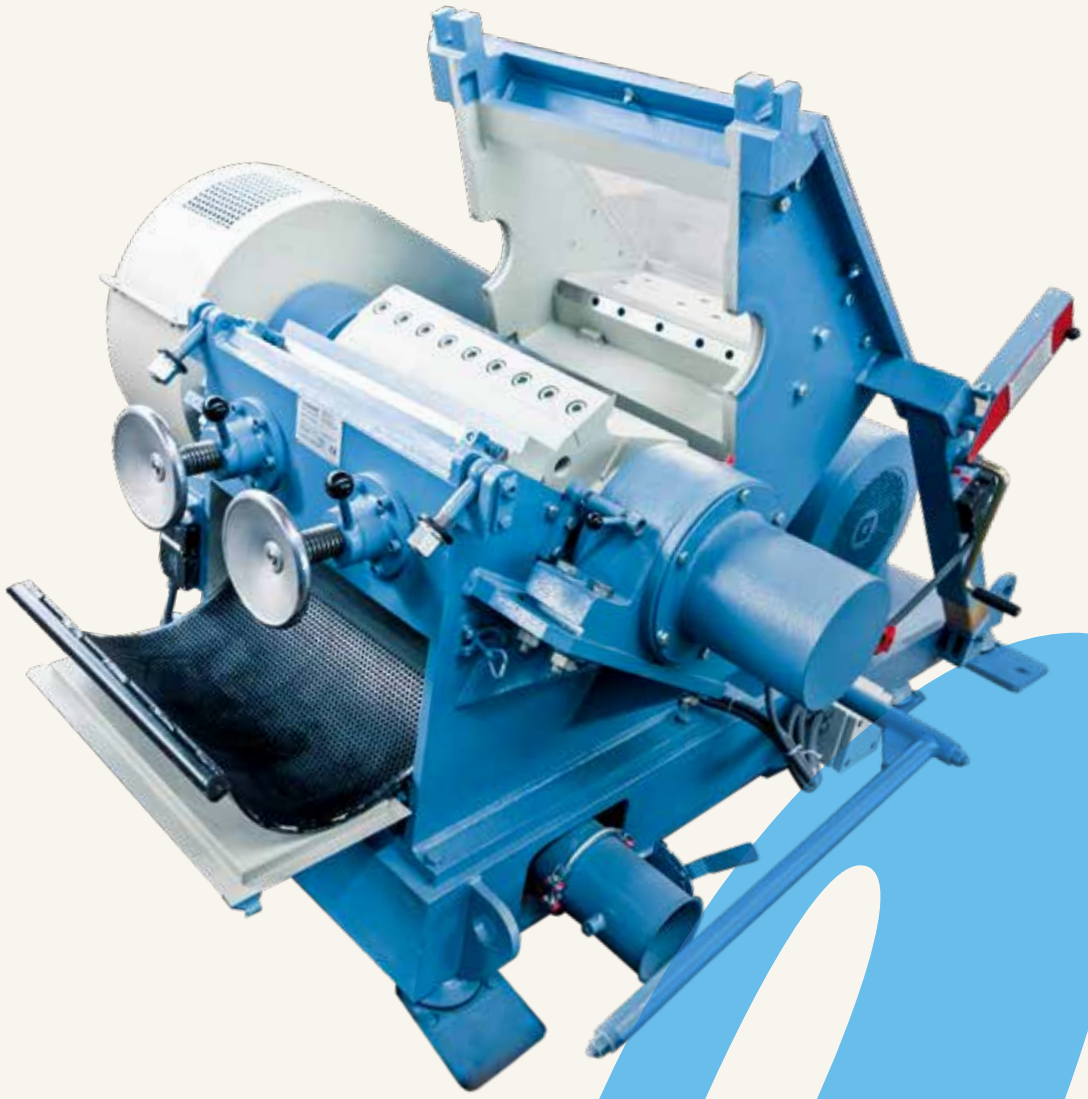
coperion

Granulators for plastics recycling – re-thinking efficiency



herbold

Granulators
introduction

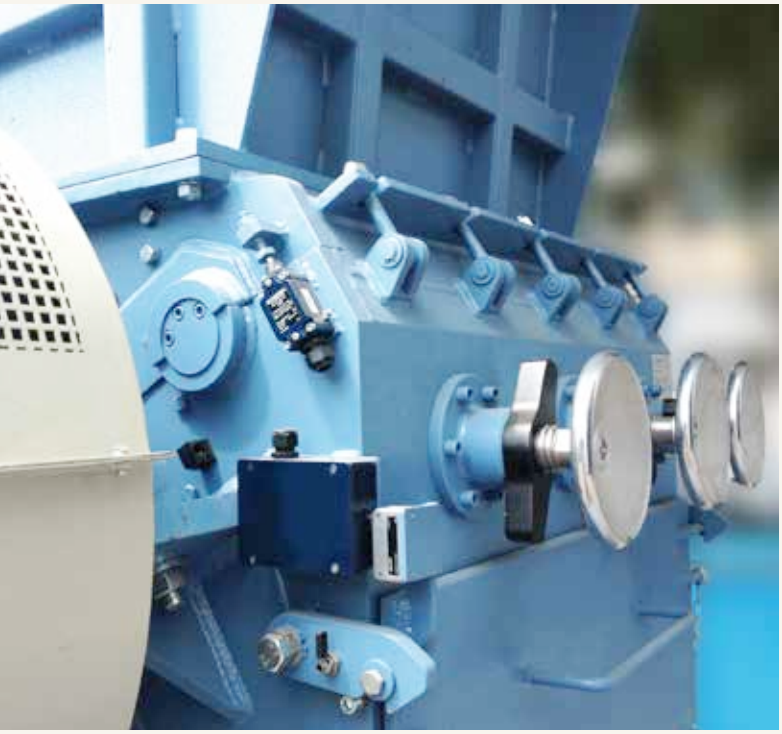
For decades, Herbold Meckesheim has manufactured high-quality granulators that stand out for their technical superiority and innovation. Our granulators are designed especially for the needs of myriad materials, offering numerous advantages that can markedly improve your production process.

Herbold Advantages

- **Outstanding granulation/ size reduction quality:** With precisely guided, sharp knives, our granulators guarantee even, effective grinding that minimizes fines generation.
- **High flexibility:** Various series and sizes enable optimal modification for various material properties and quantities from fine to coarse grinding.
- **Energy efficiency:** Innovative technology provides low-energy operation, reducing costs and protecting the environment.
- **Robustness and durability:** Our granulators are designed for maximum robustness to guarantee reliable continuous operation over time with minimal maintenance expense.
- **Versatility:** Whether it's rigid plastics or pre-shredded battery casings, bottles or HDPE material, fibers, packaging materials or films, or edge trim – Herbold granulators are versatile in use and always designed for the highest quality.
- **Ease of maintenance:** Our granulators are highly accessible thanks to their two-part housing. Tools can be preadjusted in an external fixture and then easily installed.

See our innovations and expertise for yourself — we will help you find the right solution for your application.

SB Granulators – for maximum efficiency and ease of operation.



Applications: Dry or pre-cleaned materials

Herbold SB Granulators have been successfully used worldwide for many years. They are equipped with a so-called forced feeder that, unlike the gravity feeding used in standard granulators, introduces material evenly into the grinding chamber by means of conveying screws.
This horizontally fed generation of SB granulators has been fully optimized. Thanks to the modified machine housing, it differs from gravimetric and vertically fed granulators – providing maximum efficiency and ease of operation.

Wide range of applications

Herbold SB granulators with even forced feeding are suited not only for the size reduction of PET bottles, but also excellent for use as a secondary shredder for pre-shredded materials.

→ Pre-crushed battery casings
→ Pre-crushed pipes
→ PET bottles
→ HDPE materials

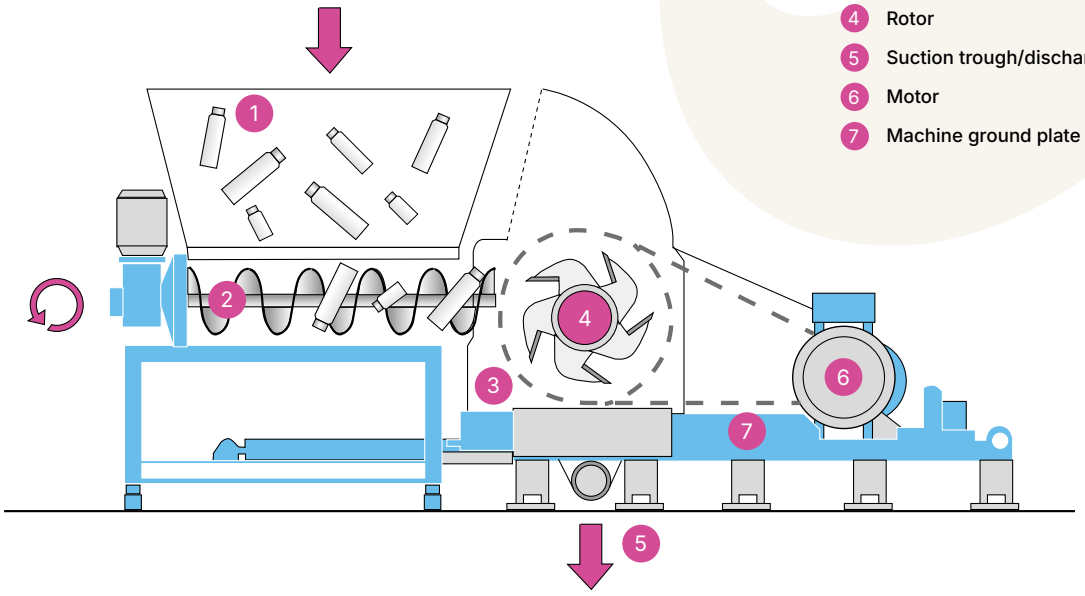
Technical advantages of horizontal forced feeding

- ↗ Higher throughput capacity (30–50% higher output with equal granulator size*)
- ↗ Lower energy consumption (30–50% less power required*)
- ↗ Fewer fines and dust in the regrind thanks to uniform load distribution on the rotor
- ↗ Space-saving due to compact, low design
- ↗ Large hopper volume
- ↗ Lower noise emission
- ↗ No uncontrolled material slippage into the grinding chamber during downtime
- ↗ Significantly reduced risk of screw elements falling into the grinding chamber versus vertical screw feeding

*In comparison to conventional granulators

Process

→ Material feeding
→ Load-dependent forced feeding control
→ Vibration monitoring



In Herbold granulators with forced feeding of the SB series, the feed material is conveyed horizontally to the rotor by one or more feed screws, depending on the machine size. The granulator's low height creates ideal options for feeding using forklifts, tipper troughs or conveyor belts. The feed hopper can hold large material volumes and is also suitable for buffering intermittent product qualities. The hopper's fill level is constantly monitored by an ultrasonic sensor.

Materials are force-fed via the feed screws, thus achieving optimal machine capacity. The granulator control operates automatically. Optional remote access is available, enabling Herbold to provide support during machine disruptions — cost-effective and rapid troubleshooting. Furthermore, the SB granulator has idle detection, allowing the machine to automatically be shut down to prevent disruptions in operation, ensure safety, save energy and avoid damage.

Performance data of the SB series

	SML series			SMS series	
Type	45/60	60/100	60/145	80/120	80/160
Rotor ø [mm]	450	600	600	800	800
Rotor width [mm]	600	1,000	1,450	1,150	1,600
Drive motor [kW]	30–55	55–110	75–132	90–120	90–160

→ SB Granulator

SML Granulators
for light to medium load.

SML series granulators are suited for everyday applications in the plastics processing industry — for example, as a primary granulator for high-volume parts alongside an injection or blow molding machine, or as an edge trim granulator, and many other uses as well. SML-series granulators are available with rotors from 450 to 600 mm diameters and 600 to 1450 mm working widths, and drive capacities from 22 to 130 kW.

Easy access to the cutting chamber

The split housing, sloped in the middle, allows optimal access to the cutting chamber which reduces downtimes and maintenance to a minimum.

Double cross-cutting action

The opposing, diagonally arranged rotor and bed knives ensure a consistent blade clearance across the entire width of the knife, reducing not only the noise level but also the energy consumption, while the risk of blockages is reduced and the regrind quality is improved due to fewer fines.

Knives adjustable outside the granulator

The rotor and bed knives are adjustable within a fixture outside the granulator. The cutting knives can also be prepared for knife change during the granulator's production times, reducing downtimes to an absolute minimum.

Outboard rotor bearing

The rotor bearing is housed separately from the cutting chamber in pillow blocks, preventing dust from entering the bearings and keeping bearing grease out of the cutting chamber.

Constant cutting circle

The adjustable bed and rotor knives keep the cutting circle and the rotor cutting gap from the sieve continuously constant, generating fewer fines, eliminating unnecessary circulation of the regrind and thus avoiding additional temperature stress on the regrind.

→ Granulator SML 45/60
with forced feeding

Application range – robust and versatile size reduction system for standard applications

Whether lightweight, bulky or voluminous – the SML series is suited for granulating any type of plastic waste from thin to medium-wall thickness. Examples:

- → films
- → jerry cans
- → barrels
- → bumpers
- → thin-walled pipes
- → profiles
- → injection molding scrap
- → skeleton waste
- → thermoformed parts
- → foams and many others

Performance data of the SML series

Type	Inlet [mm]	Rotor ø [mm]	Drive [kW]	Weight [kg]
SML 30/50	500 × 490	300	11–30	2,500
SML 30/80	500 × 780	300	15–37	3,200
SML 45/60	600 × 580	450	22–55	3,500
SML 45/100	600 × 980	450	22–75	3,800
SML 60/100	720 × 980	600	22–90	4,600
SML 60/145	720 × 1488	600	37–132	6,500

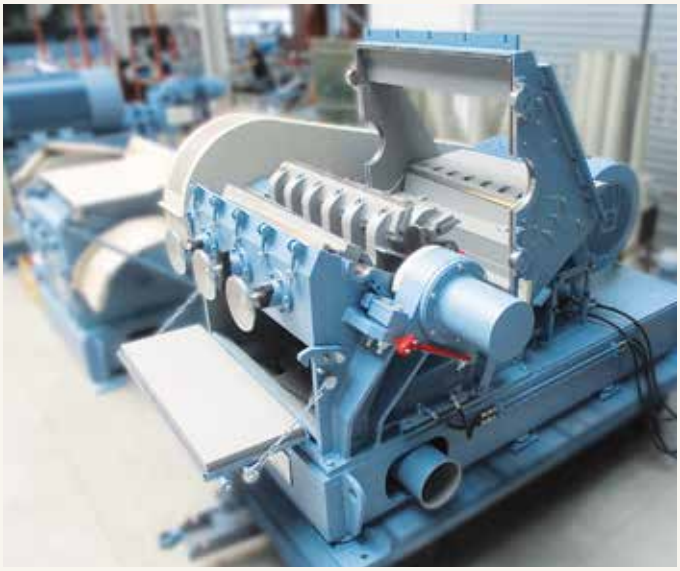
Construction

Herbold SML series granulators are robust machines designed for medium-duty demands. They are compactly constructed, easy to clean, optimally designed for frequent color and material changes and thus a cost-effective and versatile granulating system for standard applications. The machine housing is equipped with exchangeable, screwed-on wear plates above the screen. Built-in run-down devices ensure that the machine can be accessed only after it comes to a complete stop.

The screen is swung upwards, rather than downwards, when the granulator is opened. The cutting chamber is thus markedly more accessible since not only the feed hopper but also the upper part of the granulator can be swung open. Contamination from falling regrind is prevented as well. Residual material is automatically collected in the suction trough and discharged by the blower.

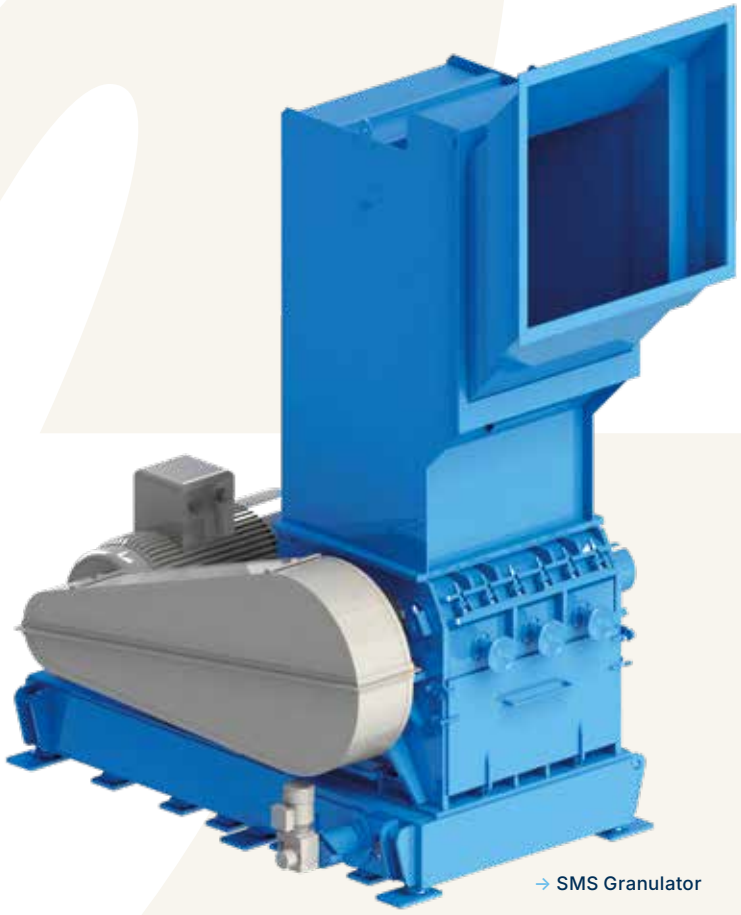
SMS Granulator
for heavy-duty applications.

The Herbold SMS series is the ideal solution for especially demanding applications. It processes massive clumps, tough fibers, extremely thin films and large material volumes reliably and efficiently.
SMS granulators are also available as washing granulators, granulating contaminated plastics with the addition of large quantities of water. The resulting friction provides an additional washing effect – washing and granulating take place in a single step – creating an elegant combination of washing and size reduction.
Our SMS machines are available with rotor diameters of 450 to 800 mm as well as in operating widths from 600 to 2000 mm, with drive motors between 37 and 250 kW, making them ideally suited for a wide variety of production requirements.
The SMS series is particularly valued by recycling facilities: Switching between grinding high-volume hollow bodies to processing thick-walled plates or clumps is effortless with no loss in performance.
Our machines can be equipped with wear protection upon request. Options range from simple, exchangeable wear plating in the upper housing to wear-resistant, replaceable bed knife rests to screwed-on, exchangeable rotor knife rest support bars – all made from hardened, resilient materials tailored to the specific application.



Advantages of the SMS Granulator

- ↗ **Versatile options for use:** SMS granulators are suited for a broad range of materials, from standard plastics to abrasive materials, hollow bodies and thick sheets.
- ↗ **High equipment availability:** The knives can be quickly adjusted from outside the machine in a fixture, minimizing downtimes and maximizing productivity.
- ↗ **Flexibility:** Modular design and optional accessories (such as wear protection) allow the granulators to be individually modified for the requirements involved.
- ↗ **High reliability:** Constructed for long service life, wear-resistant components and easily accessible maintenance openings provide reliable operation.
- ↗ **Improved regrind quality:** The double cross cutting action and the adjustable knives ensure consistent, clean, homogeneous granulate with minimal fines.
- ↗ **Sustainability:** Efficient size reduction improves recycling rates and reduces energy consumption.



→ SMS Granulator

Range of the SMS series

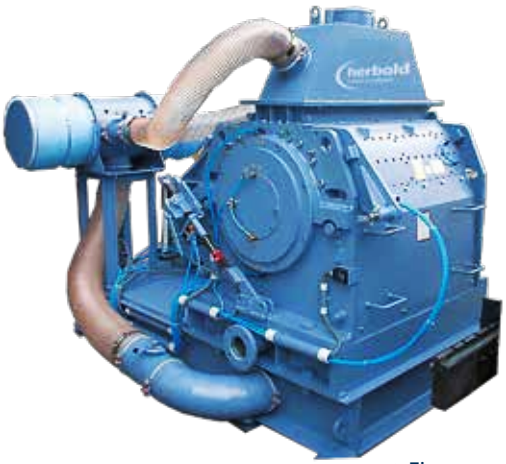
Type	Feed opening[1] [mm]	Rotor ø [mm]	Weight[2] [kg]	Drive [kW]
SMS 45/60	600 × 578	450	3,000	37–90
SMS 45/100	600 × 980	450	4,800	45–90
SMS 60/100	720 × 980	600	5,000	55–110
	940 × 1154	800	9,000	75–160
SMS 80/160	940 × 1555	800	11,000	90–200
SMS 80/200	940 × 1960	800	15,000	110–250

[1]Flange section on the upper part of the housing
[2]Standard model

The highlighted models are manufactured as standard units and are available at short notice. All other types are made to order. Intermediate sizes can be supplied after agreement.

Specialized Granulators
SMP, SMF, SMR

→ Granulator
SMP 35/42 C



→ Fine granulator
SMF 500/1000

SMP Granulators for profiles and pipes

The size reduction of long profiles creates significant problems for conventional granulators. Pits or platforms are necessary for feeding; often, long sections must be shortened prior to being fed. Herbold SMP series granulators are outstandingly suited for processing profiles. They are self-feeding machines with a horizontal feed hopper for long profiles of six meters or more in length. An optional additional intake for short pieces and mitered cuts is available.

SMF fine granulators for fine grinding

SMF fine granulators are high-speed knife granulators which are suited for the fine grinding of plastic granulates and waste, and other soft to medium-hard materials. Depending upon the application, screen sizes up to min. 150 µm can be used.
SMF fine granulators are preferred for use in lines for fine grinding of soft, fibrous, thin-walled and/or elastic materials such as plastic drilling and milling shavings, PE plastics, or cellulose sheets.

HB Granulator – Shredder and granulator are now integrated in one unit.

The Herbold HB granulator combines the concept of a storage hopper with a hydraulic ram in combination with a granulator. The cutting chamber's special design and the high cutting frequency make it possible to process different raw materials in a single step. This includes, among others, bales, slit film rolls, bundles of sprue waste and extraordinarily large and thick-walled start-up lumps are efficiently processed into regrind.

Vibration monitoring

Vibration sensors serve to measure vibrations on the machine that occur during operation. The sensors indicate when a knife change is necessary and warn of various dangerous operational conditions. Maintenance work can be better planned as a result. The vibration sensor makes operation of the granulator safer and simpler.

Additional equipment and special solutions

Numerous additional devices and specialized designs are available for integration with Herbold granulators in automated operations and production processes.

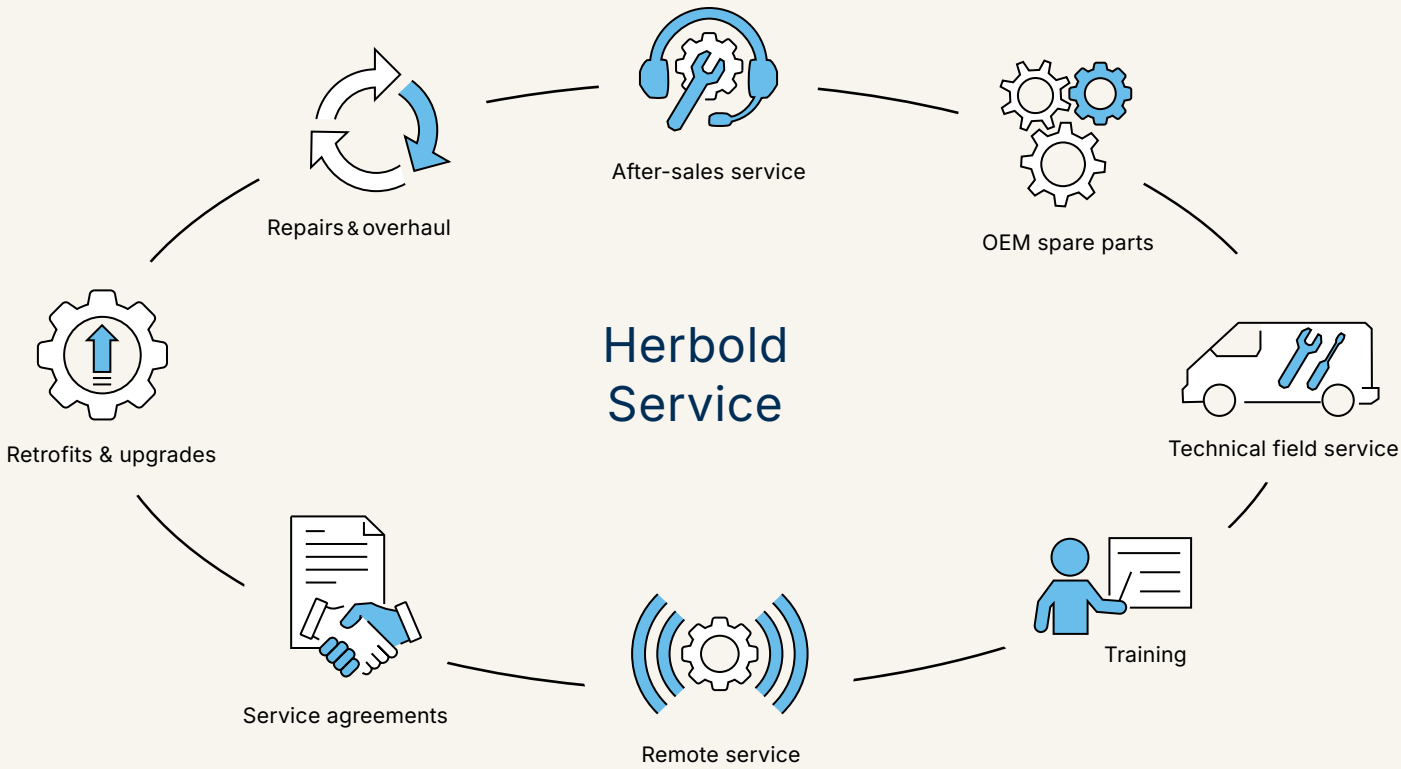
- → Electronic metal separators and magnet systems for removing metal foreign bodies
- → Air classifiers and screening machines for removal of dust and particularly light fraction from the regrind
- → Overload control for load-dependent regulation of the feeding system
- → Pneumatic and mechanical conveyors for feeding or transporting regrind
- → Pre-shredders to reduce bulky input material and ensure a consistent feed rate
- → Feed bunkers and silos for buffering the input material or regrind prior to or following the granulator
- → Belt and roll feeding devices for film sheets, edge trims and stampings
- → Various rotors enable optimal modification for each application

Individualized and solutions-oriented

Hopper variations and accessories: For special materials, we supply feed hoppers that make pre-cutting or pre-shredding largely superfluous, such as special hoppers for feeding sheets. Hoppers with additional side inputs that enable processing of pipes, profiles and even bumpers and other bulky parts in relatively small granulators.

Sound insulation

Sound insulation takes on ever greater significance in the operation of machinery. Herbold offers various sound insulation concepts, tailored to specific requirements, such as two-part soundproofing boxes, soundproof booths, noise insulation tunnels for conveyor belt feeding, and noise insulation for pneumatic conveying lines. The customer defines the task; Herbold develops a tailored solution to reduce the noise level.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After-sales service
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Technical field service
Training
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Retrofits & upgrades
Repairs & overhaul


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Service

In machine and plant engineering, nothing is as decisive as safety and innovation that generate trust. For that reason, technically demanding products such as granulators, washing lines, or plastcompactors, should only be serviced by trained personnel – by specialists like us. We understand service as not just mere maintenance and repair. In truth, we devote ourselves daily to proving our reliability, efficiency and expertise to create advantages for our customers facing tough competition.

Our network

Our service technicians do not come just to repair. The service team provides much more. It consists of service technicians, commissioning engineers and site managers around the globe who take care of not only your machines and plants, but also your business.

Fast, simple spare parts requests at www.myherbold.com

To request spare parts quickly and easily, we have created a portal for our customers that allows them to access and download their machines' documentation, such as operating manuals and machine diagrams as required, and request spare parts. For every machine that the logged-in customer has, parts diagrams can be called up to find the spare parts and add them to the shopping cart. The collected spare parts are then requested via the corresponding contact person who then reverts with a corresponding proposal.

Trainings

Our trainings are specifically geared to the needs of the participants – from beginners to specialists. We offer customer-specific trainings at your location or in our headquarters in Meckesheim, Germany. Trainings address machine and plant technology, mechanics, system overview, operation as well as special topics upon consultation.

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