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The intuitive way to an energy-efficient pump drive: Size & Select Assistant for Sytronix

Manuela Kessler | 19.10.2022 | Lohr am Main / Germany | PI 053/22

Design, compare and configure variable-speed pump drives for plastics processing machines in just a few minutes



Virtual design and configuration of Sytronix solutions with automatic calculation of individual energy savings compared to constant drives. (Image source: Bosch Rexroth AG)

Whether in series and special machine construction or when retrofitting plastics processing machines: Variable-speed pump drives from the Sytronix family combine the benefits of hydraulics with maximum energy efficiency. With the Size & Select Assistant, engineers can quickly and easily dimension and configure individual Sytronix solutions online. The virtual parameterization of the configuration can be saved and copied to the real pump drive. The assistant then automatically calculates the individual energy savings compared to constant drives. This comparison is important when taking part in the energy efficiency subsidy programs offered by many countries.

Bosch Rexroth has developed a closed-loop e-tool chain for the digital design and configuration of the entire Sytronix drivetrain with hydraulic pump, motor and controller. It covers the entire design, dimensioning, configuration and parameterization process right through to ordering in the Rexroth Store. Users do not have to install any software – they can use the coordinated e-tools online instead.

The Size & Select Assistant is accessed via the defined application example “plastics machine” or other typical applications. The system queries the maximum operating conditions for pressure and flow rate and scales the representative load cycle accordingly. Engineers can then hone the typical cycle in a data editor. Process phases can be added or removed, and acceleration and braking ramps can be optimized without programming. With three settings (Standard, Medium and High), the assistant adjusts the system dynamics and automatically calculates the cycle time.

The system then presents the most suitable Sytronix solutions. Users can view and save all relevant information on an individual basis. With the comparison function for up to three drivetrains, they then make a final selection.

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The Size & Select Assistant also suggests application-specific drive parameters on the basis of the data entered, and engineers can then adjust these parameters individually. This means that they have already created a digital twin for their drivetrain in this engineering phase, including documentation, CAD and EPLAN files, and even a file with the drive parameters. During commissioning, technicians simply copy the parameters defined with the configurator to the real Sytronix solution without any further effort.

The software also calculates the energy consumption of the drivetrain automatically and shows how much energy the variable-speed pump drive saves compared to a constant one. This needs-based reduction in speed reduces energy consumption and thus CO2 emissions by up to 80 percent. Individually calculating energy savings is important when taking part in the energy efficiency programs offered by many European Union countries.

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 Applications, Machinery Applications and Engineering, and Factory Automation. With its intelligent components, customized system solutions 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, more than 31,000 associates generated sales revenue of around 6.2 billion euros in 2021.

Basic Information Bosch

The Bosch Group is a leading global supplier of technology and services. It employs roughly 402,600 associates worldwide (as of December 31, 2021). The company generated sales of 78.7 billion euros in 2021. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT provider, Bosch offers innovative solutions for smart homes, Industry 4.0, and connected mobility. Bosch is pursuing a vision of mobility that is sustainable, safe, and exciting. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to facilitate connected living with products and solutions that either contain artificial intelligence (AI) or have been developed or manufactured with its help. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiary and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral since the first quarter of 2020. The basis for the company's future growth is its innovative strength. At 128 locations across the globe, Bosch employs some 76,100 associates in research and development, of which more than 38,000 are software engineers.

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