

PRESS RELEASE

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Subsea Valve Actuator certified for Safety Integrity Level 3

Field-proven safety electrifies the deep sea

PI 028/20
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DNV GL has certified the safety system of the Subsea Valve Actuator with field-proven springs for safety applications up to SIL 3. (Image source: Bosch Rexroth AG)

The new concept for Subsea Valve Actuators (SVA) from Bosch Rexroth has been certified by DNV GL for application in safety systems with up to Safety Integrity Level (SIL) 3 requirements. The SVA is a self-contained actuator for opening and closing process valves in the deep sea at depths down to 3000 meters and deeper. The system consists of an electrically controlled drive with a hydrostatic transmission, which saves up to 75% of the energy required compared to a conventional electro-mechanical axis.

The patent-protected SVA is design to open and close process valves for oil and gas production or in CO2 storage systems in deep sea applications. A redundant design, for example of the safety valves and field-proven springs, ensures that the actuator can close the process valve safely even in case of power failure and without external energy supply. In addition, the actuator can also be operated mechanically from the outside using an underwater robot via an independent override interface. All relevant components of the powertrain are designed with redundancy. DNV GL, the world's leading classification company for the maritime industry, has now certified the SVA for application in systems with safety requirements up to SIL 3 according to IEC 61508 and IEC 61511. The design also complies with the ISO 13628-x and API 17x standards,

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which are important in the offshore industry for the protection of people and the environment as well as subsea installations or vessels.

“For the first time, users can now use electrical underwater actuators with the field-proven safety of mechanical springs without having to oversize the electro-mechanics as has been necessary in the past,” emphasizes Dr. Alexandre Orth, who is responsible for the Subsea Automation Systems at Bosch Rexroth. “The SVA is more compact, lighter and simpler in design and reduces energy consumption by up to three quarters.” Furthermore, Bosch Rexroth has integrated a continuous and automated monitoring of the system conditions, which significantly improves the diagnosis of the safety function.

At the beginning of the year, the innovative SVA was already being awarded with the “Spotlight On New Technology™ Award” of the Offshore Technology Conference (OTC 2020). The system is suitable for use in the deep sea down to 3000 meters and deeper and is designed for maintenance-free operation for 25 years. The SVA is a key component to promote the electrification of production systems in the deep sea.

About Bosch Rexroth:

As one of the world's leading suppliers of drive and control technologies, Bosch Rexroth ensures efficient, powerful and safe movement in machines and systems of any size. The company bundles global application experience in the market segments of Mobile Applications, Machinery Applications and Engineering, and Factory Automation. With its intelligent components, customized system solutions and services, Bosch Rexroth is creating the necessary environment for fully connected applications. Bosch Rexroth offers its customers hydraulics, electric drive and control technology, gear technology and linear motion and assembly technology, including software and interfaces to the Internet of Things. With locations in over 80 countries, roughly 31,000 associates generated sales revenue of roughly 6.2 billion euros (\$7.3 billion) in 2019.

To learn more, please visit www.boschrexroth-us.com.

About Bosch:

Having established a regional presence in 1906 in North America, the Bosch Group employs 34,600 associates in more than 100 locations, as of December 31, 2019. In 2019 Bosch generated consolidated sales of \$14.4 billion in the U.S., Canada and Mexico. For more information, visit www.bosch.us, www.bosch.ca and www.bosch.mx.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 400,000 associates worldwide (as of December 31, 2019). The company generated sales of 77.7 billion euros in 2019. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative

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solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. Bosch employs some 72,600 associates in research and development at 126 locations across the globe, as well as roughly 30,000 software engineers.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPress.

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