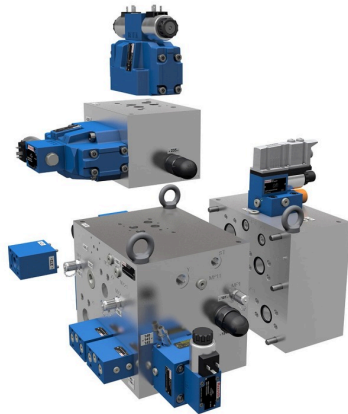


## PRESS INFORMATION

# Die cushion control system with proven safety

Manuela Kessler | 25.10.2022 | Lohr am Main / Germany | PI 058/22

Bosch Rexroth adds a modular standard control system with a DGUV test certificate to the standard modules IH04



Speeds up construction and reduces the documentation work: die cushion module IH04E with safe functions in accordance with category 4, PLe. (Image source: Bosch Rexroth AG)

**With the new IH04 Type E standard modules from Bosch Rexroth for the die cushion function, engineers can work with the most common switching systems. Thanks to the standardized safety concept with a DGUV test certificate, the modules meet general safety requirements with minimal outlay. They can optionally be combined with an energy recovery function which reduces the energy consumption of the die cushion module at the same time.**

Die cushion technology ensures uniform sheet thicknesses during forming and avoids cracks or wrinkles in the workpiece. The newly developed IH04 Type E (IH04E) die cushion module from Bosch Rexroth complements the IH04 Type C/D standard modules for the upper piston. IH04E is compatible with most popular switching systems for state-of-the-art hydraulic die cushions.

At the same time, as a control system, it meets the requirements for installation in hydraulic presses in accordance with ISO 16092-3 as a "safety-related control system component" with category 4, PLe in accordance with ISO 13849-1. This includes preventing unintentional lowering under its own weight, preventing unintentional start-up from the rest position and stopping the hazardous closing movement. The safely reduced speed reaches category 3. The DGUV test certificate significantly reduces the calculation and documentation work needed for engineers to demonstrate the safety of their machines in accordance with the relevant standards.

An IH04E comprises a basic module and a directional valve in order to create an "active" die cushion. The basic module provides the tested safety functions. An extension module either provides pretensioning or the prerequisites for sustainable energy recovery. An additional extension module allows differential switching and load sensing.

The IH04E in the nominal sizes NG10 to NG32 caters for pump volume flows of up to 800 l/min at an operating pressure of up to 315 bar.

With IH04 Type S, its hydraulic overload protection system for mechanical presses, Bosch Rexroth offers an additional solution for protecting forming machines. It features an oil cushion between the plunger and the tool for this purpose. In the event of a fault, the load on this cushion is

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reduced. The load is reduced after just 5 ms to protect the tools as well as the drive and the press frame in the event of overloading. If the plunger is subjected to an off-center load, all connected overload protection systems are triggered at the same time. IH04S is either mounted on the plunger's oil cushion itself or attached centrally to the plunger and connected by pipes. Compact hydraulic power units complete the overload protection system.

Bosch Rexroth at EuroBLECH: Hall 11, Stand D08

### 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 31,000 associates generated sales revenue of around 6.2 billion euros in 2021.

### Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,600 associates worldwide (as of December 31, 2021). The company generated sales of 78.7 billion euros in 2021. 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 growth is its innovative strength. At 128 locations across the globe, Bosch employs some 76,100 associates in research and development, of which more than 38,000 are software engineers.

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