

DSS series

Semi-submersible drilling vessels



Description

The DSS series of GustoMSC designed units is characterized by a four column, two floater and deck box structure, typically designed for deepwater regions. Storing the riser joints vertically, net available deck space is significantly increased which improves drilling efficiency for exploration and development drilling.

The first operational drilling unit using the vertical riser storage system was the Maersk Explorer, a GustoMSC DSS20 design jointly developed with Keppel FELS. This wire-moored semi-submersible rig was built by Keppel FELS and Caspian Shipyard. Since 2003 it is operating successfully in the Caspian Sea.

The basic design of the DSS series of designs is such that a very efficient lay-out of the drilling equipment and systems is possible, whereby the final lay-out of the drilling equipment can be set up in close consultation with the drilling contractor in order to achieve optimum drilling efficiency. The DSS drilling semi-submersibles are able to operate in water depths of up to 10,000 ft in moderate environmental conditions such as West Africa, Brazil, Gulf of Mexico and South East Asia.

A dynamic positioning system with up to eight azimuthing thrusters can be fitted, as well as mooring winches in order to connect the unit to a mooring system (up to 16 lines).

The accommodation on board can be laid out for up to 180 people. The DSS21 and DSS51 drilling semi-submersibles are the largest in their class.

For the DSS series, GustoMSC provides a basic design package comprising concept design, stability analysis, dynamic positioning and mooring analysis, motion analysis, structural strength FEM analysis and all basic scantling plans, plus full documentation for class approval. During the design and engineering process GustoMSC works closely with the shipyard and owner. Complete GustoMSC design packages for the DSS series are reviewed and approved by ABS.

The following units from the DSS series were jointly developed with DTG (Deepwater Technology Group) of Keppel FELS and built at Keppel FELS in Singapore:

- Three DSS21 drilling semi-submersibles (Maersk Developer, Maersk Discoverer and Maersk Deliverer for Maersk Contractors)
- One DSS51 (Development Driller III) drilling semi-submersible for Transocean
- Two DSS38 drilling semi-submersibles (Gold Star and Alpha Star) for Queiroz Galvão Óleo e Gás (QGOG)
- One DSS20NS DP3 accommodation semi-submersible (Floatel Superior) for Floatel

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Some characteristics of the units built or under construction are in the below table.

	DSS20-CAS-M	DSS38	DSS21 / DSS51	DSS20-NS-DP3
		Drilling		Accommodation
Built	1	2	4	1
Water depth	3,000 ft	9,000 ft	10,000 ft	-
Deck size	63.5 x 64.5 m	69.5 x 69.5 m	78 x 78.5 m	63.5 x 64.5 m
Displacement	30,500 Mt	39,500 Mt	54,000 Mt	29,000 Mt
Draft	20.5 m	20.5 m	20.5 m	18 m
Var. drilling load	4,000 Mt	6,300 Mt	8,500 Mt	2,200 Mt
Pontoon consumables	2,300 Mt	4,000 Mt	5,000 Mt	2,400 Mt
Total payload	6,300 Mt	10,300 Mt	13,500 Mt	4,600 Mt
Derrick	Single, 2,000 kips	Single, 2,000 kips	Double, 2,000 kips	-
Mud tank capacity	6,600 bbls	9,000 bbls	18,000 bbls	-
Mud pumps	3 x 2,200 hp	4 x 2,200 hp	4 x 2,200 hp	-
Vertical riser storage	50 nos x 60 ft	100 nos x 75 ft	120 nos x 75 ft	-
Power generation	4 x 2.7 MW	10 x 3.6 MW	8 x 4.8 MW	6 x 3.7 MW
Station keeping		DPS2	DPS2	DP3
Thrusters		8 x 3.0 MW	8 x 4.0 MW	6 x 3.2 MW
Mooring system	8 x 430 t winches	2 x 600 t	8 x 800 t	8 x 490 Mt winches
Accommodation	130 POB	130 POB	180 POB	440 POB

Data presented in this product sheet is for information only and subject to change without notice.

