



**Application**

**IN-HOUSE &  
INDUSTRIAL**

CHOOSE THE NUMBER ONE.

**EREMA<sup>®</sup>**   
PLASTIC RECYCLING SYSTEMS

# Fully convincing.

## Up to 100 % return to the production process.

### Plastic – a valuable secondary raw material.

Plastic production waste is becoming increasingly significant as a valuable secondary raw material. The reason: increasing prices of primary resources force you to minimise the use of raw materials in order to save costs. At the same time plastics have to have ever improving and increasingly complex property profiles to satisfy all requirements with regard to flexibility, lightness, formability, safety and high barrier values.

The challenge here, therefore, is to achieve the desired quality specifications of the end product also when more secondary raw materials are used. This is the only way to secure sustainable plastics production in the future.

### In-house recycling – a core competency at EREMA.

The development and production of high-performance and application-oriented recycling solutions for production waste (in-house & industrial waste) is a core competency of EREMA, the world's leading supplier of plastic recycling systems and components.

### Rapid ROI – reduced production costs.

EREMA systems are known around the globe for best fulfilling all requirements concerning reliable plastics recycling by far. The convincing argument for EREMA customers: the investment pays off extremely quickly thanks to the reduced use of primary raw materials and savings in disposal costs – with the quality of the end product remaining just as high.

### What In-house & Industrial Waste Recycling is all about:

- Fully-automatic, self-regulating operation
- 100 % reusability: gentle recycling without quality loss (brief heating, no oxidation)
- Maximum output with variable output range
- Reliability and availability
- Pellet form ideal for reuse
- Reliable filtration systems
- Compact system dimensions
- Lowest possible contamination of starting material



### The decisive advantages for the customer:

- 1. Extremely easy operation** of EREMA systems with the Smart Start principle
- 2. Up to 100 % return to the production process** through optimum processing and gentle recycling
- 3. Highest throughput rates and flexible throughput ranges** thanks to Counter Current technology from EREMA



# Application-oriented.

Reliable solutions for maximum output.

You have the material – we have the recycling system.

Whether it is edge trim, start-up rejects, waste from film rolls, single- or multiple-layer films, non-printed or printed – a wide variety of waste accumulates when producing film. With EREMA recycling systems you can return this film waste reliably and as required as a valuable secondary raw material to the production cycle and thus save production costs.

Blown films  
PE-LD, PE-LLD, PE-HD etc.



Blown films are extruded using a ring die and cooled using a cooling ring and air exchange inside the film bubble. These can be in a single layer (mono-blown films) and also in 3, 5, 7, 9 and more layers (Coex blown films).

- Food packaging
- Industrial packaging
- Waste packaging
- Carrier bags
- Agricultural film (silage film, mulch film)
- Blown stretch film

Application examples:

Cast films (stretched in the direction of the machine)  
PET, PP, PE-LD, PE-HD, PS, PLA etc.



Cast films of this type are extruded using a flat die, then stretched in the direction of the machine and cooled by means of a cooling roller. They are likewise produced as mono- or multiple-layer film.

PET application examples:

- Form and filler applications
- Laminating films with PE sealant
- Metallised PET films
- Thermoformed food trays
- Rigid applications
- Blister packaging
- Food trays
- Containers for dairy products
- Trays
- Credit cards
- Collapsible boxes

PP application examples:

- Non-printed multiple-layer films (CPP)
- Food packaging
- Wrapping material (e.g. plants)
- Non-food packaging
- Laminated CPP films
- Food packaging
- Bags
- Portion packs
- Metallised laminates

Cast films (biaxially stretched)  
BOPET, BOPP, BOPA, BOPS, BOPLA etc.



Films of this type are extruded using a flat die and cooled by means of a cooling roller. Biaxially-oriented cast films have a particularly high tensile strength through the stretching in both the direction of the machine and to the sides. Film waste (edge trim) accumulates in the production process as a result of the necessary fixing with clamps and when tensioning and winding. Cast film extrusion plants achieve outputs of up to 500 m/min.

Application examples:

- Highly transparent packaging films
- Films with a low seal temperature
- High-barrier films
- Cigarette pack outer wrappers
- High-density shrink wrap films
- Adhesive films
- Synthetic white films
- Films for technical and optical applications

Heavily printed / metallised / laminated films



As a result of the rapidly growing demand for flexible film packaging – especially in the food industry – large quantities of heavily printed, metallised and laminated film waste are available. Whereas marketing activities are a prime factor in the case

of printed product packaging, in the case of laminating and coextrusion the technical benefits such as product protection, moisture management, UV protection or aroma sealing are crucial.

Multiple-layer films



Conventional plastic recycling plants are soon stretched to the limit by multiple-layer films which consist of varying components of often unknown consistency. Thanks to the best possible homogenisation of the various polymers, even with problematical

multiple-layer films, the ground-breaking EREMA technology achieves high-quality pellet output.



# User-friendly.

## The EREMA product portfolio for In-house Film & Sheet Recycling.

### Smart Start – simple and stable.

EREMA systems bring together a high degree of automation with extreme robustness and the highest possible energy efficiency with maximum throughput. Furthermore, the modular design enables a 100 % application-optimised configuration of the individual system. This means that besides compact inline solutions in a single process stage and high-performance off-line solutions, a series of additional components for specific requirements can also be realised.

- **Remarkably easy to operate** thanks to logical, clearly structured and simplified handling and ultramodern, ergonomic touchscreen display
- **Fewer buttons, more user-friendliness** – thanks to high degree of automation including extensive control packages
- **The right recipe for every application** – saved processing parameters can be loaded easily and conveniently from the recipe management system at the push of a button



Inline recycling solutions –  
direct from production without intermediate storage.

### Non-printed edge trim



#### INTAREMA® K

- Specially designed for PE edge trim
- Automatic feeding of endless edge trim direct via pipes and cyclone
- Feeding also possible with conveyor belt or roller intake

#### INTAREMA® T

- Highly efficient edge trim recycling (PE, PE-LD, PP etc.)
- With the typical EREMA combination of the preconditioning unit and single-screw extruder without degassing

#### INTAREMA® TE

- Highly efficient edge trim recycling (BOPA, PA/PET, PLA etc.)
- With the typical EREMA combination of large patented preconditioning unit and single-screw extruder with degassing



Offline recycling solutions – from production, but with intermediate storage.

Edge trim



**INTAREMA® K**

- Fully automatic recycling system for PE edge trim
- 100 % return to the production process
- More flexibility through combinable feeding options (conveyor belt, roller intake, etc.)
- Perfect material preparation with the patented EREMA preconditioning unit
- Best material properties thanks to extremely minimum impact processing (minimum thermal damage)
- No additional personnel required (self-adjusting processing, edge trim control in standby mode)

- Outputs from 10 to 180 kg/h
- Compact, space-saving design
- Low energy consumption thanks to ecoSAVE®



Lightly printed films



**INTAREMA® TE**

- Ideal for non-printed or lightly printed edge trim, cutting waste, rolls and loose leftover film
- Various feeding possibilities
- Perfect material preparation with the patented EREMA preconditioning unit
- Single-screw extruder with double degassing
- Recycling without quality loss (brief warming, no oxidation)
- Low energy consumption thanks to ecoSAVE®



Non-printed films



**INTAREMA® T**

- Ideal for non-printed edge trim, cutting waste, rolls and loose leftover film
- Various feeding possibilities
- Perfect pre-homogenisation of feed material thanks to cutting, mixing, heating, drying, compacting and buffering in a single step
- Recycling without quality loss (brief heating, no oxidation)
- Low energy consumption thanks to ecoSAVE®



Heavily printed / metallised / laminated films



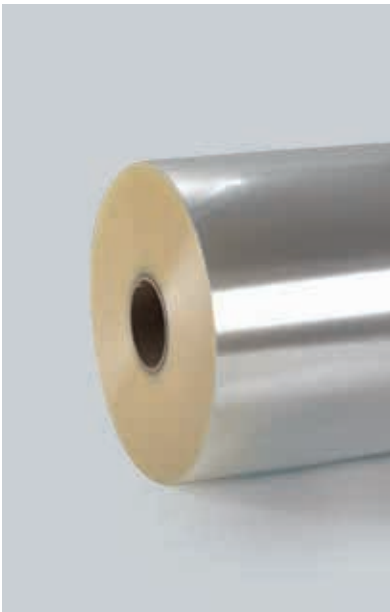
**INTAREMA® TVEplus®**

- Recycling system with high-performance triple degassing
- Ideal for heavily printed, metallised or laminated films
- Various feeding possibilities
- Perfect material preparation with the patented EREMA preconditioning unit
- Full homogenisation optimises the properties of the melt
- Innovative, patented additional technologies for the EREMA preconditioning unit (optional DD system, Air Flush)
- Recycling without quality loss (brief heating, no oxidation)

- Low energy consumption through ecoSAVE®







- INTAREMA® T**
- High-performance recycling system developed especially for BOPP films
  - Flexible feeding of film fluff (silo) and film pieces (conveyor belt)
  - Controlled pre-heating occurs only through the friction heat in the preconditioning unit
  - Optimum pre-homogenisation
  - Continuous pre-compacted feeding of the extruder
  - Low oxidation
  - Lowest possible MFI degradation
  - Best colour properties
  - High output
  - Efficient melt filtration
  - Flexible and easy pelletising
  - Top pellet quality thanks to ultramodern EREMA technology and single-screw extruder without degassing

- Low energy consumption (0.20 kW/kg) thanks to ecoSAVE® and single-screw extruder without degassing



- INTAREMA® T-DD**
- Perfect predrying and homogenisation of recycling material with residual moisture through patented Double Disc technology
  - Constant IV
  - Best colour properties
  - Flexible processing of a wide variety of film thicknesses
  - Short extruder without degassing zone (therefore no gelation possible)
  - Efficient melt filtration
  - Easy pelletising
  - Low space requirements thanks to compact design

- Low investment costs
- Low energy consumption thanks to ecoSAVE®



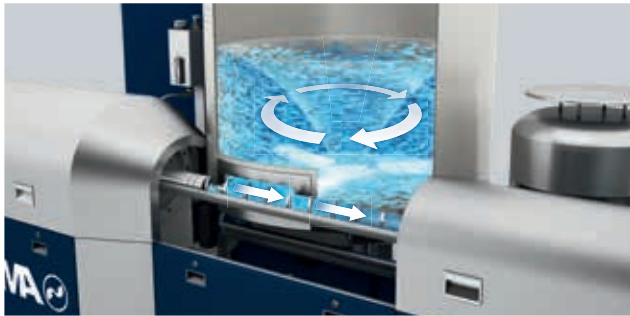
- COREMA®**
- Recycling & compounding in a single processing step
  - Proven, robust EREMA technology to provide filtered melt
  - Minimum thermal stress through short, defined dwell times and direct dosing of the melt in the twin-screw compounder extruder
  - Proven EREMA degassing technology with the EREMA preconditioning unit and extruder degassing

- Central user interface to control the whole system



# The Number One technology

Centrepiece preconditioning unit.



Do you attach importance to the **quality of your recycled pellets being not only high, but consistently high?** Especially when significant parameters of your input material such as moisture and density can vary at any time during the process? The EREMA preconditioning unit is the centrepiece for a stable end product. Because it adjusts itself in line with your input material at all times. **Dynamic, operator-independent and self-regulating** – this is how it prepares your material perfectly for the tangentially connected single-screw extruder. And this is why we also refer to the preconditioning unit as a dynamically controlled preconditioning unit.



cuts



homogenises



heats



dries



compacts



buffers



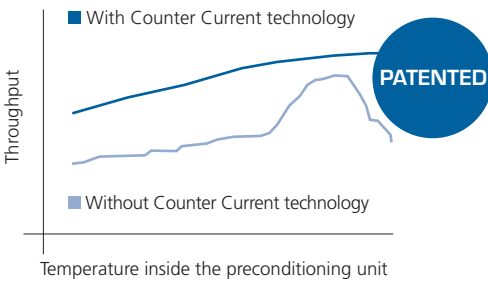
doses

Cutting, homogenising, heating, drying, compacting, buffering and dosing – in a single stage. The preconditioning unit is a talented all-rounder. It enables you to get the maximum out at the beginning of the recycling process and ensures that your expectations are fulfilled at the end of the process: **consistently high pellet quality and remarkable throughput performance.**

Counter Current – a groundbreaking innovation.



- **Highest process stability through improved material intake** ensures constantly high output over a considerably broader temperature range
- **Higher flexibility** and operational reliability with a variety of materials
- **Increased throughputs** with the same plant size for more productivity



**Headquarters & Production Facilities**

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