

**STATEMENT**

2020-07-24

## Connected Hydraulics: Connectivity with added value

Dr. Steffen Haack, Head of the Business Unit Industrial Hydraulics, Bosch Rexroth AG

**For machine manufacturers and users, productivity is the measure of all things. Connected hydraulics makes an important contribution to productivity because it combines the physical advantages of fluid technology over the entire life cycle with the almost infinite possibilities of digitalization and connectivity in the Internet of Things.**

### Hydraulics “to go”

The trend is clear: Fewer and fewer engineers want to design hydraulic systems completely in-house, but rather map functions by means of ready-to-install plug-and-produce modules. With CytroBox, the new generation of power units, variable-speed pump drives or ready-to-install linear drives with decentralized fluid circuits, Rexroth already offers a broad portfolio that is expanded continuously. Hydraulics has never been simpler: select, order, commission. Online tools for the selection and configuration of hydraulic components and complex assemblies are increasingly being integrated into the digitalized workflows of engineers. Shifting previously hydromechanically executed movements to the software also allows them to solve various movement tasks with identical hardware.

### Quick installation with software assistants

The commissioning process is also shaped by software tools. Valves with digital intelligence automatically identify themselves via a Multi-Ethernet interface or IO-Link. Software assistants and wizards for initial parameterization logically guide even technicians with little experience through commissioning and suggest suitable control parameters. This way, incorrect entries are avoided and commissioning is accelerated considerably. In a next step, control valves make the open Bluetooth interface available.

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Apps allow operators to access components directly with their smartphone, change parameters and adapt the hydraulics to suit their particular task.

### **Maximum productivity through top performance**

This adaptation to the respective task and the continuous increase in performance of hydraulic components form the basis for higher productivity. The use of new manufacturing processes such as 3D printing opens up additional potential. At the same time, hydraulics has made enormous progress in terms of energy efficiency. With fuel savings of up to 80 percent, it actively contributes to achieving the CO2 targets of manufacturing companies.

In daily operation, connected hydraulic products and systems continuously record operating data. These can be displayed on the device (e.g. for proportional valves) with a simple life expectancy (green-yellow-red logic). The operating data can also be processed decentrally and the results sent to higher-level systems. From these results, analysis algorithms derive considerable optimization potential for process improvements and higher productivity.

### **Minimize downtime: Prevent machine breakdown with predictive analytics**

This data is also the key to minimal downtime, because algorithms based on decades of application experience detect wear before it leads to failure. For example, the software solution CytroConnect processes the operating data of hydraulic units in a decentralized manner. Maintenance staff can call up this information via smartphone regardless of their location – inside or outside the factory. They can resolve many error messages via online access or trigger an automatic spare parts order.

### **The digital future of hydraulics has begun**

The digitalization of connected hydraulics is continuing to gain speed. In the coming months, new digitized hydraulic components, modules and systems

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will go into series production and expand the range of applications.  
Connected Hydraulics is a future-proof technology with added value for  
machine manufacturers and end users.



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