EMO Press Release:
Micheldorf / Upper Austria, February 2010

"Chipless” cutting saves process costs

Cutting sheets by sawing produces sawdust as a by-product which can be very annoying, especially if it spoils the surface quality. If the chips stick on the sheets, they lead to surface defects when piling the sheets. Therefore it is obvious that saw-cutting followed by a costly cleaning operation can not be the processing of first chose, but only a chipless cutting process. Messrs. EMO-Extrusion Molding GmbH from Upper Austria have developed a new cutting technology and a related type range of new cutting machines for sheets with a thickness of up to 12 mm. The new process is a cutting by squeezing and produces a perfect cut quality, clean sheet surfaces and a high overall quality.

Good surfaces are a determining high-class sign for the majority of plastic-form parts, e.g. sanitary components, made from extruded sheets. But as extrusion is a continuous process the extruded band sheet subsequently has to be cut into individually sized single sheets. The cutting can be effected in different ways, by the classical saw, the guillotine cut or the knife cut. With sawing the sawdust has to be removed by means of a suction system and/or an additional cleaning process. The guillotine cut is limited to a small range sheet thickness, the knife cut is not applicable universally for all plastic types and sheet thicknesses and produces also chippings.
New cutting technique developed
As for all the cutting methods and devices post-processing is required the Upper Austrian enterprise EMO (Extrusion Molding GmbH), a member of the Haidlmair group, started to look for alternatives. After 2 years of development and testing a new sheet cutting device is ready for marketing. It avoids all present disadvantages and is applicable universally for all extruded plastic sheets from 0.8 to 12 mm thickness. Instead of a circular saw it uses specially designed guts tools arranged to sets of two or three cutters in a joint fixture. Each tool combination is individually adjusted to a specific sheet thickness and can be exchanged quickly by actuating one screw only. The cutting process is a combination of squeezing and displacing and produces no chips or dust as by-products. The cutting edge is clean, steady and free of burr. Costly cleaning before palletizing the sheets is not necessary, resulting in lower overall process costs.

Three unit sizes
Tuned to the most common sheet formats the EMO sheet cutting devices are available in three sizes designed for a cutting width of 1400, 1900 and 2,300 mms and a maximum sheet length of 2,300 mm. In standard execution the maximum cutting capacity of 12 mm platen thickness is independent from the type of plastic material. Upon special request alternative versions for higher thickness can be offered. The cutting unit is servo-driven and synchronized with the feed speed of the extruding line in the speed range up to 10 m / min. The cutting stroke is servo-driven as well and can drive the cutting tool of up to a speed of 50 m / min. As the EMO cutting system works without motor driven circular saw there are no vibrations affecting the cutting quality and no additional sound emitted. Consequently no additional noise protection cabinets are required. In addition, there is no investment in a suction system necessary. Overall the new EMO cutting systems provide an excellent price / performance ratio.

Universally combinable with batch devices
The EMO cutting devices are designed as downstream units for integrated sheet extrusion lines. In addition to the new cutting devices a comprehensive scope of additional units, like stacking devices, with or without robotic palletizers, as well as with or without palette transfers are available.
Factbox: EMO

**EMO Extrusion Molding GmbH**
The EMO Extrusion Molding GmbH was founded in 1996. Base was the profound experience of the founders with the conception, design and manufacturing of extruding dies. It was the starting basis for the specialisation on flat-sheet-dies for films and sheets. The range of products comprises mono and multi-layer-nozzles (up to 7 layers), co-extrusion adapters for PO and PVC, as well as periphery for extrusion lines like sieve band filter, traverse cutting devices, calibrations for XPS platens up to complete lines for PVC structural foam platens. The dimensions of flat-sheet-dies have grown about the years. State of art are nozzles with a nozzle width of 8 metres. EMO employs a staff of 31 employees, the annual turn over rates about 4.2 mil. EUR (2009).

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Photo:
Fig. 1: The new EMO cutting unit is available in the sizes for a sheet width of 1400, 1900 and 2300 mm, a maximum sheet length of 2300 mm. The solid and warp resistant base frame and the fast and strong cutting unit guarantee for long-time performance and high quality cutting operation.