



SMALL SCALE MARINE SLOP OIL TREATMENT INSTALLATION MKIV

G-Force Slop Oil Engineers BV reacts on the call from smaller Port Cities for slop treatment installations in order to comply with the ever more stringent environmental regulations.

G-force Slop Oil Engineers BV now has in addition to their GF-MDL-VI slop treatment installations designed a smaller Slop oil treatment installation GF-MDL-VII for the smaller Port Cities where volumes of waste liquids do not warrant a large installation

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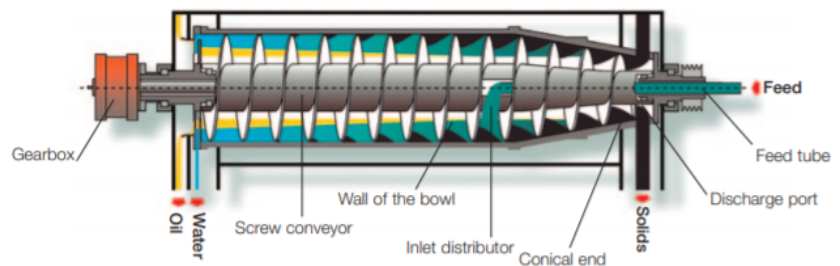
MARINE SLOP OIL

Marine Ports world-wide receive ships waste oils/bilge waters, most of the larger ports have equipment installed to treat these waste streams. There is however a large amount of smaller ports that simply cannot afford the investments required to install these larger waste stream treatment systems. G-force has therefor designed a smaller and more competitive system. It is designed to handle between 1 and 4 m³/hr on a continuous basis. (depending on oil viscosity/density) The technology used is principally the same as the larger systems available on the market with the difference of using a three phase decanter for the coarse separation of water and oil followed by a two high speed disc stack centrifuges, one high speed separator to clean the decanter oil phase and another high speed separator to clean the decanter water phase. By using this combination of centrifuges the bulk treatment is done by the three phase decanter, thereby making the requirement for larger disc stack separators not necessary, instead two smaller disc stack centrifuges are installed.

The entire installation is mounted in a single skid module (L=11,9m x W=2,2m x H=2,4m) which allows the skid module to be shipped in a 40' High Cube container. The module is completely factory tested thereby reducing installation time on site. G-force will ship the module to the required location, unpack, install and commission the equipment and after commissioning train the local personnel.

Intake of Slops & feed to the three-phase decanter

From the customer's holding tank, the module is fed by a positive displacement pump. In front of the pump two strainers are installed to protect the pump and the heat exchanger installed after the pump. In the heat exchanger the temperature can be raised to 80° C. Steam required for the heating of the slops is to be supplied by the customer, upon request GFSE can supply a steam boiler.

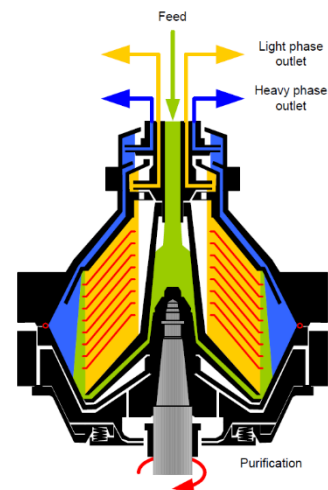


Both the water and the oil phase are discharged into separate tanks each of these tanks is fitted with level controllers the control the decanter feed rate. The sludge phase is discharged into a ribbon type conveyor that discharges into a sludge skip (customer supply).

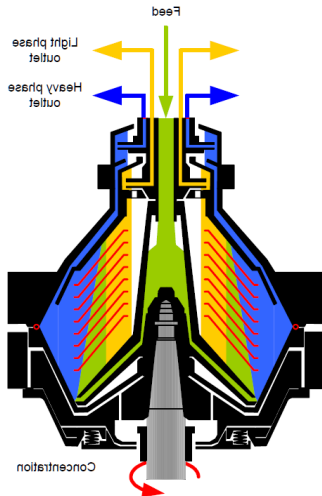
From the water and the oil tank the two high speed separators are fed, each one of the separators has a positive displacement pump and heat exchanger where the temperature can further be raised to 98°C. The disc stack separators are identical except for the rotating bowl internals (disc stack as shown in the pictures below)

Purification (Removing water from oil)

Oil from the three-phase decanter intermediate tank is pumped into the disc stack separator and is accelerated before it enters the disc stack. In the disc stack the oil is given the largest area of separation (Yellow area). Water is discharged into the three-phase decanter water intermediate tank for processing in the water treatment disc stack centrifuge. Sediment is collected in the periphery of the bowl and is discharged intermittently into the sediment/sludge collection tank from where it is pumped to the sludge thickener. Clean oil is discharged into the customer's clean oil tank.



Concentration (Removing oil from water)



Water from the three-phase decanter intermediate tank is pumped into the disc stack separator and is accelerated before it enters the disc stack. In the disc stack the water is given the largest area of separation (Blue area). Oil is discharged into the three-phase decanter oil intermediate tank for processing in the oil treatment disc stack centrifuge. Sediment is collected in the periphery of the bowl and is discharged intermittently into the sediment/sludge collection tank from where it is pumped to the sludge thickener. Water is discharged into the customer's clean water tank.

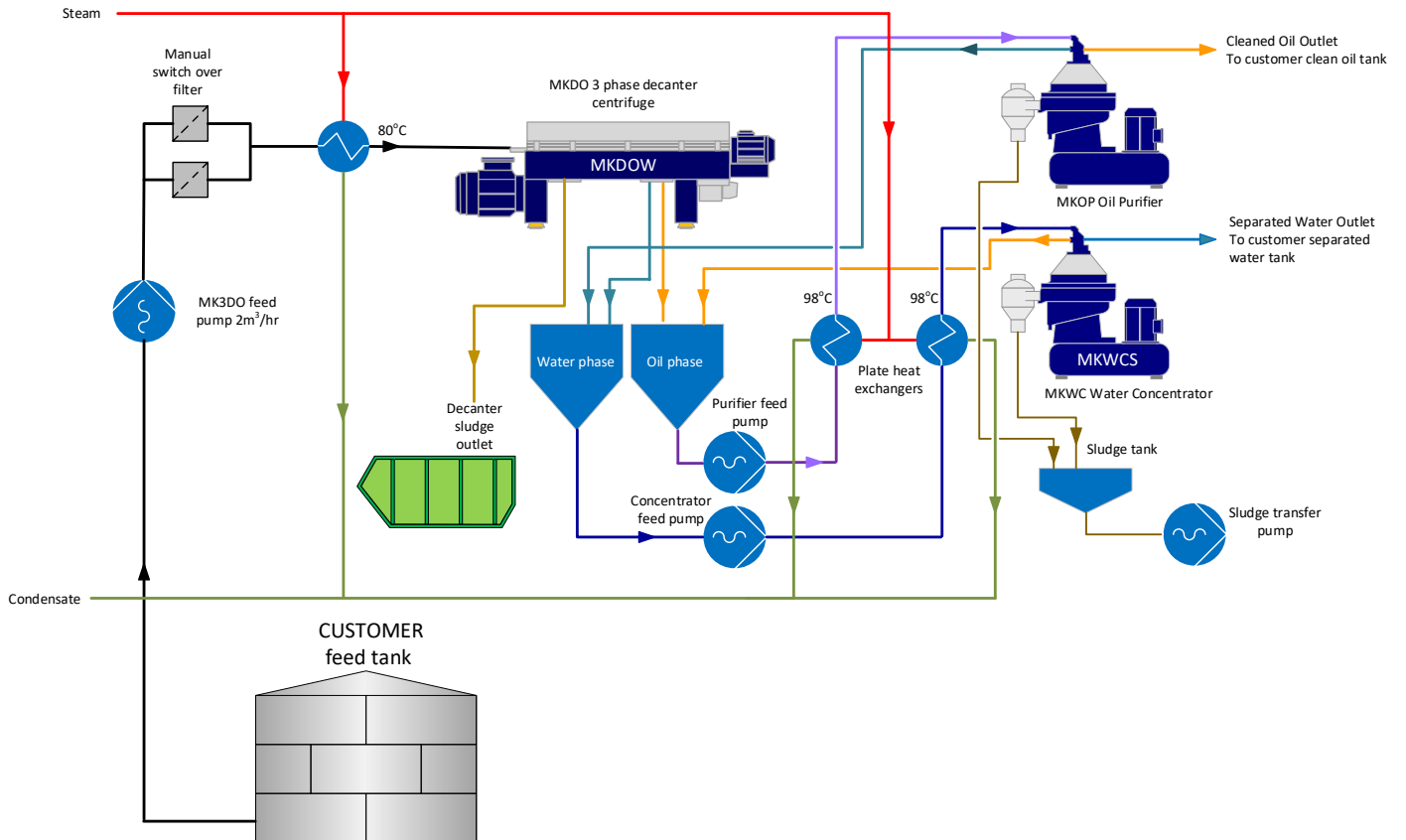
Operation

The entire module is controlled from the air-conditioned control room. All valves can be operated from the HMI (Human machine interface) tank levels are continuously displayed and pump speeds/temperatures and pressure settings can be adjusted from the HMI. All three centrifuges are also controlled from the HMI.

To be supplied by customer

- Feed tank
- Clean oil export tank
- Separated water export tank
- Steam supply (Can upon request be supplied by G-force)
- Level concrete pad
- 400/440/460V 50/60Hz 3-phase power (Please specify voltage and Hz)
- 230V 50/60Hz single phase power supply
- Internet connection

PROCESS FLOW DIAGRAM



EQUIPMENT LAYOUT

