



Fig. 1 - Drilling mud tank handling

Hydraulic systems for jacking

Technology and innovation for offshore and onshore operations

The transfer and jacking of vessels, oil platforms, drilling mud tanks etc demands compact and robust engineering solutions able to grant an easy integration even in spaces hard to reach as well as an high resistance to extreme ambient conditions (Fig. 1).

The manufacturers of handling equipments for marine terminals and offshore and onshore applications look for innovative electrohydraulic solutions suitable to operate both at low temperature and in aggressive environments and able to grant precise motion controls even in presence of loads with variable center of mass

Atos system division have set up an innovative, compact and easy to install jacking system, consisting of four digital servo-driving systems that are controlled and synchronized through a PLC control unit integrated into a rugged AISI 316 stainless steel control console with IP 65 protection degree (Fig. 2).

Each electrohydraulic servo-driving (Fig.3) consists of:

- 1) Servocylinder according to ISO 6022 norms with built-in magnetostrictive position transducer and load cell. It is manufactured with high strength materials suitable for low temperature, low friction PTFE seals and specific guide rings to withstand high radial forces
- 2) Power pack, according to the Machine Directive 2006/42/CE, installed on board of the servocylinder and is equipped with low temperature devices, internal gears pumps, sealed reservoir in AISI 316L stainless steel, filtering and cooling system suitable for high temperature variations
- 3) Control manifold integrating ruggedized servoproportional valves with on board digital electronic for alternated close loop controls of position, speed and force (Fig. 4). Safety valves, certified by TÜV, with built-in inductive proximity sensors and pressure relief valves conforming to the Machine Directive 2006/42/CE for load compensation, ensure top level reliability and secure the system in emergency conditions.

The control Firmware processes the feedback signals from the position transducer and load cells installed on the servocylinders and carry out:

- precise synchronization of the four servoactuators (+0,1% of max working stroke)
- “barycentric damping” function to compensate the oscillations during the load motion.

These integrated systems represent the compact and innovative solution for every special offshore and onshore handling operation.

For further information look at www.atos.com



Fig. 2 - Control console in AISI



Fig. 3 - Atos jacking system



Fig. 4 - Digital servoproportional



Turnkey jacking system

Electrohydraulics for marine jacking

Handling equipments for marine terminals and offshore applications (transfer + jacking of vessels, oil platforms, mud tanks etc) demand precise motion control solutions able to withstand low temperature and aggressive environments.

Atos manufacture compact and robust jacking systems with four digital servo-drives synchronized by a control unit integrated into a IP 65 rugged stainless steel console.

Each servo-drive consists of:

- ISO 6022 round heads servocylinder with built-in magnetostrictive transducer and load cell. High strength materials and specific guide rings are used for low temperature and high radial forces
- Power pack installed on-board-to the servocylinder with sealed stainless steel reservoir
- Rugged digital servoproportionals with alternated closed loop controls of position, speed and force
- Proprietary control firmware for a precise synchronization of the four servoactuators with "barycentric damping" function for the compensation of oscillations during the load motion.

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