



# 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.



counter  
current®



smart  
start®



ecoSAVE®

## 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 CO<sub>2</sub> emissions** – an important contribution to environmental protection

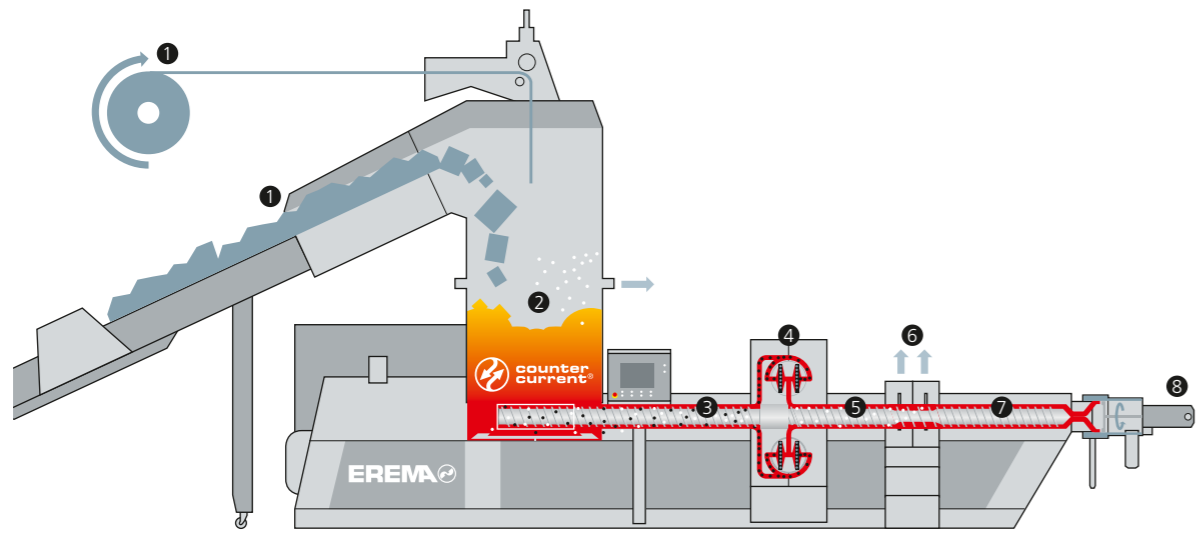


Washed PE film flakes

Heavily printed PE, PP film

PE film with paper contamination

Metallised BOPP film



### How it works

**Feeding 1** is automatic according to customer requirements. The material is cut, mixed, heated, dried, pre-compacted and buffered in the patented **cutter/compactor 2**. Next, the tangentially connected extruder is filled continuously with hot, pre-compacted 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 3**. At the end of the plasticising zone the melt is directed out of the extruder, cleaned in the **fully automatic, self-cleaning filter 4** and returned to the extruder again. The **final homogenisation of the melt 5** takes place after the melt filter. The filtered and homogenised material is degassed in the subsequent **degassing zone 6**. Following this, and with the help of the **discharge zone 7**, the melt is conveyed to the **respective tool 8** (e.g. pelletiser) at extremely low pressure.

### 2 Centrepiece cutter/compactor.

The dynamically controlled preconditioning unit. For an end product in consistently high quality.

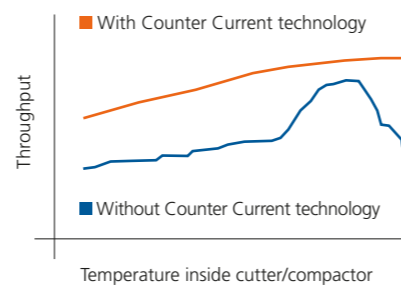


### Counter Current – a groundbreaking innovation.



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.**



### Technical 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

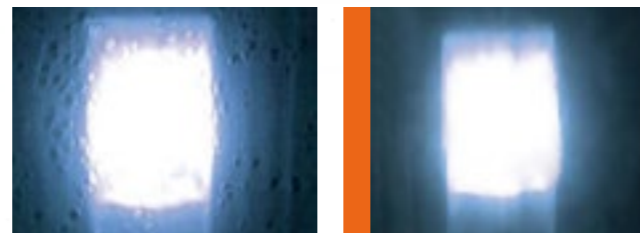
- **High-quality end product** even with materials that are difficult to process such as heavily printed films and/or very moist materials; end products can contain a considerably higher share of recycled pellets
- **Extremely easy operation and maximum user-friendliness** with the Smart Start principle
- **ecoSAVE® reduces energy consumption by up to 12 %** as well as production costs and CO<sub>2</sub> emissions as a result
- **Considerably higher outputs with the same screw diameter** compared to conventional degassing extruders
- **Compact, space-saving design**



### 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:

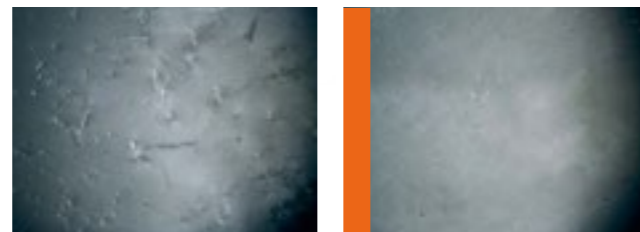


Single-screw extruder with standard degassing

INTAREMA® TVEplus® – no quality impairments through fish eyes!

### 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 Laserfilter (110 µm), confirms this increased filtration performance thanks to minimal shearing.



Single-screw extruder with standard filtration

INTAREMA® TVEplus® – no disturbing contaminants

### Innovative, patented additional technology for the EREMA cutter/compactor (optional)

- **The patented Air Flush Module increases drying performance** and output while ensuring lower energy consumption and extending plant service life
- With **patented Double Disc (DD) technology** materials with up to 12% residual moisture can be processed with consistently high output
- **Optimised large EREMA cutter/compactor**

### Technical data INTAREMA® TVEplus®

Average output capacity in kg/h*								Systems available	
PE-LD, PE-LLD		PE-HD		PP		PS			
min.	max.	min.	max.	min.	max.	min.	max.		
190	240	170	220	200	250	200	250	INTAREMA 1006	TVEplus
300	350	250	350	300	400	300	400	INTAREMA 1007	TVEplus
350	450	325	450	400	500	450	600	INTAREMA 1108	TVEplus
400	550	375	475	500	600	500	600	INTAREMA 1309	TVEplus
550	700	500	650	650	750	600	750	INTAREMA 1310	TVEplus
850	1000	700	900	900	1100	850	1100	INTAREMA 1512	TVEplus
1000	1300	900	1200	1200	1400	1000	1400	INTAREMA 1714	TVEplus
1400	1700	1100	1450	1600	1800	1400	1800	INTAREMA 1716	TVEplus
1700	2100	1450	1900	1900	2250	1700	2200	INTAREMA 2018	TVEplus
2300	2700	2000	2600	2500	2800	2300	3000	INTAREMA 2021	TVEplus

\* Depending on material properties such as residual moisture, print, degree of contamination, etc.

# The specialists in plastic

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## 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](http://www.erema.at)

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English

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