

OCEAN-HE SERIES DESIGNED FOR HARSH ENVIRONMENT

Mobile drilling units are hired by operators based on a variety of parameters of which safety, workability and efficiency can be reflected to an overall well cost. Within this equation, safety and workability become dominant in harsh conditions. With this in mind GustoMSC has designed a new series of semi-submersible drilling units: the OCEAN-HE series, of which the OCEAN850-HE and OCEAN1600-HE form the basis for respectively the midwater and deepwater harsh environment regions of operations.

Having its roots in the North Sea GustoMSC has specialized in the development of harsh environment design solutions. GustoMSC's jack-ups and semi-submersibles operate efficiently and safely in harsh and moderate environments in various water depths, worldwide. The North Sea is one of the toughest offshore regions to operate in. The region is therefore a driver for innovations in the jack-up and semi-submersible technology and the nursery of many GustoMSC designs.

Semis, or semi-subs, when designed true to their primary philosophy, provide next best stable platforms in harsh environments when compared to jack-ups. GustoMSC has an extensive track record of designing a multitude of successful mobile offshore units since the mid-1970s.

GustoMSC semi-submersible designs

The combination of simple rectangular floaters and columns and the use of transverse horizontal braces only, instead of a far more complicated truss system, has been a reoccurring successful design philosophy. It has resulted in favorable operational characteristics such as station keeping and motion responses, whilst it has kept proper control on construction costs. The philosophy has become characteristic for GustoMSC semi-submersible designs.

GustoMSC has been involved in the design and engineering of semi-submersibles since the 1970s. In the mid 1980s, Keppel Fels-DTG and GustoMSC teamed up to develop the DSS series of drilling semi-submersibles. The Maersk D-rigs, the Gold Star and the Floatel DSS20-NS designs are milestones for this series.

GustoMSC's proprietary OCEAN series, started in 2008, has also become a success story with five units built. All five units were introduced within weight, budget and time. Therefore they were not affected by detrimental design modifications during the construction phase, like sponsons or blisters. This achievement of a *first time right* every time provides yards and clients confidence in obtaining a design with intended performance and value.

Driven by the increasing requirements for harsh environment GustoMSC launches a new harsh environment drilling semi-submersible series: the OCEAN-HE. Based on the extensive experience in harsh environment and existing OCEAN designs, GustoMSC has confidence that these units will add true value to the market. The OCEAN1600-HE aims at the high spec deepwater, designed to cope with the North Atlantic. With the OCEAN850-HE a cost efficient midwater harsh environment design is provided.

OCEAN1600-HE

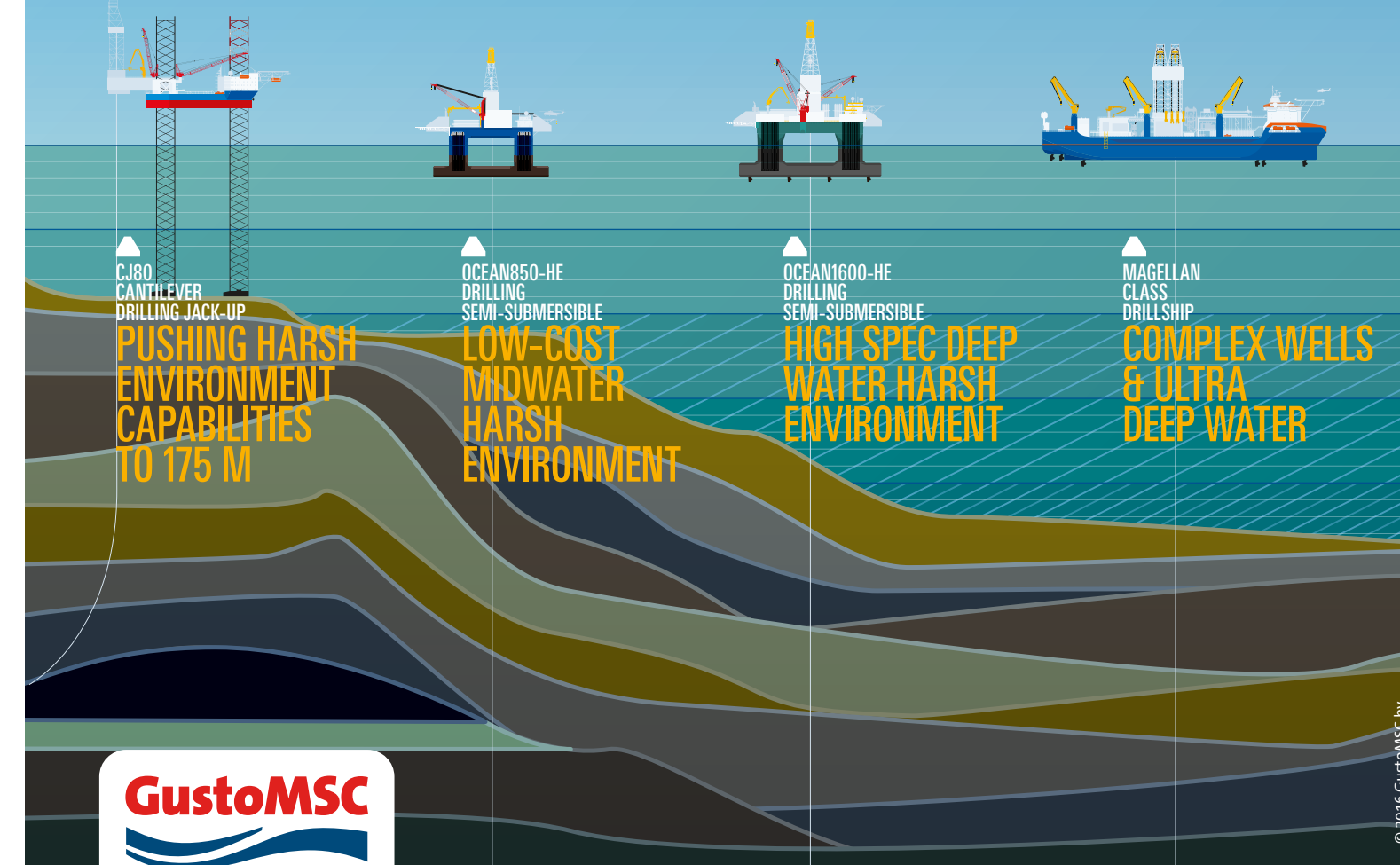
This top of the range design is the largest drilling semi-submersible design by GustoMSC to date; with a maximum displacement of approximately 70,000 tons, the unit features a large derrick, DP3 and a 16 point mooring system for station keeping, combined with a large deck area and large variable deck load. The drilling package can be arranged with four-way access, modern 7th generation drilling equipment, and ample deck space for third party equipment and subsea tool logistics around the well center. The typical work areas have been winterized, including large parts of the main deck.

OCEAN850-HE

This unit is designed to demonstrate that a low cost solution is possible; in the current market CAPEX needs to be controlled as well as the OPEX, to enable to work profitably at a reasonable day rate. It resulted in a moored-only harsh environment semi-submersible of approximately 50,000 tons displacement with a water depth rating of 1,000 meters and a 6th generation efficient single derrick combined with horizontal riser storage. The drilling package is set up such that it provides modern speeds and handling but with a cost sensible viewpoint between essential and supplementary handling equipment necessities.

With the introduction of the OCEAN-HE series GustoMSC is able to provide full coverage of the harsh environment drilling spectrum.

THE PIONEERS OF OFFSHORE ENGINEERING



OCEAN1600-HE DRILLING SEMI-SUBMERSIBLE HIGH SPEC DEEP WATER HARSH ENVIRONMENT



GustoMSC is an independent, world renowned and leading design and engineering company, thanks to the vast knowledge and expertise of our dedicated professionals and our close relationships with the most influential players in the offshore energy market. We serve the offshore industry by providing best-in-class solutions for mobile offshore units.

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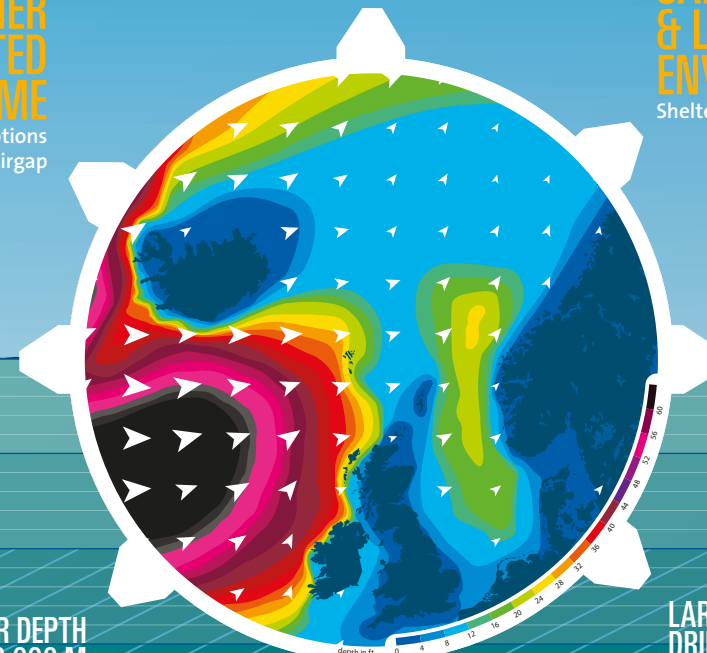
The OCEAN-HE series consists of a wide range of semi-submersible designs for offshore drilling, tender drilling, well-intervention, accommodation, construction and heavy lifting. The semi-submersible hull shape is especially designed for low motion characteristics and optimum station keeping capabilities.

OCEAN-HE SERIES DRILLING SEMI-SUBMERISBLE UNIQUE FEATURES

**NORTH ATLANTIC
SCATTER
MINIMAL
WEATHER
RELATED
DOWNTIME**
Good motions
and large airgap

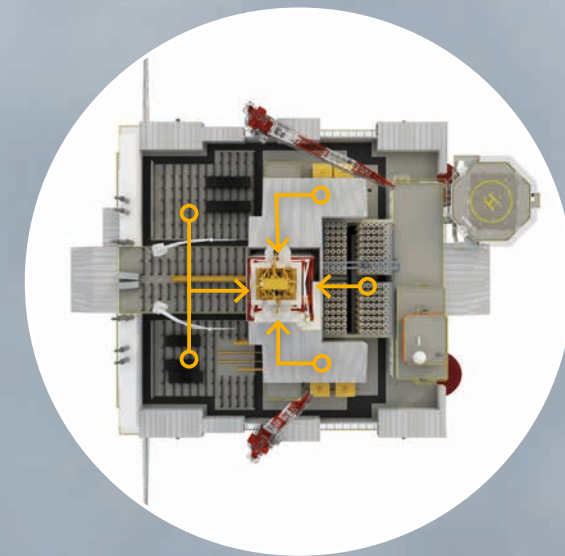
**TRUE VALUE
FIRST
TIME RIGHT**
Strong philosophy
and minimal critical
details

**HARSH
ENVIRONMENT
WIND SPEEDS
SAFE WORKING
& LIVING
ENVIRONMENT**
Sheltered areas



**WATER DEPTH
UP TO 3,000 M
GOOD
STATION
KEEPING**
Versatile positioning
system (mooring,
thruster assist
mooring or DP3)

**LARGE
DRILLING DEPTH
EFFICIENT
DRILLING
PROCESS**
Four-way well center
access, vertical riser
storage and high VDL



**OPTIMIZED LOGISTICS
FOUR-WAY WELL
CENTER ACCESS**



**ENHANCED
STATION KEEPING
DP3 ERN99+**
16 lines mooring

**SIMPLE
CONSTRUCTION
TRANSVERSE
BRACINGS
ONLY**

**LARGE
VARIABLE LOAD
15,000 MT**

**LARGE
DECK AREA
8,000 M²**

**MAXIMUM
WATER DEPTH
3,000 M**

**OPTIMIZED
COLUMN SHAPE
FOR HARSH
ENVIRONMENT**