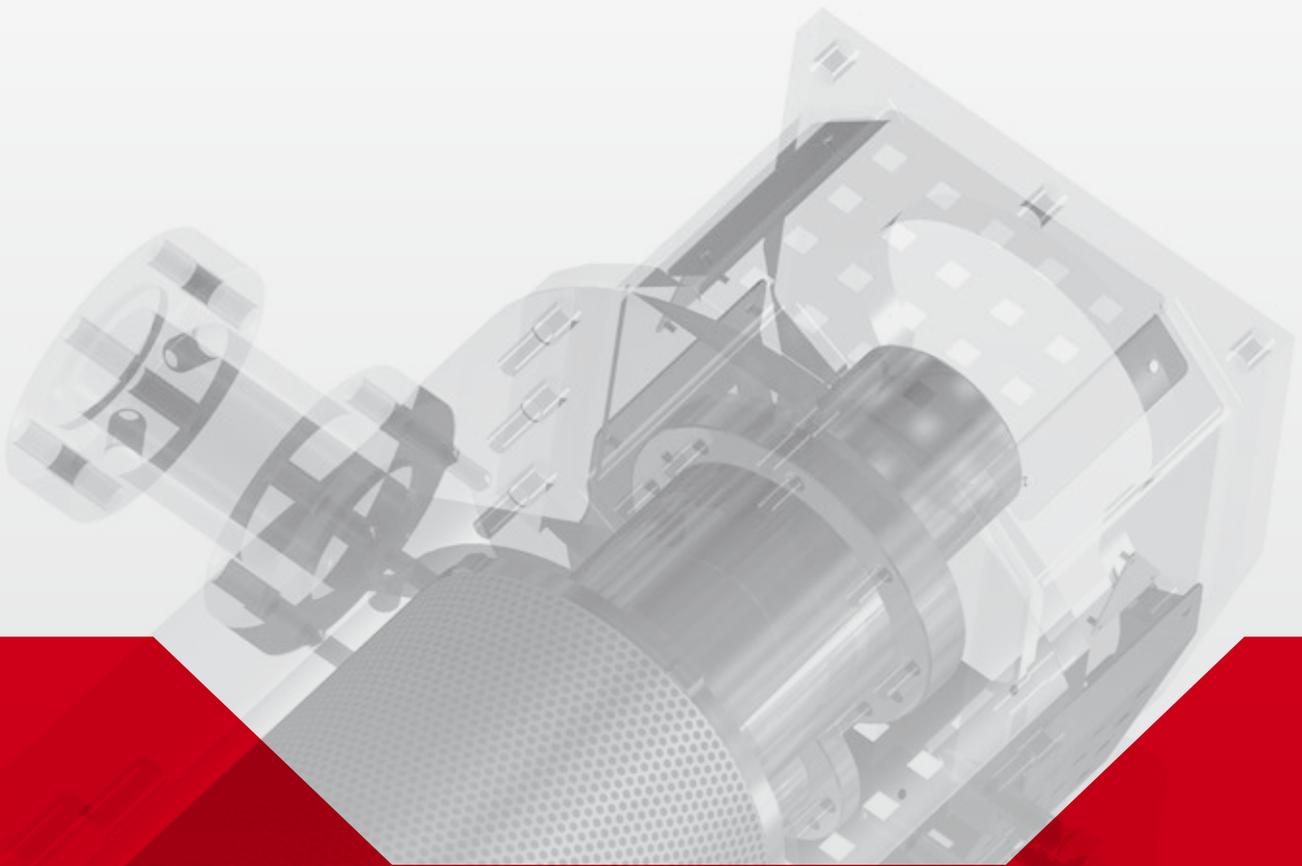


ECO Melt Filter

polymer filtration
one step ahead

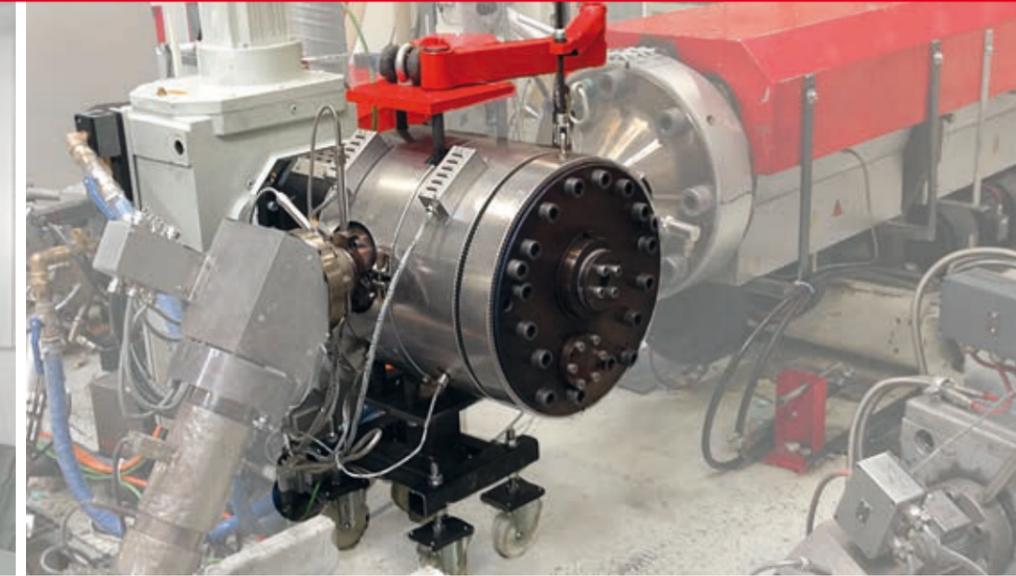


high tech for plastics extrusion

Reduce.
Improve.
Increase.



PET film extrusion with optical quality control system (source: OCS GmbH)



3-layer high quality technical film extrusion

100%
clean filtration surface with every turn.

With its unique self cleaning function, the ECO is the missing piece in your film or compounding extrusion line.

Higher profits and savings with the ECO guarantee a fast return of investment.

Reduce ...

- ... gels, black specks and other impurities in your film, sheet or compound.
- ... scrap production and customer claims.
- ... production downtime.

Improve ...

- ... your product quality to be more competitive.
- ... your production process efficiency.

Increase ...

- ... production line availability for weeks or months without interruption.
- ... use of recycling material with a lower cost base.
- ... profit of your product.

Your investment in advanced features.

- Continuous operation with constant pressure on inlet and outlet side.
- No screen changes for weeks or months, depending on the material and application.
- Use of up to 100 % recycling materials, even of poor quality, will result in an excellent final product.
- Nearly zero operator assistance required.
- 100 % filter surface availability during total time in operation.
- Up to 1.5 % of contamination content (for higher contamination please see our ERF® filter).
- Completely closed system, no contact of melt to the atmosphere.
- Contamination is completely evacuated from the process.
- Consistent melt flow without dead zones or degraded polymer.
- Processing of all polyolefines, PET and PA.
- Better mixing and homogenizing of highly filled melts.
- Lowest maintenance and labour costs.

Don't stick with the now.

Think one step ahead. Think future. **Think ECO.**

Turn. Scrape. Discharge.

3 steps to give filtration a clear definition.

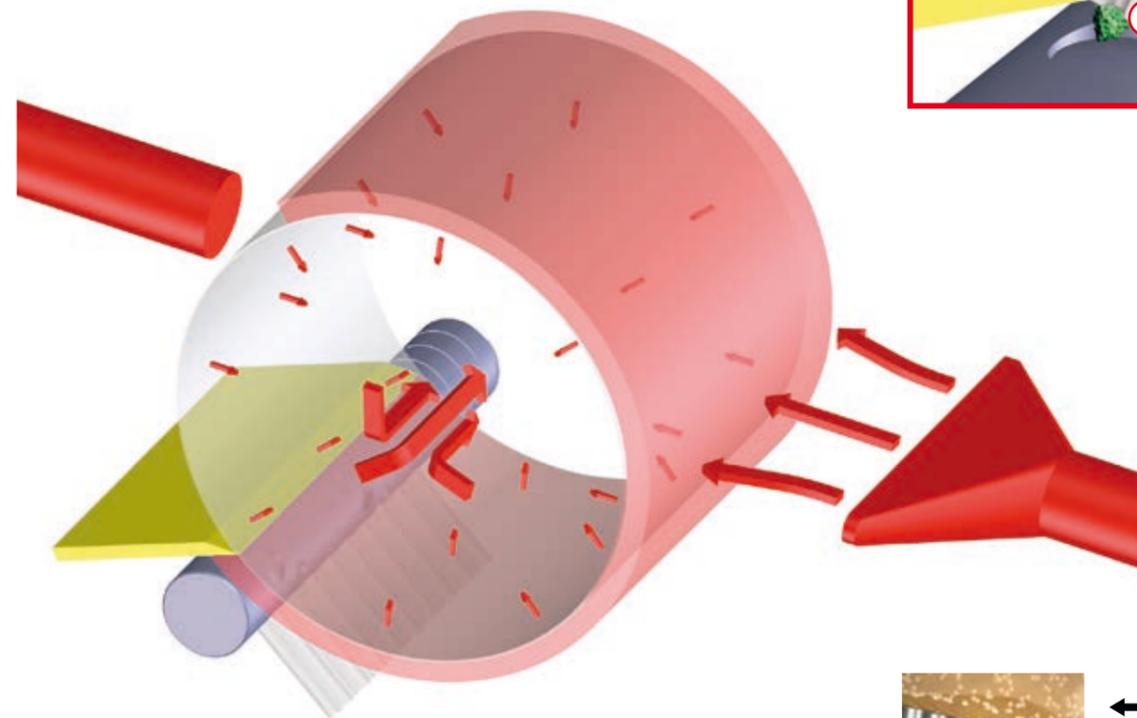
Taking off contamination from the filtration surface and moving them out of the process before they are able to slip through. This principle ensures that the ECO will filter out even gels and elastic particles, as well as all other types of contaminations.

Contaminated plastic melt is flowing from outside to inside through a rotating filter drum with a large number of small conical holes. The contaminants in the melt remain on the filter surface and will be removed by a scraper and forced into the discharge shaft with every turn of the filter drum.

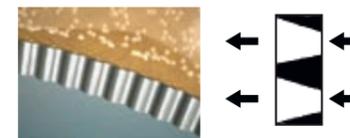
Therefore contamination cannot build up on the filtration surface and cause higher pressure, while particles, like gels, are not pushed through.

Separate control of the rotation speed of the filter drum and the discharge shaft allows you to optimize the filtration result to a maximum in accordance with your specific filtration needs.

Compact size with a small footprint allows you to replace nearly every conventional filter system with the ECO.



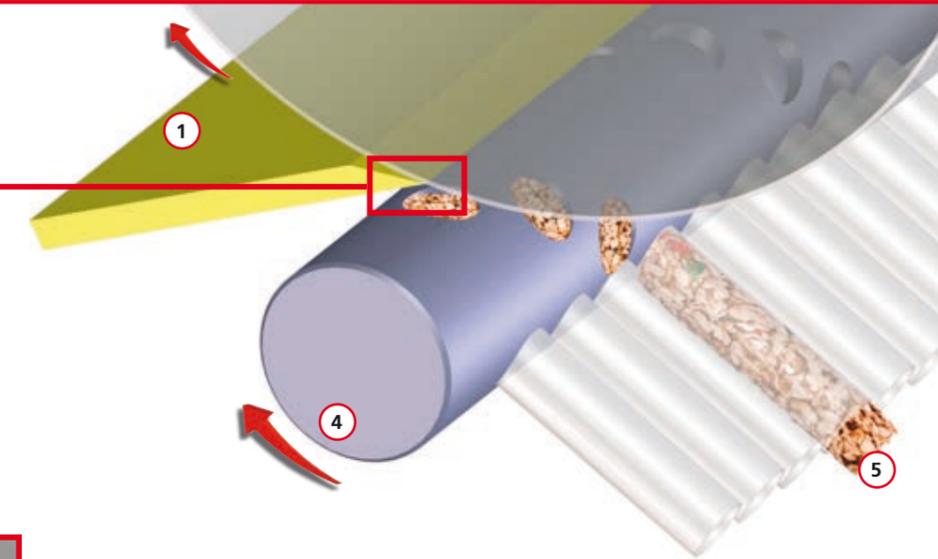
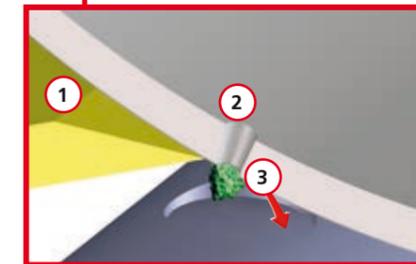
Minimized melt volume, optimized flow channels



Conical shaped holes

Detail contamination discharge

- 1 Scraper
- 2 Conical hole
- 3 Contamination particles scraped off and forced into the free space of the discharge shaft.
- 4 Discharge shaft
- 5 Discharge



Sophisticated Design. Unique performance.

- Conical, self cleaning borings.
- Strong wear protection for filter screen and scraper resulting in extended life time.
- Very low power consumption.
- Precise filter fineness by lasered holes with tight tolerances.
- Optimized melt flow channels without dead zones.
- Fits into nearly every extrusion line.
- Easy and fast access for replacing filter screen and scraper.
- Always 100 % filtration performance leading to weeks or months of constant operation.
- Very short residence time.

High impact

on savings in these 2 examples

PET thermoforming sheet

Continuous creation of black specks in the PET thermoforming sheet, caused by the existing backflush unit during screen bolt movement when backflushing or changing screens, resulted in a significant amount of scrap or off spec production through the year.

PET bottle recycling flake qualities could only be used at a maximum of 30 %.

Process

- PET thermoforming sheet
- PET bottle flakes
- twin screw extruder
- 2,000 kg/h
- optical control system for quality control

After installation of the ECO

- reduced pressure level (70 bar vs. 100 bar)
- black specks reduced by 40 %
- 100 % poor quality PET bottle flakes used
- start up time to achieve in spec production reduced by 50 %

The overall time in operation, without any interruption or operator assistance at constant pressure conditions, is 6 weeks. Total savings due to the improved production efficiency result in a return of investment of less than 18 months.

TPE compounding line

In the compounding process inside of the extruder, gels and agglomerates were created. These gels and agglomerates were found by the optical control system in the following film extrusion. Too often the number of spots on the surface of the film was over the limits and therefore the film was scrap. Throughput was limited to 1,000 kg/h because of increase of gels and agglomerates at higher capacities.

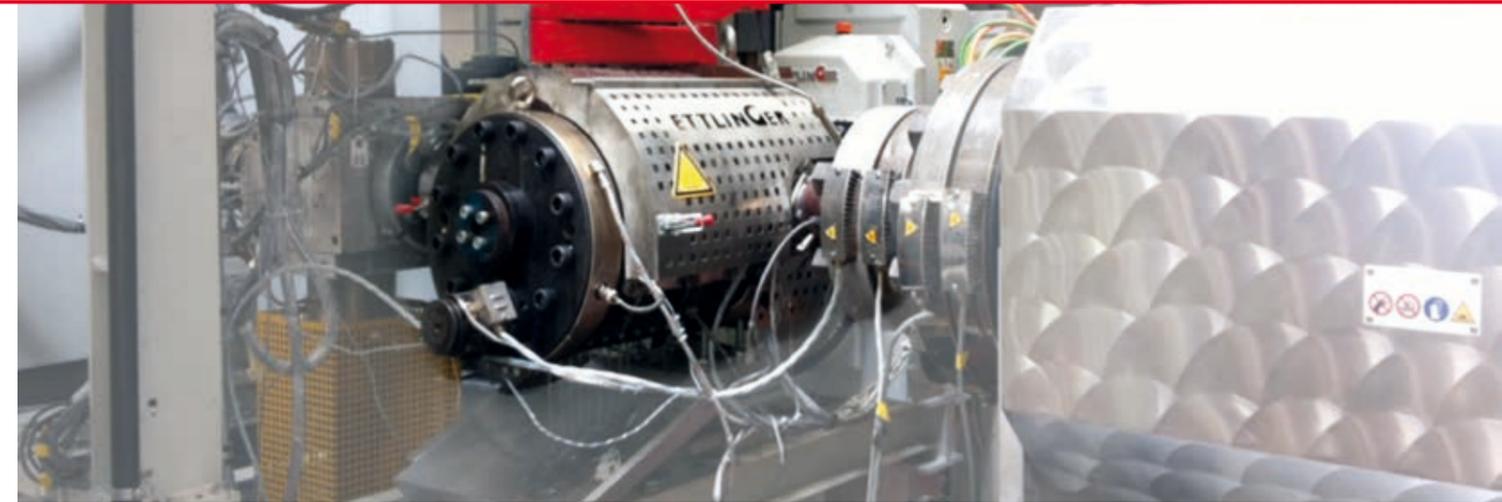
Process

- TPE compounding
- virgin material
- twin screw extruder
- 1,200 kg/h
- optical control system for quality control

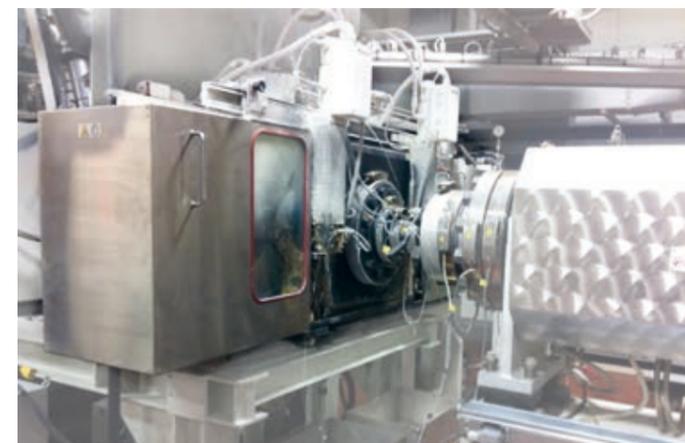
After installation of the ECO

- surface spots reduced by 60 %
- scrap production reduced by 40 %
- increased output by 20 %

The overall time in operation, without any interruption or operator assistance at constant pressure conditions, is 12 weeks. Total savings due to the improved production efficiency result in a return of investment of 14 months. Less customer complaints and claims on film quality.



PET film line after retrofit with ECO



PET film line before retrofit with ECO

Additional ECO applications

- PET strapping tape.
- Optical sheet for tv or mobile screens.
- Food packaging.
- PET thermoforming sheet.
- TPE-compounding with reactive components.
- Compounds with natural organic fillers (fibers e.g.)
- PET re-pelletizing.
- Film and compounds for sanitary products (diapers e.g.)
- Many others.

Technical data	ECO 200	ECO 250
Total filtration surface	1,250 cm ²	1,570 cm ²
Filter screen diameter	200 mm	250 mm
Throughput	up to 1,800 kg/h	up to 3,000 kg/h
Number of heating zones	6	6
Heating capacity	20 kW	23 kW
Motor capacity filter	3.8 kW	3.8 kW
Motor capacity discharge shaft	0.9 kW	0.9 kW
Speed filter max.	10 min ⁻¹	10 min ⁻¹
Speed discharge shaft max.	9 min ⁻¹	9 min ⁻¹
Weight	800 kg	1,000 kg
Operating pressure max.	300 bar	300 bar
Available filter fineness	60* / 80 / 120 / 150 / 200 / 250 / 300 / 500 / 1,000 µm	

*under development

Ettlinger Kunststoffmaschinen GmbH

Messerschmittring 49
D-86343 Königsbrunn (Germany)
Phone: +49 (0) 8231 / 34908-00
Fax: +49 (0) 8231 / 34908-28

Ettlinger North America LP

1555 Senoia Rd.
Tyrone, GA 30290
USA
Phone: 770-703-8541
sales-na@ettlinger.com

info@ettlinger.com | www.ettlinger.com