Induced Gas Flotation package heading for Equatorial Guinea

Case Study

The Background

As specialists in the design and manufacture of industrial filtration systems and process equipment, GFSA has produced everything from flame arresters and hydro-cyclones to pressure vessels and complex, skid-mounted filtration units. Working in industries including Oil and Gas, Petrochemicals, Power Generation and Water Processing, GFSA provides its services direct and through intermediaries but always to the highest internationally recognised standards.

The requirement was for an Induced Gas Flotation package to be installed as part of a new Offshore facility located in Equatorial Guinea. As part of the production process, oil contamination in produced water generally needs to be cleaned to below 30ppm prior to discharge. The capacity of the system needed to be 25,000 Barrels of Water Per Day.

IGF systems are typically used to clarify industrial wastewater produced in oil and gas production facilities, but also in petrochemical and chemical plants, and other similar industrial facilities. The process removes suspended matter, such as oil, by injecting gas into a flotation vessel or basin. The suspended matter adheres to the small bubbles and rises to the surface, where it is removed by a skimming device.

The scope of this project was to include the IGF pressure vessel, structural steel, piping, pipe supports, lifting beam and other components. It was to be part of a comprehensive Produced Water Treatment System Upgrade comprising De-Oiling and De-Sanding Hydro-cyclones, Transfer Pumps, Surge Vessel and the IGF System.

The Challenge

As with all complex industrial filtration and process equipment, a very high degree of technical and engineering expertise is required to meet the most exacting specifications and standards. In this particular instance, however, the usual challenges were complicated by the logistical complications caused by the physical size of the unit. Added to this were the extremely difficult manufacturing issues presented when trying to maintain tight production deadlines within a global pandemic.

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The Solution

Detailed design and manufacture of the IGF package took place over a 13-month period despite national lockdowns and self-isolating staff as well as supply chain delays. The IGF vessel itself was manufactured to ASME U Stamp with different standards governing the manufacture of other components, such as the piping (ANSI B 31.3) and structure (AISC). In addition to the Carbon Steel ASTM A 516 Grade 70 vessel with Polyester internal glass flake lining, GFSA also manufactured the internal structures.

The physical size of this skid-mounted unit was always going to be a challenge because the height of the unit, at 5.65m, exceeded the allowable transportation height on the route from the manufacturing plant in Birmingham to the shipping port. The finished unit was 4.5m long, 4m wide and weighed 20 Tonnes. Given these dimensions, the unit was designed to be transported horizontally and additional strengthening was incorporated into the skid design to support the vessel.

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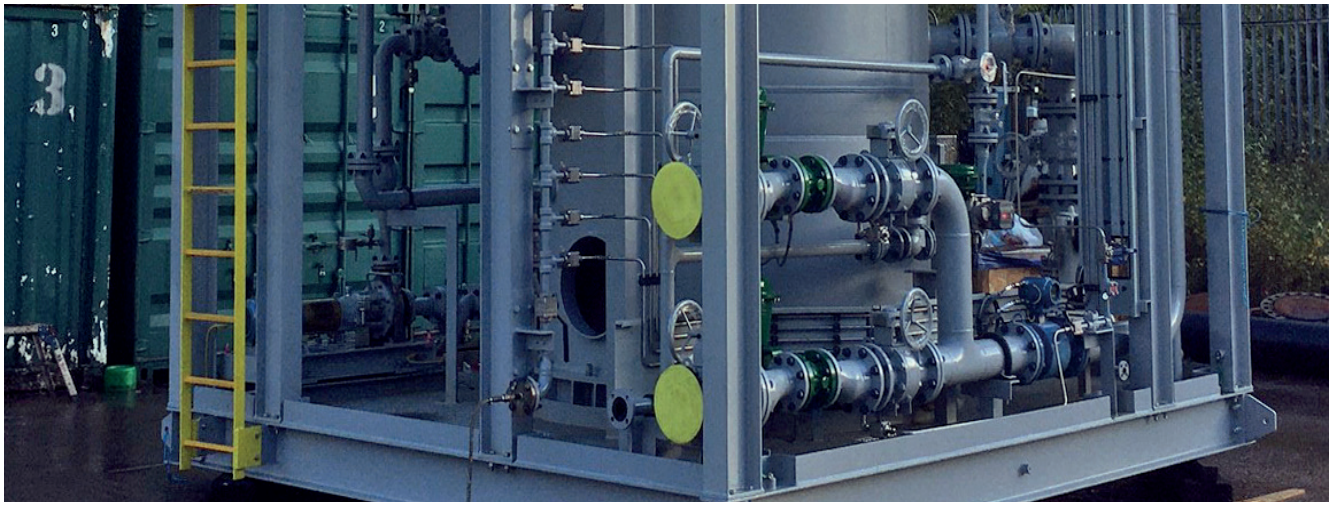
The Result

Despite the challenges presented by manufacturing a large and complex system during a global pandemic, GFSA still managed to deliver the project on a tight timescale and overcame the logistics challenges through clever design solutions.

As Simon Goddard, MD at GFSA confirmed; “The pandemic has added a whole new set of challenges to us during this period but we have maintained our design and manufacturing capability throughout, and delivered a project we are proud of once again”.



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About GFSA

GFSA specialises in the design and manufacture of customised, high integrity filters, strainers and flame arresters in carbon steel, stainless steel, duplex, titanium and many other exotic alloys. Established in the UK in 1997 we have become a leading supplier to the oil and gas, petrochemical, power generation, water and process industries world-wide.

In addition to GFSA's core range of filters, strainers and flame arresters, we also manufacture a variety of related process equipment, including hydro-cyclones, stripping columns, heater vessels, pig launchers and receivers, tanks and pipework manifolds. This equipment can be supplied either as single units or as fully assembled skid packages.

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