



# PEERLESS Europe

MAKING ENERGY SAFE, EFFICIENT AND CLEAN



# skimovex

## Oily Water Separators MFX TYPE in Steel Tank (Degasser)

### Introduction.

The Skimovex Multiphase Separator is an integral system that combines in one unit two major steps in the treatment of produced primary separation of phase Separator offers

water, i.e. degassing and oil from water. The Multi-substantial weight- and

### Process

The produced water containing oil and partly dissolved hydrocarbon gasses enters the separator above the free liquid surface. This enables part of the gas to immediately free itself from the liquid and flow towards the gas outlet. A foam screen is provided in the inlet section of the separator to eliminate the possibility of water- and oil mist being carried towards the gas outlet.

Likewise, sand and other solid particles which are frequently present in produced water streams, will settle on the bottom of the primary compartment where they can be released during the process by intermittent operation of the desludging valves.

The oily water flows into the pack of inclined plates from the top and passes down through the plate pack. The plate pack is hydraulically designed in such a way that laminar flow conditions exist in each 'channel' (i.e. the distance between the subsequent plates). In this laminar flow the minute oil droplets rise by virtue of the fact that their density is less than that of the water and attach themselves to the underside of the upper plate of the channel. The oil film that is constantly being formed at the underside of each plate creeps slowly upwards along the plates. At the top of each plate the oil film is concentrated (coalesced) by the special fingers and leaves the plate at the fingertips as a thick stream or a rising chain of large bubbles. Also any micron size gas bubbles, still contained in the water after initial gas release in the primary chamber, will rise. These gas bubbles in general are oleophobic so that they will easily adhere to the minute oil droplets. This 'natural flotation' effect gives the oil droplets an increased rising velocity and thus accelerates the separation process.



*A Degasser Unit complete with Instrumentation.*



## Construction.

The Skimovex Multiphase vessels are designed and fabricated in accordance with codes such as ASME VIII and BS 5500. Depending on the characteristics of the water to be treated, the inclined plate packs may be manufactured from:

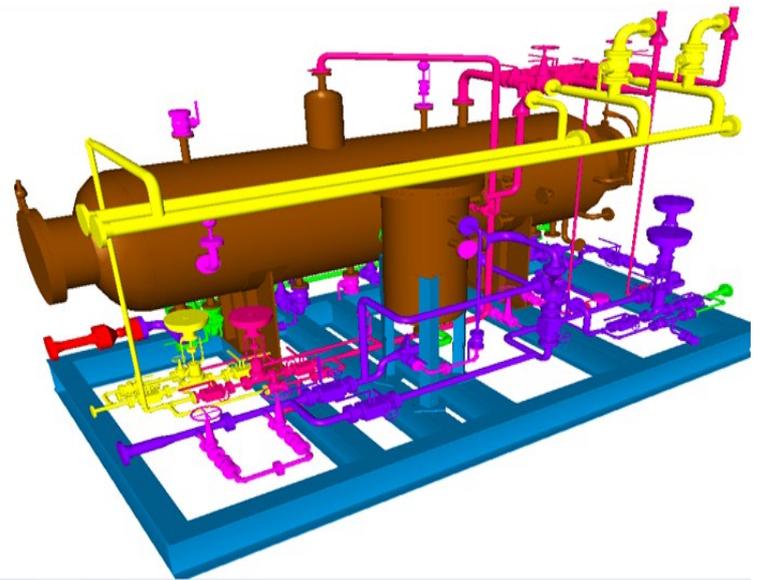
- Glass fiber reinforced polyester (GRP)
- Coated carbon steel
- Various qualities of stainless steel

For easy removal of the separation plates or plate packs the separator is provided either with a flanged head or with a manway. Normally, however, in-situ cleaning of the plate packs is adequate, so that removal of the plates or plate packs from the vessel is not necessary.

Depending upon the concentration of suspended solids and waxes, the plate spacing and plate inclination can be varied to suit the particular process conditions. This design flexibility enables us to offer our clients a technically optimised solution for each individual application.



*A fully removable plate pack for MFX Unit*



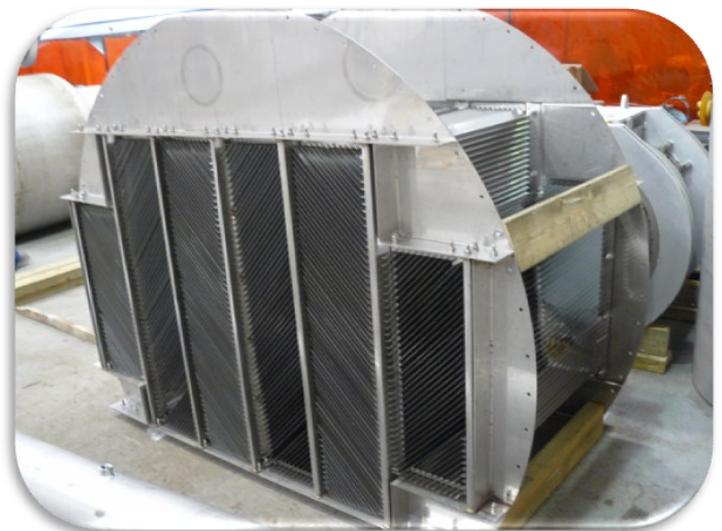
*A 3D Model of Degassing MFX Skid.*

## Typical Application.

In conventional produced water treatment systems the water, coming from the production (3-phase) separator is first knocked-down to almost atmospheric pressure in a separate flash drum in order to blow-off the hydrocarbon gasses. This water is then de-oiled by an (atmospheric) plate separator and a downstream flotation unit or filter.

The Skimovex Multiphase Separator however combines both knock-out drum and primary separation in one unit.

It can be seen that the multiphase separator offers considerable savings in weight, space and cost. In addition, the process requires less controls so that operator attendance and maintenance is kept to a minimum.



*A larger plate pack for use in MFX separator*