INTAREMA®
TVEplus®
Recycling system with high-performance degassing

CHOOSE THE NUMBER ONE.
INTAREMA® TVEplus®

Filtration, homogenisation and degassing at the highest level.

The patented extruder system INTAREMA® TVEplus® sets new standards in the recycling of materials that are difficult to process such as heavily printed films and/or very moist materials. This is made possible through ultrafine filtration, thorough melt homogenisation and high-performance degassing in a single step.

The proven basic principle of TVEplus® technology: melt filtration takes place upstream of extruder degassing. This means you can realise end products which have outstanding high quality. End products which can contain a considerably higher share of recycled pellets.

INTAREMA® at a glance:

1. Counter Current technology
   • 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

2. Smart Start
   • 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

3. ecoSAVE®
   • Lower specific energy requirements thanks to a complete package featuring design and process engineering measures including the new direct drive for the extruder screw
   • Lower production costs through optimised control technology and high-quality, energy-efficient components such as high-performance motors
   • Additionally, the practical energy display on your operating panel gives you a constant overview of energy consumption at all times, thus enabling you to take specific measures to optimise consumption
   • Reduced CO₂ emissions – an important contribution to environmental protection
How it works

Feeding is automatic according to customer requirements. The material is cut, mixed, heated, dried, pre-compactd and buffered in the patented cutter/compactor. Next, the tangentially connected extruder is filled continuously with hot, pre-compactd material. The innovative Counter Current technology enables optimised intake action across an extended temperature range.

The material is plasticised and degassed in reverse in the extruder screw. At the end of the plasticising zone the melt is directed out of the extruder, cleaned in the fully automatic, self-cleaning filter and returned to the extruder again. The final homogenisation of the melt takes place after the melt filter. The filtered and homogenised material is degassed in the subsequent degassing zone. Following this, and with the help of the discharge zone, the melt is conveyed to the respective tool (e.g. pelletiser) at extremely low pressure.

Counter Current – a groundbreaking innovation.

In the past the material inside the cutter/compactor turned in the same direction as the extruder: forwards. The patented Counter Current technology now changes the direction of rotation inside the cutter/compactor: the plastic material thus moves in the opposite direction to that of the extruder screw. A simple effect with a major impact.

Because the relative speed of the material in the intake zone, i.e. when passing from the cutter/compactor to the extruder, increases to such an extent that the extruder acts in the same way as a sharp edge which literally “cuts up” the plastic.

The result: the extruder handles more material in a shorter time. Thanks to the enhanced material intake plastic can additionally be processed even at lower temperatures at a high throughput. Fully in keeping with higher productivity, flexibility and reliability.

Technological benefits

- Enhanced material intake, greater flexibility and higher throughput rates thanks to Counter Current technology
- Optimised triple degassing with the patented EREMA cutter/compactor, optimum screw design and extruder degassing ensure highly effective degassing of the filtered melt
- Reduced shearing before the filter improves filter performance
- Greater homogenisation efficiency downstream of filtration and upstream of degassing enhances the subsequent degassing performance and improves the characteristics of the melt
- Innovative, patented additional technologies for the EREMA cutter/compactor – DD system and Air Flush module (optional) widen the scope of application

Economic benefits

- High-quality end product even with materials that are difficult to process such as heavily printed films and/or very moist materials, end products can contain a considerably higher share of recycled pellets
- Extremely easy operation and maximum user-friendliness with the Smart Start principle
- ecoSAVE® reduces energy consumption by up to 12% as well as production costs and CO₂ emissions as a result
- Considerably higher outputs with the same screw diameter compared to conventional degassing extruders
- Compact, space-saving design
Depending on material properties such as residual moisture, print, degree of contamination, etc. High filtration performance thanks to reduced shearing upstream of the melt filter. The melting procedure takes place with minimum shearing effect. This prevents any further size reduction of disturbing contaminants prior to filtration and enhances filtration efficiency. A comparison test with washed post consumer films (film sample with 100% recycled pellets), filtered with the EREMA Lasermelt (110 µm), confirms this increased filtration performance thanks to minimal shearing.

**Optimised triple degassing**

- Initial degassing in the EREMA cutter/compactor takes place through preheating and predrying the material
- The optimum screw design – tuned to the material to be processed – enables reverse degassing in the cutter/compactor, thus relieving the degassing zone of the extruder
- Gas inclusions in the melt are removed in the extruder degassing zone
- Only thoroughly melted, filtered and homogenised material can pass the degassing zone of the extruder

**Blown film test with recyclates, made from fully printed PE-LD film:**

- No quality impairments through fish eyes!

**Single-screw extruder with standard degassing**

**INTAREMA® TVEplus® – no disturbing contaminants**

**Technical data INTAREMA® TVEplus®**

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* Depending on material properties such as residual moisture, print, degree of contamination, etc.
More questions? We would be pleased to answer them!
Your EREMA advisor will be pleased to attend to your request personally and quickly.
If you are interested in a demonstration or a test run with your specific material it would be a pleasure for us to make an appointment and welcome you to our EREMA Customer Centre at the headquarters in Ansfelden, near Linz in Austria.

We look forward to seeing you at EREMA!

For worldwide representatives please visit www.erema.at

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English