PRESS RELEASE
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Deutsche Kautschuk-Gesellschaft e.V. presents
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LWB-Steinl at the DKT 2022

Automated and highly flexible injection molding

The focus of this year's DKT trade show presentation by the Bavarian LWB-Steinl Group in Hall 9 / Booth 205 will be a novel concept for increasing the economic and technical efficiency of rubber injection molding. The new feature is the separation of the injection molding cycle into individual processes and the possibility of subsequent re-combination to form a new sequence tailored to requirements. This allows production to be increased from pilot production to large-scale production with manageable investment steps. But the new LWB-Concept allows also to reduce the production volume in analogous steps in the event of a drop in demand and to utilize the freed-up capacity for molding alternative parts.

The second presentation topic will be the technology and the offer of the Italian LWB Group member Prodicon International Srl., which is a leading manufacturer of machines and equipment for confection of rubber compounds before further processing.

With the founding of LWB-Automation in Weinheim/Baden-Württemberg-Germany in 2017, LWB-Steinl expanded its range to include automation solutions with the focus on of elastomer injection molding. Since then, a number of completely new approaches could be transferred into operational practice through the close cooperation of in-house design and manufacturing capacities with the automation specialists. An outstanding example of this collaboration will be the central exhibit on the LWB stand at this year's DKT / Nuremberg in Hall 9 - Stand 205.

It is the "multi-station injection molding system". The idea behind it was to create a system whose capacity could grow flexibly and with manageable investment steps, thereby offering maximum production efficiency. Considerations in this direction led to a machine concept consisting of an injection molding machine in combination with a pool of exchangeable mold sets. These mold sets are transferred by means of industrial robots

between the injection molding machine, external heating stations and subsequent demolding and finishing stations and back into the injection molding machine (Fig.1).

Efficiency source "process splitting"

The innovation of the multi-station injection molding system is that it breaks with the tradition of starting a molding production already from the prototype phase with an expensive multi-cavity injection mold designed for large-scale production. The LWB-alternative is, to start with a small and therefore reasonable mold on a small machine and to ramp-up production by adding additional mold sets and external heating stations. Immediately after injection one mold set is taken over by the robot, locked and transferred to external heating stations for vulcanization or cooling depending on whether rubber or TPE is being processed. Thereby the machine is used for injection only, thus freeing-up the machine capacity for additional cycles. The number of mold sets can be increased with growing production until the sum of outsourced curing- (cooling-) and robot manipulation times, are in line with the maximum plastification- and injection capacity of the machine. The significant advantage of the LWB-concept is the greater flexibility and the lower initial investment and the potential to increase the production with reasonable investment steps (Abb.2).

Advantages also with declining production volumes

However, the LWB concept not only offers advantages when ramping up a production, but also when call-off volumes fall, where the combination of a "large" injection molding machine and a multi-cavity mold quickly becomes uneconomical. This is because the LWB multicavity system offers the potential to take individual exchangeable mold sets out of circulation and fill up the injection molding capacity thus freed up with the production of similar parts, even if these have to be produced with a different cycle time.

LWB multistation production cells are available in combination with almost all vertical machines. For this purpose, a modular system is available that covers all common processes in the production of molded rubber parts.

Flexible multi-station modular system

LWB multi-station production cells are available in combination with almost all vertical machines. For this purpose, a modular system is available that covers all common of elastomer parts molding productions

It consists of:

- Standard injection molding machines of the lower clamping force class.

- A 4-axis robots with a special transfer head for transferring the mold sets between the injection molding machine and the heating stations.

- Heating/pressing stations with short stroke and clamping force matched to the article. The modular design allows to increase the number of heating (resp. cooling) stations in line with production requirements (article output). Each heating station can be opened or closed separately, even with different cycle times (Fig.2).

- Separate loading and demolding station: Robots are optionally available to automate the insertion task or the finished part demolding.

- System extensions: Additional injection molding machines, including thermoplastic versions, can be integrated for a composite part production.

Outlook

Peter Radosai, Sales Manager at LWB-Steinl: "The questions often asked in recent years in customer discussions about the right production equipment for uncertain times have prompted us to think of new options for rubber injection molding. It helped us that since 2017 the "LWB-Automation GmbH" in Weinheim /Baden-Wuerttemberg-Germany, is a LWB-group member company whose robot application expertise opens up new perspectives to the rubber injection molding process. We are firmly convinced that our jointly developed multi-station system, which has already passed its test in several customer projects, will open up major productivity gains for small and medium-sized rubber processors in particular."

Rubber compounding conversion technology from LWB-Prodicon

The second LWB-presentation on the DKT-Fair will focus on the technology of LWB's Italian subsidiary Prodicon International Srl., a leading manufacturer of postprocessing equiment for rubber compounds (Fig.3 and 4).

Prodicon designs and manufactures these equipments for rubber compounding plants since more than 40 years. Its customers are in particular the largest tire manufacturers in the world. Individually tailored solutions for greenfield or brownfield applications are designed for them on the basis of long-standing development cooperations.

A second business area are highly automated solutions for the leading manufacturers of general rubber products for a wide range of industries.

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LWB-Steinl at the DKT 2022: NCC West – Hall 9 – Stand 205

Figures:

Photo: LWB-Steinl

Fig.1: Detailed view of the multi-station rubber injection molding cell

Photo. LWB-Steinl

Fig.2: The capacity potential of the LWB-multistation-production-cell is derived from the separation of the process steps injection molding, curing or cooling, demolding and finishing. The capacities of the individual workstations can be combined in line with demand.

Photo: Prodicon

Fig.3: Example of a batch-off conversion line from the Prodicon product range

Photo: Prodicon

Fig.4: Detailed view of a Prodicon rubber strand conversion line with the extruded rubber strands being fed on to the cooling and deposit stations.

about the Steinl-Group

Founded in 1962 by Alfred Steinl, the company is now managed by the second generation of the Steinl family and is one of the world's leading manufacturers of rubber presses and injection molding machines. The product portfolio includes the complete range of rubber and plastic injection molding machines, from vertical C-frame machines to vertical 4-column or plate frame machines, to horizontal machines in column and C-frame design.

LWB-Steinl currently employs around 250 people and builds around 500 machines per year.

In total, the Steinl Group currently consists of seven companies, which are divided into four divisions. The largest division is Mechanical Engineering, consisting of LWB-Machinery, LWB-Automation, the batch-off cooling system manufacturer Prodicon International Srl and the injection molding machine manufacturer URP (United Rubber & Plastic Machinery Ltd. in Langfang/China. In the stamping technology division, STG-Carrier GmbH produces metal scaffolding strips for automotive sealing profiles. The third division is Sealing and Bonding Technology with Dreibond GmbH, a manufacturer of adhesive systems and the necessary application technology. The fourth division is the biomaterial production of the Biofibre GmbH in Altdorf with its subsidiary Naftex GmbH in Wiesmoor / Lower Saxony.

More under: www.lwb-steinl.de

Technical Details
Peter Radosai – Sales Manager for Europa
E-mail: peter.radosai@lwb.de.com

Press contact
Christina Maniera – Marketing contact
E-mail: christina.maniera@lwb.de.com

Author:
Reinhard Bauer – TECHNOKOMM
E-Mail: office@technokomm.at