

EREMA Plastic Recycling System
with high performance degassing

TVE



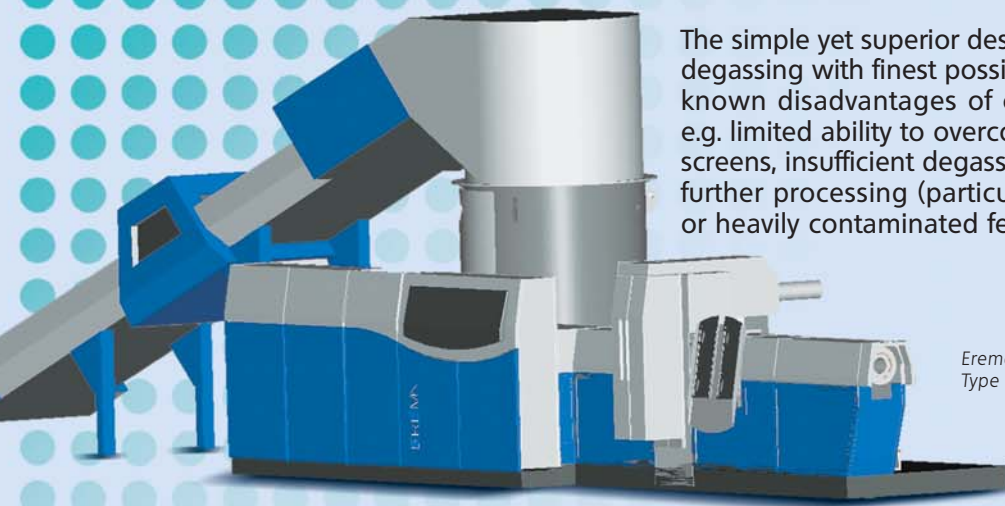
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EREMA[®]
HIGH TECH RECYCLING

Erema TVE extruder design: superior degassing efficiency

In various cases (when processing particularly strongly printed, heavily contaminated and/or wet plastic waste) we experienced that conventional degassing extruders do not meet today's requirements in daily recycling practice. This prompted Erema to develop a unique, patented technology: the TVE-extruder design of Erema with melt filter *upstream* of the extruder venting.

The simple yet superior design of this plant combines optimum degassing with finest possible filtration. This rules out the well-known disadvantages of conventional degassing extruders, e.g. limited ability to overcome pressure, sensibility to clogged screens, insufficient degassing, which may even be too low for further processing (particularly in the case of heavily printed or heavily contaminated feeding material).



Erema Plastic Recycling Plant
Type EREMA 1514 TVE

The technical features

- Optimum degassing efficiency:
 - Contaminants that tend also to form gas downstream of the degassing zone in the case of conventional degassing extruders, are filtered upstream of the degassing zone already.
 - Any gas inclusions in the melt that are caused by filtered, decomposing contaminants upstream of the filter screens, are removed in the subsequent degassing zone of the extruder.
 - Only completely molten polymer material can pass through the degassing zone of the extruder. Any unmelted polymer components remain in the section upstream of the melt filter until they are completely molten.
- Peak pressure rates, which are caused by filters becoming clogged by sudden high concentrations of contaminants, do not adversely affect the degassing efficiency (no risk of melt leakage at the degassing outlets as with conventional degassing extruders).
- No undesired air pockets in the melt upon screen change, which may be conveyed to the die head.
- Reduced wear as the contaminants, if any, are already separated in the middle of the extruder.
- Well proven system, more than 400 delivered worldwide (2004).



The economic benefits

- High-quality, perfectly degassed end product
- Largely maintenance-free – low service costs
- Compact, space-saving design
- Optional touch screen control, which widely increases plant productivity

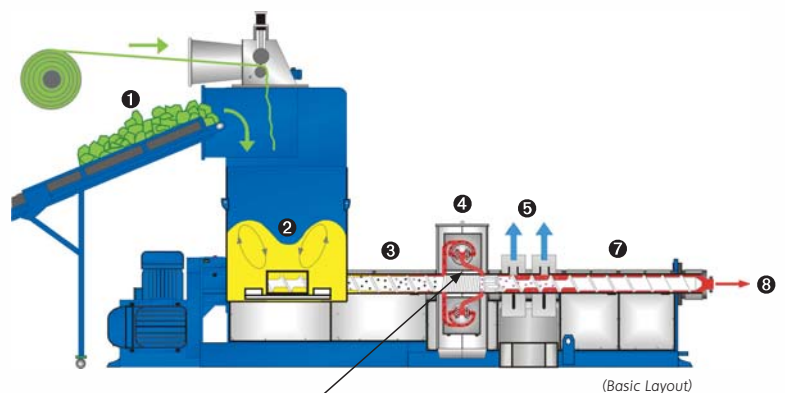


The optional touch screen control enables the recording of production data, operation of plant via control room and on request (via modem) online support through the Erema Technical Centre.

Process description

Automatic feeding of the cutter compactor e.g. via feeding conveyor belt ①. In the cutter compactor ② (optional in DD* configuration, see separate Folder) the plastic material fed in is cut, mixed, heated, dried and densified. Furthermore, the rotary cutters ensure proper, continuous feeding of the downstream single-screw extruder. In the extruder ③ the material is plasticised. Then the melt is evacuated from the extruder and passed on to the melt filter ④. In the automatic, self-cleaning melt filter the melt is cleaned and returned to the extruder to be then passed on to the downstream degassing zone ⑤ of the extruder. Downstream of the degassing zone the melt is directly conveyed ⑦ to the respective tool ⑧ (e.g., die face granulator) via a short discharge zone (no additional melt filter required).

*DD stands for "Double Disc" Technology and refers to the separation of the working steps "material processing" (shredding, drying, preheating, compacting) from the step "extruder feeding" in the cutter compactor. The result is an extremely uniformly fed and evenly operating recycling extruder which constantly performs at its best, regardless of external factors (e.g. feed portion size, moisture etc.).



Between the plasticising and the degassing zone of the extruder the screw is sealed off by means of a patented dynamic back flow thread ⑥, which is continuously flushed (counterflow) with a small quantity of cleaned melt. This ensures that the processed polymer does not deposit in the area of the seal. Via optional pressure difference measurement the function of the seating can be continuously supervised.

Plant Sizes

Type	Average output capacity (kg/h) with typical polymers (depending on material properties)							
	LDPE, LLDPE		HDPE		PP		PS	
	min	max	min	max	min	max	min	max
EREMA 1000 TVE	230	280	200	250	200	250	300	350
EREMA 1100 TVE	280	400	280	380	300	380	380	450
EREMA 1109 TVE	320	480	300	480	400	500	480	560
EREMA 1300 TVE	450	600	500	560	550	600	600	700
EREMA 1500 TVE	800	900	720	850	700	850	850	1000
EREMA 1514 TVE	850	1150	850	1100	900	1100	1100	1400
EREMA 1700 TVE	1300	1500	1100	1300	1100	1300	1300	1500
EREMA 1701 TVE	1500	1850	1300	1600	1300	1600	1500	1800
EREMA 1702 TVE	2200	2700	2000	2200	1800	2200	2400	2600

Why Erema?

- High-tech from the world market leader
- Top-notch state-of-the-art recycling technology
- Superior end product quality (pellet)
- Best customer service and care and therefore reliability for the user
- Tailor-made, individual solutions possible through large engineering capacity with more than 30 years experience in plastic recycling
- Superb reliability, flexibility and productivity
- Your best partner

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