

**Simply smart, highly sustainable:  
The MAS Extruder for PET Recycling.**

Brilliant colour at highest quality



# MAS systems have the answer to every PET extrusion challenge.

## **Versatile** : processing spectrum

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The conical, co-rotating MAS extruder offers a wide range of applications, like the production of high quality pellets or direct extrusion into sheet or fibres from the following materials:

- > *PET re-grind or pellets*
- > *A-PET, G-PET, GAG-PET*
- > *Washed PET flakes or URRC-PET flakes*
- > *PET flakes or pellets with additives pigments, fillers, etc...*

The MAS extruder offers extraordinary performance when different PET input qualities are processed - e.g. resin pellets with flakes for producing pre forms or thermoforming film for packaging. It is also possible to add various types of plastics to polyester flakes or pellets. Pigments and fillers or additives such as chain extenders can also be homogenised, the different polymers are mixed perfectly with outstanding melt quality. The MAS extruder is perfectly suitable for direct extrusion.

## **Exclusive** : Your benefits

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The conical co-rotating MAS extruder principle delivers substantial processing benefits due to its compact design and process innovations:

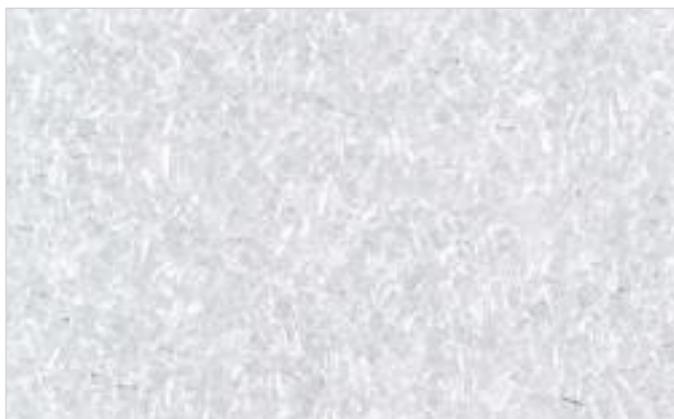
- > *possibility to add R-PET at previously unattainable levels with superb quality*
- > *energy savings of up to 40%*
- > *reduced production costs*
- > *in-line recycling for films, tapes, fibres and monofilaments*
- > *gentle processing, highest possible IV values, best colour values*

## **Efficient** : cost-effectiveness

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MAS extruders offer extensive technological and economic advantages:

- > *consistently high output*
- > *output performance not dependent upon high screw speed*
- > *self-cleaning and short dwell times*
- > *optimised degassing (also with high-performance vacuum)*
- > *outstanding added production value*



## The conical co-rotator from MAS for low melt temperatures and low shear.

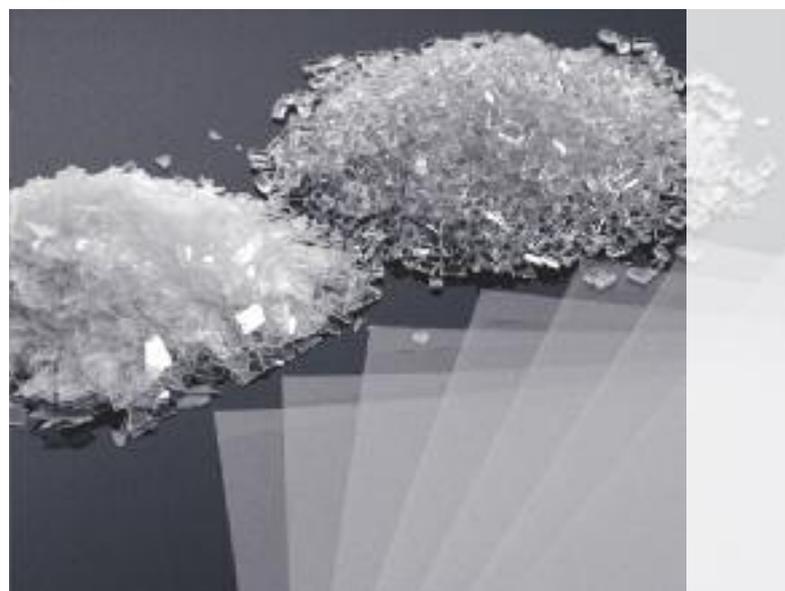


MAS 75  
 (Example)



### **Innovative** : Processing unit

The conical co-rotator patented by MAS combines the benefits of conical extruders with those of parallel co-rotating twin screw extruders. In comparison to conventional extruders, the conical design offers substantially higher filling volumes at the material intake. This results in a higher screw filling level which gives the highest possible output with comparatively high pressure ratios and low melt temperatures. The co-rotating design provides perfect homogenisation. Generously dimensioned screw shafts paired with strong back pressure bearings result in an extremely robust design with a long service life. This combination of benefits provides the perfect solution for highly efficient PET compounding and processing applications.



# Our performance exceeds your expectations.

## *Practical : Maintenance*

Clear design provides a unique coupling housing, which allows easy movement of the barrel for fast demounting of extruder screws. Cleaning the processing unit, if required, or re-placing the mixing parts of the screws, is possible in a very short time.

## *Logical : Operation*

The control system, based on an industrial PC (1.6 GHz, 1 MB RAM) with touch screen panel, is simple and logical to operate. The system offers a wide range of functions, such as a formula storage, production and trend analyses, recording and storing of production data plus remote maintenance.

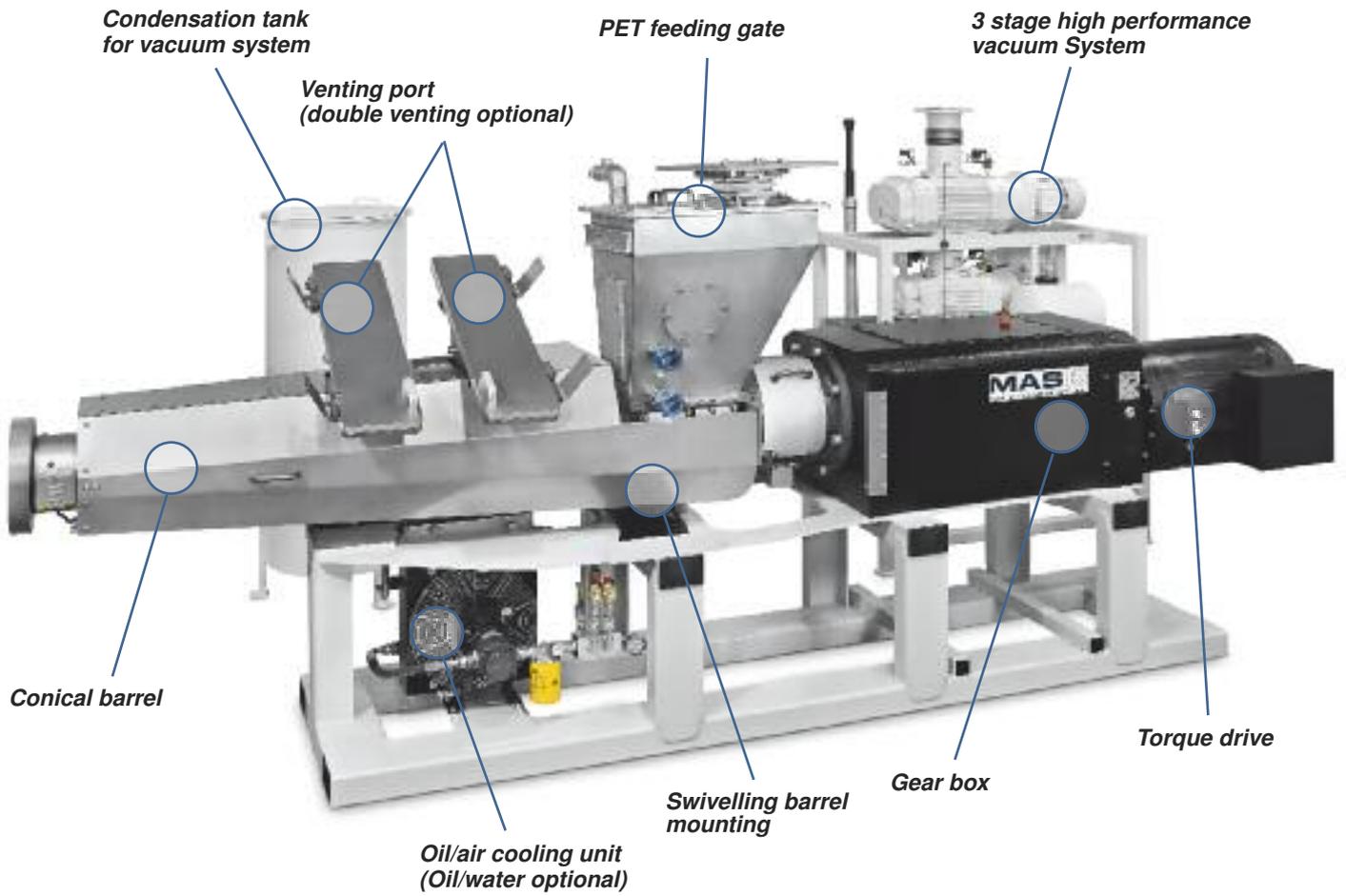
## *Reliable : Degassing*

The lowest possible input moisture levels are essential when processing PET, despite this, effective extruder venting is often required in order to achieve best possible IV results. The conical design of the MAS extruder offers a large degassing area, paired with extremely large screw surfaces. High performance degassing systems, providing vacuum <5mbar, in combination with sophisticated process monitoring ensures consistently high product quality. An additional venting, placed in the feeding section, can be supplied on request in order to remove moisture even before melting the material further enhancing the extruder's performance.

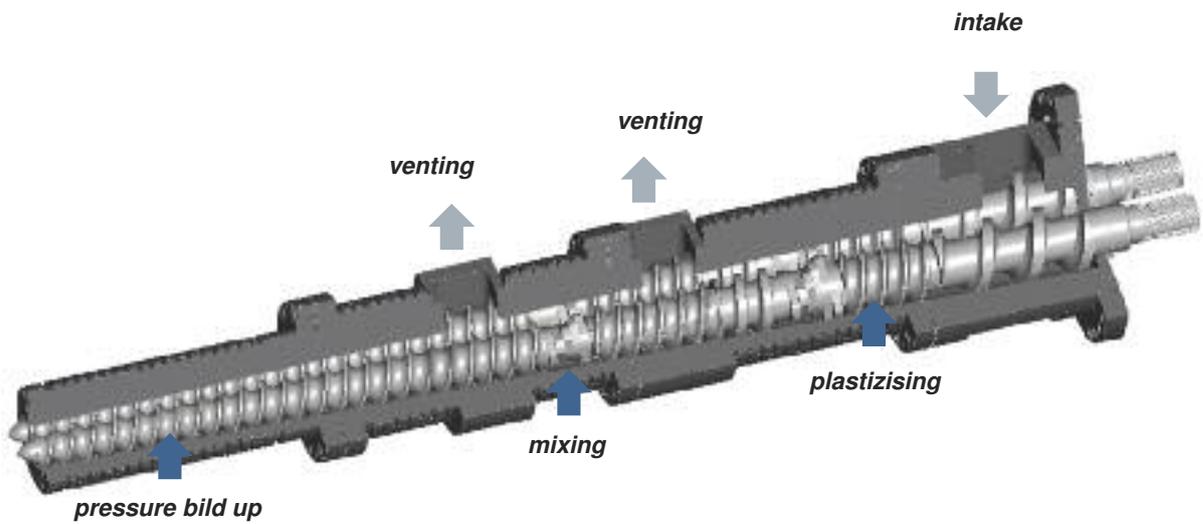
## *Individual : Configuration*

The extruder screw consists of a rear part and a front part. Each is manufactured from one piece and is available in different pitch and flight design. Tailor made mixing and shearing elements are placed in between rear and front part. The barrel zones are equipped with heating elements and an air or liquid cooling on request. The processing unit can be easily integrated into sheet lines. For pelletizing, the MAS extruder can be operated with or without melt pump.





*Barrel with venting (optional double venting)*



Schematic

## MAS Extruder built for reliable high performance.

### *Perfect : Mechanics*

Due to a robust mechanical engineering, MAS extruders have a particularly long service life and are easy to service. The conical design of the screw ensures minimal mechanical stress in the screw shaft, even at extremely high torques. The large intake zone centre-to-centre distances enable the use of maximum-sized drive shafts. The back-pressure bearings are also generously dimensioned. The compact design of the MAS extruder ensures a very small footprint.



### *Optimized : Performance*

Excellent process characteristics of MAS extruders are provided by the huge material intake volume and high overlapping of the screw flights. Due to the conical design of the processing unit, the intake volume is significantly bigger than the discharge volume, resulting in a very high screw fill level. The melting zone is specified by an exceptionally large inner/outer diameter ratio. Consequently, MAS extruders offer an outstanding homogenization and mixing performance. High discharge rates can therefore be achieved even at low screw speed, providing high melt pressures at low melt temperatures.

### *Robust : Material and design*

Premium quality steel, robust design and solid quality workmanship guarantee high availability and a long life time. Barrels and screws are designed for maximum wear-resistant: The barrels are made of tool steel or nitrided with the screws being hardened, tempered and nitrided. The screw land can also be equipped with anti-abrasion protection on request.



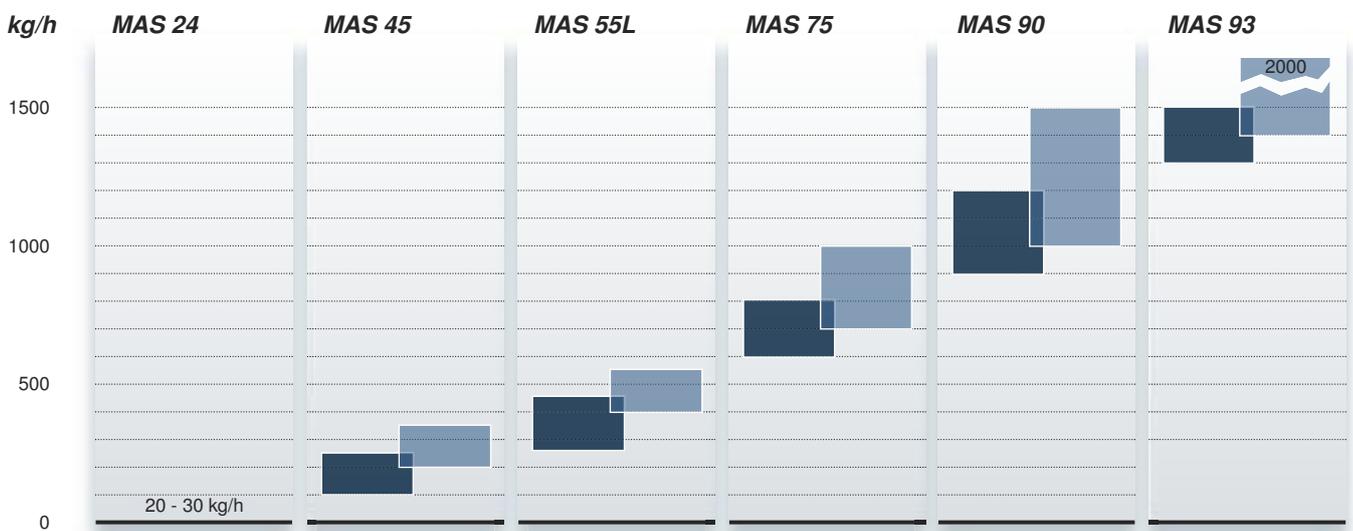
**MAS 75**  
(Example)





**Throughput data for washed bottle flake**

undried  dried and pre-heated 



Throughput rates are dependent on moisture content and material characteristics.

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