Press Release

SSEAC® subsea actuator: Precise flow control on the seabed

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The SSEAC®, an electromechanical subsea actuator from WITTENSTEIN motion control GmbH, is an innovative solution for actuating choke and other valves in subsea applications. Rated for a service life of at least 25 years, this actuator controls the continuous flow of gases and liquids at a depth of up to 4000 meters. The complex hydraulic systems traditionally chosen for this purpose are now a thing of the past: instead, the SSEAC® has two redundant 24 V motors that drive the actuator's planetary gearbox and enable precise rotary adjustment of the valves. The subsea actuator is designed for use in offshore oil and gas extraction, systems for injecting CO_2 into the seabed or the production, transport and storage of green hydrogen at sea.

The Subsea division at WITTENSTEIN motion control (WMC) has been offering subsea drive systems and electric subsea actuators for deep-water applications for more than 20 years now. "The new SSEAC® underlines our proven track record when it comes to subsea drive technologies at extreme depths", said Dr. Mark Eikötter, Managing Director of WMC. "By replacing hydraulic actuation with 24 V electrification, this actuator helps to permanently reduce the investment and operating costs for subsea systems providing access to deposits and deep-water reserves. Electric actuation is not only highly efficient and economical; it also represents a safe and environmentally friendly approach to controlling and operating valves on the seabed", adds Dr. Eikötter.

SSEAC® subsea actuator: Continuous flow control for deep-sea valves

The SSEAC® is a subsea actuator from WITTENSTEIN motion control that is based on an electromechanical principle and features a redundant 24 V power supply. "The big advantage", explained Christoph Hansli, Business Development Manager at WMC, "is that the traditional hydraulic pipes from the offshore platform to the seabed are no longer required. That not only means lower investment and operating costs – hazards such as leaks are virtually eliminated too." Similarly compact in size to hydraulic modules, the SSEAC® can provide torques of up to 2700 Nm for adjusting the valve flaps, so that precise flow control is achieved via the rotary

WITTENSTEIN SE develops products, systems and solutions for highly dynamic motion, maximum-precise positioning and smart networking for mechatronic and cybertronic drive technology.

The SSEAC® subsea actuator

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movements. Since these torques are achieved with power consumption of less than 96 W, existing sensor lines can be used to adjust the valves. Apart from small dimensions, thanks to the mechanical Class 4 ROV interface and the electrical SiiS L2 interface, the SSEAC® also offers the subsea segment's standard connectivity options for both mechanical components and power and data transmission, which as Hansli emphasizes, makes it "fully compatible with hydraulic actuators in terms of installation, connection and use".

Ready for condition monitoring

Beyond highly reliable and robust control electronics, the SSEAC® integrates various sensors for monitoring the subsea actuator's condition. Absolute positions, torques and other operating data, which can be used for remote online checks of the actuator condition, are continuously recorded. Flow control precision can be tracked at any time in this way and the deep-sea drive module's availability optimized over its entire service life.

Fit for subsea applications of today and tomorrow

The electromechanical SSEAC® subsea actuator allows valve control and operation at great depths. However, subsea systems of this kind are no longer operated solely for the purpose of extracting oil and gas. In the context of industrial and environmental decarbonization, applications for subsea storage of carbon dioxide or for producing green hydrogen at sea are other promising and sustainable fields of use.

Product premiere of a joint development by two subsea and drive specialists

The SSEAC® subsea actuator was jointly developed by WITTENSTEIN motion control and Bosch Rexroth, one of the world's leading suppliers of drive and control technologies for machines and systems, including in the subsea sector. It will be presented for the first time at the two companies' joint booth at the Offshore Technology Conference (OTC) from May 5 to 8, 2025 in Houston, Texas / USA (Booth #3219).

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Picture (source: WITTENSTEIN SE)

wittenstein-subsea-actuator.jpg
SSEAC®, the electromechanical subsea actuator from WITTENSTEIN motion control

Texts and photographs in printable quality can be downloaded from https://www.wittenstein.de/en-en/company/press/

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