Nowadays, plastics technology increasingly uses high end hygroscopic plastics such as nylon, polycarbonates and polyester which require a steady and constant drying temperature with 0.1 to 0.02 percent residual moisture, and in some cases well below 0.01 percent. Only in this way can the required physical properties and desired surface finish be achieved. Insulation properties that improve products, as well as the prevention of material shrinkage, streaking and sink marks reinforce the need for using high quality drying systems. The entire KTX50 to KTX1200 drier series from Simar uses the Moeller easy device family because its versatility, scalability and networking capability allow coverage of a wide application range.

Control with only one easy MFD-Titan

The conventional driers were equipped with a PLC as well as separate closed-loop control modules and time switches. The aim of the new development was to reduce costs and expand functionality at the same time. After an intensive search, the Swabian company Simar decided to opt for the easy MFD-Titan control relay. MFD-Titan integrates different individual components in a single controller unit. Ease of operation was also considerably increased since the entire display and operation functions were implemented in one display unit. The customised labelling option for buttons and LEDs means that operation of the MFD-Titan is largely self-explanatory.

The operating principle

The driers of the KTX series operate with two generously dimensioned desiccant cartridges that are fed alternately with the air to be dried. Switching between adsorption and regeneration is controlled by the time or dewpoint together with a dewpoint indicator control. The driers operate at a dew point temperature between -30°C and -50°C.

Dust Dry

Scalable multilingual automation solutions
there is a risk that the granulate may overheat. the control circuit responds extremely quickly, regeneration and adsorption heating presents a particular challenge. As required. The control loop of the adsorption heating must be set via the MFD-Titan according to the material. If necessary, users can also store the closed-loop controller parameters in password-protected menus. The process air heaters are controlled by semiconductor relays.

Online language selection

In an initial step the application was created in four languages (German, English, French and Spanish), which can be selected during operation. Other languages (Polish, Czech, Rumanian, Hungarian, Russian, Bulgarian, Dutch, Portuguese) were added at the customer’s request. All languages are stored in an easy program and are thus easy to maintain. When the program is loaded, the user selects which language group of four languages each are to be assigned to the MFD-Titan. German and English are obligatory in every language package.

The PID controllers

The core of the program is made up by the PI controllers. A PI controller with a downstream PWM function block is used for controlling the regeneration and adsorption heating. Depending on drier type, up to seven PI controllers are required. The control loop of the adsorption heating presents a particular challenge. As the control circuit responds extremely quickly, there is a risk that the granulate may overheat. However, this problem can be solved simply with easy closed-loop controller function blocks. The temperature setpoint and drying time are set via the MFD-Titan according to the material. If necessary, users can also store the closed-loop controller parameters in password-protected menus. The process air heaters are controlled by semiconductor relays.

Connection to bus systems

The Moeller easyControl also features an Ethernet interface in addition to the bus modules for Profibus-DP, CANopen, AS-Interface, DeviceNet. This allows the KTX driers to be connected easily to a higher-level PLC or a host computer. Different accessories of the KTX driers allow adaption to customer requirements.

SIMAR GmbH, with headquarters in Vaihingen/Enz, was founded in 1977. The company has grown and evolved on the basis of innovative and pioneering bulk materials technology. Close cooperation with customers has led to the development of systems for conveying, drying and blending an extremely wide range of bulk materials. Not just for the plastics industry, but also for use with foodstuffs, pharmaceuticals and chemicals. No matter whether you work with granular or powdered bulk materials, Simar always offers sensible alternatives to conventional solutions. Simar has branches or sales and service partners in over 30 countries.

(www.simar-int.com)

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