

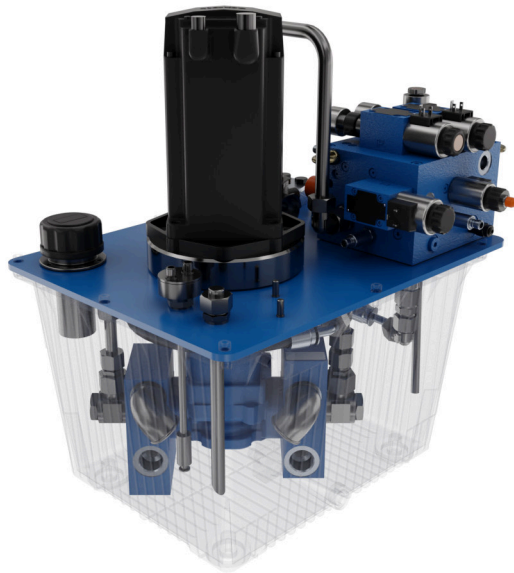
PRESS INFORMATION

Energy-efficient drives for press brakes

Manuela Kessler | 22.10.2024 | Lohr am Main / Germany | PI 037/24

Bosch Rexroth offers two new economical system solutions for press brakes

- Two state-of-the-art solutions for new machines and retrofitting
- Pump-controlled drive system for high energy efficiency
- Innovative 3D cylinder block for valve-controlled drive systems



Pump controlled or valve controlled? With two new drive solutions from Bosch Rexroth, energy-efficient press brakes can be designed and modernized more economically for different applications. (Image source: Bosch Rexroth AG)

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Bosch Rexroth increases the cost-effectiveness of press brakes with two innovative solutions for down-stroking drives. Manufacturers benefit from an innovative valve control or an extremely energy-efficient pump control, depending on their requirements. Both drive packages are characterized by high energy efficiency and control quality for repeatable processes. Bosch Rexroth assists with selecting the best solution for the respective application using the latest simulation tools.

Various requirements are placed on press brake drives for sheet metal processing. Manufacturers are increasingly paying more attention to energy efficiency and carbon footprint when selecting the type of drive. With the two new solutions for valve-controlled and pump-controlled drives, Bosch Rexroth offers an optimized state-of-the-art solution for every application.

Pump-controlled drive package for greater energy efficiency

The new complete solution for a pump-controlled drive offers high energy efficiency with minimal operating costs, especially for press brakes with high utilization rates up to 24x7 operation. The control unit is a complete power unit supplied ready for installation, which combines a highly dynamic servo motor and a four-quadrant axial piston pump. A safety block with end position monitored on/off valves is also part of the package.

The motor-pump unit, which can be precisely controlled using a servo controller, supplies the connected drive cylinder with the required hydraulic power at every operating point. The upper piston can be moved with optimum dynamics, the highest control quality, and energy efficiency using the motor speed and torque control outputs.

Comparisons using state-of-the-art simulation technology show that compared to conventional drives with throttle control, the new solution offers high potential for saving energy. On the one hand, the intelligent power-on-demand drive achieves a higher level of efficiency with lower system power, while on the other hand, the exact metering reduces the total amount of hydraulic oil required.

Innovative 3D cylinder block for valve-controlled drive systems

To optimize valve-controlled drives, Bosch Rexroth is expanding its comprehensive portfolio of components for press brakes with an innovative 3D cylinder block. Thanks to a new manufacturing process that allows virtually unlimited shaping based on a 3D-printed sand core,

PRESS INFORMATION

the pre-fill valve that was previously mounted on the block was able to be integrated into the cylinder block. This delivers considerable benefits in terms of energy efficiency and installation space, as well as a reduction in variants. Compared to conventionally manufactured cylinder blocks, the new manufacturing process results in a weight saving of around 35 percent.

Broad power range for new machines and retrofitting

The two new solutions for valve-controlled and pump-controlled drives operate at a maximum operating pressure of 350 bar and achieve standard pressing forces of up to 3,200 t (valve-controlled) and 2,500 t (pump-controlled). Higher pressing forces are possible on request. Both variants are also suitable for technical retrofitting. Bosch Rexroth can also provide advice in this area based on its comprehensive expertise in solutions, applications, and simulations.

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 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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