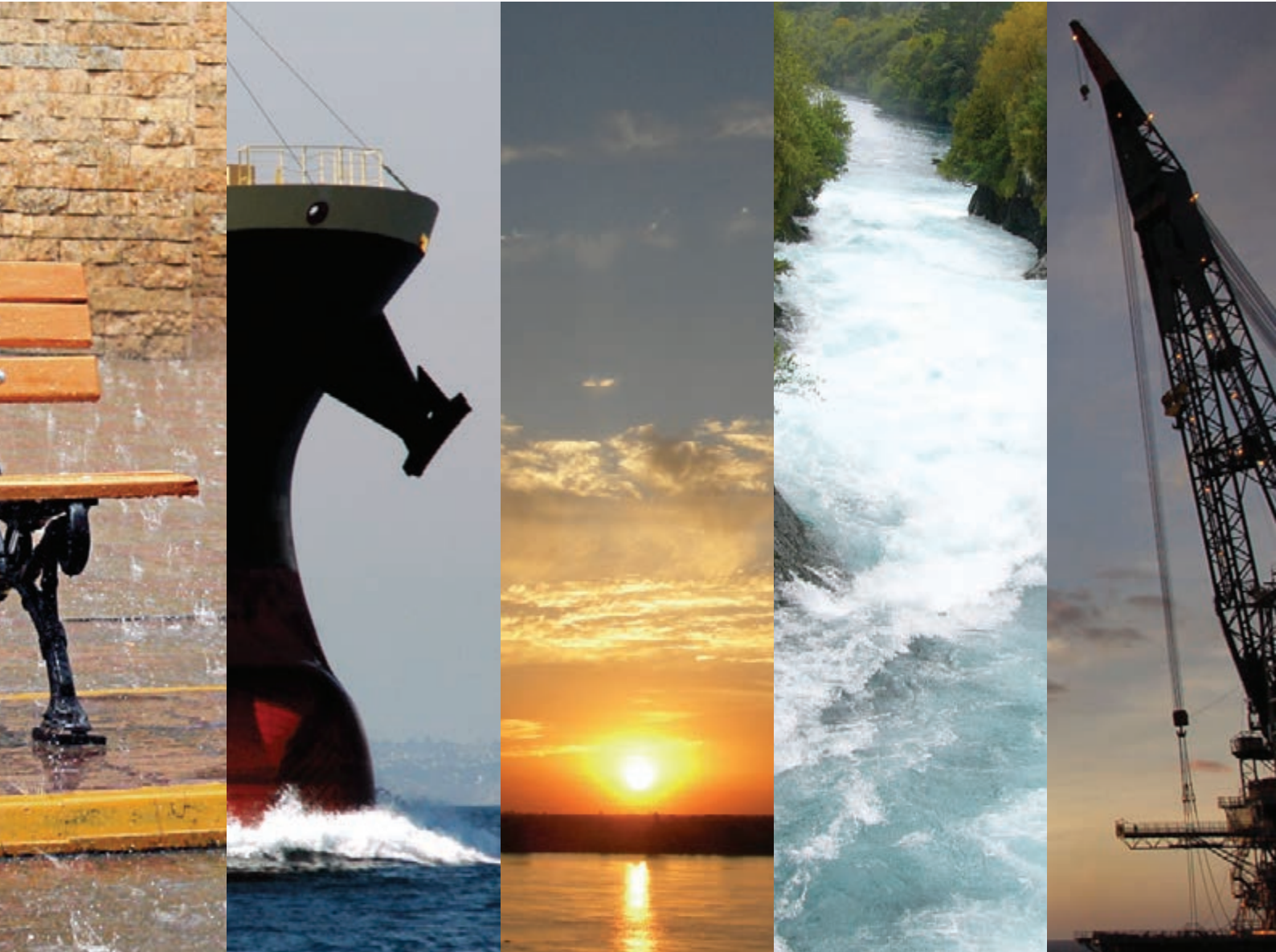


## PECOFacet Process Filtration Water Treatment & Reuse



CLARCOR is a global provider of filtration products and services. We offer the industry's broadest product range with more than 80,000 filter types, superb product quality, leading brands, extensive distribution network and technical expertise to serve customers worldwide.

CLARCOR provides Total Filtration from a single source by bringing together the products, experience and expertise of our companies to meet all your filtration and wastewater treatment needs. This collaboration insures that customers receive the best filtration and on-time delivery directly to each business location to protect people, equipment and the environment.

CLARCOR offers the broadest array of filtration products, technologies and services to meet current and future filtration and wastewater treatment requirements. Our customers, worldwide, depend on CLARCOR filtration products to fuel their future.

CLARCOR provides unparalleled customer value with filtration solutions for water, fuel, oil, air and gas in every stage and aspect related to its particulate field. We optimize equipment reliability and power output to reduce equipment downtime and unplanned power outages.

CLARCOR is positioned to meet your Total Filtration and service needs.

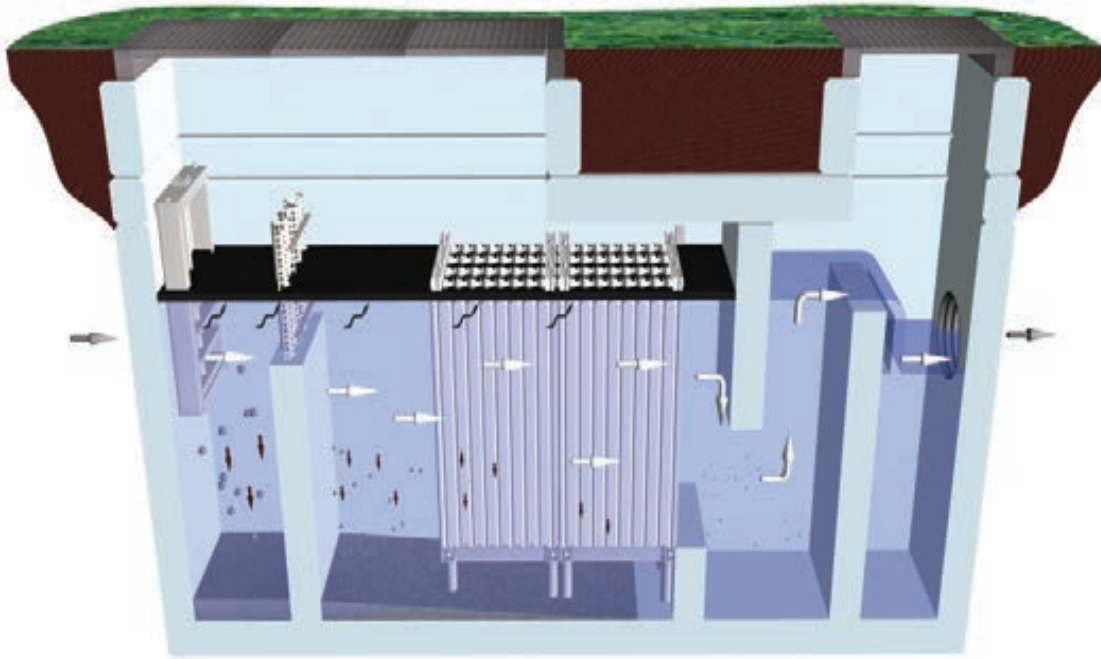
## PECOFacet Process Filtration Water Treatment & Reuse

PECOFacet provides filtration and separation technologies to serve the world's natural gas, petrochemical, refining, marine, offshore and aviation industries. With over 75 years of industry knowledge, engineering vision, ongoing research, and a vast network of resources, PECOFacet continually produces innovative contaminant management solutions for an ever-changing industry landscape and an environmentally conscious world.



**TILLQUIST**

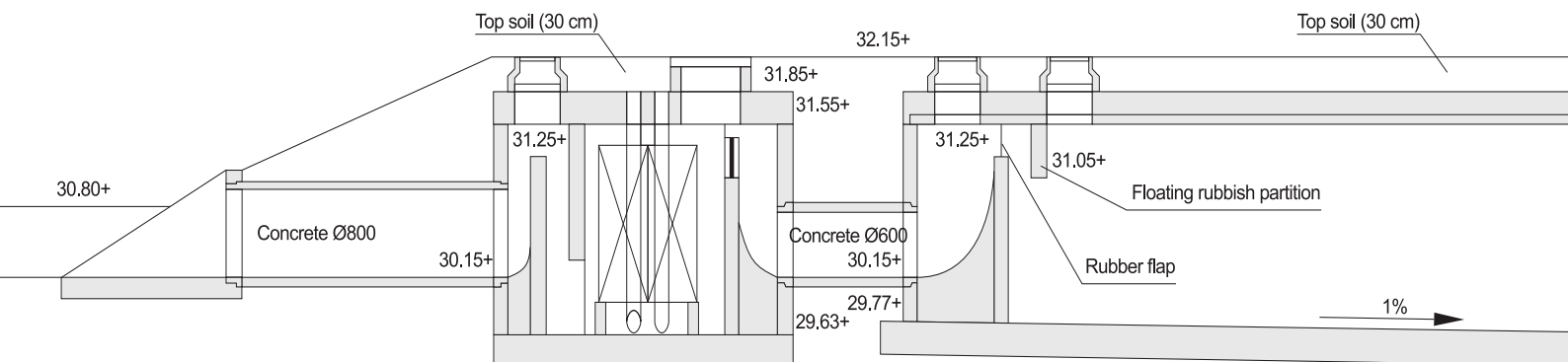




# RAINWATER RUN-OFF SEPARATORS

When rainwater flows from roads, parking lots and rooftops, it drags in its wake all kinds of substances (i.e. sand, mineral oils, car tire remnants, exhaust gasses, heavy metals) that are harmful to the environment.

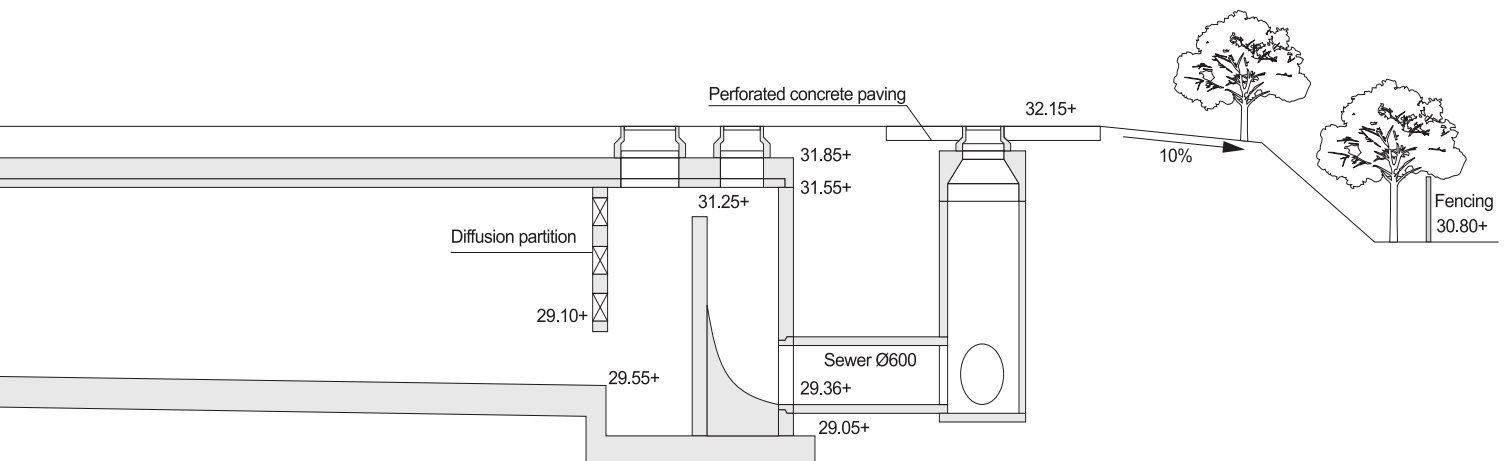
Rainwater should be treated before discharging it to any watercourse (i.e. lakes, rivers, groundwater) to prevent these sediments may cause any environmental damage.





# RAINWATER RUN-OFF SEPARATORS

PECOFacet designs, manufactures and distributes a wide range of Rainwater Run-Off Separators adapting them to the specific needs of customers and in compliance with the most stringent specifications of the regulatory agencies.



MAS series, oil water separators using coalescent plates are designed to treat hydrocarbon water.

These separators can be fed by gravity or pumped, carrying out separation by physical means.

Operation is fail safe and no maintenance is needed because these units have no mobile parts and do not require consumables.

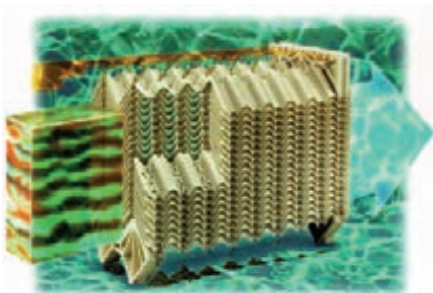
Double Corrugated MPak<sup>®</sup> Coalescent Plates are installed inside the separators.



## OIL WATER SEPARATORS

MPak<sup>®</sup> plates are mounted in modular packs and provided with an adjust device against the vessel which insures that all the flow to be treated goes through the plates.

- Optimal working range temperature of MPak<sup>®</sup> plates is 4 to 98 °C (40 to 208 °F).
- MAS Series separators can be equipped with adjustable skimmers to withdraw separated hydrocarbons.
- Optional design with storage chamber available to accumulate separated hydrocarbons.



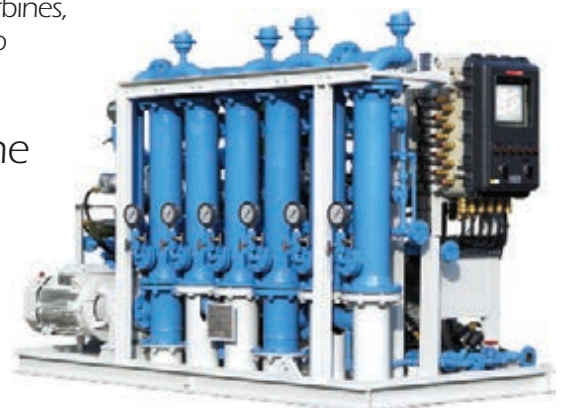


PECOFacet Oil Water Separators with membranes are designed to treat hydrocarbon water coming from deckdrain water, produced water and drilling mud.

- Fed by gravity or pumped.
- Carry out separation by physical means, do not require consumables and have no mobile parts, therefore no maintenance is needed and its operation is free of failures.
- Double Corrugated MPak<sup>®</sup> coalescent plates are installed inside.
- Performance guarantee -reduces oil contamination to limits as low as 10 ppm.
- Self-cleaning.
- Operating temperature: 2 - 32° C (35.6 - 90° F).
- Designed to treat the oil water generated from the maintenance of turbines, engines and so on, which show many difficulties for its separation due to the presence of water-oil emulsions.

Tested, approved and certified according to the requirements of IMO MEPC.107(49), reaching down to an effluent with total hydrocarbon content of less than 15 ppm.

Flow rates from 2.2 to 44 usgpm (0.5 - 10 cu.m/h).





PECOFacet's unique VTP built-in vacuum system transports black water along the piping system to the treatment plant.

The vacuum in the circuit is achieved automatically with an ejector and circulating pump.

VTP plants are built in a single steel module to facilitate transportation and onboard installation. Inside this module there are three specially designed chambers for aeration, settling and disinfection. These chambers are oriented in such a way as to guarantee correct operation and avoid sludge generation. Each chamber has been provided with an access and inspection register. The plant comes completely assembled and tested so that their installation onboard is very quick.

## WASTEWATER TREATMENT PLANTS



PECOFacet Sewage Systems with integrated vacuum have been designed for the treatment of black water (coming from W.C., urinals and hospitals) and grey water (sinks, showers, laundry and galley) generated onboard ships.

This treatment consists of the purification, and later disinfection, of water in order to achieve a quality effluent meeting all legislative requirements.

These plants treat sewage biologically, meaning they are of the active sludge, prolonged aeration, aerobic type.

PECOFacet STP plants are built in a single steel module to ease transportation and onboard installation.

- Meet Marpol Annex IV Requirements, 8(1)(b) and 9.1.1 Regulations, as well as IMO Resolution MEPC-2(VI), MEPC-159(55), CE Standards 96/98/EC and 98/85/EC.
- They do not generate sludges that must be unloaded.
- Fully automatic operation driven by PLC.
- Explosion proof design (ATEX).





## WASTEWATER TREATMENT PLANTS



PECOFacet's STP series Sewage Treatment Plants have been designed for gravity or pumping treatment of domestic and industrial sewage. They can be installed above or below the ground. These plants carry out the sewage treatment by biological means using active sludge aerobic and extended aeration, without requiring any other kind of dosing or additivation.

The plant consists of three chambers (aeration, settling and discharge-disinfection) which have been arranged to facilitate transport and installation. Every chamber has the necessary access and inspection registers. This modular construction allows the increase of the processing capacity by placing more plants in parallel.

All the instruments and control elements of the plant are housed inside an anti-vandal cabinet. The connection between the instruments which are inside the cabinet and the plant is throughout pipes of the corresponding section.

Contaminated water resulting from offshore oil and gas platform drilling contains mercury and other toxic heavy metals. Mercury concentration in these retrieved waters can be as high as 2,000 parts per billion; requiring produced water to be treated before it can be safely discharged to the environment. The complex mixture of constituents, including salts and petroleum hydrocarbons presents a challenge for mercury removal using currently available conventional technologies.

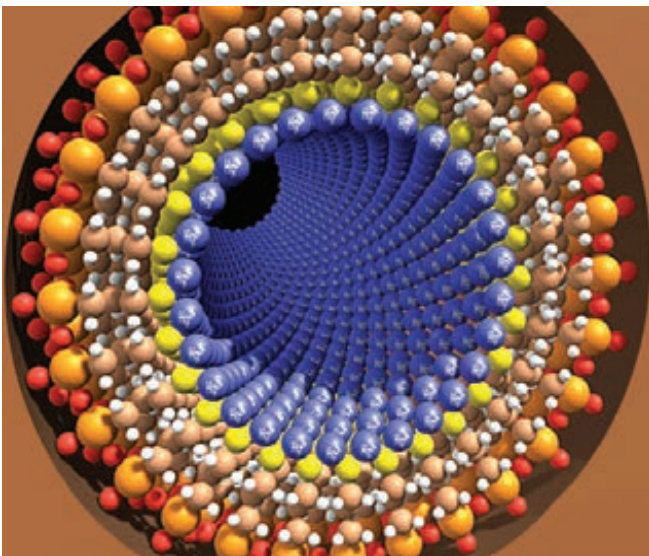
PECOFacet's Mercury Removal System utilizes SAMMS™ or Self Assembled Monolayers on Mesoporous Supports, a nano-porous sorbent with a very high internal surface area. This innovative filtration method combines two advanced frontiers of materials science to specifically remove mercury and other contaminants such as arsenic, and other heavy metals from produced waters and condensate liquids from natural gas. SAMMS™ can absorb as much as 2/3 of its weight in mercury and the sorption kinetics are extremely fast (within minutes) compared to traditional resin products on the market. In addition, the filtration media can be tailored for a specific application. The sorbent has a high specificity for the mercury being removed, such that the free end of the monolayer is designed to selectively bind targeted molecules while the pore size, monolayer length, and density can be adjusted to give the material specific diffusive and kinetic properties.

## MERCURY REMOVAL SYSTEM





## MERCURY REMOVAL SYSTEM



"Mercaptopropyl siloxane monolayer lining the pore surface of mesoporous silica. The mercury (shown in blue) binds to the sulfur atoms (sulfur atoms are shown in yellow)"

Installed on-site at the platform, our filtration system performs two distinct operations:

1. A pre-filter which produced water, natural gas condensate or crude oil passes through to coalesce and remove both elemental and particulate mercury.
2. Dissolved mercury then passes through a secondary filter for adsorption and ultimate removal.

The spent filters can be disposed or used for mercury reclamation.

### BENEFITS:

- Filters and Absorbs Mercury to Below 1 ppb
- Dependable / Trouble-free Operation
- Extremely Fast Sorption Kinetics
- Long Absorption Life
- Low Maintenance
- Easy Installation

## KONTAKTA OSS GÄRNA FÖR MER INFORMATION

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