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PRESS RELEASE - For Immediate Distribution

MAS at K 2019
Innovations for Compounding and Recycling - Hall 9 / D42

August 2019 - The Upper Austrian "MAS Maschinen- und Anlagenbau Schulz GmbH", inventor and established supplier of the conical co-rotating twin-screw extruder system, will introduce two new innovations for the compounding and the recycling technology beyond the twin-screw extrusion technology at K 2019 on booth 9 / D42.

The central position in the MAS range continues to be the conical twin-screw extrusion system with co-rotating screws introduced in 2007. Its peculiarities and the advantages derived from it are the gentle plasticizing, even conveying and good homogenization at high throughput. Measurements of the physical extrudate characteristics show that they are maximally preserved compared to the input qualities when processing on MAS extruders, which is particularly important for recycling applications. Due to the large cross-section of the feed opening and the resulting feed volume, the MAS extruders are particularly suitable for materials with low bulk density, such as recycled flakes, but also for use in compounding technology. An important advantage for plastics recycling is the high plastification quality, which provides the ideal conditions for efficient removal of foreign matter through filtering and degassing.

The MAS extruders are available in six sizes in an output range of 10 to more than 2,000 kg/h (Fig. 1). Their conical screws have a modular structure and thus can be adapted quickly and easily to the respective application. Another advantage of the MAS extruder is the plasticization with a largely constant melt pressure, setting the precondition for not requiring the use of melt pumps in almost all regranulation applications.

New innovation for compounding glass or carbon fibers

As mentioned above, one of the most important advantages of the conical MAS extruder is the large feed opening in combination with the good feed behavior of the co-rotating screw system. This provides the best conditions for an efficient intake of additives like stabilizers, fillers but also fibrous materials. In order to make the best possible use of this advantage, MAS has further developed the machine concept for compounding. It supplements the MAS extruder by a single-screw extruder in sidefeeder configuration (Fig.2). Its task is to meter in the main polymer, while the large-scale feed zone of the MAS extruder is left to the task of additives.

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This configuration saves the use of individual sidefeeder along the extrusion line compared to conventional systems. The advantages are an earlier achievement of a good mixing quality and ultimately a higher compound homogeneity. These advantages are complemented by the above-mentioned basic MAS-advantage of very gentle plasticization, as a result of which the additives, in particular glass or carbon fibers, are subjected to only minimal mechanical stress. Their length and thus their reinforcing effect remain maximum.

The system has successfully passed its test in trial operation and will be open for series application from K-2019 on. More information is available at the MAS-booth in Hall 9 / D42.

Cascade retrofit package for recycling extruders to increase throughput, quality and profit

The second MAS-fair-novelty is a retrofit package for recycling lines to increase the process performance and quality, especially for the processing of PE-film-flakes. It is a combination of the proven MAS-CDF disc filter and a specifically developed and patented MAS single-screw degassing extruder (Fig.3). This allows existing single- or twin-screw extruders to be upgraded to a cascade extrusion line.

The MAS cascade package is more than just a retrofit option. It also offers a procedural innovation. It is the patented division of the melt stream coming from the filter into a series of individual streams in a multi-channel melt distribution manifold, through which the polymer melt coming from the initial extruder and after having passed the filter is fed into the degassing zone of the single-screw extruder (Fig.4). The division into individual streams has the effect that the polymer mixture can be degassed more efficiently and thus has a more homogeneous material density. Several production applications with PE and PP materials have shown that after retrofitting the cascade package the throughput of the recycling line raises by 40 to 50 percent over the initial constellation. Concurrent, the more homogeneous extrudate increased the bulk density of the regenerated material by up to 15 percent. This in turn has the consequence that the weight amount per transport unit increases, whereby the transport volume and the associated transport costs decrease and thus contribute to a higher added value.

All in all, the MAS cascade retrofit package is an efficient way to increase the performance of existing recycling plants which is economically complemented by a short return on invest.

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Figures:

Photo: MAS

Fig.1: The conical co-rotating twin-screw extruders are available in 6 size stages with a throughput ranging from 10 to over 2,000 kg / h.

Photo: MAS

Fig. 2: MAS-high-quality compounding configuration consisting of a conical co-rotating twin-screw extruder as additive conveyor and a side-feeding single-screw extruder for polymer addition.

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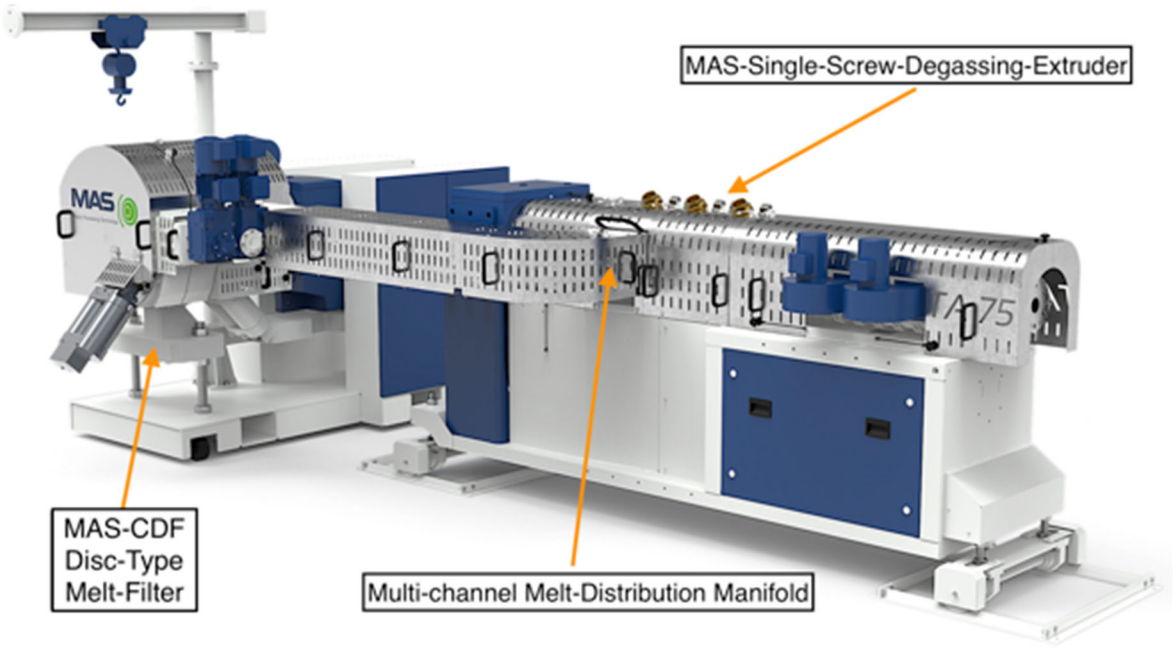
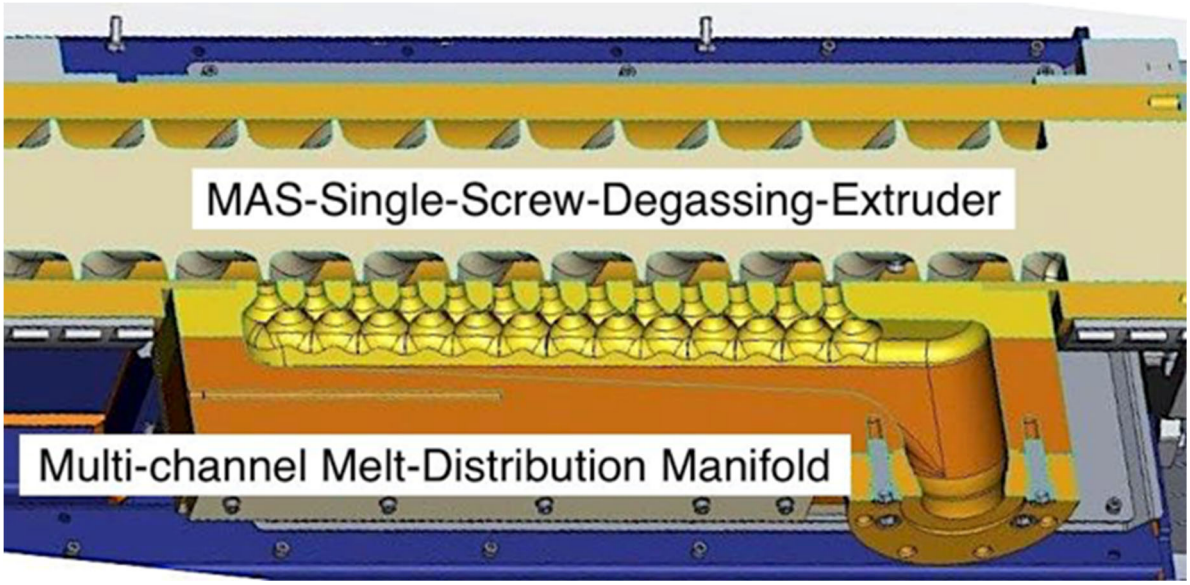


Photo: MAS

Fig. 3: MAS cascade retrofit package consisting of MAS-CDF-disk-melt-filter with subsequent melt line to a multi-channel melt-feed-manifold and MAS single-screw degassing extruder.



Grafics: MAS

Fig. 4: Cross section through the "multi-channel melt-feed manifold" in which the melt stream coming from the melt filter is divided into individual streams in the direction of the degassing zone of the cascade extruder.

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About eFACTOR3, LLC

Headquartered in Charlotte, North Carolina, eFACTOR3, LLC brings together a keen understanding of environmental, engineering and equipment issues. The company offers a variety of pre-shredding, shredding and granulating equipment, along with conveying and separation equipment, systems integration and installation.

eFACTOR3 also represents MAS and their innovative plastics processing and recycling equipment. Their product portfolio focuses on high quality end-products and energy efficiency, and is comprised of 3 main components: Extruders, Continuous Disc Filtration and Dry Cleaning Systems.

Whatever you intend to recycle or turn into alternative fuel, eFACTOR3 can provide a custom solution.

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