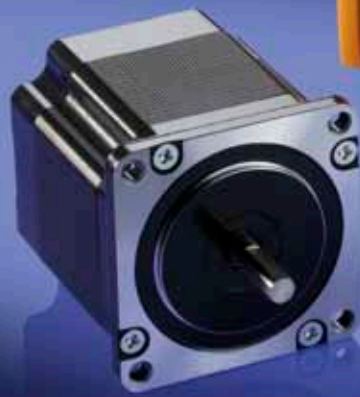


Effective drive system layout for increased energy efficiency



Over-dimensioning drives causes inefficiency in many ways. There is enormous potential here for saving both initial costs and long-term energy costs. Over-dimensioned motors perform significantly below the rated power. The result: Lower efficiency, which results in higher energy costs. An ideal drive layout requires a defined functional specification: Precise analysis of the dynamics, speed and performance requirements, movement profiles, mechanical coupling and environmental conditions as well as extensive information about thermal conditions.

B&R believes in service - also when configuring drives: Users are provided with comprehensive support for the selection and configuration of their drive solutions. The sales and application experts at B&R rely on the layout and optimization tool ServoSoft®. This enables them to answer customer queries quickly and to create a drive solution that is optimally tailored to the respective application.

"Configuring a satisfactory multi-axis system using conventional tools is nearly impossible," explains Friedrich Forthuber, who introduced the software from the Canadian company ControlEng to B&R, and goes on to reason: "Either the necessary calculations simply take too long or the tools do not cover the entire drive system." The variety of tools used and the associated medley of procedures further complicates central

data storage, teamwork on shared projects and documentation.

One standard software, company-wide

The decision to use the ControlEng product has brought B&R the benefits of a standard tool that is used internationally by many manufacturers and drive component users. "ServoSoft® supports the full spectrum of drive types used by our customers. It is also well-suited for setting up drive systems with a DC bus and active power supply modules using power regeneration," adds Forthuber.

Faster results

ServoSoft®'s main strength involves the automation of complex calculations and analyses. Because these automatic functions are either not included in other tools or are only

available with limitations, they are often based simply on empirical values and rough estimates. While this may produce functional solutions, they are often over-dimensioned because of additional safety measures (larger motor, larger braking resistor, etc.). When using ServoSoft® however, not only will you achieve your results more quickly, you will also achieve better technological and economical results.

The mechanical application is specified at the beginning of each project. The software loads a corresponding template for entering the parameters that define the mechanical components. If the inertia values were not determined beforehand, then integrated processing makes it easy to calculate them. Limit values, such as the maximum tractive force the product can handle, can also be specified.

The motion profile for the axis is defined in the next configuration step. To do this, the individual movement segments are configured using either a time-distance, a distance-speed or a time-speed diagram. The integrated import and export functions can also be used to apply a freely defined movement profile including the load and inertia characteristics.

Graphics for convenient analysis of the drive system

After choosing the gears, motor/inverter and motor/servo combination, ServoSoft® offers clearly organized graphic elements for easier analysis. This method can be used for expanding a project to include up to 20 axes, which can be operated on a DC bus voltage that is configured in the next step. ServoSoft® provides a variety of views and analysis options to perform functions such as analyzing the efficiency of a capacitor module or setting up the power supply module to be more energy efficient. Once configuration is complete, a system check determines if any of the rated values and specified limit values are being exceeded. A warning message is then generated automatically if necessary. A parts list can be generated for documentation purposes, which contains all of the components in the drive system including the supply feed, bleeder and capacitor modules.

"ServoSoft® takes a lot of the load off our employees in the sales and application departments that would otherwise require many hours of work. This includes process steps such as checking whether the braking resistor or the rectifier units have been sufficiently dimensioned. Thanks to ServoSoft® our technicians are able to apply their know-how much more effectively," concludes Friedrich Forthuber. "They can use the time saved to run through not just one, but many different drive solutions and to ultimately present the customer with the perfect drive solution in regard to functionality, material usage and energy efficiency. B&R makes all these advantages available to its customers." The ServoSoft® Promotion Version will be included in future releases of the Automation Studio DVD. ■

ServoSoft® examples

