RAINWATER TREATMENT

OIL SEPARATORS FOR UNCOVERED PAVED AREAS

The main feature of this type of oil separators for large paved areas is their capacity to treat the whole rainwater runoff from a surface at any time and to direct, through a level spillway, the surplus water, separated from oil and sludge, to the drain.

Such treatment systems are made up of one or more sludge separation and sedimentation tanks and by at least one oil separation chamber, fitted with an intermediate wall, inlet and outlet siphon tube and water-repellent oil-absorbent pads. Optional coalescer filter and safety float.

Sizing criteria

Our technical department is in charge of sizing each item according to specific hydraulic calculations,to the customers' specific requirements, and to rainwater flow and intensity as per provisions set forth by law.

Yield is guaranteed by retention time duration, by the siphon tubes and by the intermediate wall found in the central part of the oil separator, behind which oil builds up.

Running and maintenance and operation versatility

This type of treatment does not require pumps, sensors and electrical panels, hence power consumption and running issues pertaining to electromechanical devices are non-existent.

As the tanks are fitted with level spillway, the system is not affected by variation in rain intensity and is therefore suitable for treating just few litres as well as heavy flows.

In addition, differently from first flush tanks, the system also treats and separates the oily and settleable substances contained in surplus rainwater exceeding the 5 mm limit.

Such feature is extremely convenienet in the case of accidental oil spill throughout the whole duration of a meteorological event.

Products

Our technical department is able to provide custom solutions to meet all users' special requirements.
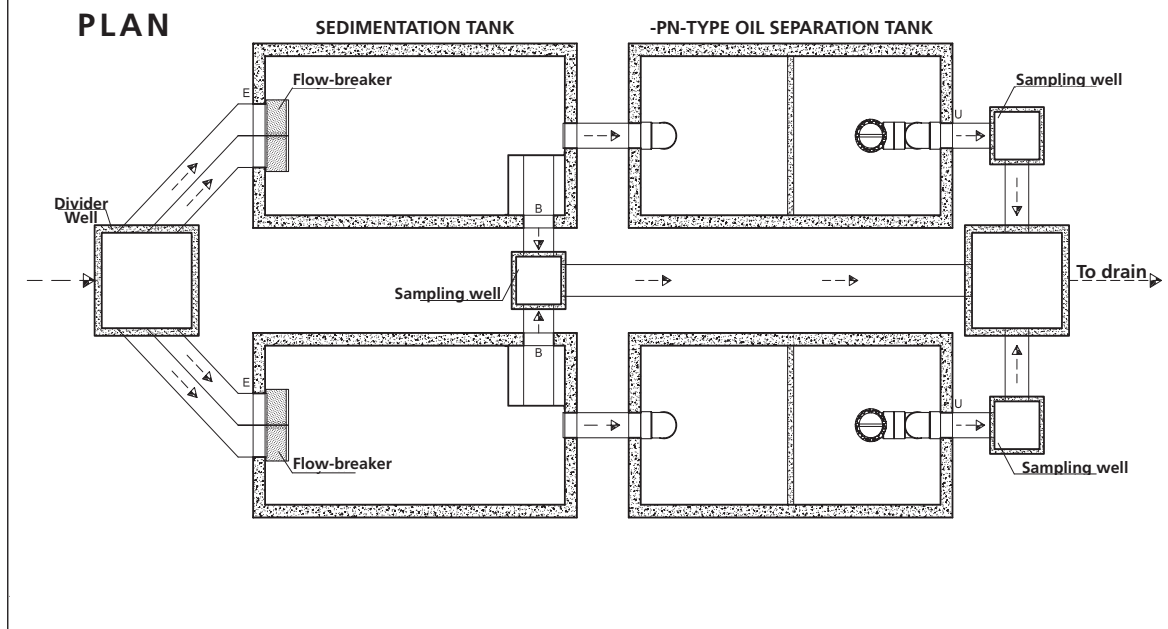
One adequately sized oil separator is sufficient for small areas, while larger surfaces require a sequence of tanks. In areas exceeding 22,000 sq m surface, incoming flow must be split up into two lines operating in parallel.

In areas subject to heavy traffic, or used as a parking lot, it is advisable to increase the number of tanks to achieve a better degree of separation of oily and settleable materials.

In areas used for storing material, or for performing specific processes, treatment efficiency must be assessed according to each single case.

Boer Group

OIL SEPARATOR SYSTEM

FOR LARGE UNCOVERED PAVED AREAS – EC –

PLAN

SEDIMENTATION TANK   -PN-TYPE OIL SEPARATION TANK

Flow-breaker
Sampling well
E
U
Divider Well
Sampling well
B
To drain
B
E
Flow-breaker
U
Sampling well

FIRST FLUSH TANKS sized pursuant to Regional Law no. 62 of 27.05.1985 Lombardy Region

Modular or monolithic rainwater harvesting tanks are used for collecting the first 5 mm of runoff evenly covering a surface.

The purpose of such tanks is that of storing polluted water and avoiding it immediately flows into the drain. Later, the water held by the tanks is directed, by means of a discharge pump, to the municipal sewage system or, if containing hydrocarbons, surfactants, settleable solids, heavy metals, etc, undergoes treatment in specific systems (e.g. oil separation plants and/or chemical-physical plants). First flush water should be allowed to flow into the municipal system within 24-48 hours of the end of the meteorological event and, anyhow, according to the limits set forth by the entity running the sewer system and the water treatment plant. Such rule applies because, in the event of precipitation, municipal water treatment plants are overloaded with incoming water from mixed sewage and would hence have to purify huge quantities exceeding their treating capacity.

Sizing criteria

This system is made up of a precast modular or monolithic tank containing a party wall and, if applicable, by other containers in the same size in the number needed to reach the storage volume, calculated by applying the 5 mm of evenly distributed rain on a paved surface parameter. The main module is fitted with an electronic device placed by the inlet, which signals start and end of precipitation and, following a set time of beginning of the same, activates a pump for discharging the water collected so far, directing it to the sewer system, or to the treatment plant if applicable. The tanks are fitted with a standard first flush flow stop float, which activates when the same are full.

Running and maintenance

The sensor must be periodically checked and, if needed, freed from sediments that may affect its correct operation.
Also tank discharge pump operation must be verified.

Products and technical features

Tank size cm 300x200x200 h, is available in both modular (50 cm height modules) and monolithic version with 200 cm height and 16 cm thickness. Cm 400-500x200x200 h tanks are only monolithic. Monolithic tanks are single-cast, according to reinforced concrete standards, and bear up to 2000 kg/ sq m uniformly distributed load.

All systems are fitted with water-tight electronic rain detector and IP65 and PLC protection electrical panel controlling the various functions.
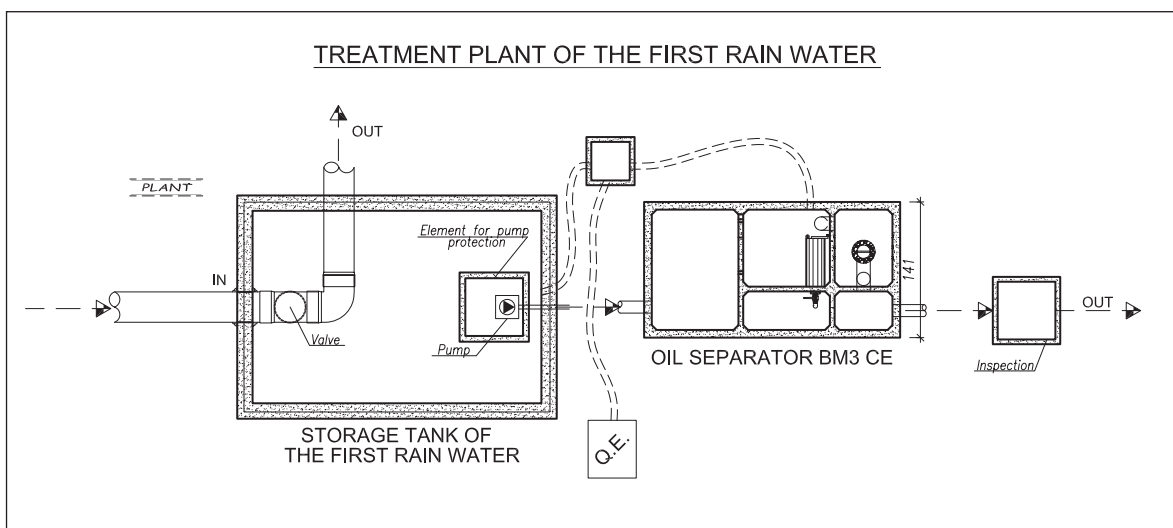
TREATMENT PLANT OF THE FIRST RAIN WATER

Our technical department is able to provide custom solutions to meet all users' special requirements, with combinations including a selection of tank sizes and non-standard height options. **Below, some absolutely non-binding sizing options.**

Treated surface (sq m)	Volume to be treated (Litres)	Number of tanks	Inside dimensions LxWxH (cm)	Cover thickness (cm)	Weight of heaviest element (kg)
500	2500	1	250x125x150	16	1400
1000	5000	1	250x125x200	16	1400
1500	7500	1	300x200x200	16/20*	2800/11000*
2000	10000	1	400x200x200	20	14000
2500	12500	1	400x200x200	20	14000
3000	15000	1	500x200x200	20	18000
3500	17500	2	300x200x200	16/20*	2800/11000*
4000	20000	2	400x200x200	20	14000
4500	22500	2	400x200x200	20	14000
5000	25000	2	400x200x200	20	14000
5500	27500	2	500x200x200	20	18000
6000	30000	2	500x200x200	2020	18000
6500	32500	3	400x200x200	2020	14000
7000	35000	3	400x200x200	20	14000
7500	37500	3	400x200x200	20	14000
8000	40000	3	500x200x200	20	18000
8500	42500	3	500x200x200	20	18000
9000	45000	3	500x200x200	20	18000
9500	47500	3	500x200x200	20	18000
10000	50000	3	500x200x200	20	18000

monolithic tank

Approximate size and weight

Larger surfaces can be treated by adding extra tanks.