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Hermes Award 2021: Bosch Rexroth is electrifying the process industry

Manuela Kessler | 2021.04.12. | Lohr am Main | PI 013/2021

Significantly lower CO2 emissions thanks to disruptive innovation



The Hermes Award 2021, the most important international industry prize, provided to Bosch Rexroth (from left to right) Dr. Jochen Köckler (Chairman of the Managing Board, Deutsche Messe AG) und Thomas Fechner (Leiter Produktbereich New Business, Bosch Rexroth AG) (Image source: Deutsche Messe AG)

Lohr am Main/Hanover - In recognition of its contribution towards greater sustainability, Bosch Rexroth's SVA R2, the world's most compact electrical Subsea Valve Actuator, received the Hermes Award 2021, the greatest international industry prize, at the Hanover Trade Fair. The disruptive innovation is helping to significantly reduce not only CO2 emissions from process systems but also environmental risks. The SVA R2 is also suitable for use in future process systems, to produce green hydrogen and for carbon capture and storage applications.

“When it comes to sustainability, innovations play a crucial role in achieving disruptive progress. With the SVA R2, Bosch Rexroth offers a completely new solution for the process industry. For the first time ever, users can replace conventional hydraulic cylinders with electrical actuators with field-proven safety systems and take up no extra space,” said Thomas Fechner, Senior Vice President Product Area New Business at Bosch Rexroth.

The SVA R2 Subsea Valve Actuator opens and closes valves in process systems. Up until now, this task was usually performed in subsea factories by hydraulic cylinders which had to be supplied by hydraulic lines several kilometers in length. Previous attempts to replace them with electrical actuators failed because they required more space, the emergency power supply using batteries was too expensive and it was not possible to integrate field-proven safety systems.

A team of developers at Bosch Rexroth rose to these challenges with a disruptive innovation. For the first time ever, the SVA R2 Subsea Valve Actuator combines an electrical drive, field-proven safety systems and a motion control system and takes up no more space than the hydraulic cylinders normally used. The module is designed for subsea use at depths of up to 4,000 meters.

Agile development methods for futuristic applications

The electrification of the actuators significantly improves the CO2 footprint of process systems. After all, the hydraulic pipes with several kilometers in length along with the central hydraulic

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power unit are no longer required. The currently available power supply for sensors can be utilized in addition to power the actuators. With a space-saving design, the safety systems which have proven themselves in hydraulic cylinders for decades, could now be integrated what was not possible in all previous approaches. In addition, the motion control system allows the operating states to be monitored. This condition monitoring further increases safety in delicate ecosystems.

The Subsea Valve Actuator team at Bosch Rexroth uses agile development methods and works closely with operators, suppliers and international universities. One of the first intended applications is the electrification of subsea production facilities for energy production. Thanks to the Subsea Valve Actuator SVA R2, the procurement and operating costs for these facilities are lower and they are more energy-efficient and safer than ever before. Other areas of use include future process systems for the production of green hydrogen where for example offshore wind energy plants generate renewable energy and hydrogen on site which is then transported ashore via pipelines. The actuator also plays a role in the initial plans to use carbon capture and storage to remove CO₂ from the atmosphere and store it under water in previous subsea production facilities.

Bosch Rexroth tests the full-scale prototypes on a specially built test bench in accordance with the most stringent international standards for subsea applications. Compared to other applications, they lay down the very highest requirements in regards to the functions and safety of the components and modules used. The first pilot tests are due to start in the third quarter of 2021.

Basic Information 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, more than 29,600 associates generated sales revenue of around 5.2 billion euros in 2020.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 395,000 associates worldwide (as of December 31, 2020). The company generated sales of 71.5 billion euros in 2020. 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 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 some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future

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growth is its innovative strength. At 129 locations across the globe, Bosch employs some 73,000 associates in research and development, of which nearly 34,000 are software engineers.

Press Contact

Please get in touch with our Press Contact



Manuela Kessler

Spokesperson
technology topics
+49 9352 184145

Manuela.Kessler@boschrexroth.de