MAAG Group
a DOVER company

PELLETIZING & PULVERIZING SYSTEMS ›

Compounding Masterbatch

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The range of pelletizing applications is extremely varied. We have long been continually developing new products and systems to meet the requirements of our customers in an optimal way.

Our system components fit perfectly together to allow optimum compounding results to be achieved. From the conveying, temperature control and filtration, through the pelletizing or grinding right up to the drying, our components function seamlessly together to make your process as efficient as possible. The results are impressive – whether spherical or cylindrical pellets, micropellets or powders.

Our special systems efficiently and cost-effectively meet the specific demands of masterbatch and color batch concentrate manufacturers. The concentrated addition of colored, black & white or function masterbatches produces very good results during the further processing.

About us

The MAAG Group is a broadly diversified global solutions provider with integrated and customizable systems in process technology for the polymer, chemical, petrochemical, pharmaceutical and food industries. Its Pump & Filtration Systems, Pelletizing & Pulverizing Systems, Recycling Systems and Digitalization divisions consolidate the many years of experience and in-depth know-how of the AMN, AUTOMATIK, ETTLINGER, GALA, MAAG, REDUCTION, SCHEER and XANTEC product brands. The MAAG Group currently employs over 1,250 people at production sites in Switzerland, Germany, France, Italy, the USA, and China. Additional sales and service centers in Malaysia, India, Thailand and Brazil ensure close attention to customers' needs.

Compounding

Our pelletizing systems are suitable for products with high filler contents or low melt stability. Mineral and inorganic fillers, pigments and stabilizers are possible. Even sticky materials and materials with high MFI content can be processed.

Recycling

Our systems allow reusable wastes such as sprues from injection molding, film trimming wastes, flakes from shredded PET bottles or battery housings, etc. to be recycled. After being crushed, washed and dried, the used material is pelletized and so recycled as usable new material.

Masterbatch

Our special systems efficiently and cost-effectively meet the specific demands of masterbatch and color batch concentrate manufacturers. Masterbatch pellets are pourable and easily dispersible, and so very easy for end-users to process.

Biopolymere

For raw material manufacturers and compounders who are focused on sustainability, we develop processes and products for the pelletizing and drying of organic raw materials, biodegradeable materials, as well as matching fillers such as natural fibers.

Micro-pellets

Being 0.5 mm in size, micro-pellets are a dust-free alternative to powders, have a higher bulk density and are more pourable. When working with large moldings, they enable cycle times and/or temperatures to be reduced. Masterbatches as micro-pellets permit very precise dosing even of small quantities.

Foaming products

Our special systems efficiently and cost-effectively meet the specific demands of manufacturers of light-weight products. Foamable or foamed pellets are produced in the gas-flushed state or are subsequently expanded. The results are pourable mini- or micro-pellets with the tightest distribution for example of E-PP, E-PS, E-PLA, E-PE, E-TPU, E-PET, etc.

Hot-melt adhesives (HMAs)

Many MAAG Group pelletizing systems are in use worldwide, pelletizing a wide variety of hot-melt adhesives. The variants range from EVA to PA, polyester, APAO, APP, PP, PE, TPE, phenol resin and rubber to TPU. We can process hot-melt and pressure-sensitive adhesives into pellets at viscosities of 4,000 mPas and above.

LFT

In the production of LFT (long fiber reinforced thermoplastic) pellets by the pultrusion method, fiber strands are continuously pulled through a polymer melt, during which the individual fibers are embedded in the polymer matrix (impregnated with the melt), and after cooling the shaped fiberpolymer strands are finally strand-pelletized as chips.

TPU Reaction

Whether simple compounds or highly specialized TPU grades for specific applications: we offer the necessary components and systems to assure end-users' success. In doing so, we are able to apply our sound specialist know-how in the processing of this unique material.

Gum base

Adherence to the stringent hygiene requirements of the food industry means that gum bases can be produced by the underwater pelletizing method for example.

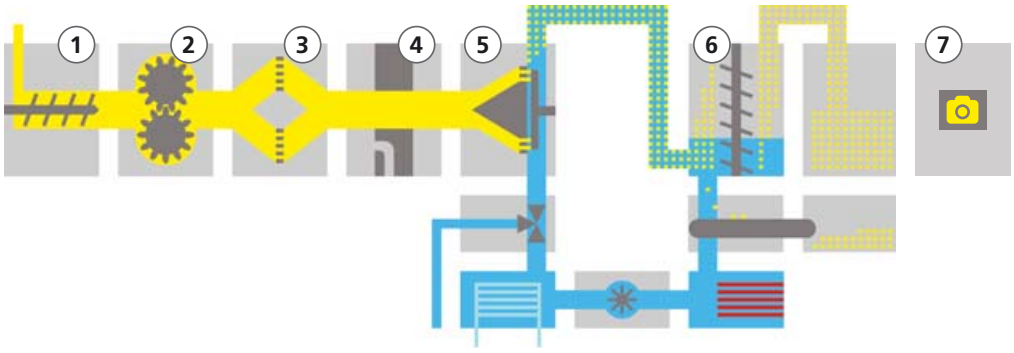
Other polymers

We offer plant and machinery that meets the stringent hygiene standards for the production of medical-grade PVC or TPU for example. The moisture of the pellets is of crucial importance when pelletizing WPCs. In this field, too, we offer parameter customization to deliver optimal results. Compounds with high fiber-glass content are processed on our pultrusion strand pelletizers. We also have just the right systems to process bitumen or waxes. We support our customers with innovative, tailored solutions not just for these special applications. Our closed control system provides consistently high color quality. Samples are taken and analyzed during running production processes. When needed, metering is conducted fully automatically. With our know-how and decades of experience, we will gladly be your partner in piloting your pelletizing projects.

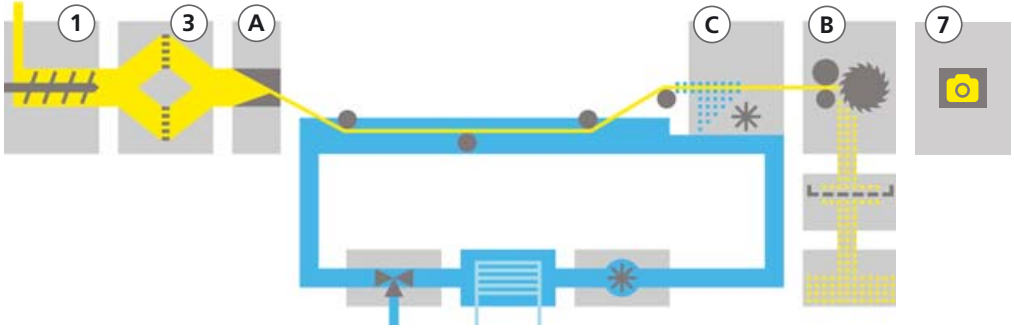
Process description

Only if the pellet quality is uncompromisingly matched to the application and so to the requirements of the end-product can the quality of the downstream product be right. Processing techniques and systems must be attuned to each other and integrate seamlessly. Conveying, temperature control, filtration, pelletizing and drying processes must have as low an impact on the product as possible in order to attain optimal results.

To achieve fast start-up and shutdown cycles of shaping and processing extruders (1), and minimize the load on them, the pressure of the plastic melt is generated by a gear pump (2). Any impurities in the plastic melt are filtered out by a screen changer (3) in order to assure the appropriate product quality. In the underwater pelletizing process, the melt is guided via a hydraulically operated start-up valve (4) to the die plate (5), where it is pressed through die holes into the cutting chamber, through which process water flows. In the cutting chamber the polymer is cut into mostly spherical pellets, and is then carried by the process water in pipelines to the dryer (6). In the dryer, 95% of the water is removed by a preliminary dewatering stage before the rest is removed as the pellets pass through the dryer. Pellet quality is analyzed by optical measuring systems (7). Changes to the process parameters are made manually or automatically as needed. The process water is then filtered and its temperature regulated in the water treatment unit before being returned to the cutting chamber.



In strand pelletizing, the plastic melt is routed to the die head (A). Polymer strands are extruded through the die plate and conveyed toward the cutting rotor (B). Depending on the polymer, water bath cooling may also be integrated at this point. The air knife (C) provides effective drying prior to cutting. In the downstream process steps the cylindrical pellets are cooled further, then conveyed onward and screened. Here, as well, the pellets are optically inspected in optical measuring systems (7).

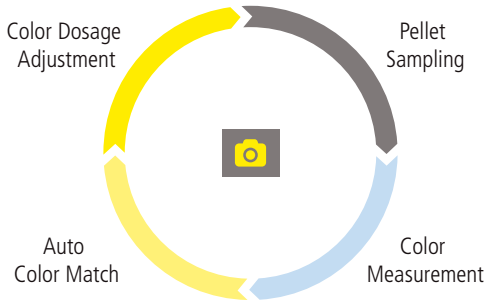


MAAG Group provides system-neutral advice on selecting the most suitable product alternative, utilizing its decades of experience and bundled know-how gained from over 20,000 installed pelletizing systems for a wide variety of different applications.

The MAAG Group dry-cut strand pelletizing systems types WSG and EBG feature high flexibility, simple integration in existing processes, and excellent product quality. These all-around systems for masterbatch and compounding applications give you scope for future projects. The systems can also be adapted to your process as specialists for high-performance and ultra polymers.

Maximum flexibility and excellent accessibility in connection with high-quality cutting tools make the strand pelletizers of the PRIMO E series the first choice when quick product changeovers and cleaning times reduced to a minimum are needed. Equipped with high-quality carbide-tipped cutting tools and various wear protection options for highly filled products, or adapted to special applications such as micropellets or soft products, the machines of the PRIMO E series deliver reliable pelletizing.

In the PEARLO® underwater pelletizer, the water flow for cooling the pellets is optimally fed and dissipated in the inlet and outlet by the tangential design of the cutting chamber. This prevents the bonding of the pellets, letting the machine quickly produce good product. This positive effect is further improved by the special knife geometry. The use of the flexible knife head reduces dust formation and extends the tool life accordingly.



Quality Control & Analysis: Our closed control system provides consistently high pellet quality. Color & Pellet Control takes samples during running production processes and analyzes them with regard to color and pellet quality. When needed, metering is conducted fully automatically.

We are where our customers are

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