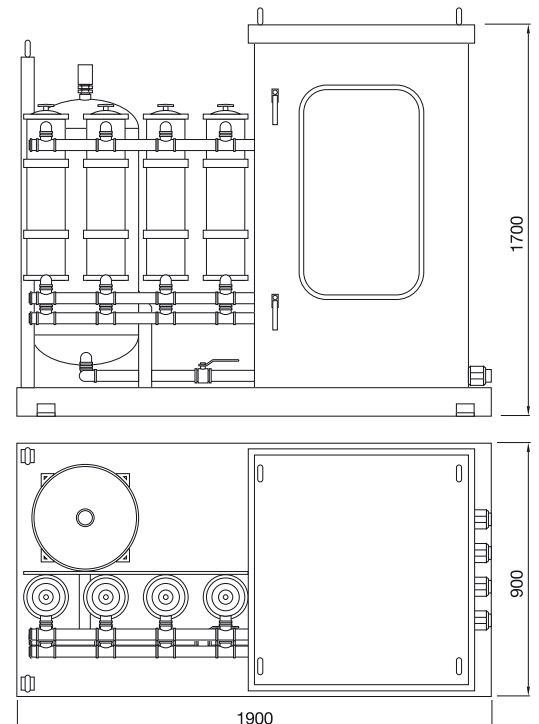
- Meets the Landfill Legislation 91/271/CE
 - Meets the water reuse quality 1.2 according to RD 1620/2007
 - Does not let off odours
 - Automatic operation led by the PLC
 - Interior protection of the cabin using epoxy 250 microns paint and white top coat. Includes a self supporting platform for its installation directly on a concrete base and lifting lugs
 - Electrical control box IP-55, including operation diagram
 - Inspection records in each chamber
- Includes:
- 3 level floats in the lung chamber for S/S/W (start/stop/high level)
 - 1 connections box for the cables of the previous levels – IP-65

MODEL	CAPACITY (lpm)	SEPARATOR (l/seg)	LUNG (m ³)	REGENERATIVE STATION (l/h)	POWER (kW)
UR-50	50	10	2	3000	3
UR-100	100	10	2	6000	3
UR-200	200	10	2	12000	4

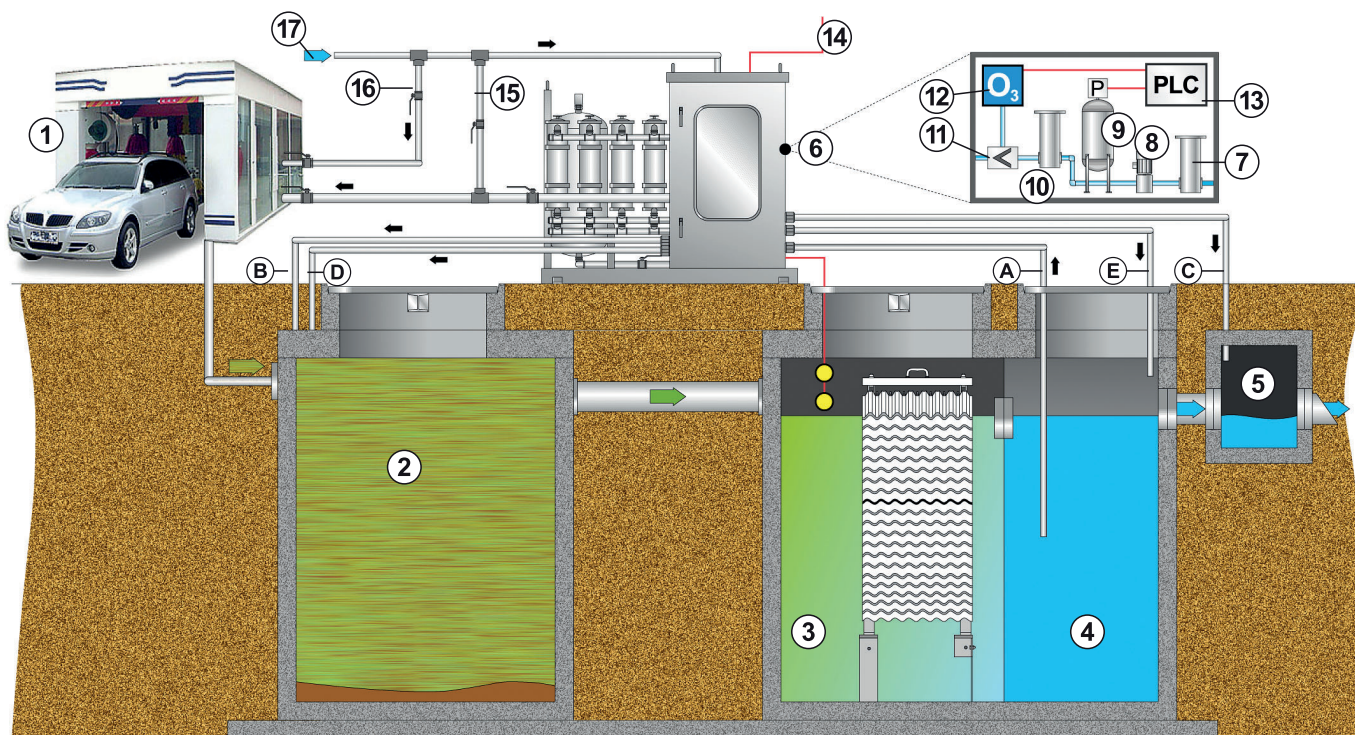
UR Series Car Washing Recycling Systems



MARK	SERVICE
A	Inlet
B	Outlet
C	Relief
D	Manhole
E	Sludge Trap
F	Oil Separator
G	Lung Chamber



UR Series Car Washing Recycling Systems



ITEM	DESCRIPTION
1	Car Washing Machine
2	Sludge Settling Tank
3	Oil Separator Class I
4	Lung Chamber
5	Outlet Pit
6	Regenerative Compact Station
7	Protection Filter
8	Recirculation Pump
9	Hidropresor Regulation
10	Pecofacet Fine Filters
11	Ozone Injector
12	Ozone Generator
13	PLC Control
14	Power Supply (380V, 3F+N, 50Hz, P=4Kw)
15	By-Pass
16	Water Inlet
17	Water Rinse

ITEM	DESCRIPTION
A	Treatment Line
B	Filling Line
C	Drain Line
D	Ozone Line
E	Ozone Line



Facet
Filtration Group®