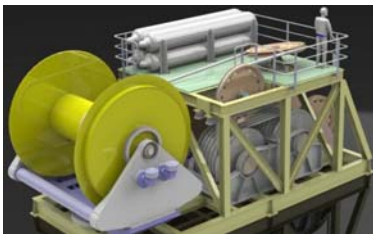
Information Document

DEEP OCEAN DEPLOYMENT SYSTEM - DODS

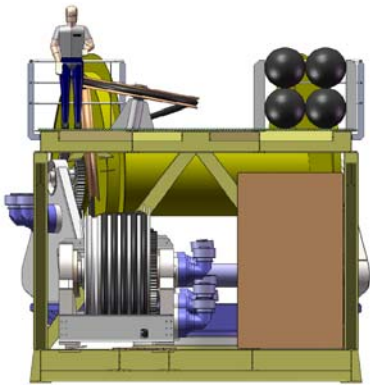
Model 638-900-AHC

TDE, a joint venture between Torque Engineering and Denith Engineering, have developed winching system for deploying heavy pay loads in deep water. The Deep Ocean Deployment System (DODS) has been designed in accordance with Lloyds Register Code for Lifting Appliances in a Marine Environment, and makes use of a hydraulically driven traction engine and storage reel with an integrated spooling mechanism.



SYSTEM OPERATION

The system is semi closed loop. The pumps are pressure compensated and will operate at a maximum pressure of 28Mpa.



The motors have secondary controls which are controlled via MOOG servo valving directly on the motors, this servo valving is in closed loop with a Kongsberg motion reference unit when in the AHC mode.

A nitrogen accumulator bank is used for supplementing pump flow in AHC mode. Excess oil will be passed over a relief valve to the low pressure side which will then be returned to the oil reservoir via a cooler.

CONTROL & OPERATING MODES

- Traction Engine
  - Independent manual control
  - Active heave compensation
  - Constant tension
  - Landing / Lift Off
  - High speed (< 300 kN)
- Storage Reel
  - Independent manual control (light loads)
  - Active heave compensation (light loads)
  - Constant tension
  - Landing / Lift Off

Samson ® Quantum-12

OUTLINE PERFORMANCE

- SWL - 638 kN
- Normal speed - 0,7 ms^{-1} (lifting SWL)
- Normal speed - 1 ms^{-1} (lowering SWL)
- Maximum speed - 1,5 ms^{-1} in AHC and low load transits (<300 kN)
- Storage reel - 3000 m (or to client requirements)
- Storage reel brake systems
  - Hydrostatic
  - Fail safe spring applied hydraulic release
- Traction engine brake systems
  - Hydrostatic
  - Fail safe spring applied hydraulic release

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HEAVE COMPENSATION PERFORMANCE

- Attenuation – anticipated 85% loss of vessel vertical displacement
- Winch maximum compensating speed 1,5 ms^{-1}

MONITORING & RECORDING

- Rope load exposure history
- Vessel motions (displacement, velocity & acceleration)
- Tension in rope
- Line out / rope position
- Spooling position

WINCH MODULE

- Mass - 62 tonnes
- Dimensions - L=10m ; W=5m ; H=4.6m

HYDRAULIC & CONTROL MODULE

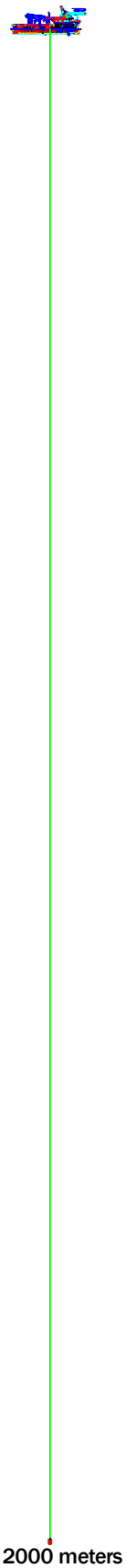
- 4 x 275 kW electrically driven pump sets (400% redundancy)
- Dimensions - L=9m ; W=3m ; H=3m
- Mass - 30 tonnes (with 5000 liters oil)
- Operating Pressure - 280 bar
- Oil flow - 2,400 liters / minute
- Power - 1,2 MW supplied at 440 V 60Hz
- Motion Reference Unit – Kongsberg MRU Z
- Control – MOOG
- Components - Rexroth
- Boost oil - 2000 liters / minute
- Cooling - 2 MW

ADVANTAGES

- Suitable for synthetic fiber rope
- Modular road transportable units (escorted)
- Power effective
- Space effective
- Mass effective
- Adaptable to add 2:1 purchase

APPLICATIONS

- Deep Water Launch & Recovery
- Deep Water Mooring



Contact:

+ 61 400 205513 / mike.spiers@torqueengineering.com

+ 27 82 4469203 / robert@denith.co.za