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# Offshore: groter, sneller, efficiënter

10 november 2011  
's-Hertogenbosch



# GustoMSC P10,000 NG Drillship

Setting the standards in drillship design

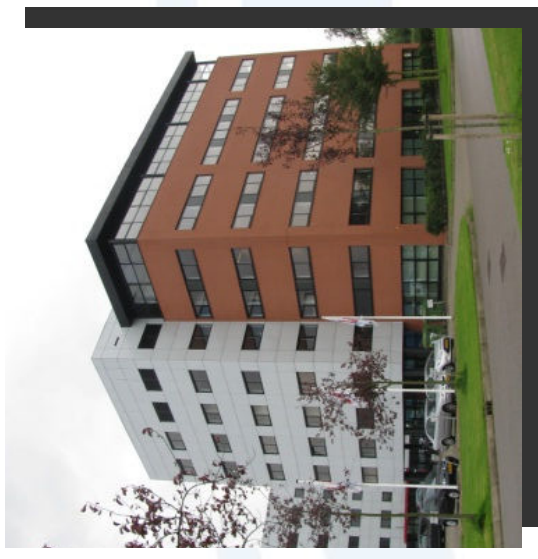
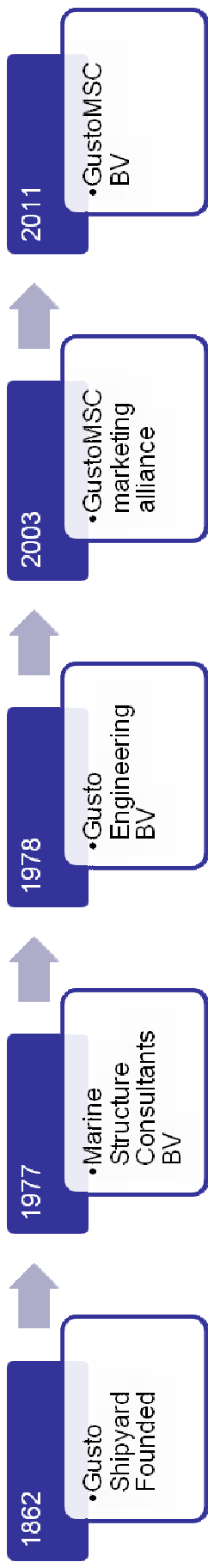
Offshore conference “groter, sneller, efficiënter” – 10 November 2011



Sjoerd Hendriks

**GustoMSC**

# History GustoMSC



# GustoMSC Business

Exploration	Construction	Production
		
		
		



# Offshore Design Company

1959 Seashell

50+



1959 Shell Buoy

50+



40+



1969 Pelican

35+



1975 Viking Piper

# GustoMSC Mobile Offshore Units

## 197 Mobile Offshore Units since 1959

	Exploration	Construction	Production	Total
Jack-up	46	62	5	113
Semi	30	11	2	43
Vessel	25	16	---	41

## 28 Mobile Offshore Units currently under construction

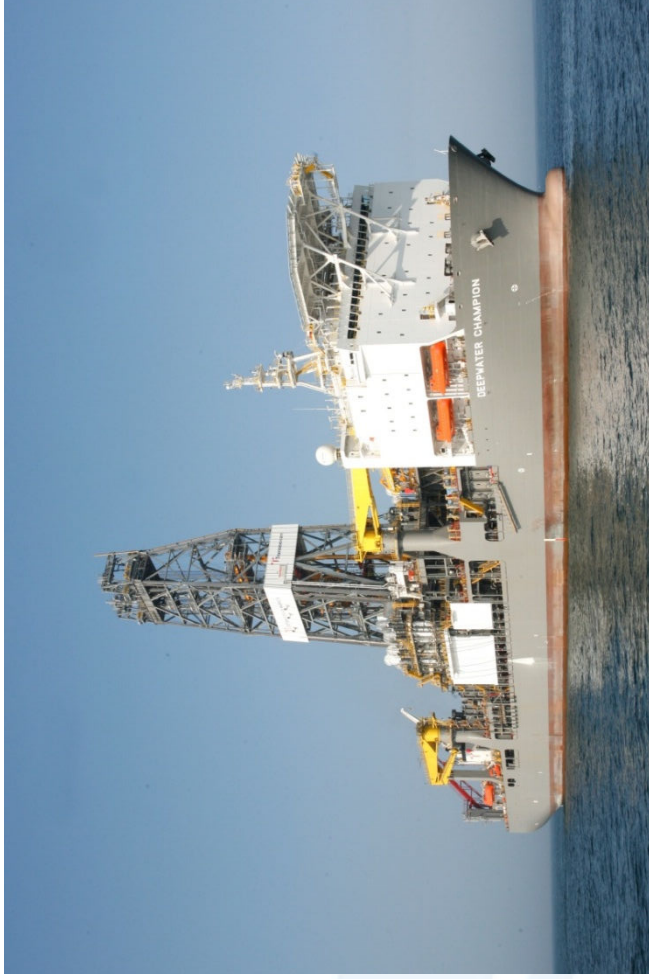
	Exploration	Construction	Production	Total
Jack-up	4	11	---	15
Semi	---	---	---	---
Vessel	12	1	---	13



# P10,000 NG (6<sup>th</sup> generation) - 14 units

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- 14 new builds to GustoMSC P10,000 NG design
- 11 contracts in 2011, setting the new standard
- Worldwide clientele and applications
- Rigs to be built by Hyundai Heavy Industries in Ulsan, South-Korea





# Hyundai Heavy Industries - Shipyard





# Drillship design genesis



1970's - 80's  
**Pelican Class**  
12 units



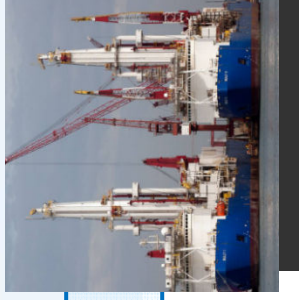
1999  
**GustoMSC 10,000**  
2 units



2000  
**GustoMSC P10,000**  
2 units

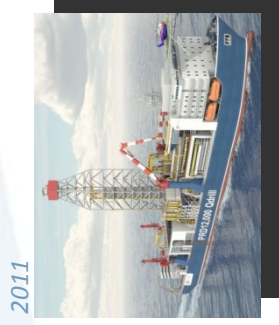
2003

**PRD12,000**  
Compact class design



2007

**PRD12,000 Bully**  
2 units



2011

2010-2015  
**P10,000 NG**  
14 units



**PRD12,000 Qdrill**

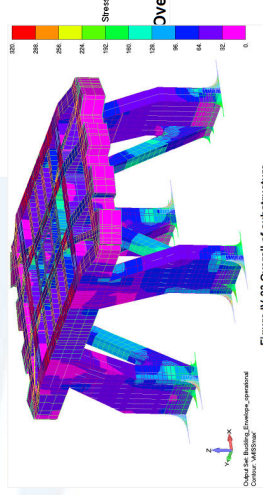
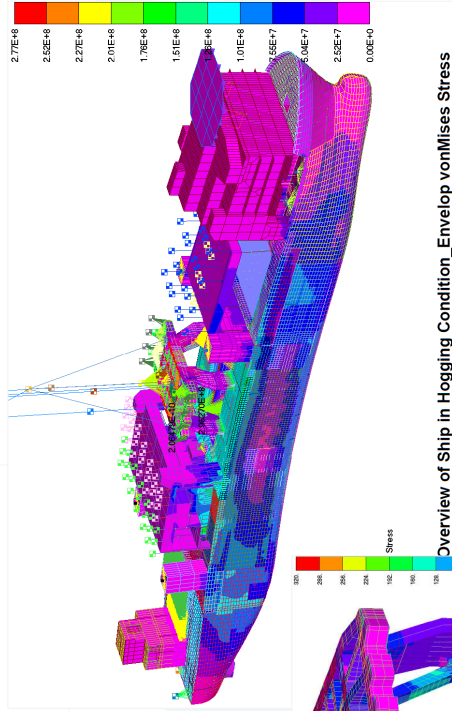
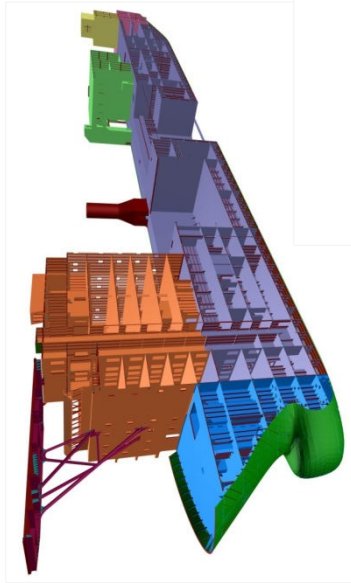
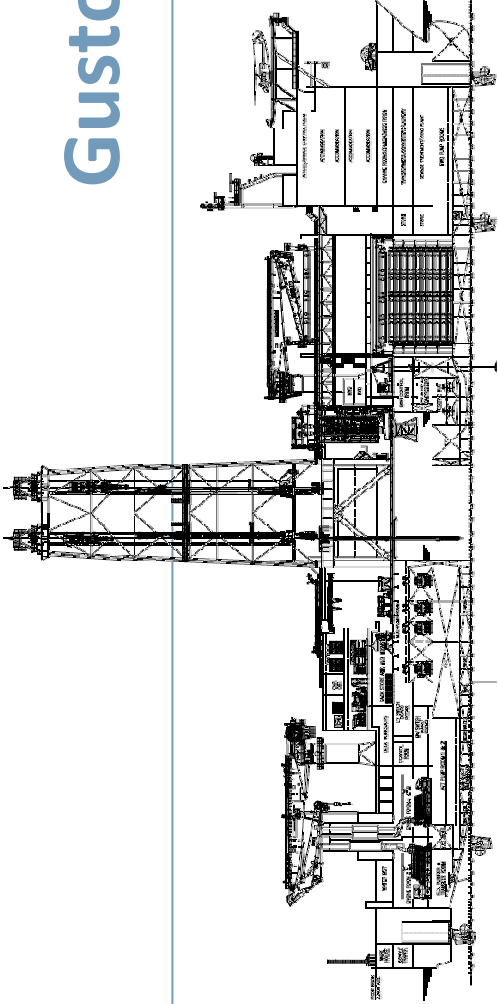
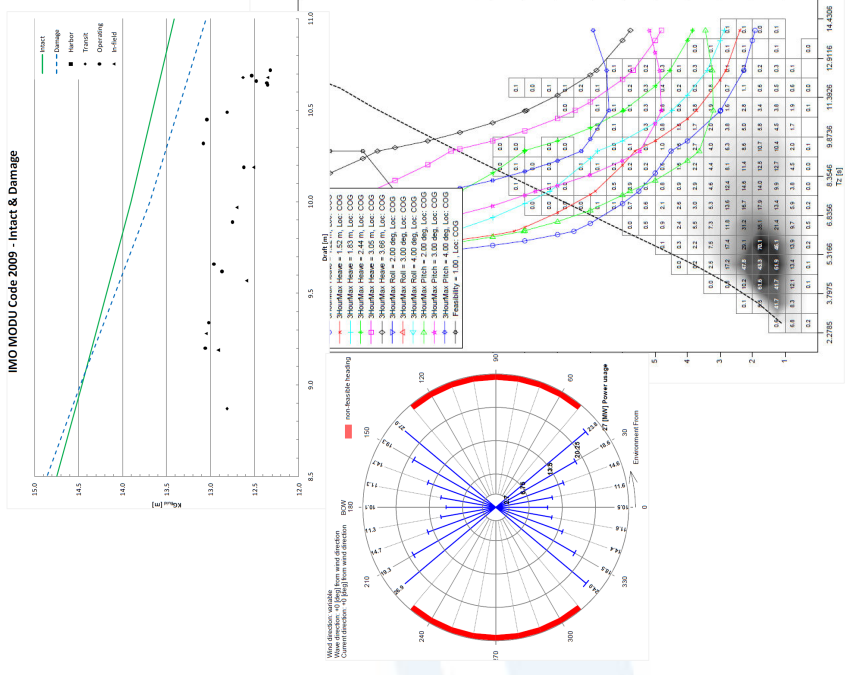
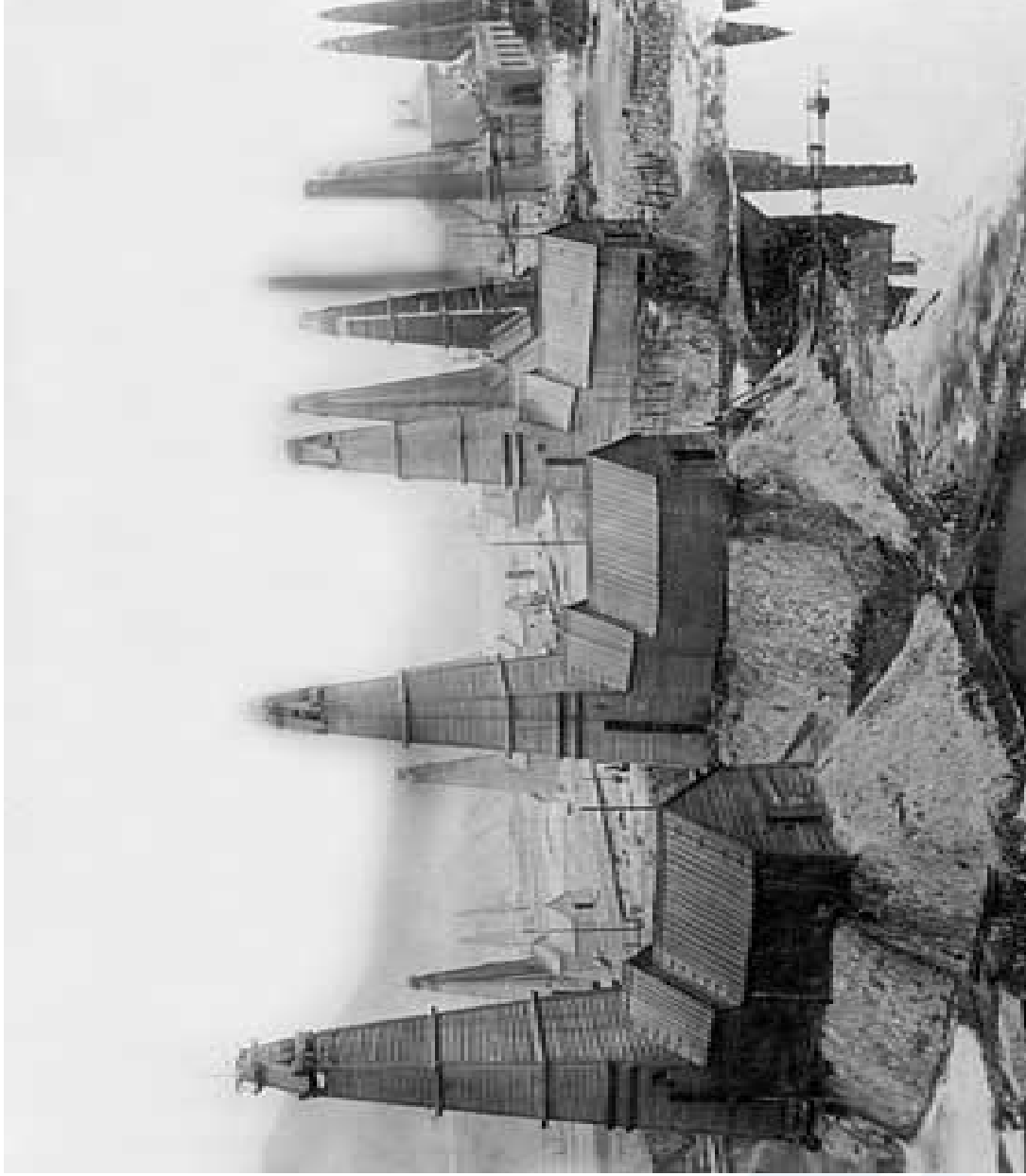


Figure IV-23 Overall of substructure

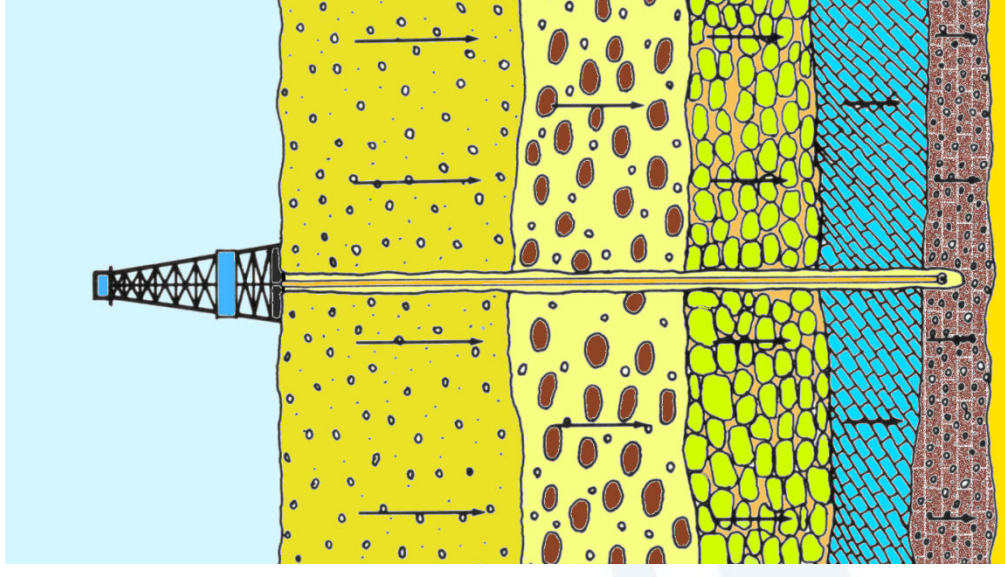
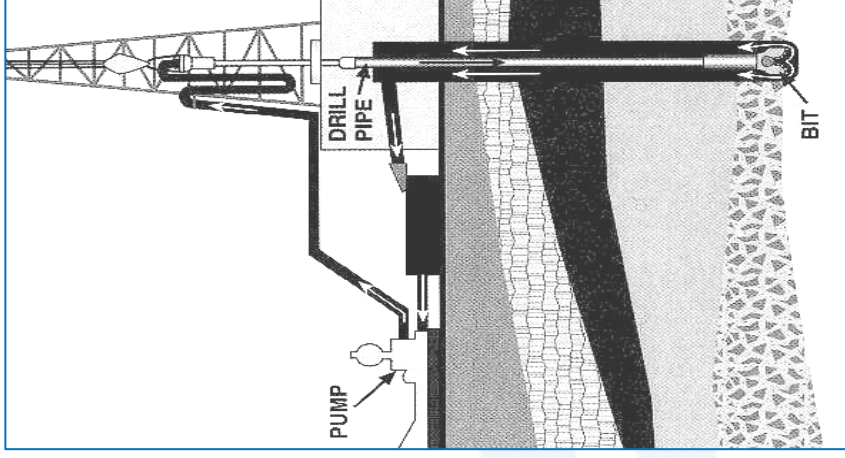






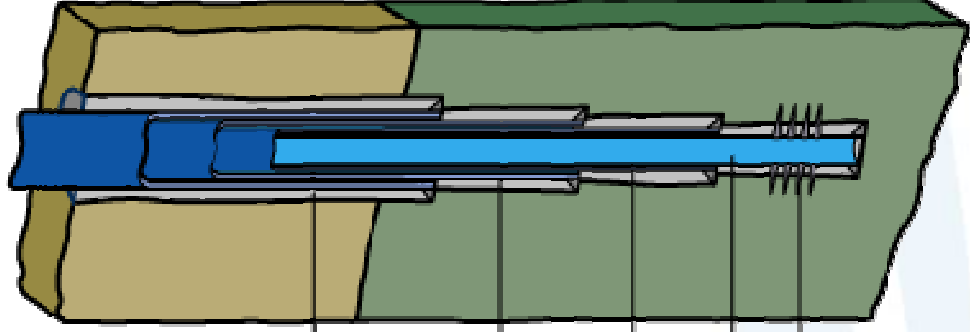
# Drilling Systems

- Main drilling systems
- Hoisting system
  - Rotating system
  - Circulating system
  - Blow-out preventer system
- 
- The power system (vessel integrated)
  - Compensation system (offshore)
  - Casing and cementing systems





# Casing and cementing a well



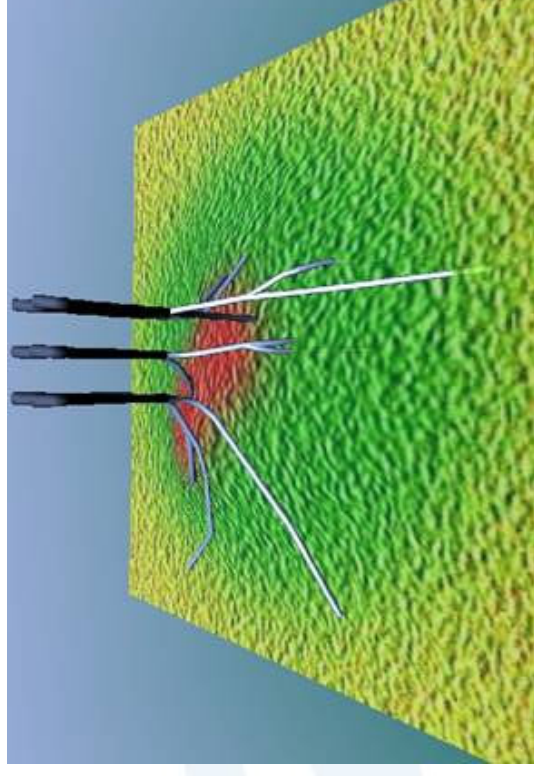
Conductor pipe

Surface casing

Intermediate casing

Production casing

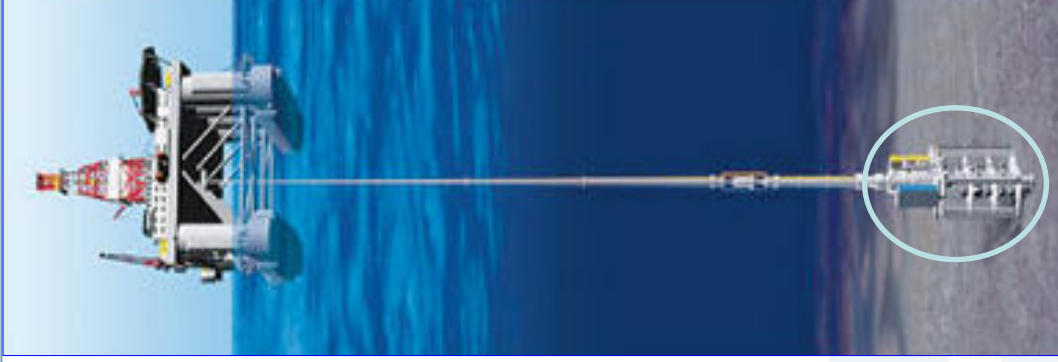
Perforated interval







# Subsea Drilling Operation Principle



## Drilling Operation

- Executed by a floating unit, using a Subsea BOP connected to a Subsea Wellhead and a Marine Riser.

## Function **Subsea BOP**

- Pressure Control, Recovery
- Planned or Emergency Disconnect

## Function Riser

- Flow path for Drilling Fluids
- Flow path for pressure control recovery
- Running/Retrieving BOP
  - Riser tensioners

## Function Wellhead

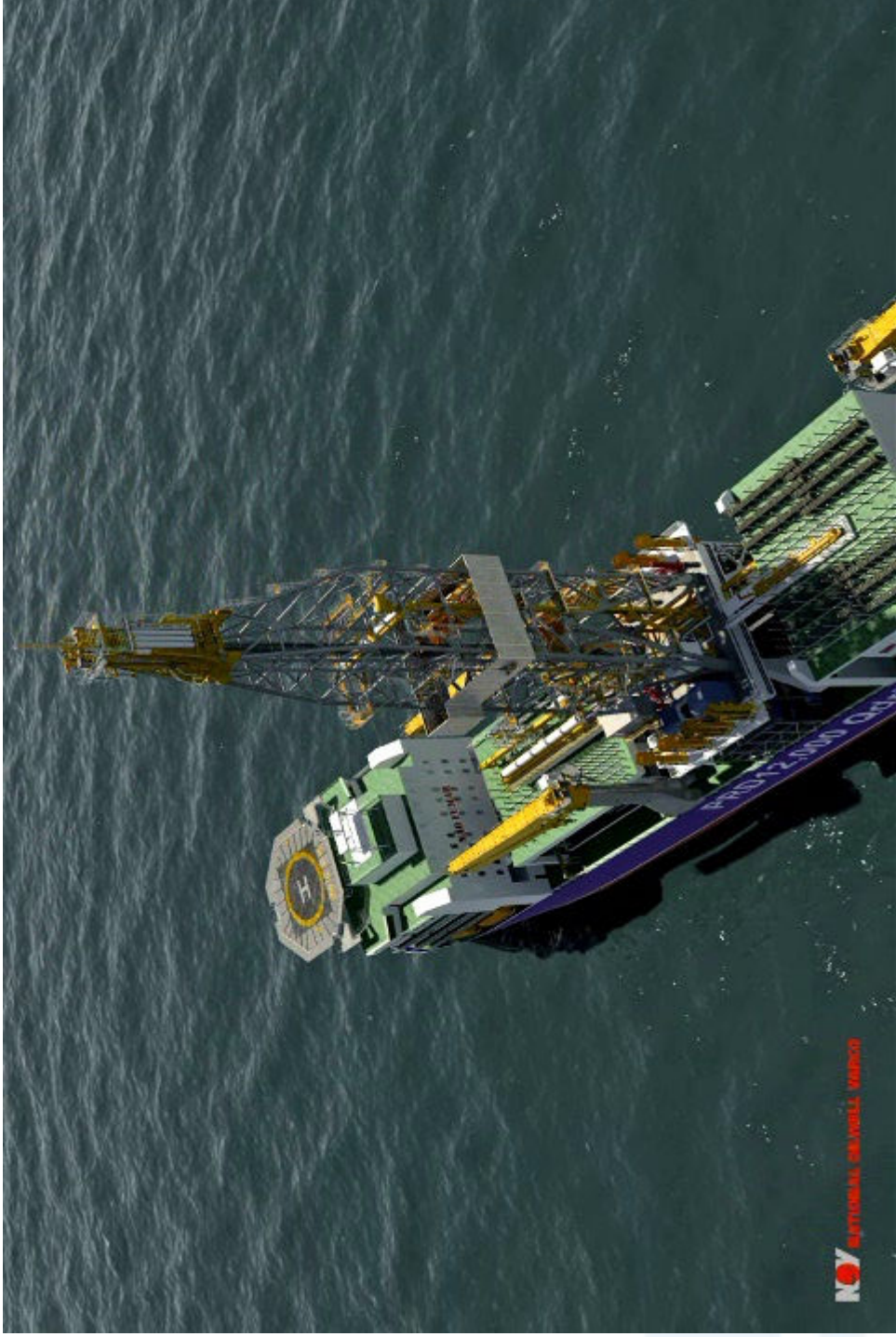
- Support Base for Well, BOP
- Pressure Control
  - Xtree installation for production





# System integration in design

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# General arrangement









# Riser handling

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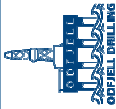




# Contractors word on the result



**“the Champion is the most modern drillship in the world”**



**“with the Deepsea Metro II we achieved our long term strategy to enter the Brazilian market”**



**“the newest, most versatile and technologically advanced floater ”**

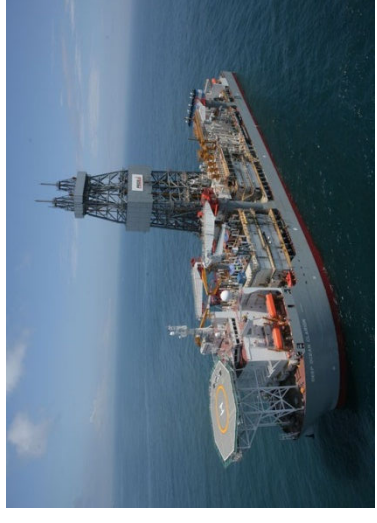


**“these drillships will enable us to offer our customers unmatched capabilities at a competitive construction cost”**



**“allowing state of the art drilling with Diamond Offshore's high standards of systems integrity, safety and operational excellence”**

## GustoMSC drillship and competition



Design/Builder	GustoMSC/ HHI	DSME	SHI
<b>Length (m)</b>	<b>210</b>	<b>255</b>	<b>228.6</b>
<b>Breadth (m)</b>	<b>36</b>	<b>38</b>	<b>42</b>
<b>Depth (m)</b>	<b>18.15</b>	<b>19</b>	<b>20</b>
<b>Draft (m)</b>	<b>10</b>	<b>13</b>	<b>12</b>
<b>Displacement (t)</b>	<b>76,000</b>	<b>Abt. 110,000</b>	<b>96,000</b>
<b>Water Depth (ft)</b>	<b>10,000 (12,000 option)</b>	<b>12,000</b>	<b>10,000 (12,000 option)</b>
<b>Drilling depth (ft)</b>	<b>40,000</b>	<b>40,000</b>	<b>40,000</b>
<b>VDL (t)</b>	<b>20,000</b>	<b>20,000</b>	<b>20,000</b>
<b>Derrick hook load (t)</b>	<b>1134</b>	<b>1134</b>	<b>1000</b>
<b>Riser tension capacity (t)</b>	<b>1,620 (2,100 option)</b>	<b>2,100</b>	<b>1,620 (2,100 option)</b>
<b>Accommodation (PAX)</b>	<b>210</b>	<b>200</b>	<b>200</b>

→ *smaller, competitive performance, more efficient*

# Q&A



**GustoMSC**

[www.GustoMSC.com](http://www.GustoMSC.com)





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