



# Highly efficient washing installations

System technology for a functioning circular economy



## Benefit from...

- High throughput
- Better quality of product
- Lower operational costs

All treatment steps are coordinated for high efficiency in washing and drying.

# We develop customized machines and plants for efficient plastics recycling

Our washing plants wash, separate, dry energy-saving: Dirty, used and mixed plastics are cleaned producing high-quality regrind/recyclate.

For over 40 years we have specialised in plastics recycling and develop solutions for our customers. Our technologies are tried and tested and used worldwide to recycle plastic waste in an economically viable and energy-efficient way.

We are one of the leading innovation drivers, developing, testing, and manufacturing our solutions in close proximity to our customers.

After shipping and commissioning, we are at your side with competent service and know-how in plant operation.

## Key to successful technical center

What counts for us is not theory, but practice. This is why we test new or familiar processes and applications together with you in our test laboratory. So you know right from the beginning that your system is working to your complete satisfaction. You have a tricky application? Then let's talk about it and we'll test the emergency.

# At the beginning is your application

The steps to joint project success

We know from experience: Nothing in the recycling business is off the shelf. Every project and every customer is individual.

## The guarantee for a successful realisation of a recycling project:

1. A comprehensive research of all framework conditions such as input and output of the plant
2. Successful testing of customer requirements
3. The correct conception of the plant
4. Process optimisation of the concept to ensure that product quality and cost-effectiveness are right for you



**OUR  
POWER**

**Advice**

Research of the framework conditions

**INPUT**

**OUTPUT**

**Testing in the technical center**

Mass balance

Product quality

**Optimisation**

Concept optimisation

Optimum product quality and economy

**OUR  
SOLUTION**

## The result:

A system customised to your requirements with

- Clean and high-quality regrind that can be perfectly processed further
- Best possible performance
- Highest availability
- Costs that keep you competitive

**We offer you a continuous consultation!**



# Herbold System Solutions - Modular and Flexible



Herbold wash for soiled plastics are characterized by their modular design. This allows a gradual expansion and optimization existing facilities.

## 1 Pre-crushing:

The Herbold shredders for pre-shredding and bale breaking of the feeding material can be used in both dry and wet design. As impurities in the input material are often unavoidable in the first process stage, the machine is very robust and designed for a long service life. In addition to its high capacity, the shredder convinces with its maintenance-friendly design.

## 2 Prewash stage:

The multi-stage Herbold prewash detects coarse foreign bodies and reduces the mineral content in order to protect the following machines from damage. Furthermore, the material is carefully pre-washed.

## 3 Crushing and washing:

The material is crushed and simultaneously washed in the wet edge mill. Friction during the grinding process ensures excellent washing of the flakes. The double cross cutting is one of the most important features, which allows a real silhouette with a good cut of the flakes and thus also dissolving dirty pockets. A subsequent friction washer separates the impurified water and other contaminants from the flakes.

## 4 Hydrocyclone separation stage:

Herbold has introduced the hydrocyclone in the field of mechanical separation in plastics recycling. In contrast to the separation tank, where the simple weight force is used for density separation, the hydrocyclone uses centrifugal forces to improve the separation result by a factor of 15. Furthermore, an additional washing effect is achieved by the generated friction. The process water is continuously cleaned at a high throughput rate and thus cleaned of contamination.

## 5 Drying:

Herbold's mechanical dryers are designed for high throughput rates at a low final moisture content. The high impact energy separates impurities such as paper. Depending on the feed material, very low moisture levels are achieved either completely mechanically or in combination with a downstream thermal dryer. To process the material in an extruder in an energy-saving way.

## 6 Silo:

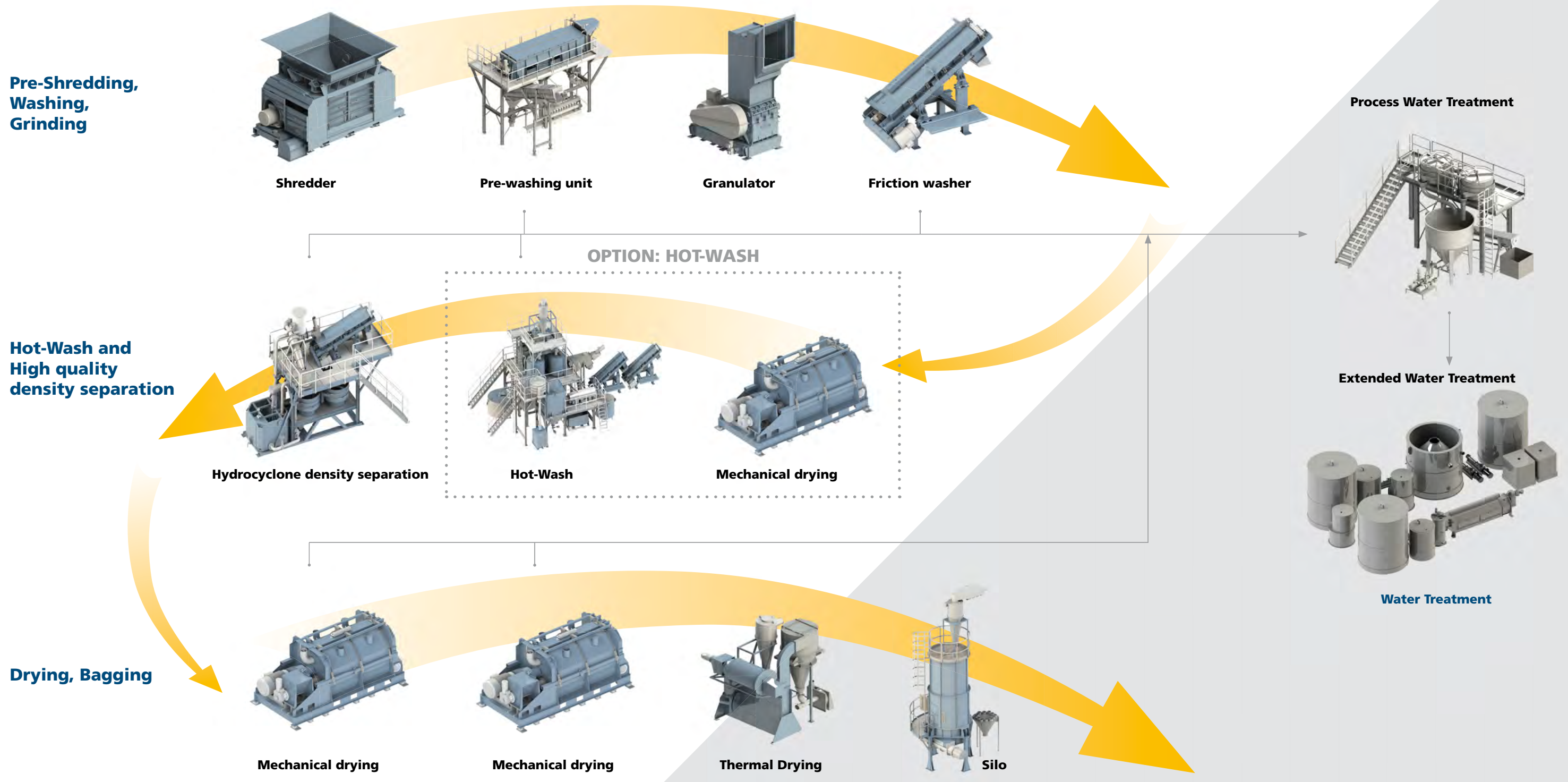
The Herbold silo is particularly suitable for materials with poor flow properties. With the continuously working agitator arm and the discharge screw, we avoid bridging and enable problem-free discharge to the next unit.

Durable, efficient and economical

Customer and material-oriented solutions



# FLOW DIAGRAM FILM WASHING LINE





# FLOW DIAGRAM PET WASHING LINE

## Pre-Treatment



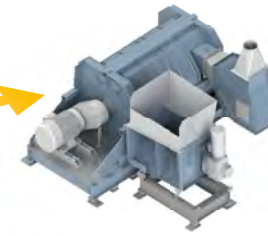
De-Baler



Vibrating screening /  
Ballistic separation



NIR  
Bottle Sorting



Label Remover

## Pre-washing, grinding, fines separation



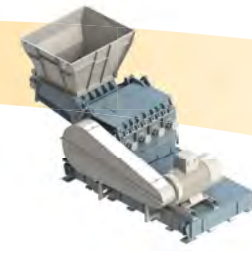
Air stream separator



Step dryer



Friction washer



SB Granulator



Washing drum



Process Water Treatment



Extended Water Treatment

Water Treatment

## Hot-Wash step with rinsing and density separation



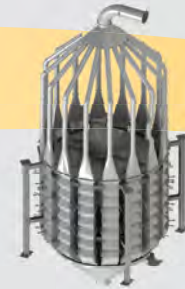
Hot-Wash with Hot  
water treatment



Hydrocyclone  
density separation



Step dryer



Air stream separator



Fines Separation



Flake Sorting



BigBag

Drying, fines separation and final flake sorting



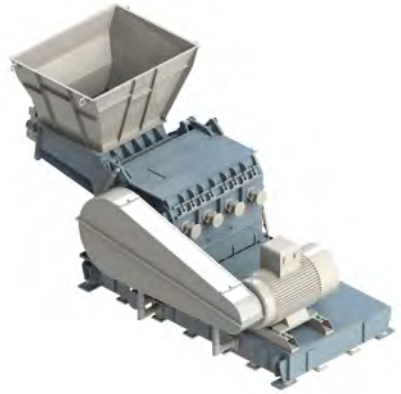


## Core competence - well thought-out down to the last detail



### Prewash unit VWE

- Combination of a heavy lift separator with a prewash.
- In three process steps with a special up flow function, we remove foreign bodies such as minerals, metal, glass, sand or other heavy materials.
- Extremely dirty material can be processed in this way.
- Comprehensive pre-cleaning protects the downstream system components, extends the running time, prevents expensive downtimes and reduces service costs.



### SB-Wet-Granulator

- Uniform forced feed by screw conveyor.
- This means that the granulator always operates at optimum capacity and minimizes fines.
- We achieve a 30-50% higher throughput rate
- Optimum energy-performance ratio.
- Reduces your operational costs by up to 30% lower specific energy consumption.
- Due to the closed material feed, the noise level is reduced.



### Hot wash stage

- Removes odours, adhesive and liquid residues, sugar, soda, etc.
- Process parameters such as material quantity, temperature, residence time and detergent can be set individually depending on the degree of soiling.
- Temperature can be controlled from 60 – 90°C depending on the material.
- End result is recycled material of higher quality.
- Separate hot water circuit reduces operating costs.



### Hydrocyclone separator

- Compared to classic float-sink tanks, the hydrocyclone achieves an approx. 15 times higher selectivity due to centrifugal force.
- In addition, the turbulence creates high friction and an additional washing effect.
- This results in a higher final quality of the recycled material and thus a higher selling price can be achieved.
- The increase in quality also protects the extruders and granulators used in subsequent process steps, which increases the service life of the granulators, extruders and melt filters.
- And lowers running costs.



### Step dryer

- Achieves excellent drying results and reduces residual moisture to < 1%.
- The multi-stage, gentle drying process reduces the formation of fines compared to conventional centrifugal dryers.
- Sophisticated flow design leads to high efficiency and low energy consumption.
- This reduces operational costs.
- Especially suitable for PET and hard plastics.



### Thermal dryer

- Perfect for drying thin films to a minimum residual moisture content.
- The drying results are significantly better due to an optimised air flow and heat input – drying is highly efficient.
- While at the same time we can optimally utilize the required energy and thus reduce the energy supply.
- This reduces running operational costs.



# The result: clean and high-quality regrind



## Examples of materials that can be processed with Herbold machines:

- Agricultural film
- Foil from industry, trade, household
- Thin foil, stretch foil
- HDPE bottles
- Oil bottles and containers
- PET bottles
- Barrels, containers from household, trade, industry
- Containers
- Bottle crates
- Bins
- Bumpers
- Battery boxes
- Fibre materials such as Bigbags

**Let's talk about your next project!**

Send us an e-mail with all information to:  
[herbold@herbold.com](mailto:herbold@herbold.com)

Or you can call us at +49 (0) 6226 / 932 - 0



# Reference systems



# Spare Parts Management

- Spare and wear parts
- Inspections and troubleshooting
- Repairs
- Installations
- Maintenance service
- Commissioning and training

**Quick troubleshooting due to competence and experience as well as a comprehensive stock of spare parts**

Maintenance and break downs can be common place for recycling equipment especially with the mix of materials and stress of heavy duty applications. To ensure your companies success, to limit down time and to keep your equipment operational, your supplier must have a competent staff, superior service and large spare parts inventory.

With our extensive equipment knowledge, experienced staff and comprehensive spare parts inventory Herbold Meckesheim is able to react quickly to all of your service requirements. Our services include spare and wear parts inventory, field service, factory refurbishing, installation and training/commissioning. Let our staff assess your needs and quickly resolve your equipment issues or problems.



## ▶ Spare parts

With the help of our computer system our comprehensive stock of spare and wear parts is continuously checked and updated in regard to availability and inventory turnover. This enables us to execute purchase orders in most cases on the same day and to despatch the ordered parts to our customers all over the world with the desired delivery service. Our ability to deliver spare and wear parts is not restricted to our own machinery, we are also able to provide such parts for machines from other manufacturers in order to guarantee a smooth operation. By arrangement, we are also prepared to stock the most important, even special spare and wear parts in our warehouse. Herbold also offers a blanket purchase order program allowing for quantity discounts on spare parts. Ask your spare parts representative how this program can benefit you.







Herbold Meckesheim GmbH  
Industriestr. 33  
74909 Meckesheim  
Postfach 1218  
Fon: + 49 (0) 6226 / 932-0  
Fax: + 49 (0) 6226 / 932-495  
Mail: [herbold@herbold.com](mailto:herbold@herbold.com)  
Web: [www.herbold.com](http://www.herbold.com)

**Our US-subsiary:**  
Herbold Meckesheim USA | Resource Recycling Systems Inc.  
130 Industrial Drive | North Smithfield, RI 02896, USA  
P.O. Box 239 | Slatersville, RI 02876, USA  
Tel.: + 1 401 597 / 5500  
Gebührenfrei (US/CDN): +1 888 / 612 RRSI (7774)  
Fax: + 1 401 597 / 5535  
E-Mail: [info@herboldusa.com](mailto:info@herboldusa.com)  
Internet: [www.herboldusa.com](http://www.herboldusa.com)

## Our Product Range

### Size Reduction

- › Shredder
- › Granulators
- › Pulverizing Systems

### Washing / Separation Systems & Components

- › Pre-washing Units
- › Friction Washers
- › Separation Tanks and Hydrocyclones
- › Mechanical and Thermal Drying
- › Water Processing

### Agglomeration

- › Plastcompactors

### Service

- › Parts and Overhauls
- › Inspections and Trouble Shooting
- › Upgrades and Performance Service



Please see our videos illustrating our wash lines on our website [www.herbold.com](http://www.herbold.com)