

**Title:**           **Applications of the Wartsila Low Cost Concept of a DP3 ExD Semi-Submersible**

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## **Abstract**

Friede and Goldman Ltd. has performed a comparison study of the Wärtsilä Low Loss Concept on a Friede & Goldman rig design. The ExD is a dynamically positioned semi-submersible drilling rig suitable for operations in moderate environments such as the Gulf of Mexico, Brazil, West Africa and South China Sea.

The Wartsila Low Loss Concept is a concept based on a symmetrical design for the power generation, power distribution and thruster supply. A general sketch of the concept is provided.

This system was adapted to the ExD design so that now the power system consists of 4 main switchboards, each with 2 main generators connected to one half of the switchboard. The four switchboards are connected through 4 LLC transformers, thus making a power ring, with different phases between the switchboard sections. Under normal operating modes the system is operated with all bus tiebreakers closed, which allows an optimal use of generators, diesel engines and thrusters.

General Arrangement Drawings and single line diagrams for the baseline Generic ExD and the LLC ExD are given in Appendix A and Appendix B respectively.

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