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Lower the boom on fuel usage and component costs

Rexroth's new generation of hydraulic load-holding valves use gravity to help improve energy savings and mobile equipment performance



Thanks to gravity, "Green Valves" from Rexroth reduce fuel consumption and increase boom function performance on cranes, telehandlers and other mobile equipment.

Rexroth introduces a new concept in load-holding and lowering valves to make mobile equipment more energy efficient and easier to control. Using the force of gravity instead of engine power to help lower a boom, Rexroth's new "Green Valves" dramatically decrease power requirements, thereby saving fuel and cutting emissions.

The idea sounds simple: Employ the force of gravity to lower a boom and its load instead of using the machine's valuable supply of energy. However, this contradicts the traditional concepts of load-holding and lowering valves.

In order to meet safety requirements and to ensure smooth motion, it is necessary to literally push down the boom against a counterbalance valve. This requires more engine power to build up the pressure needed to open the valve. It's not uncommon to use 100 and even up to 240 bar in machines such as telehandlers, backhoe loaders, or cranes. This can result in power requirements of 55 kW or more, depending on parameters like cylinder position, the desired speed of movement or the pilot ratio of the counterbalance valve. With a pilot ratio of 4:1, today's counterbalance valves from Rexroth already reduce these energy requirements without sacrificing stability or precise control.

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Rexroth's new Green Valves, however, go one step further and all but eliminate the need for energy consuming high pressure and high oil flow. Engineered to replace traditional counterbalance valves, the patent-pending design allows the use of gravity to help lower the loaded or unloaded boom, while at the same time providing increased stability and control. This results in quicker boom movement and also smoother starting and stopping action. In addition, the Green Valves barely require any oil flow to lower the boom so more oil flow is available for faster execution of other simultaneous movements. This can further shorten machine cycle times for better performance.

By drastically reducing the energy required from the diesel engine to lower the boom, the new load-holding valves can provide significant fuel savings and also help in meeting emission standards. Higher fuel savings result in a more sustainable use of resources, which led to the product name, Green Valves.

The new Green Valves are made with tried and tested components to ensure reliability. The high level of stability and controllability integrated into the valves eliminates the need for damping devices such as orifices, thereby saving costs and also valuable installation space.

Suitable for any type of hydraulic circuit, Rexroth's Green Valves are compact, easy to install, and interchangeable with current Rexroth counterbalance valves.

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