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Plastics Technology/ Dosing and Mixing Technology/ Lightweight Construction/ Aerospace/ Boat Building/ Wind Power/ Fluid Technology

THE KEY FACTOR FOR OPTIMUM MIXING RESULTS

Rotating disposable mixers made of POM guarantee the best synthetic resin mixtures

The plant manufacturer TARTLER, which specializes in the production of low-pressure dosing and mixing systems, is considered one of the leading representatives of the dynamic mixing method with disposable plastic mixers. The company manufactures a wide range of these mixers for almost all resin processing scenarios on its own injection molding lines. The current standard range already includes a large number of immediately available variants whose different geometries are tailored to the mixing of high and low viscosity as well as filled materials. They are made of pure POM and reduce the use of environmentally harmful rinsing agents when cleaning the mixing head.



Innovative: In the disposable mixers for use with self-cutting mixing heads, the mixing spiral rotates onto a threaded mandrel. This increases process reliability and offers the option of a fully automatic mixer change.

Michelstadt, April 2024. – The German company TARTLER is one of the most innovative system manufacturers in the field of low-pressure dosing and mixing technology. It offers a wide range of highly efficient system solutions for numerous processes in which synthetic resins, hardeners and additives are processed into ready-to-use polyurethanes, epoxy resins and silicones. In addition to the high modularity of these systems and the fact that TARTLER develops and manufactures all relevant performance components in-house, one technical factor in particular is of central importance to the company's long-term success: from the very beginning - i.e. since its foundation in 1981 - it has been an advocate of the idea of dynamic mixing with plastic mixers. Early on, the company focused all of its development work and its constantly growing portfolio on this, making it one of the technological pioneers in this field.

The process engineering principle of this variant of dynamic mixing is based on the fact that the material components converging in the mixing head of a system are guided through a rotating disposable mixing spiral made of plastic and are mixed quickly and very homogeneously immediately before being ejected (into a mold, onto a surface, into a bath, into an adhesive groove, etc.). „Dynamic mixing with a driven mixing spindle, as we practice it, is the qualitative optimum. It produces synthetic resins that can be processed excellently and can develop their shaping, bonding or sealing effect in the best possible way,“ says company boss Udo Tartler.

For the practical implementation of the principle of dynamic mixing with plastic mixers, however, a number of requirements must be met. Ideally, all components of a

dosing and mixing system should be matched to this. In particular, however, the choice of the right mixing head and the suitable mixer - that is the mixing spiral with its sleeve - prove to be the decisive aspects in terms of process engineering. TARTLER develops and manufactures both the mixing heads and the mixers in-house and applies very high quality standards. „Our multi-component mixing heads are easy to handle, guarantee extremely gentle material processing and offer a high degree of process reliability thanks to modern sensor technology,“ reports Udo Tartler. On request, his engineers can also equip the mixing heads with temperature sensors and heating cartridges. One of the quality features of the mixing heads is that they ensure that the actual mixing process only takes place where it belongs: In the mixer itself. „This eliminates the need to rinse the gaps and there is no risk of the inside of the mixing head becoming clogged with material that has already been mixed,“ explains Udo Tartler.

On the hook or on the thread

For dynamic mixing with plastic mixers, only mixing heads that are designed to set the spiral of the mixer in rotation are suitable. This can be done via a drive hook or - another TARTLER specialty - via a self-tapping threaded connection. For both methods, the company not only offers a considerable selection of mixing heads, but also a wide range of rotating disposable mixers made of pure POM, in which a suitable variant can be found for every case of multi-component processing. Whether high-viscosity, pasty, filled, low-viscosity, liquid, warm or hot materials are to be processed in small or large quantities - TARTLER covers almost all facets of synthetic resin technology with its standard selection alone. „Based on our engineering expertise and our injection moulding production, we are also able to create mixers for borderline processes or new requirements,“ says Udo Tartler.

These disposable mixers, which are attached to the drive hook of the mixing head and enable dynamic mixing through the rotation set in motion from there, are manufactured by the company in numerous widths and lengths with various spiral geometries and 4, 6, 8, 12 or 24 mixing segments. There are also variants with additional functional elements. This can be a scraper - for

materials with a tendency to agglomerate - or a cone to quickly close the mixer outlet after each shot end. A pulse generator can also be integrated for monitoring and - on request - controlling the speed. Also available are versions for processing materials at temperatures of up to 200° C as well as special versions for connection to the TARTLER LC 6 and LC7 mixing heads, which are characterized by their compact and maintenance-friendly design.

The second important group consists of dynamic disposable mixers, which are designed for use with mixing heads with a self-tapping connection. Here, the spiral of the mixer does not have to be hooked into a hook, but instead rotates itself onto a threaded mandrel, which forms the kinematic interface to the drive of the mixing head. The disposable mixers of this type are available in the same diameters and spiral geometries as the hook solutions and are also available with pulse generators for speed monitoring. „Our self-cutting mixer connection offers increased process reliability and the option of having the mixer change fully automated. Another advantage is that these mixers can also be completely and easily exchanged after the synthetic resin has cured,“ emphasizes Udo Tartler.

On its website (www.tartler.com), TARTLER provides initial answers to the questions of which rotary disposable mixers are suitable for which mixing heads and which requirements are best met. In a direct discussion with the company's consultants and technicians, the customer can then find out many more interesting details: for example, that the use of disposable mixers reduces the need for environmentally harmful cleaning agents to rinse the mixing heads to a minimum, as the material is mixed in the disposable mixer itself - i.e. immediately before the material exits. Or that, when using the powered disposable mixers, error-free mixing results can be achieved right from the start of an application. Or as Udo Tartler points out: „That with the help of variable speed control, optimum mixes can be achieved even with special materials with very different properties.“



„Our multi-component mixing heads ensure gentle material processing and offer a high degree of process reliability thanks to modern sensor technology.“

Udo Tartler, CEO

Quick thread instead of conventional hooks

In many places, changing the disposable mixer is still a time-consuming manual task in synthetic resin processing, as the mixing spiral has to be attached to the driven connection flange of the mixing head via an eyelet with a hook. This is not very ergonomic and contradicts the aspect of process optimization. TARTLER therefore developed a driven mixer connection with a self-cutting thread. Its conical threaded mandrel works its way into the mixing spiral, which is provided with a suitable bore, within seconds. Without manual intervention, this „self-assembly“ creates a precisely fitting, friction-locked connection between the mixing spiral and the connecting flange, which closes tighter with increasing torque. Dismantling is also carried out without manual intervention, as the complete mixer is blasted off immediately after curing using the reverse gear of the mixer drive. This results in further optimization potential for the low-pressure range.

Note for editors: Text and images are available at www.pr-box.de/!



For more information on the TARTLER Group of Companies, please visit our website:

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