

Wash Tank Distributor

Research co-operation between Sulzer and Total has led to a new phase inversion technology where water-in-oil dispersions are converted to oil-in-water. 'Double emulsions' can be created where very small droplets of water are carried in oil droplets which are themselves dispersed within a continuous water phase - known as a 'water leg'. Water droplets, along with salts and other contaminants, can be removed from the oil by contacting the oil droplets with the continuous water phase. The Sulzer Wash Tank Distributor VROL (Fig. 16) is used at the bottom of the water leg and has been developed to create optimal droplets of oil and removes solids, even when subjected to motion.

In conjunction with Total, the technology is being applied in wash and desalting tanks in the hulls of FPSO vessels for removing entrained water, salts and contaminants from crude oil. The distributor system substantially improves the separation performance and concentrations of <0.5 % vol. BS&W (basic sediment and water) in the oil outlet can be obtained.

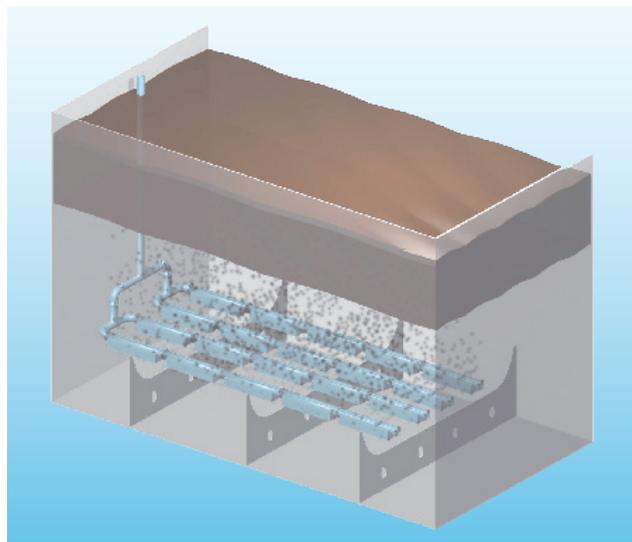


Fig. 16a: Wash Tank with Sulzer Distributor

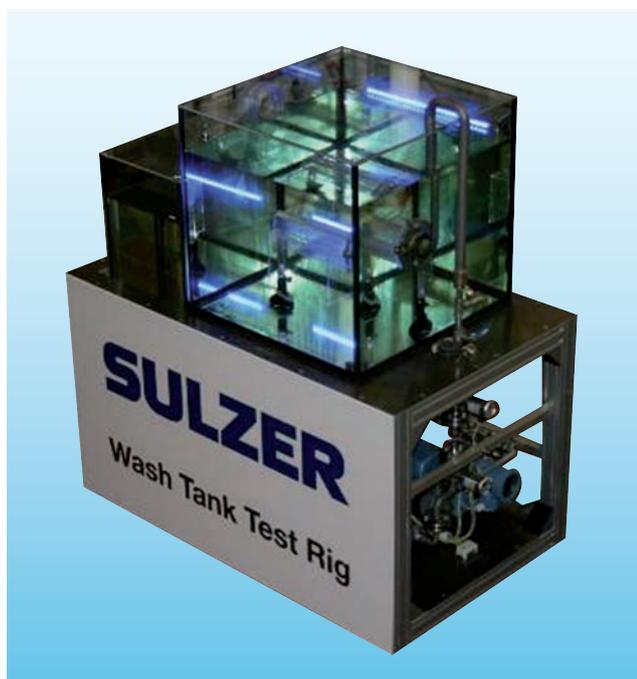


Fig. 17: Sulzer Wash Tank Test Rig

For the development of other innovative wash separator processes, small and large scale test rigs (Fig. 17) have been developed which enable us to investigate detailed coalescence phenomena as well as the whole separation process. CFD is used to simulate the wash tank process particularly taking into account the motion of the tank.

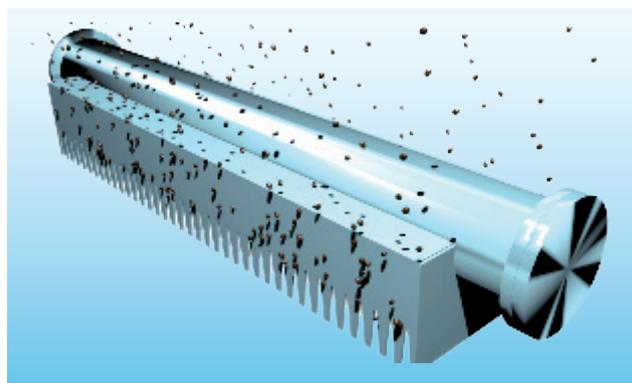


Fig. 16b: Sulzer Wash Tank Distributor

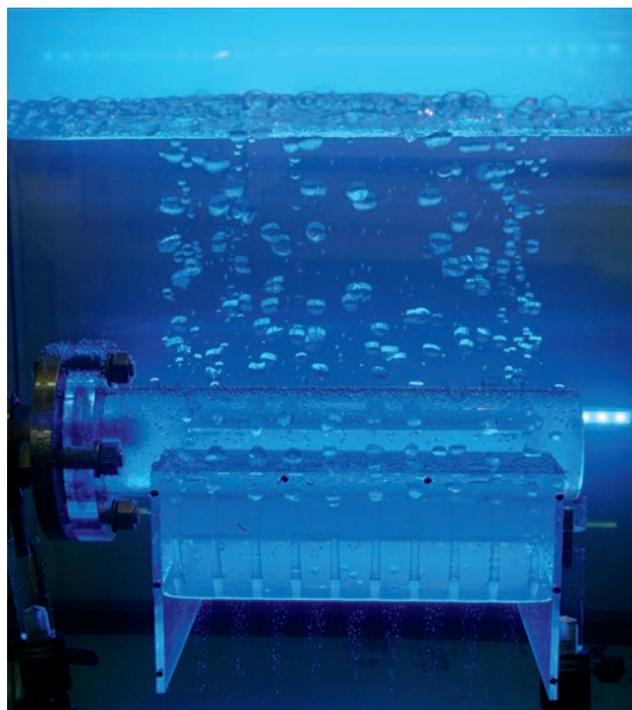


Fig. 16c: Sulzer Wash Tank Distributor