Modular drive system for the chemical fiber spinning shop

Compact and high-performing

Nonstop operation in the chemical fibers industry demands the most of drives: 24 hours a day, 365 days a year. The new, compact, and modular drive system Sinamics S120 recommends itself by its excellent reliability, the wide scope of functions, and high operating comfort – for use in the chemical fiber spinning shop and for new plants as well as for retrofit solutions.

The motor modules (power units) of the Sinamics S120 Booksize version cover a power range of 1.6 to 107 kilowatts. In this performance range, all modules have the same height and depth. Only the width varies between 50 and 300 millimeters. For driving large extruders, motor modules up to 1200 kilowatts in the chassis variant are available. Because of this wide power range, plants can be supplied both in single and group drive configurations.

Due to the small size of the Sinamics S120, no space problems are to be expected in the switch cabinet even in existing plants. Further optimization of the space requirements is achieved by using double axis modules.

Regulation and data storage

Control and data storage tasks are performed in the central control unit CU320 of Sinamics S120. All configuration data are stored on a standard memory card (CF card). If a motor module has to be changed this can be done with live wires so that production can continue immediately after installing the replacement module. The previously required parameterization is no longer necessary because the CU320 sends all the data to the motor module. Since the data of all drives are available on this one module, the configuration of a setpoint cascade with the aid of the graphic configuring and commissioning tool Starter is very easy.

The right specific platform for each drive-specific control task can be found in the various control units the Sinamics system has to offer. The CU320 module contains all textile-specific functions as presets. It can control ten motor modules in U/f control as well as the feeder module ALM (Active Line Module). Communication with master systems takes place via Profibus. Sinamics S120 can control both asynchronous motors and Siemensyn synchronous motors with a frequency accuracy of 0.01 percent and therefore surpasses the requirements of most applications.

When using a Simotion D, which is simply plugged in in place of the CU320, the user can use the programming language KUP/FUP according to IEC61131 in addition to the control functions. The user can also access tested functions such as wobbling or changing fault process. In addition, this module allows linking the drives system to Ethernet.

Feeding by choice

For feeding tasks, the customer can choose between the BLM (Basic Line Module) as a diode bridge with brake chopper/brake resistance, the SLM (Smart Line Module) as IGBT bridge with feedback facility, and the ALM (Active Line Module) as an upward adjuster. The control of the ALM is able to hold the intermediate circuit voltage constant when the input voltage drops. This meets the requirements from the chemical fiber industry to control mains voltage interruptions at 50 percent for 500 milliseconds.

More information:
www.siemens.com/textile