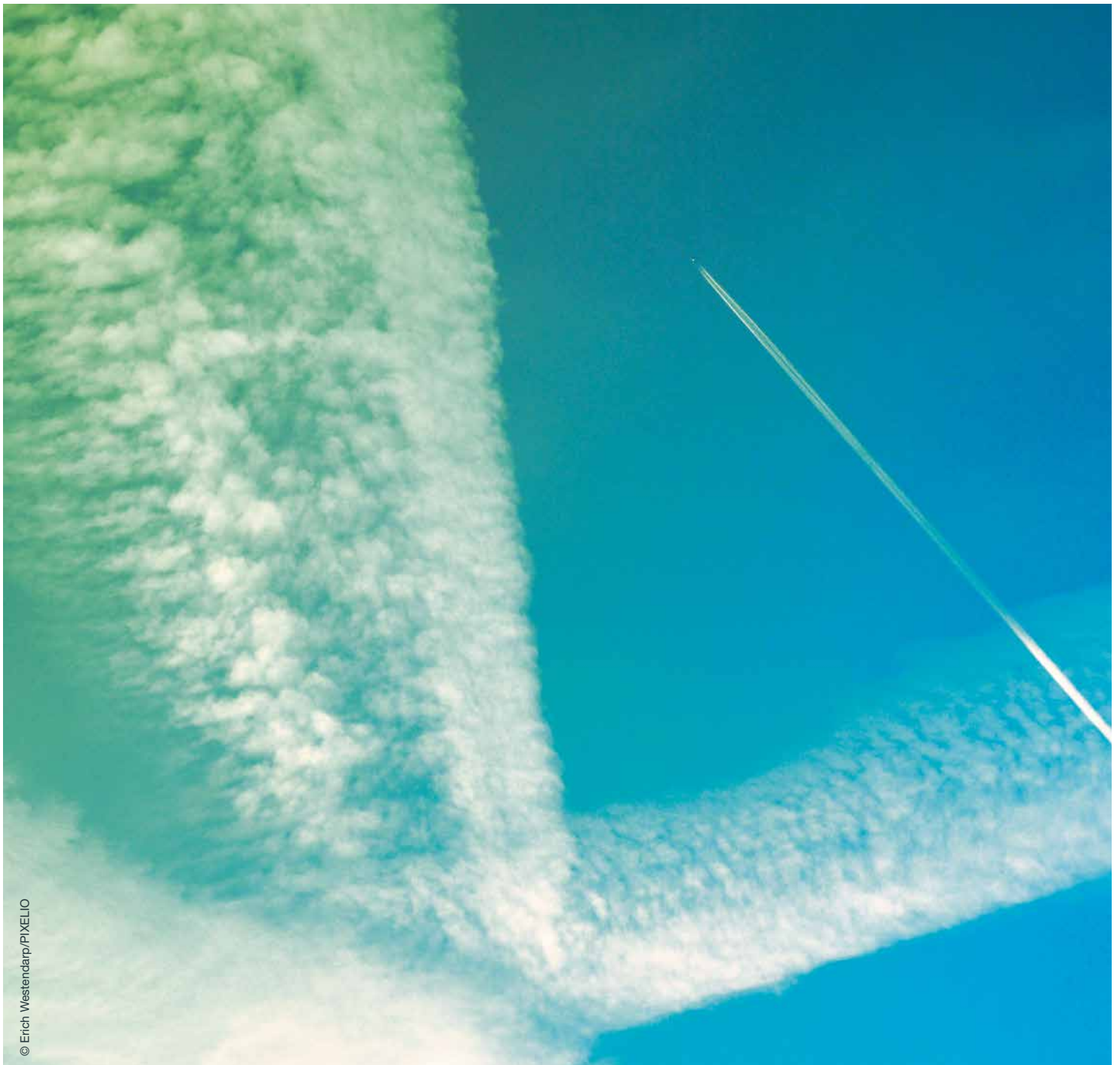


# SSP

**ProTec** Polymer  
Processing

Tumble Reactors for Solid-State Post-Condensation



# SSP



## New-Generation SSP Reactor

Polyamide and polyester pellets can be post-condensated in a solid-state polycondensation (SSP) reactor. The higher molecular weights achieved in this way give the materials the properties required for application in high-strength components, fibers, or filaments.

The materials refined in the reactor are used in particular to manufacture bottles and technical fibers. These are used for a range of applications such as optical fibers, tire cords, airbags, fiber composite materials, filter fabrics, fleece fabrics, and fishing nets.

The ProTec Polymer Processing tumble reactor used for this purpose has been completely revised and is now significantly more efficient.



## Discontinuous Batch Operation

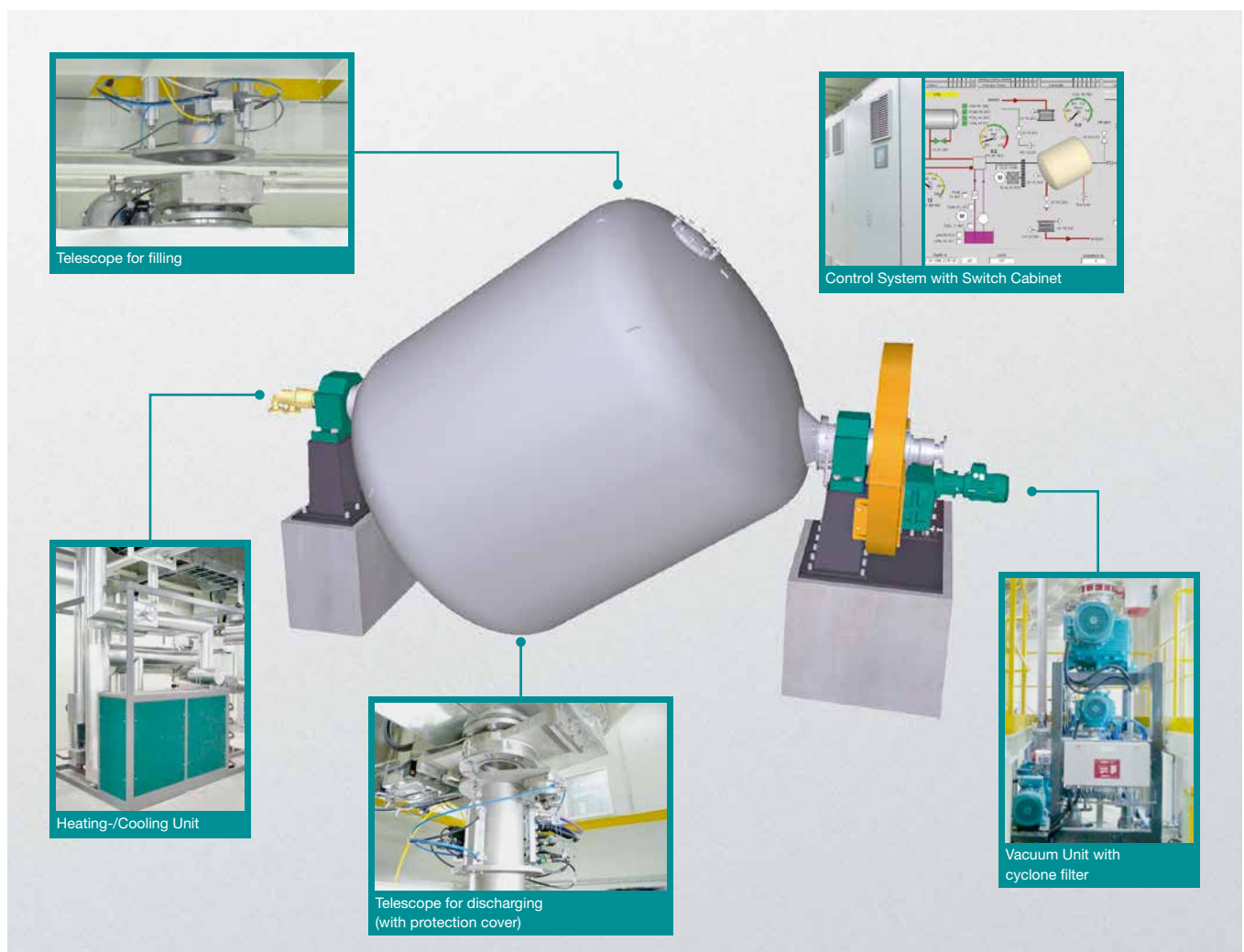
Our tumble reactor is a discontinuously operated batch reactor. Thanks to batch-based operation and the ability to control the reaction conditions such as temperature, vacuum,

and reactor residence time, the desired characteristics of the material can be selectively controlled in a reproducible manner.

## Key Advantages at a Glance

- Available in dimensions from 16 m<sup>3</sup> to 44 m<sup>3</sup>
- Lower energy consumption compared to double jacket reactors due to savings in heat transfer oil and reduced own weight
- Optimized volume/heating surface ratio as well as improved heat transfer in the heating system lead to shorter process times
- Optimized mixing effect ensures homogeneous product quality
- Reliable measurement of the product temperature
- Customer-specific design
- Turnkey process solution
- Gentle product treatment
- Production flexibility (individual adjustment of viscosity for each batch possible)
- Identical, reproducible product quality results even with fluctuating input quality

## The Complete System



## Introducing the System Modules

### Reactor

Our new-generation tumble reactor is equipped with a single-shell unit that is heated by an inside and outside pipe system. This delivers savings of steel and heat transfer oil, which significantly improve the reactor's energy efficiency.

In addition to more efficient and faster energy transfer, the heated pipe system installed inside the reactor ensures optimum mixing of the pellets and, therefore, homogeneous product characteristics.

### Heating/Cooling Unit

In the heating/cooling unit, the heat transfer oil is heated (electrically or by gas) at precisely definable heating rates before entering the reactor. The cooling process is controlled by an integrated heat exchanger.

### Vacuum Unit

This is an optimized 3-stage vacuum unit that guarantees a constant vacuum of  $\leq 1$  mbar. An upstream cyclone reliably separates substances to protect the vacuum unit.



### Control System with Switch Cabinet

The central control system enables both fully-automated operation (together with the telescopic tubes and exact positioning of the reactor) as well as complete, reliable control and monitoring of the process.

## About ProTec Polymer Processing

ProTec Polymer Processing GmbH is an international one-stop shop supplier to the plastics industry with a focus on injection molding, extrusion and blow molding. Its range of services covers components, solutions and turn-key systems for efficient

materials handling, treatment and recycling of plastics and for manufacturing long fiber reinforced thermoplastics using LFT pultrusion lines.

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