

Oily Water pumping – Portugal

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| Market segment | Industry |
| Application market | Oil & Gas |
| Pumped medium | Industrial, oily water |
| Pump product | Bearing frame |
| Country | Portugal |



Challenge

At the GALP refinery in Matosinhos, the process of treating oily water with variable flow rates of 125 to 225 m³/h at a delivery head of 10 meters required a robust and reliable pumping system. Previously, when a conventional centrifugal pump was used, the oily water emulsified. Emulsions significantly impaired the downstream separation processes and caused major difficulties in treating the wastewater at the refinery's treatment plant. A new pump system was needed to eliminate the problem while ensuring hydraulic stability across the extended operating range and meeting the strict ATEX requirements in the potentially hazardous environment. In addition, the system had to be compatible with solutions that had already been implemented for the same customer on other plants.

Solution

Use of **Hidrostal Screw Centrifugal Pump Technology** due to its unique ability to prevent emulsions. The main advantage of this technology is the gentle pumping of liquids, which prevents the formation of oil-water emulsions thanks to low shear forces on the pump impeller. The minimum and maximum required flow rates, combined with high efficiency and operational stability, were easily achieved thanks to a wide range of product solutions. The selected configuration largely corresponded to that already successfully used in other European refineries belonging to the customer.

Benefits

All requirements for the demanding processes were satisfactorily met:

- Retention of ATEX approval without compromising on design
- High process stability and operational reliability, even at low flow rates
- Elimination of emulsification problems caused by conventional centrifugal pumps
- Gentle pumping while maintaining the integrity of the oil droplets for efficient separation
- Maintenance of the downstream separation process
- Proven design with references from other similar refineries (e.g., BP Rotterdam)
- Customer specifications and technical requirements met without major redesigns

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| Quantity of units sold | 2 |
| Pump type | F06K-H06 + Long Bearing Frame |
| Motor data | 15 kW (20.4 hp) / 6-pole (973 rpm) / 400 V / 50 Hz / ATEX-Approval |
| Material combination | Cast iron bearing frame, wetted parts of Duplex stainless steel |
| Duty point | Flow (metric) : 62.5 litres per second / Head : 9.87 meters Flow (US) : 991.0 US gallons per minute / Head : 32.4 feet |
| In operation since | 2020 |