

The illustrated assembly of 3 x 100 tn/h boilers for FPSO Polvo



The Polvo Project

The design of the ERK boiler is a proven design of marine boiler and is now proven as a deck boiler.

The concept was to build the boiler away from the shipyard and transport the whole package to site as a complete assembly

The following is the story of the Polvo boilers



The skid base frame was designed by Naval Architects for installation on the vessel. The skid was surveyed for flatness before assembly and the unit was jacked so that the levels were retained during erection and after installation on the vessel

The boiler was manufactured under ABS rules in the shops of Bangkok Industrial Boilers. The boiler is made up in sections which were individually tested by the QA department before they were sent to the assembly yard



The assembly was undertaken at Map Tha Phut Port in a specially selected area close to the jetty

Pictures 1 and 2 show the boilers being assembled onto the skids in the factory preformed sections



The raised position of the skids is to allow a low loader to drive under the skids to load them and carry the assembled skid to the jetty

The boiler is near to completion on this photograph

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The project included 3 100 tn/h boilers rated for 40 barg and 400 C.

These were designed by DGA Co Ltd under their license from ERK Eckrohrkessel, and fabricated locally by Bangkok Industrial Boilers. Gosfern were the supplier of the burners and control systems

All three boilers are shown here in various stages of completion.



This photograph shows the skid almost fully assembled ready for transport to the barge for onward transmission to Singapore

The FD fan and uptake are clearly seen, the roof platform and the boiler front platforms are also clear



Eventually the boilers were ready for transport and were taken by low loader the 200 meters to the jetty where they were loaded out onto the barge.



After trimming the barge, the whole package was towed to the Singapore port

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The boilers were lifted onto the FPSO Polvo by floating crane and fitted to the prepared bases on the vessel



After final fitout the boilers were insulated, painted and finally fully commissioned, and the ship set sail for Brazil where it will be located.

Footnote

The boilers were the first of their kind as they were superheat boilers at moderately high pressure designed specifically to be installed on the deck of an FPSO vessel

In order to do this the stress calculations on the structural tube cage of the vessel were checked thoroughly to ensure that the strength was adequate. This was checked by finite element analysis and proved that the boilers were more than adequate for the task involved.

Most boilers are vertical designs which require considerable structural support to strengthen the boiler to allow it to be installed on the deck of a vessel, however the ERK design is able, with simple modifications, to stand alone.

This ERK design has proven that the flexibility, light weight, fast response and rapid light up capability of the ERK boiler can be available at sea on the deck of an FPSO vessel able to handle all the needs of the oil industry at sea.

The range of boilers is projected to be stretched to 250 + tonne per hour of steam

The Successor to BIB is Profab Fraser who work with DGA to take the success of the Polvo boiler to the FPSO industry.

Saturated and Superheated steam boilers are available in horizontal and vertical configurations to suit the vessels space constraints.