

AFTER SALES SERVICE for underwater pelletizing



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Melt handling

Diverter Valves

The polymer diverter valve is used to direct the polymer melt from the pump or extruder to the floor, to the side, or directly into the die plate. Their sturdy construction guarantees reliable and leak-free operation for many years, e.g. as start-up support for underwater pelletizing or for discharging start-up material in pelletizing applications.

Your Benefits:

- Simple operation
- Uncomplicated switchover
- High operational reliability
- Short material residence time
- Leak-free mode of operation

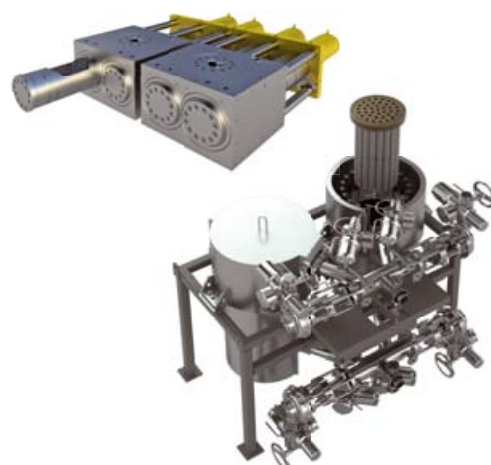


Filtration systems

Reliable filtration has become a given in the polymer production process. The degree and rates to which they have to be filtered, is increasing. That is why we are committed to continuously improving and expanding the range of our candle based large area filtration systems. MAAG offers vessel based large area filters as well as screen changer technology, that allows changing screens on the fly.

Your Benefits:

- Lower melt pressure
- Ultra-compact design
- High operational reliability
- Filter change in minutes

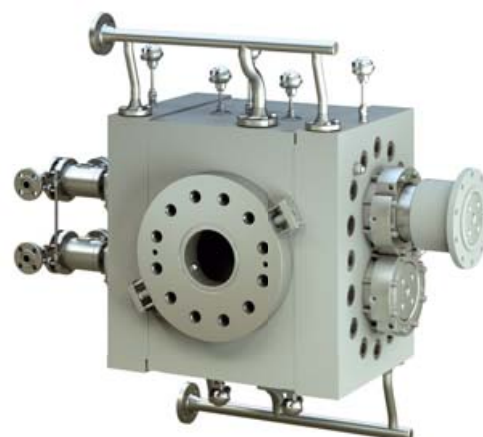


Melt pumps

Our pumps for virgin polymer production are used in different processes at low and high-viscosity applications where they provide the best available performance in the market. Thanks to outstanding filling properties and short residence times they are suitable as discharge pumps. In compounding processes they build up the pressure after the compounder for downstream equipment. In reactors our pumps prevent the pressure overlay, thus ensuring an efficient production process.

Your Benefits:

- Excellent fill behavior due to optimized inlet geometries
- Optimized flow channels
- Completely heated
- Gentle treatment of polymer melts
- High overall efficiency, minimized friction
- Low pulsation pumping even at high differential pressures



Die plate - Cutter hub



Die plate heater

Heat transfer into the die plate can be improved with coil heaters. The effective and direct thermal conduction leads to longer life time of the die plate. Heater is controlled with LED-indicators to minimize the risk of machine shutdowns.

Your Benefits:

- Easy installation and removal
- Reduction of heating time and temperature set point
- Lower heating energy demand
- Low polymer velocity



Die plates

Choosing the right die plate for your product is the first step to achieve outstanding throughput levels and pellet quality.

Many years of experience in process engineering make us the perfect partner for optimized die plates, no matter if you run common, specialty, experimental or novelty products.

Your Benefits:

- Wear resistant die plates for all applications and machine types
- Over 50 years of experience in pelletizing process engineering
- Consistent stability of throughput and process quality



Heat flux

The specific insulation design of Heat Flux die plate allows the pellets to be cut in an elastic, soft phase which provides less potential of fines generation compared to competitive systems. It creates substantially lower pressure drop on the same overall hole profile in comparison to conventional die plates. Die hole freezes are reduced or eliminated, which allows significantly lower start-up rates per hole.

Your Benefits:

- Improved pellet quality and consistency with a broader range of rate fluctuation
- Higher pellet production capacities can be achieved on the same machine
- Reduction in material shear, resulting in a higher quality material with less material degradation

Die plate - Cutter hub

Upgrad TS cutter hub

The specific design Turbine Style cutter hub uses single sided turbine style blades with more than 8 mm wear length. The blades do not need to be turned resulting in double production run times per blade set. The upgrade package comes with the necessary replacement parts including an adapter joint to be able to continue to use the traditional cutter hubs on side.

Your Benefits:

- Flexible cutter hub design
- Direct displacement of the pellets due to the hydrodynamic design of the blades
- Optimized product flow due to countersunk mounting screws - wear, dust and agglomerates are minimized
- High machine availability and extended runs thanks to long wear zone of single-sided long blade



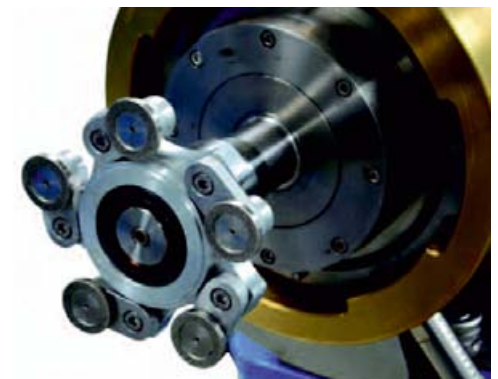
Online grinding

The grinding tool is used for finishing the die face and repairing minor damage from regular use. A removal of the die is not necessary, instead of the cutter hub, the grinding tool is threaded on the pelletizer shaft for the online grinding process.

When the grinding tool is used properly, money is saved by having less downtime. The life of the die plate and blades will be extended.

Your Benefits:

- Only short production interruption
- Optimum life time of die
- Optimum blade life thanks to always perfect die surface
- Better pellet quality
- Only short production interruption
- Optimum life time of die
- Optimum blade life thanks to always perfect die surface
- Better pellet quality



Upgrades



Wear protection

Developed specially for processing of filled polymers, compounds and masterbatches. In compounding industry, the lifetime of components with contact to the product can be quite short. Abrasive polymer fillers, like glass fibers and minerals, can wear down parts, like cutter hubs, water chambers, or pellet outlets very fast. MAAG currently offers various wear protection types to improve the availability of pelletizing machinery and associated components.

Your Benefits:

- Higher lifetime for components
- Higher machine availability
- Less maintenance



Die plate NHF

The specific design of the NHF die plate allows the interchangeability with Heat Flux Die plates at the same Pelletizing system. The NHF die plates come with any type center insulation solution from Flat Face, GEP design to traditional insulation gaskets depending on customer request. If chosen with Flat Face design it comes without any silicon in use.

Your Benefits:

- Silicone free sealing by isolation ring
- Holding screws for die will be set in body. Screws need only to open
- Depending of the products "HF" die Technologies can be used
- NHF – die can be exchanged by Resurfacing – Exchange Program

Upgrades

Electronically adjustable cutter

The EAC granulator enables a maximum durability of blade and dies plate caused by the fully automated blade setting and the blade position monitoring. The processes of the blade monitoring and blade setting are programmed. By request, an optional integrated blade position measuring system is available, providing indication of blade position and alerting the need for a blade change.

Your Benefits:

- Minimal operator supervision required
- Blade advance reproducible and operator independent
- Further extension of cutting tool's lifetime



Conversion kit micropellets

Micropellets can be used for a wide range of applications, such as compounding and masterbatches, packaging, micro injection molding, rotational molding and surface blasting.

Micro pelletizing works particularly well for unfilled plastics with a low melting point and medium to high viscosity as well as Masterbatch.

Your Benefits:

- Better flowability
- Virtually dust-free
- Potentially faster cook times / reduced cook temperatures
- Better color distribution
- Smaller pellets (micros) offer increased surface area-to-volume ratio



CBF retrofit (Continuous band filter)

Our continuous Band Filtration (CBF) system is designed as a retrofit for the pellet production line where there are fines created regularly on some products and operator attendance would normally be required to clean the IS (integrated sieve) drawer frequently during production. After installation of the CBF, the operator does not need to monitor the system. The advance of the filter media is continuous and needs no activation to catch fines larger than 150 μm . The fines are continuously separated from the process water and collected in a mud cart.

Your Benefits:

- Less operator attendance required
- No contamination of process water
- Continuous advance of filter media



Services



Overhauling of machines

We offer you the overhauling of your pelletizing system by our highly qualified staff.

A complete machine overhaul usually includes the following work: complete disassembly of the machine, cleaning, replacement of parts, renewal of all electrical and pneumatic components, assemble of the machine with readjustments.

Your Benefits:

- Precision and productivity like a new machine
- Extend the life of your machine
- No training of personnel on a new machine
- Increasing production reliability



Pump repair

We repair and overhaul gear pumps from many different sectors, including manufacturing industry, chemicals, extrusion, polymers and compounding. In order to offer you a full service all from a single source, we have vacuum pyrolysis ovens for pump cleaning. We even keep many parts locally in stock, to ensure quick repairs.

Your Benefits:

- Fast, reliable support from experts
- Wide-ranging pump cleaning options
- Longer machine life, safeguarding your capital investment
- Improved operational reliability
- Improved productivity thanks to higher machine availability



Cleaning and grinding of die plates

The die plate is the heart of every underwater pelletizing system and needs to be treated accordingly. Only MAAG, as the original manufacturer, can guarantee the best reprocessing. We know exactly how to clean and where to grind used die plates in order to get the maximum out of these valuable parts. MAAG offers overhaul of die plates in most of its service centers around the globe.

Your Benefits:

- Inspection of the die plate by OEM
- Cleaning procedure by OEM to avoid any damages during the cleaning process
- Minimum grinding to maximize the life time of the die plate
- Professional and reliable support

Services



Test and Research Centers

MAAG globally provides the opportunity to develop and test out new techniques and materials. Our modern facilities include laboratories for rheological tests, extrusion lines for underwater and strand pelletizing, pump test benches, drop process units for processing low-viscosity melts and fluids and pulverizing systems.

This is where individual plastics can be tested, innovative ideas tried out under life-like conditions, sample production commissioned or solutions worked out for special requirements.

Your Benefits:

- Pelletizing trials with your materials
- Prototype testing
- Practical training
- Machines provided on loan



Individual trainings

We arrange individual trainings for new employees or on new technical knowledge at our Technical Center or, on-site at your location.

The seminars provide comprehensive expertise in theory and practice, give tips and advice, and point out trends and new developments. Participants (machine operators and maintenance staff) are shown how systems can be optimally operated and maintained with regard to product quality, service life, and cost-effectiveness.

Your Benefits:

- Motivated, trained employees
- Greater machine availability achieved thanks to trained staff
- Faster, more efficient maintenance work

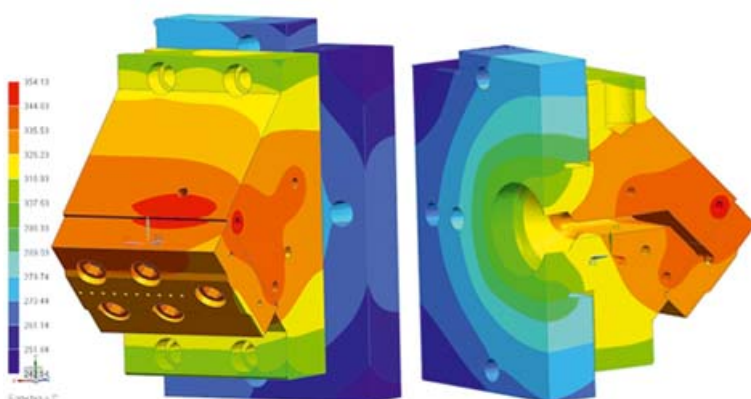


Process know how

The five market leaders Automatik, Gala, MAAG, Reduction Engineering Scheer, and Ettlinger combine their specific process know how under the roof of MAAG.

Comprehensive process analysis is gaining enormously in importance, especially in view of rising competitive pressures and the demand for greater cost-effectiveness. Only if all the individual components of a system are ideally matched and coordinated waste can be minimized, downtimes reduced, product quality improved and production and energy costs saved. Only if all the subprocesses intermesh can an efficient overall process, with stable production and minimal unscheduled downtimes, can be attained.

It is that masterly overview of all process steps, in particular, which has made MAAG the market leader it is today. Our know-how developed over decades of experience means you can be sure of having an expert partner at your side even when confronted by the toughest of challenges. It is precisely that know-how – and the promise to our customers of fast, expert support and assistance – which differentiates MAAG from other vendors in this industry. Alongside expertise in hardware, a sound understanding of the overall process executed by a plant is vital, and is an increasingly key factor in achieving efficient production.

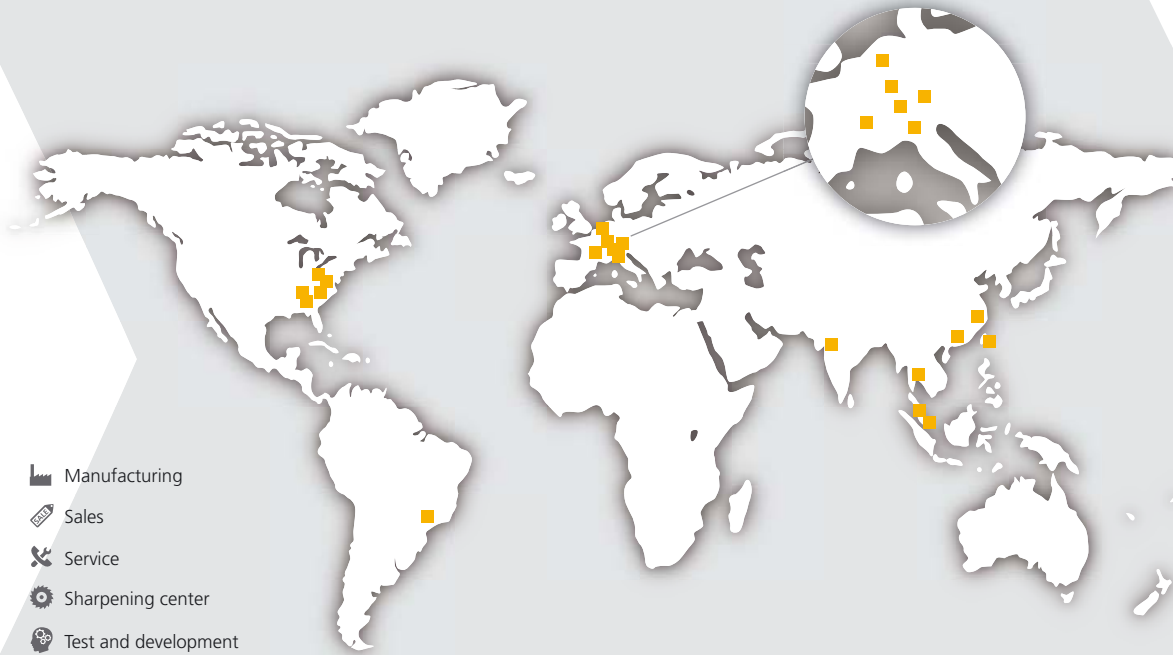


Based on the largest pilot plant installation of its kind, MAAG has built up a level of know-how in pelletizing, filtration and pump engineering which is unique worldwide over recent decades. The provision of specialist advice and process support is an integral part of what MAAG offers today, and its wealth of know-how is respected and utilized by many customers all over the world.

We focus particularly on rapid problem analysis and regular consulting with our customers, which is why we invest in ensuring specialists are on hand to provide local support. MAAG thus combines in-house machinery manufacturing, full after-sales service – including repairs/sharpening and process optimization – with advice on process issues, all from a single source.

Our customer support services are implemented by an international network of agents and our own branch offices, deploying highly trained specialists all around the globe.

MAAG delivers comprehensive service worldwide – and that is what differentiates us from all other vendors in this industry.



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

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