

ARTEC and KraussMaffei Berstorff start cooperation in recycling-compounding technology

(Kematen at the Krems / Hanover, 25. September 2013) The Austrian recycling-unit specialist ARTEC machinery GmbH, Kematen-Krems, and the German producer of extrusion units, KraussMaffei Berstorff GmbH, Hanover, concluded a cooperation agreement covering the technology portfolio „Recycling-Compounder Equipment” on September 19th. ARTEC and KraussMaffei Berstorff pursue the goal of providing a new way to easier, more productive and more profitable recycling as well as compounding in one combined process. Thus up to date existing efficiency barriers between the extrusion processes for recycling and the compounding are eliminated.

Modular design permits processing of different raw materials

“With the new concept under the project name “Edelweiss”, consisting of the ARTEC preparation technology and the KraussMaffei Berstorff twin-screw-extruder technology, material recycler and compounder factories will improve their added value by diversification and quality enhancement.” says Hagen Mosser, technical director of ARTEC, explaining the concept. Ralf J. Dahl, division manager twin-screw-extruder of KraussMaffei Berstorff, adds the advantages of the system: “The Edelweiss technology enhances the energy-balance in the material flow. The main benefit of this solution is the possibility to produce high-quality compound on “a single heat”. Not only energy savings are achieved, but also the shear-energy ratio in the plasticization, which is damaging the polymer structure, is being minimized – and therefore improving the material quality, since no repeated heating of the charge material is necessary due to procedure-integration. (Photo.1)

Recycling - Expertise by ARTEC

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ARTEC is contributing the processing technology of material-cutting and compacting with dehumidifying potential, extrusion units with degassing-systems and individually customized melt filtration units into the partnership. Inside the cylindrical cutter-compactor the foil- and fiber-material coming from a upstream washing process with a moisture content up to 12 p.c. is cut by a rotating blade set, compacted and due to the generated frictional heat automatically dried. The cutter-compactor feeds the material flakes by centrifugal force into the tangentially attached screw extruder, where they are plasticized and homogenized. That machine system is capable of processing all kinds of thermoplastic waste materials and to convert them into usable recyclates. (Fig.2)

On the way through the extruder the plastic melt passes one or more degassing zones with applied vacuum. In these zones impurities and low-molecular polymer substances which are converted into a gaseous state are extracted. Afterwards the still contaminated plastic-melt is running through a continuously working high-performance melt filter.

Compounding-Competence by KraussMaffei Berstorff

The prepared, ultrapure plastic melt is dosed into the ZE-twin-screw-extruder either from the top or from the side with the help of a pressure- und volume constant working melt pump. This is where the important part of the refinement processing of high-end compounds takes place, based on the long-time and comprehensive experience in compounding by the twin-screw-extruder specialists from Hanover. (Fig.3)

If requested, additives like mineral fillers, reinforcing fibers, color master batch etc. can be added and customized to the recyclate pellets. So it is possible, for example, to produce blow-extrusion-film compounds in almost virgin material quality (filled with CaCO₃ up to 70-80%) from foil recyclate.

The two-stage process is optimally utilizing the excellent compound performance of the twin-screw-extruder even with high additive contents. It also smartly avoids the problem of dosing material with a low bulk-density, as the pre-drying and compacting takes place in the upstream cutter/compactor - single extruder screw-unit

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„Thanks to a central control unit premium quality compounds can be processed highly repeatable with that economic processing technology” summarizes Dahl.

Maximum Unit - Flexibility

Following the flexible plant concept, the ARTEC processing unit and the KraussMaffei Berstorff compounding unit can be operated combined as well as individually.

Accordingly pure recycling-granulate can be produced with the ARTEC-unit, while the twin-screw-extruder offers the possibility to be fed with factory-new granulate. Thus it is possible to use the twin-screw-extruder independently from the recycle as a pure compound extruder.

Extensive Unit Program

Hagen Mosser and Ralf J. Dahl conclude: “Together we can offer the “Edelweiss-unit Technology” for throughput rates between 300 and 2.500 kg/h. A trial unit for material testing and design/development of compound recipes is available. The new process technology and its potential will be presented for the first time at the K 2013 by both cooperation partners.”

(ARTEC - hall 9 / D 42; KraussMaffei Berstorff - hall 15 / B 27).

Photo_1_130925_PM_EXTHAN_Artec: The "Edelweiss" technique of the cooperation partners ARTEC and Kraus Maffei Berstorff stands for the in-line process integrating the recycling process by ARTEC (in picture above) and the subsequent compounding process by Kraus Maffei Berstorff (pictured below).

Photo_2_130925_PM_EXTHAN_Artec: The new ARTEC recycling technology, here the example of the ARTEC MODUL 500 system,

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was designed with the focus on modularity, ergonomics, ease of use, and last but not least, energy efficiency.

Photo_3_130925_PM_EXTHAN_Artec: Twin screw compounding extruder type ZE110Rx56DUT with melt pump and underwater pelletizing for highly filled compounds based on recycled polymer material.

For further information and printing-quality photos, please visit:

www.kraussmaffeiberstorff.com

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About KraussMaffei Berstorff

Around the world, the KraussMaffei Berstorff product brand stands for advanced, future proof extrusion solutions. The company's product spectrum ranges from single extruders with application-specific tooling, to up- and downstream components and fully automated extrusion lines. This product range, plus a customer-specific choice of service modules, guarantees that KraussMaffei Berstorff is a robust system partner for customers such as the bulk chemicals, automotive, construction, packaging and pharmaceuticals industries. KraussMaffei Berstorff, part of the

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KraussMaffei Group since 2007, was created through a merger of KraussMaffei and Berstorff, an engineering specialist with a long tradition.

For more information: www.kraussmaffeiberstorff.com

About KraussMaffei Group

The KraussMaffei Group is among the world's leading suppliers of machinery and systems for producing and processing plastics and rubber. Its products and services cover the whole spectrum of injection and reaction molding and extrusion technology, giving the company a unique position in the industry. The KraussMaffei Group is innovation-powered, supplying its products, processes and services as standard or custom solutions which deliver sustained added value along the customer's value-adding chain. The company markets its offering under the KraussMaffei, KraussMaffei Berstorff and Netstal brands to customers in the automotive, packaging, medical, construction, electrical, electronics and home appliance industries. Continuing a long tradition of engineering excellence, the international KraussMaffei Group currently employs around 4,000 people. With a global network of more than 30 subsidiaries and more than 10 production plants, supported by around 570 sales and service partners, the company is close to customers around the world. KraussMaffei has been headquartered in Munich since 1838.

For more information: www.kraussmaffeigroup.com

About ARTEC Machinery GmbH

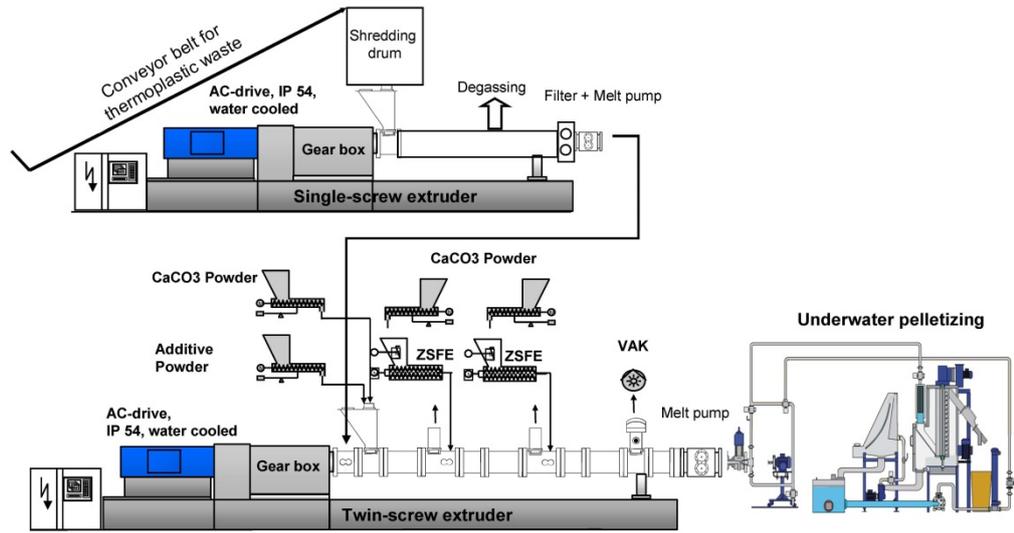
ARTEC Machinery GmbH was founded in 1998 as ARTEC Maschinenbau Ges.m.b.H. by a group of technicians with more than 20 years of experience in plastic machinery construction. Since 2010 ARTEC is a part of the GAW GROUP and 100% privately owned. ARTEC Machinery GmbH develops and produces units for the processing of plastic waste in all kinds of states (foils, fibers, flakes, foams, etc.) into granulate. ARTEC-recycling-systems are available in modular unit configurations for throughput rates from 150 to 2.500 kg/h.

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Photo_1



Photo_2



Photo_3

