

SOLUTION SUPPLIER

Automation of technical fiber production

The recent CiA member Dienes Apparatebau is a supplier of fully-engineered solutions for leading manufacturers of technical fibers and renowned research institutes.



Dienes Multimode wet spinning line (Source: Dienes Apparatebau)

The company founded for over 90 years is located in Mühlheim am Main (Germany). Over the decades, the product range has been continuously growing from heated godets, control systems, individual plant modules up to complete laboratory, pilot and production lines for melt, wet, nano-fiber spinning, and further post-treatment. Growing demands on fiber performance require a continuous development and optimization of technology and production parameters.

Dienes is moving rapidly towards Industry 4.0. The transition is carried out using a new generation of automation systems in its plants helping the provider to achieve many goals at once. The systems include company's own electronics, PLCs (programmable logic controller), touch panels, industrial PCs, etc. The enhancements focus on upgrading remote maintenance, improving performance and real-time behavior, using compatible standardized interfaces, and modernizing HMI (human machine interface) visualization.

The design of special equipment and fully-engineered solutions is quite a challenge. The utilization of CANopen specifications will not only increase the performance and reliability of the communication between field-level devices in the plant, but also simplify and help to reduce the costs of the development process. Dienes is keen on developing its own electronics with the newest CANopen specifications, so that all controllers, I/O cards and inverters support the CANopen communication protocol with its respective device profiles. This enables the devices to reach a higher standardized level of configurability and connectivity.

The development of innovative filaments demands an efficient, systematic and, in part, self-optimizing experimental working system, which must be smart and flexible. In the Dienes Multimode plants, each process step is represented by a module, which has its own decentralized control. This is the key for module's integration into any plant at any time with a reduced programming effort. In the Multimode Explorer tool developed by Dienes, all process data are permanently visualized and recorded with a high degree of transparency for further evaluation. In order to guarantee the operation of each smart modular unit, an error-free system and communication are required. Furthermore, a reliable system makes sure that all production parameters can be permanently visualized and recorded, enabling a complete traceability of the process.

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