Everything under Control, thanks to a Customized Control System

Martens ascribes the high user friendliness of the whole extrusion line to the involvement of the Maag Group. "Maag assembled an overall package that was customized for our purposes and in which the Maag Group had thought of everything," he explains. The extrusion line control system permits a wide range of settings, leaving plenty of scope for the trials being carried out.

For Carsten Richter, the greatest challenge was to design the control system so that all components could be incorporated – i.e. also components that had already been ordered such as the temperature control unit and the extruder. This problem was solved with the aid of the maax 600S automation system, which is suitable for installing on turnkey and complex extrusion lines. It can be adapted individually to customer requirements – a particular plus point for the research work of the Paderborn scientists. If components are removed or added to their line, the control system can map this. "At KTP, we have developed a very complex and flexible control system especially for research purposes. This was necessary because laboratory plants make considerably more control demands than production plants," explains Carsten Richter. All in all, eight variable-speed components such as the pump, mixer, and feed unit as well as up to 16 heating zones are controlled.

Ideal Combination

The extrusion line has been in operation since mid-2020. Thanks to the installation-ready components delivered by the Maag Group and the adapter flange they also supplied, it took Jan Henrik Martens only a matter of minutes to assemble the extrusion line. "The cooperation was really special and the ideal combination of science and practice." All those involved agreed on this. Wolfgang Martin explains: "Despite my long-standing experience, I have learnt a lot more about the manufacturing process, which can be used in day-to-day practice." Jan Hendrik Martens feels confident that this extrusion line will be able to produce new laser sintering powders in the very near future. And he already has a specific idea for future research. He plans to develop a laser sintering powder from glass fiber-reinforced polyamide 12 for additive manufacturing. ■

Company Profil

The Maag Group is a globally active manufacturer of gear pumps, pelletizing and filtration systems, and powder mills for the plastics industry. Its portfolio also includes digital automation solutions for challenging applications.

The Maag Group combines long-standing experience with the product brands Automatik, Ettlinger, Maag, Gala, Reduction, Scheer, and Xantec. Today, it employs over 1100 people worldwide and functions as a business unit of Pumps & Process Solutions, a segment of the Dover Corporation.

↘ **www.maag.com**

Feddem

Twin-Screw Extruder for Upcycling

Feddem will be presenting a twin-screw extruder of the type FED 43 MTS 32 L/D at Fakuma. With a screw diameter of 43 mm and up to 142 kW drive power, this extruder size is ideal for pilot and production applications of small to medium batch sizes. The model range offers all properties that are of great benefit in compounding and masterbatch applications: efficient melting and mixing of product components, kneading-block-free screw, modular, thermally insulated protective covers of the processing section as protection against contact and for a more favourable energy balance of the process. The process length can be individually adapted by extension unit. The FSK strand head is compact and equipped with swivel hinge. On request, it is also available with patented arched nozzle for special applications.

LFT pultrusion line technology for the production of high-performance materials will also be the focus of the trade show. "The technology of LFT pultrusion lines for the production of LFT-G long pellets has been around for several years. Feddem has taken a fresh look at the details of the line components to improve performance, quality and handling. The result is not only unprecedentedly tight tolerances from the fibre content in the pellets, but also the repeatability of the achievable material properties of the LFT compound on different lines and line sizes with haul-off speeds of up to 60 m/min," says Klaus Hojer, Business Development Manager at Feddem GmbH & Co. KG..

In order to keep as much plastic as possible in production in the course of global efforts, compact plants for the processing of production waste are becoming increasingly interesting. In upcycling applications, twin-screw extruders are proving their worth in terms of high mixing performance in a gentle process that delivers high-quality recyclate.

Additives can be incorporated into the process that, for example, adjust the viscosity and color of the recyclate for optimal reuse. At the same time, the space requirement can usually be reduced to a minimum, which can be a great advantage when setting up in the production environment

↘ **Hall A6. booth 6217**

FED 26 MTS extruder with three gravimetrically metered material streams and metal separator in the main stream © Feddem