High performance flow sharing system LUDV for compact excavators

Customer benefits
▶ High efficiency
▶ Improved performance by more than 10 percent
▶ Reduced fuel consumption by eight percent
▶ Improved vehicle controllability
▶ Possibility of higher pressure level
▶ Unchanged system architecture

Optimum productivity in mobile applications is becoming increasingly important. Especially for compact excavators (mini and midi excavators), it is crucial to make the best use of available power by keeping the hydraulics simple. Furthermore, end users tend to place exacting demands on the maneuverability and multi-purpose functions of their machines. In this context, Bosch Rexroth proposes an updated flow sharing (LUDV) technology that both boosts machine productivity and energy efficiency while enhancing fine control and precision performance. With redeveloped products based on a proven solution and with 20 years of experience in the field, the company presents a new range of components in response to the latest market requirements.

Function and benefits

Single flow sharing (LUDV) system
With LUDV technology, the individual functions are assigned different speeds and directions of movement, and workflows are improved as a result. Moreover, with just one variable displacement pump, the number of components can be reduced and the cost of production lowered. The newly designed LUDV flow sharing system combines the new RS12 control block with a redesigned version of the tried and tested A7VO variable displacement pump and a compact MCR motor.

Newly designed axial piston pump A7VO
The variable pump of bent axis design suitable for pressures up to 350 bar, allows a greater supply flow to the main block with same installed power. The design of rotary group and larger displacement angle provides greater efficiency for pressure levels in situations where working conditions present challenging power management requirements, for example digging out trenches and turning. Optimal features such as a variable margin (differential pressure setting) is available for managing
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optimal flow control in relation to engine speed, as well as powershift function.

New RS12 control block
The new RS12 control block also contributes to improved performance. Its internal channels have been redesigned to further reduce the drop in pressure. The four-way control system, which is based on a closed system, can be adjusted to meet changing requirements more quickly than conventional six-way valves. This shortens the time required to develop new models and makes coordinating individual components much easier.

Radial piston motor MCR-X
On compact excavators in particular, the slew drive plays a decisive role in operator acceptance. The MCR-X radial piston motor (160 to 820 ccm/rev) is especially well suited to the requirements of machines between three and eight metric tons. The motor, complete with shockless cross-port relief, anti-cavitation and brake-delay valves, is supplied with an integrated multi-disc brake. The shockless cross-port relief valves limit and control the increase in pressure and prevent excessive changes in acceleration, thus preventing the machine operator from feeling any shocks. Accordingly is the MCR-X characterized by consistent performance at low speeds and a low level of operating noise. The MCR-X ideally complements the newly designed Rexroth LUDV system, and it presents an especially attractive alternative to the slewing drives currently available on the market.

The Rexroth product spectrum is completed by specially developed control levers, handles, and pedals that make it possible to exploit the full performance potential of excavators of up to twelve tons.

Bosch Rexroth AG
Mobile Applications
Glockeraustraße 4
89275 Elchingen, Germany
Tel. +49 7308 82-0
info.ma@boschrexroth.de
www.boschrexroth.com

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