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Energy-efficient high performer

Manuela Kessler | 06.11.2024 | Lohr am Main | PI 042/24

With the new generation of the 2-way cartridge valve LC_8X/ Bosch Rexroth increases the performance and efficiency of hydraulic logic valves

- Increased performance with full compatibility with the predecessor series
- Directional, pressure and combination functions with up to 450 bar operating pressure
- Flow-optimized design for more energy-efficient directional functions



The new generation of the LC_8X/ 2-way cartridge valve achieves significant increases in performance with a variety of directional, pressure and combination functions. In the picture: a flow-optimized directional function. (Image source: Bosch Rexroth AG)

Whether high flow or fine tuning: Bosch Rexroth is increasing the energy and cost efficiency of logic valves with the enhanced LC_8X/ 2-way cartridge valve. The further development of the market-established predecessor series LC_5X/, LC_6X/ and LC_7X/ opens up an even wider range of applications for machine and plant engineering. With a 60 percent lower delta-p, the LC_8X/ once again ensures a major leap in performance. The maximum operating pressure, which has been increased to 450 bar, also boosts efficiency in a wide range of directional, pressure and combination functions. Further improvements relate to the criteria of productivity, stability, engineering and warehousing.

The new LC_8X/ 2-way cartridge valve is currently available in nominal sizes 16, 25 and 32. In addition to the standard version for 420 bar, Bosch Rexroth also offers all variants for a maximum pressure of 450 bar. The safety pressure has been increased to a maximum value of up to 490 bar.

Thanks to flow-optimized geometries, the LC_8X/ offers up to 60 percent less pressure loss during directional functions compared to the successful 7X series. Compared to previous series, the reduction in flow resistance (delta-p) is even greater, which ensures a direct leap in efficiency and performance for retrofits.

High reliability over a long lifetime

The improved and revised sealing concept of the radial seal increases robustness against external pressure peaks and significantly delays or prevents the occurrence of external leakage. A new friction-optimized piston seal, which can be integrated as standard, prevents internal leakage and avoids hydraulic power losses.

Cost-cutting process simplifications

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With the ongoing standardization of the valve concept, Bosch Rexroth is also establishing the basis for cost-cutting process simplifications at the machine manufacturer - from project planning and engineering to assembly and commissioning through to warehousing and maintenance. This also eliminates the additional costs previously required for additional options. Existing body covers can continue to be used due to their compatibility with the previous series, which also saves resources.

For example, the multifunctional all-in-one standard version simplifies warehousing and spare parts management. Optional piston shapes with a central thread, which can either be closed or fitted with nozzles, make it easier to configure pressure functions. A piston type with internal pressure return for non-return valve functions has also been added to the standard portfolio. The newly integrated piston seal reduces the time required for engineering and assembly, as subsequent design or parts list changes are avoided. In addition, this option eliminates the need for intermediate or special covers compared to the previous series, which significantly reduces the number of variants.

The packaging makes a further contribution to the efficient use of resources: the valves are supplied in proven, impact-resistant and environmentally protected round cups made from recycled material, which continue to meet Bosch Rexroth's high quality standards for packaging.

New features for installation, maintenance and disassembly

The top cover of the two-part packaging now has an integrated knock-in aid for correct installation in the intended installation hole.

The revised service concept, which now includes a complete seal kit with all the necessary seals - including control oil seals for the LFA-7X/ top cover - saves time during maintenance. Also new: the integrated disassembly groove and the removal aid on the control slide simplify disassembly of the entire component.

"The comprehensive further development of the globally established previous model LC_7X/ sets new standards in terms of performance, energy efficiency, simplification and stability - with full compatibility to the previous series and unchanged list price compared to previously available standard components," summarizes Janis Kunkel, head of the LC_8X/ development project at Bosch Rexroth.

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

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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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