



PELLETIZING SYSTEMS >

Pharma



From lab to line.

Innovative technologies for labs, R & D, and production

With systems for the pharmaceutical industries, MAAG Group offers new solutions for safe, compliant and efficient production. Our product line includes newly developed machines for the manufacture of pellets for pharmaceutical products, drugs and additives, all from a single source. Laboratory application allows product development very close to production scale. Simplified upscaling validates the systems from development for production. The production method can be specified right from the drug development stage. MAAG Group guarantees reliable expert support for upscaling to production plant.

Meeting the highest requirements:

- For the production of drugs and active ingredients
- Compliant with safety requirements
- Easy system setup and operation
- For consistent, reproducible product quality and traceability

Hygienic design:

- High-grade stainless steel
- Easy access to product-touching components
- Quick and easy cleaning
- Optional containment
- Compliance with all regulatory requirements

About us

MAAG Group is a global and broadly diversified solutions provider with integrated and customizable pump, filtration, pelletizing, pulverizing, and recycling systems in process technology for the polymer, chemical, petrochemical and pharmaceutical industries. MAAG Group offers customers maximum added value—in understanding the processes involved, with international engineering teams for high-performance solutions, and with a global service network.



extrex® PFS

» Gear pump for hot-melt extrusion processes (HME). In extruder systems, gear pumps significantly improve product quality based on high conveying consistency and application-oriented configuration.

Benefits:

- Very good self-cleaning properties
- Damping of the pulsations of the extruder and feeder
- Low pulsation flow even at high differential pressures
- Increased pressure with simultaneously load reduction on the extruder
- Minimal temperature increase
- Key for the production of micropellets
- Tailored material selection for application in the pharmaceutical industry

Application areas:

- Micropelletizing
- High-viscosity carrier/active ingredient combinations
- Highly consistent melt discharge from the reactor
- Co-extrusion applications for uniform layer thicknesses



Strand Cooling Belt PFS

» Belt system to cool down strands. Strands are deposited directly on the conveyor belt and automatically conveyed to the strand pelletizer. The cooling is done by special air nozzles with high cooling capacity.

Benefits:

- Low mechanical stress on the strands
- Special air nozzles for minimal air consumption, reduced noise and high cooling capability
- No process water treatment is necessary
- Retrofitting into existing extrusion lines is possible
- Quick and easy to clean
- Possibility to Wash-in-Place (WIP)
- Process data monitoring on touchscreen display
- Easy up-scaling: from the laboratory line to commercial production scale

Application areas:

- Transport and cooling of strands
- Ideal for water-soluble formulation
- Continuous operation or batch production
- Suitable for laboratory usage in the research and development phase
- For pelletizing from an extruder or reactor vessel



PRIMO PFS

» Dry-cut strand pelletizing as stand-alone application. The widely tried and proven dry-cut pelletizer produces top quality cylindrical pellets which are ideal for further downstream processing.

Benefits:

- Narrow distribution of particle size
- Homogeneous pellet shape featuring great flow-ability
- Quick and easy to clean
- Viewable process space
- Product-specific cutting geometries for an optimal cut
- Continuously variable particle length adjustment
- Process data monitoring on touchscreen display
- Easy up-scaling; from the laboratory line to commercial production scale

Application areas:

- Production of micro-pellets to avoid milling
- For direct tableting or encapsulation
- Continuous operation or batch production
- Suitable for laboratory usage in the research and development phase
- Pelletizing of brittle and/or sticky formulations
- For pelletizing from an extruder or reactor vessel



SPHERO® PFS

» Melt pelletizer for spherical particles in a contained system. The pelletizing system is ideal for pelletizing carrier/agent combinations in hot-melt extrusion processes, and was developed specially for the manufacture of pharmaceutical products.

Benefits:

- Enclosed system (containment)
- Homogeneous, high-quality pellets featuring great flowability
- Low-dust pelletizing
- Pelletizing of brittle formulations
- Special design for pelletizing sticky products
- Uniform particle shape and size
- Simplified, speeded up development of innovative pharmaceutical formulation
- Simple, continuous, efficient process

Application areas:

- Pelletizing of water-soluble carrier/active ingredient combinations
- Micropellets for tamper-resistant and abuse-deterrent formulation
- Production of MUPS (Multiple Unit Pellet System) tablets
- Continuous operation
- Highly potent active pharmaceutical ingredients



DROPPO® PFS

» Drop pelletizing systems for spherical, dust-free particles from low-viscosity formulations. DROPPO® is a drop pelletizing system for the production of uniform, dust-free spherical pellets. Cooling is provided by air, nitrogen, water, or a reaction fluid.

Benefits:

- Perfectly circular, dust-free end-products guarantee optimal conveying, precise dosage in downstream processing, and high bulk density in storage
- Integration of the drop unit into existing systems, e.g. spray towers
- Highly economic feasibility thanks to low energy consumption and personnel commitment
- Quick and easy product changing
- No mechanical wear

Application areas:

- Processing of low-viscosity melts and fluids with viscosity 500 mPas
- Fatty acid, organic waxes, poly-alcohols or saccharides
- Components of pharmaceutical formulations

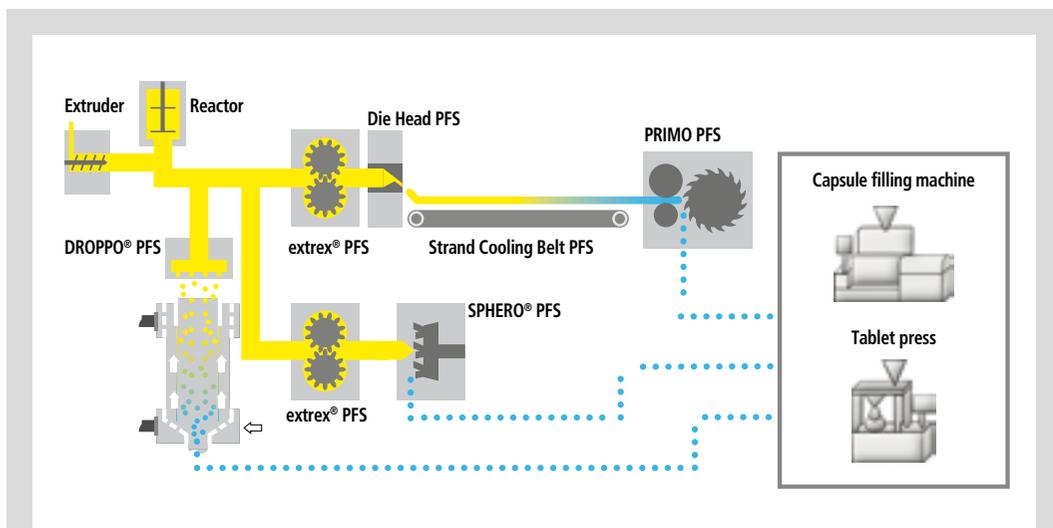


Micropelletizing delivering a technology lead in the pharmaceutical industry

With its Pharma Systems product line MAAG Group offers innovative solutions, especially in micropelletizing, for a wide range of applications in the pharmaceutical industries. MAAG Group's micropelletizing technologies enable the production of particles in uniform shape and size for optimal downstream processing.

Benefits of micropelletizing:

- Continuous operation
- Simplification of complex, multi-stage processes
- No grinding required
- Much less dust created

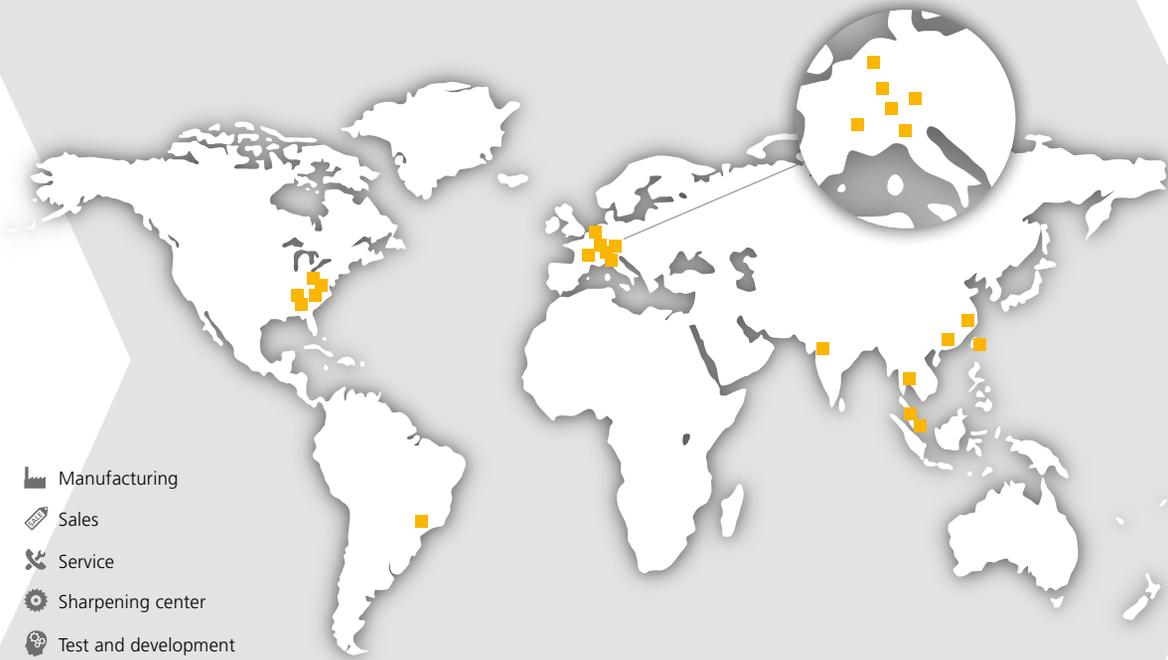


For use in production as well as in R&D:

- **DROPPPO® PFS**
Drop pelletizer for low-viscosity formulations
- **extrex® PFS**
Gear pump for hot-melt extrusion processes (HME)
- **Die head PFS**
Extrusion of strands
- **Strand Cooling Belt PFS**
Transport and air-cooling of strands
- **PRIMO PFS**
Dry-cut strand pelletizer
- **SPHERO® PFS**
Melt pelletizer in a contained system



» Process data monitoring on the touch screen display for convenient control of your production. Easy to handle control unit simplifies operation, adjustment, and monitoring of the operating parameters. «



-  Manufacturing
-  Sales
-  Service
-  Sharpening center
-  Test and development

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