

The new PRC7300 welding controller from Rexroth: reliable and efficient

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Maximum quality when welding all combinations of sheet thicknesses from steel to aluminum

Process reliability and highest precision for spot welds are the key requirements for welding processes in the automotive and home appliance industries. Rexroth has further improved upon its tried-and-tested control and monitoring concept with the new PRC7300 welding controller. Its new software tools and modular structure increase the availability through reduced commissioning times and simplified operations. The use of the newest semiconductor technology reduces the energy consumption by up to 80%. With numerous interfaces for commonly used communication protocols, the controller is future-proof and can be integrated into networked production environments of the coming generation.

The adaptive control algorithms of the PRC7300 assure a high spot weld quality for welding a wide range of combinations of sheet thicknesses from steel to aluminum. The controller recognizes the occurrence of weld spatter in advance by monitoring the current flow. The adaptive controller adjusts the welding current accordingly and thereby reduces spatter that otherwise requires expensive reworking. Furthermore, the comprehensive adaptive process control and monitoring procedures are already capable of handling future material combinations in the welding process.

Commissioning is around 90% faster

New software tools and the modular structure of the system reduce the commissioning and changeover times by up to 90%. An application layer that is integrated as standard allows fast and targeted adjustment to the robot interface. An internal real-time bus system is available in order to connect electric servo weld guns and peripheral devices. The front-end reduces installation effort and allows preventative maintenance of the weld guns. With open interfaces for processing, robot integration and communication, the whole system can be integrated into a wide variety of automation structures right through to Industry 4.0 standards.

The new PRI7000 software for commissioning, operation and diagnostics controls several welding controllers in one piece of hardware. It simplifies operation with intuitive Windows and web-based applications. New

communication interfaces reduce the response and wait times. The controller stores up to 10,000 welding programs and can therefore be easily integrated into multi-variant production processes.

Network capable for Industry 4.0

The PRC7300 welding controller is ready for horizontal and vertical networking in Industry 4.0 environments. Users can operate the interface and the welding PC remotely in an area away from the welding cell. The multiprocessor architecture for process control and communication increases the data transfer rate without negatively affecting welding process control. The controller exchanges all commonly used Ethernet real-time protocol data with higher-level systems and is WLAN-enabled. In addition, the integrated web server allows wireless operation and diagnostics of the controller with smartphones or tablet PCs.

Energy efficient and compact

New performance electronics lowers power loss. This means the developers were able to utilize cooling systems with smaller dimensions. These dimensions are around 30% smaller than those of the previous generations. At the same time, the new controller increases energy efficiency. It uses up to 30% less energy when welding and even 80% less energy in idle mode. The higher-level controller can switch the welding controllers to standby mode via the fieldbus protocol during production breaks and activate them again afterwards.

Source: Bosch Rexroth