

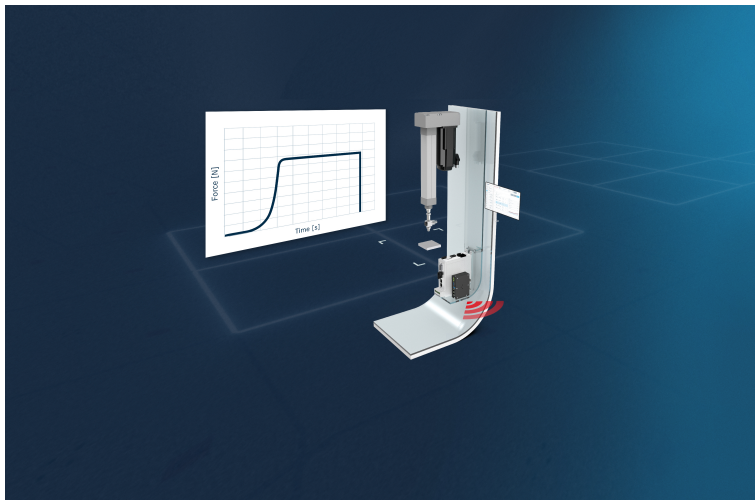
PRESS INFORMATION

Smart servo press with force control

Manuela Kessler | 13.06.2024 | Lohr am Main / Germany | PI 021/24

Bosch Rexroth adds force control software feature to mechatronic subsystems for pressing and joining applications

- Adjust to target force and keep constant for a specified time
- Rapid commissioning, process definition and quality control
- Integrated safety technology: safe torque off and safe motion



Flexible servo press: Processes with force control can now be implemented quickly, easily and safely with the Smart Function Kit Pressing. (Image source: Bosch Rexroth AG)

The Smart Function Kit Pressing, a complete mechatronic package from Bosch Rexroth for the quick realization of servo presses, is now available with force control. This means that it is now also possible to perform processes in which the target force must be kept constant over a defined period of time. Intelligent e-tools speed up the selection and configuration of the modular servo press. The pre-installed operating software facilitates quick and easy commissioning, process definition and line integration.

With the newly integrated force control software feature, the Smart Function Kit Pressing covers a total of three types of applications: joining to a defined position (position controlled), joining to a defined force (position controlled) and new: joining to a defined force with subsequent maintenance of the force (force controlled).

When joining with force control, the servo press maintains a constant defined target force for a predetermined duration, even if the position of the workpiece fluctuates or its size changes. This is the case, for example, if it expands or shrinks in the process, melts or is ground off. Continuous monitoring of the maximum force and position values protects the system and tool from damage. You can switch the curve view from force/position to force/time for better process representation and analysis.

PRESS INFORMATION

Force-controlled joining is required in many manufacturing and assembly processes, for example in powder pressing, laser welding or grinding. Another field of application is material testing. In battery production, for example, pouch cells are tested for tightness with constant force while the material expands with the addition of heat. In fuel cell production, the Smart Function Kit compresses components made of different materials with a defined force over a period of several minutes while introducing heat.

Save time from engineering to monitoring

The correct size of the Smart Function Kit can be determined very easily using the new "-Press in/force control" reference process in the LinSelect sizing tool. Integrated safety functions (safe torque off or safe motion) are also available as selectable options in the seamlessly connected online configurator. CAD data and technical documentation can then be downloaded free of charge and the servo press can be ordered directly from the Rexroth online shop with one material number.

The Smart Function Kit for pressing and joining applications consists of the standard components electromechanical cylinder with force sensor, servo motor, drive controller and industrial PC, and is supplied pre-assembled in one package. The pre-installed browser-based operating software shortens commissioning to a few minutes, programming is done graphically via sequence modules, whereby plausibility checks prevent the system limits from being exceeded.

The Smart Function Kit Pressing can easily be connected to a higher-level controller in the place of use by means of prepared function blocks. From there, commands can be given to the servo press, and results and process data can be transmitted to it.

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 and Industrial Applications as well as Factory Automation. With its intelligent components, customized system solutions, engineering 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, around 33,800 associates generated sales revenue of 7.6 billion euros in 2023.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities, the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability. In this context, Bosch's broad diversification across regions and industries strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services

PRESS INFORMATION

to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is “Invented for life,” Bosch wants to help improve quality of life and conserve natural resources. The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch’s global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch’s innovative strength is key to the company’s further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

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