OneSubsea
A Schlumberger Company

Electric High-Power Rotary Actuator

Cost-effective, operationally efficient solution for deepwater and long-offset production

APPLICATIONS

Offshore production, particularly in deepwater and long-offset fields

BENEFITS

- Greater control and precision of actuation
- Cost and rig-time savings
- Optimized uptime
- Reduced interventions

FEATURES

- Minimized power consumption
- High output shaft angle accuracy
- Minimized equipment complexity and maximized reliability
- Efficient, precise installation

OneSubsea offers a first-of-its-kind, truly comprehensive electric subsea production system that comprises electric valves, trees, chokes, and manifolds. This system represents state-of-the-art technology based on a decade of experience gained and lessons learned. The result is an integrated solution that improves system efficiency, mitigates HSE considerations, and enhances readiness for future operations.

Each component of the electric subsea production system is operated by electrically driven actuators. The OneSubsea portfolio of electric actuators includes high-power rotary actuators, low-power rotary actuators, and electric gate valve linear actuators.

Electric high-power rotary actuator.

Innovative design principle

The electric high-power rotary actuator can operate manual valves through standardized 4-in ROV interfaces per API Specification 17H, 2nd Edition. Actuator output shaft angle accuracy is better (less) than 1°. Operational speed can be within the range of typical intervention tools, comparable to or faster than competing products.

Valve actuation is accomplished with torque of 2,000 ft.lbf [2,711 N.m], achieved using the combination of a brushless DC servomotor and a planetary gearbox. Lower torque values can be configured to adapt the actuator to the characteristics of the valve.

Maximized reliability through streamlined design

OneSubsea selects all main components, including the motor control unit, motor, and gearbox, for a simplified drive chain that yields maximum reliability. Actual speed, input voltage, motor winding current, transistor temperatures, and other diagnostic values are reported on an event-driven basis.

Efficient installation

The mechanical interface is equipped with a spring-mounted shaft, eliminating the need to consider the valve position and enabling faster, more precise installation. The spring-driven valve seat slides in within the first quarter-turn of the actuator. After installation of the actuator, calibration must be performed to determine the physical boundaries of the valve.

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