

SIEMEX OIL SEPARATOR MAINTAINANCE MANUAL

SIEMEX (M) Sdn Bhd

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GENERAL

SIEMEX separators are designed specifically to remove free oils and or other lightweight materials and solids from oil-water mixtures. SIEMEX engineers have designed a proven method of separation with a variety of options that will assist you in meeting state and federal oil grease effluent limitations.

SIEMEX oil separator with its unique arrangements of the angle of its inclined plates and configuration ensures economy of space and investment.

The separator is designed in one integral unit according to the basic theories of oil separation and combined with our experience in this discipline.

Units designed strictly conform to:

- The Malaysian Department of Environment standards governing oil and grease standard of discharge.
- The American Petroleum Institution general standards governing the separation of oil from water by gravity.

SIEMEX oil water separation system can be sized to accommodate virtually all types of pollutant discharges from workshops. Our units have no moving parts and therefore virtually maintenance free.

It can operate on pH and temperature ranges of:

- 28°C to 78°C
- pH 2 to 12

PROCESS DESCRIPTION

The system proposed requires an upstream collection or oil separator sump capable of retaining oily water. The oily effluent is transported via pipe from the relevant oil pit to the new oil separator.

The oily water will flow into the primary coalescing chamber. Here the oil droplets are increased to a larger droplet size to aid in fast and efficient separation (Larger oil droplets are more buoyant) before entering the SIP separator chamber. This coalescer plate packs will provide the laminar conditions for the separation of all sixty (60) micron oil droplets. An appreciable amount of oil and solids separation will occur in this plate pack chamber. The oil layer which will form on the surface of the liquid

whilst the suspended solids will settle to the bottom in this section of the SIP separator. Here after the treated effluent will yet pass through another coalescing filter thereby polishes the effluent to remove the minute amount of oil that might remain in the stream. The treated water which is to be discharged will flow through a connecting pipe, the entrance of which is one (1) metre below the surface of the liquid in the oil separator. This “tee” pipe is to prevent product entering the SIP separator in the event of a major oil spillage.

Ideal oil-water separation conditions are provided within the SIP separator by eliminating turbulence and short circuit flows. The water flows down through a nest of Hexabic tubes before ultimately passing over a discharge weir into the final compartment. The level of this weir controls the liquid level throughout the system.

During the passage through the plate nest the small oil droplets will rise up and collect on the underside of the plates. These droplets will combine with other droplets and under the action of buoyancy forces will rise up and collect on the liquid surface.

Similarly, fine solids will settle onto the upper surface of the plates before sliding off and collecting in the base of the separator. Both the remote sump and the separator are covered with the lids to avoid possibility of algae growth in the system.

As a result of effective separation enhanced by the Hexabic configuration there is little to no maintenance requirements as there are no moving parts and the plate pack has been designed for non-clogging.

FIRST FILL of THE UNIT

Begin by filling the unit with clean water. Fill from the inlet end and make sure the water level is high enough to at least exceed the top portion of the separator platepack. This procedure prevents and oil and particle to premature flush out to the discharge point.

Continue to fill the unit with the oily water effluent that is to be separated until the effluent begins to exit the OIL SEPARATOR

DESLUDGING

There is occasional requirement to de-sludge the system and removal of oil from remote sump. This occasional exercise can be done by a sullage contractor for a minimal fee.

To facilitate proper and easy de-sludging SIEMEX[®] have incorporated a removable baffle for easy cleaning of sludge.

Plates can be hosed down by spraying water to remove residual silt and replaced in its original position.

REMPLACEMENT

As there are no moving parts, wear and tear does not exist. No replacement is required.

FREQUENCY OF SERVICE

The service frequency is very much dependent on the activities of the particular industry and may vary.

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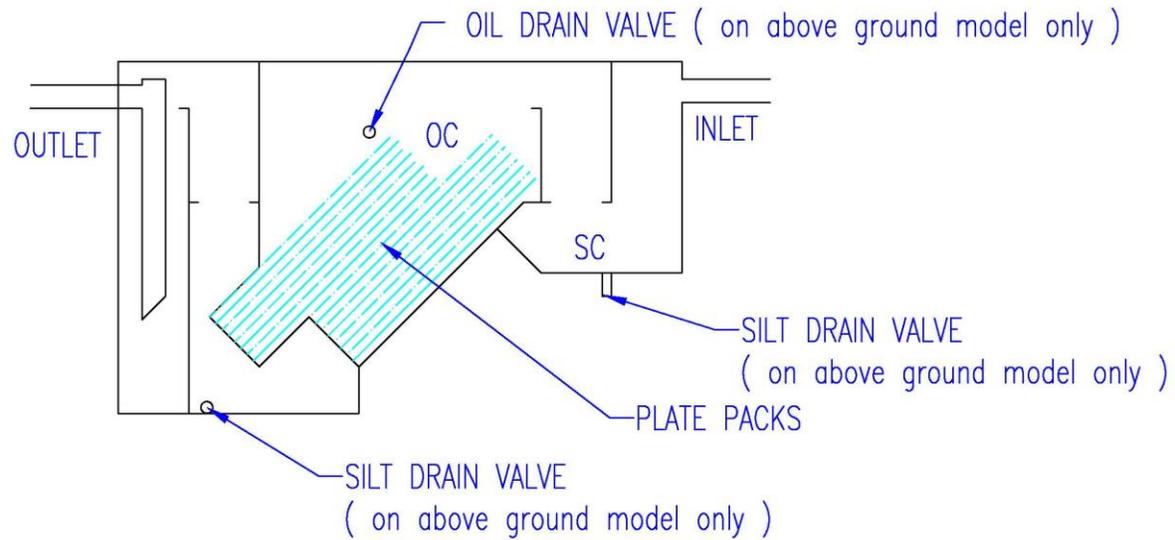
- PERIODICAL MANTAINENCE
- COMPLETE PUMP OUT

The recommended periodical maintenance servicing intervals for the oil separators under normal conditions would be every 3 months.

Complete pump out should be done yearly.

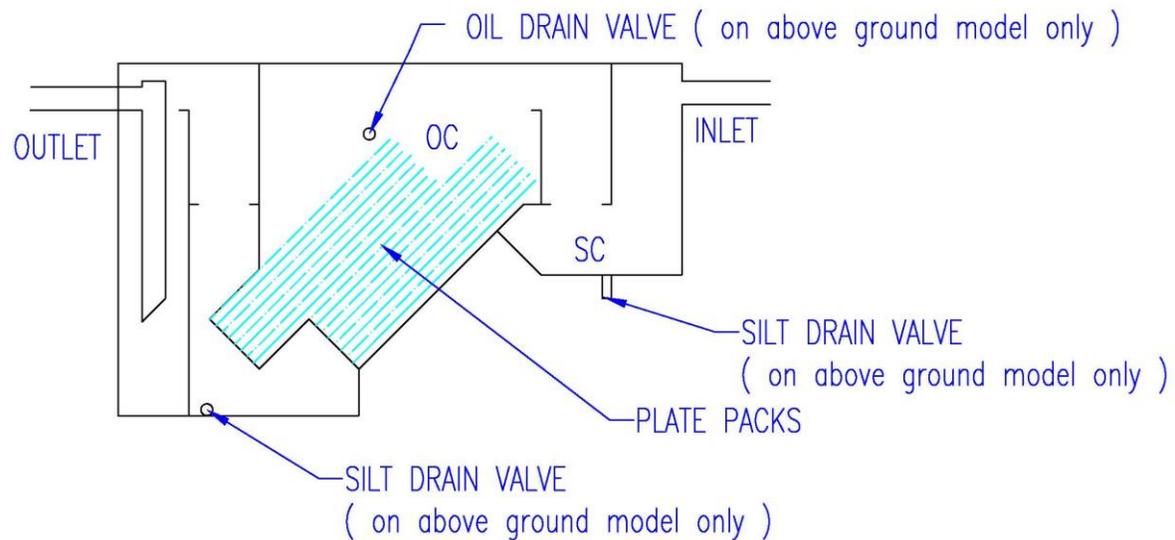
It is therefore strongly recommended that frequent inspection of the oil separators be carried out and separated oil be skimmed to prevent silt contamination.

PERIODICAL MAINTAINANCE



1. Turn OFF the PUMP and STOP ALL EFFLUENT before carrying out any maintenance to prevent effluent from disrupting the servicing procedure.
2. First skim all free oil in the OIL CHAMBER (OC)
3. For above ground model, this can be achieved by opening the OIL DRAIN VALVE
4. The separated oil shall be stored in the waste oil tanks to be collected for disposal.
5. The bottom of the SILT CHAMBER (SC) can be pumped out provided the silt is not contaminated with oil. This condition of silt removal may vary. Please refer to local governing authority requirements.
6. For above ground model, this can be achieved by opening the SILT DRAIN VALVE

C COMPLETE PUMP OUT



Stage I (Pump out and cleaning)

1. Skim all oil from surface in separators Chambers
2. Use Absorbent for oil sheen removal(recommended OSDEC absorbent)
3. Completely pump out all water in the tank at OIL CHAMBER (OC) exposing the plate packs.
4. Pick up any floating rubbish from the top of the packs and hose down any silt trapped between the plate packs.
5. Remove all the plate packs from the separation chamber.
6. Remove all silt from the bottom of the separation chambers
7. After complete flushing to the bottom visual inspection can be carried out and remaining silt or oil can be further flushed by water jetting.

Stage II (Re-commissioning)

1. When all silt and debris are completely cleaned out from bottom of the chambers, check pack for structural integrity & replace plate packs in its original position.

2. Fill water to the first fill level or at least to the level as the top of the separator plates.
3. With the water level at its maximum and all safety covers in place the separator is now ready for receiving fresh effluent and will function effectively as designed to achieve D.O.E. limit for Oil and Grease discharge at 10 ppm (Standard B) or >1ppm (Standard A)

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