



Drawing on our long experience of working closely with the chemical industry, we offer unparalleled expertise in the cooling and solidification of melt products in general, and resins in particular.

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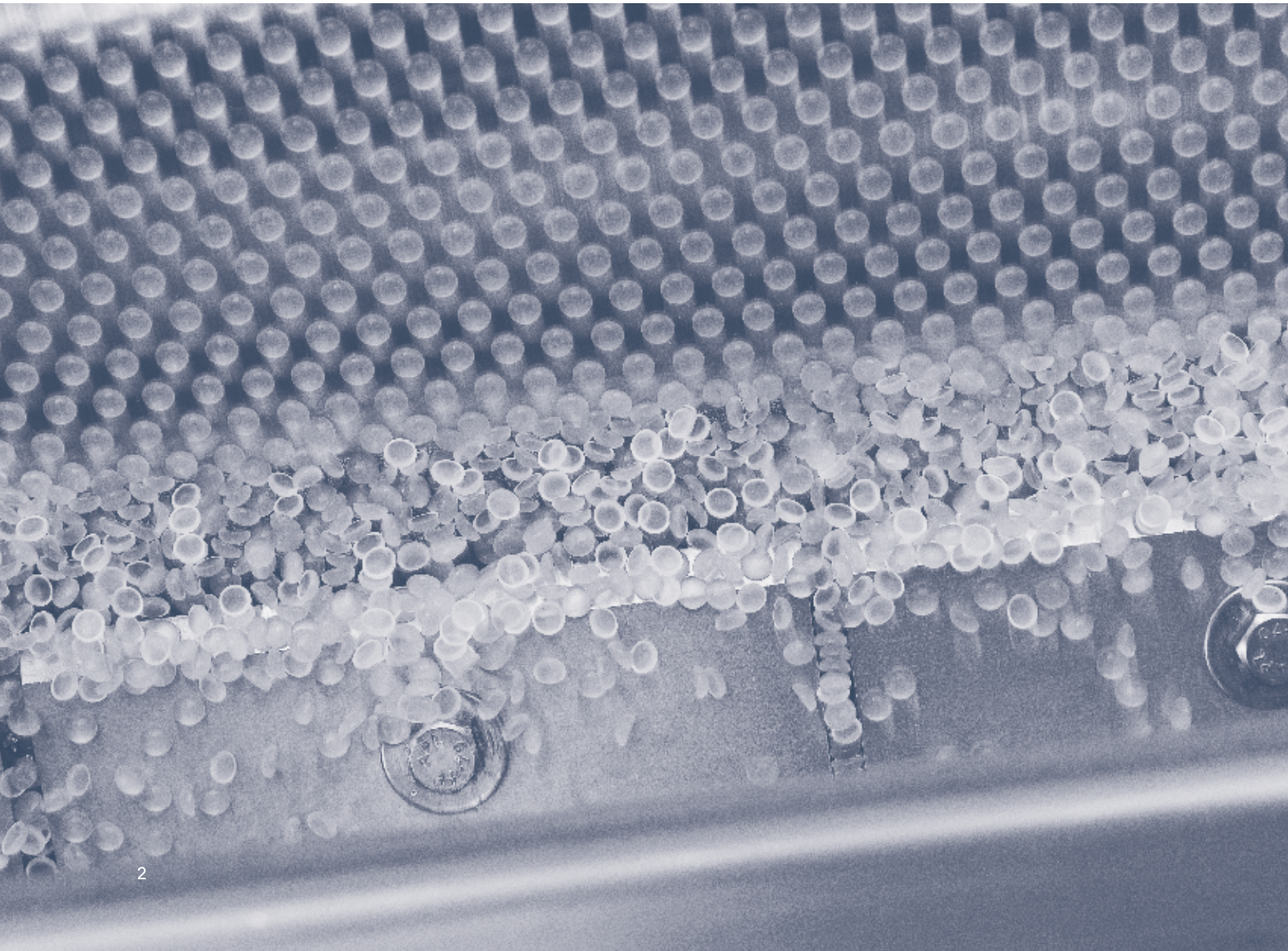
# —ROTOFORM— —PASTILLATION— —RESIN— —PRODUCTS—

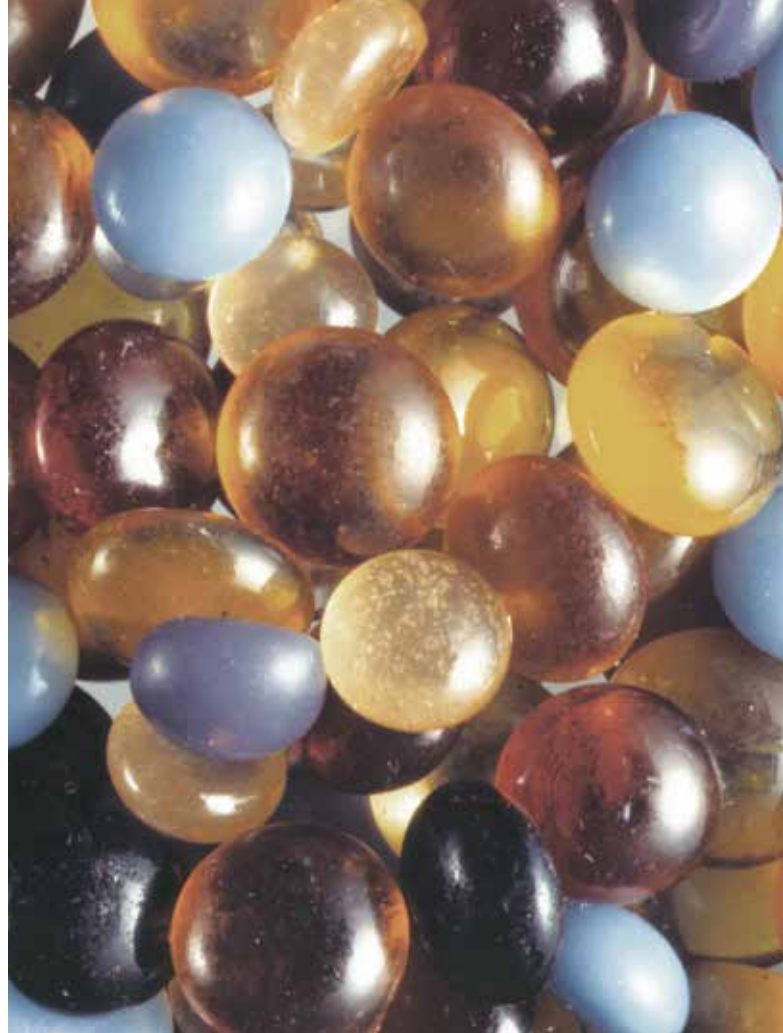




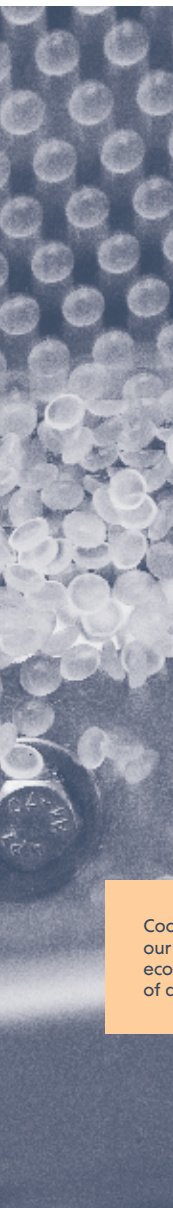
# — RESIN SOLIDIFICATION EXPERTISE BUILT ON DECADES OF EXPERIENCE

As a company whose relationship with the chemical industry extends back to first half of the last century, we are able to offer unparalleled experience in the cooling and solidification of melt products in general, and resins in particular.





Different kinds of resin pastilles after discharge from a steel belt.



We installed our first steel belt cooler for resin products in 1935 and have been developing innovative single and double belt granulation solutions ever since.

These include our flagship Rotoform system, capable of handling an exceptionally wide range of resins including high viscosity products (from 10–40 000 mPas), products with high feed temperatures (up to 300 °C), and those kinds of resins that require particular care in terms of temperature profiles achieved with zoned cooling.

Today we offer a choice of two granulation systems – flaking and pastillation – both based on the proven performance of our steel belt technology. These efficient and economical processes are suitable for all resin products (pure/modified, unfilled/with filling materials) including:

- Acrylic resin.
- Tall oil resin (colophony).
- Epoxy resin.
- Gum resin.
- Hydrocarbon resin.
- Phenolic resin (Novolake).
- Polyamide resin.
- Polyester resin.
- Silicone resin.
- Modified resins.

Cooling of resin droplets on a steel belt: our technology provides an efficient and economical solution to the solidification of all kinds of resins



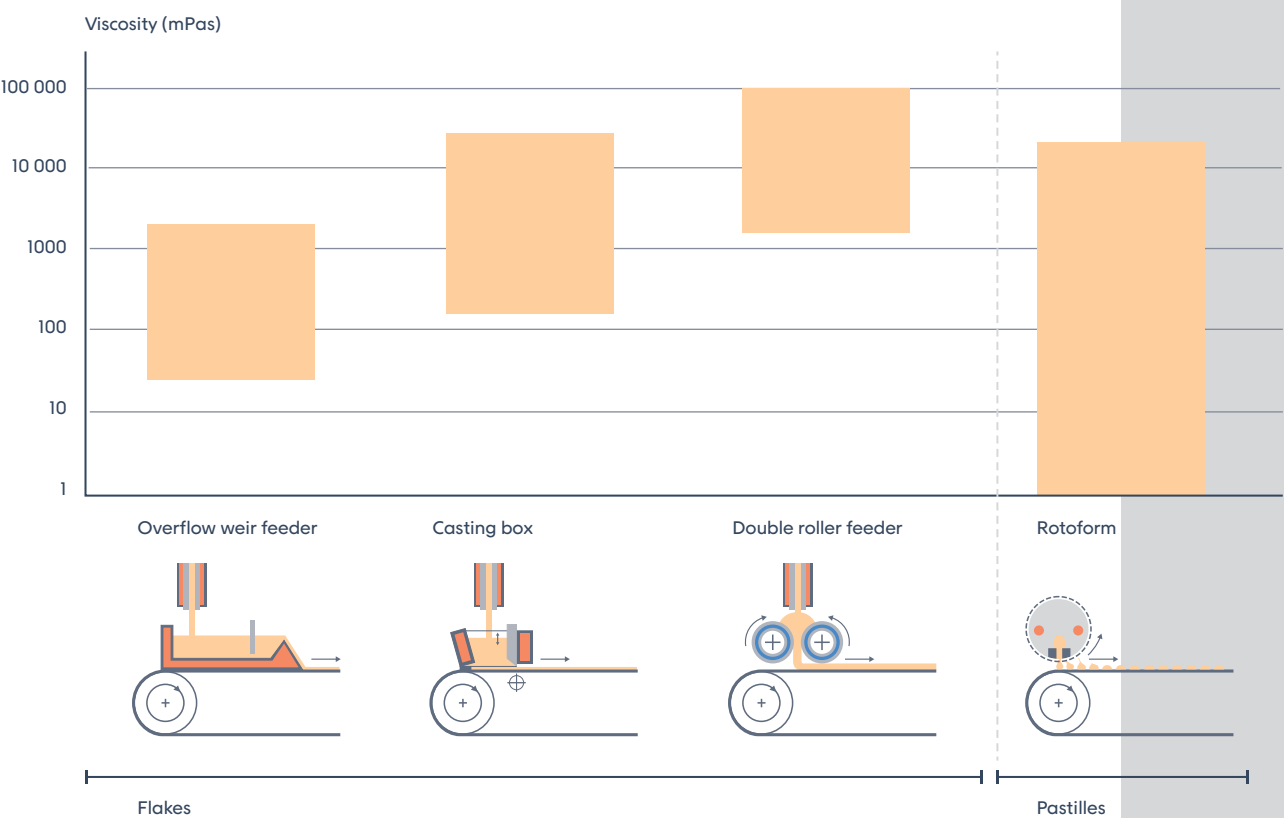
# Feeding devices to suit different product viscosities

We offer a range of feeding devices to process resins with very different viscosities. All are designed to minimize contact between the product and atmospheric oxygen and to ensure that no air bubbles are added, eliminating any risk of degradation of the resin in the feeding device.

The combination of a purpose designed feeding device, steel belt cooler and breaker equipment means that resin flakes can be produced economically on one plant. The use of rotary pin breakers with adjustable comb plates enables the production of small flakes.

The IPCO Rotoform process, also based on a steel belt cooler, can be used to produce free flowing pastilles with diameters from 2–12 mm from resin melts over a very wide viscosity range.

## Feeding devices



# Production of flakes on a single or double belt system

The molten resin is deposited on the steel belt as a single layer in a predefined, controllable thickness. Belt cooling removes the heat and the resin layer solidifies. At the end of the steel belt the solidified resin layer is discharged and reduced to flakes by means of a breaker. The breaker is individually designed according to resin type, the flake size required and the capacity of the plant.

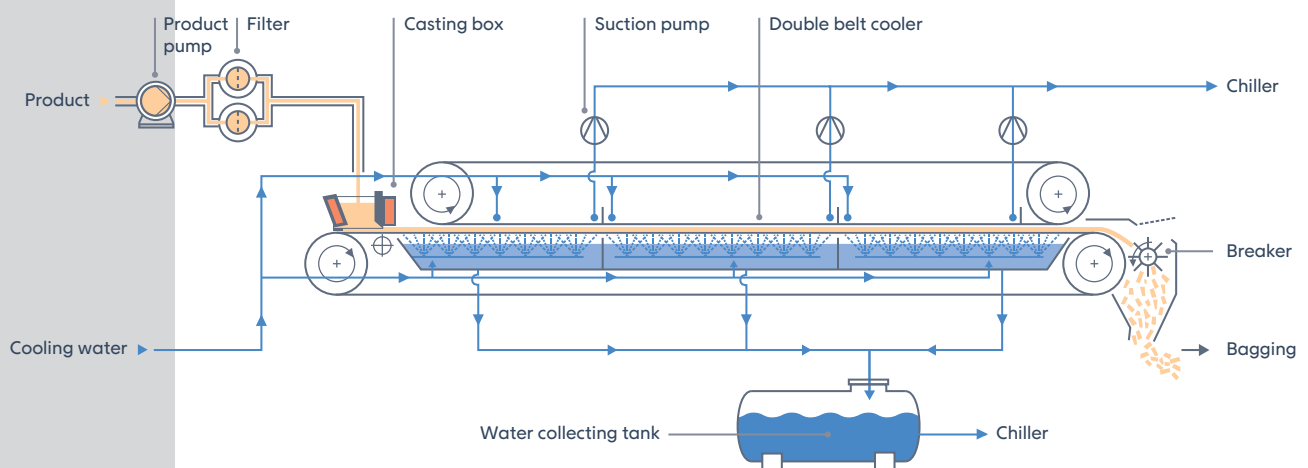
For high capacity operations, or where floor space is limited, we offer a double belt system in which the product is cooled from above as well as from below. In many installations, this type of system provides significant commercial advantage for base products that are handled in large volumes.

Furthermore, as some types of resin tend to curl away from a single belt unit, resulting in irregular cooling and loss of capacity, the double belt system can be used to handle these products more efficiently. It is also possible to cool thicker product layers to a uniform temperature over the whole cross section.

The double belt system also helps to reduce vapors and fumes and to keep them from the operating area.



**Double belt cooler for flakes**



# Rotoform – the market-leading granulation system for resins

Our Rotoform system has proved itself over many years to be the ideal process for the granulation of resins, delivering a superior quality end product regardless of the properties of the material being processed.

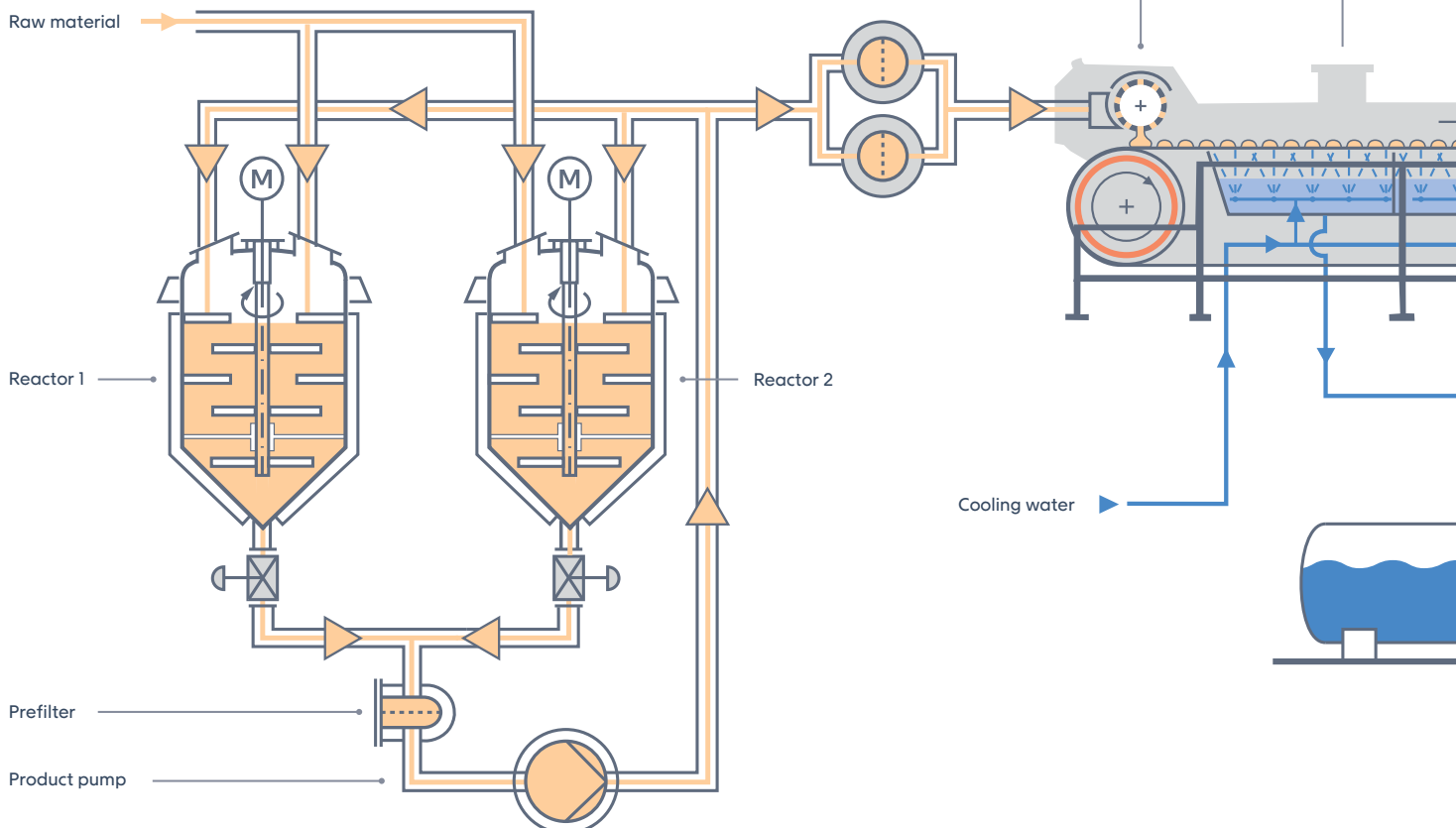
It is used for a wide range of resin types – for many it has become the standard processing solution – and offers a number of significant benefits:

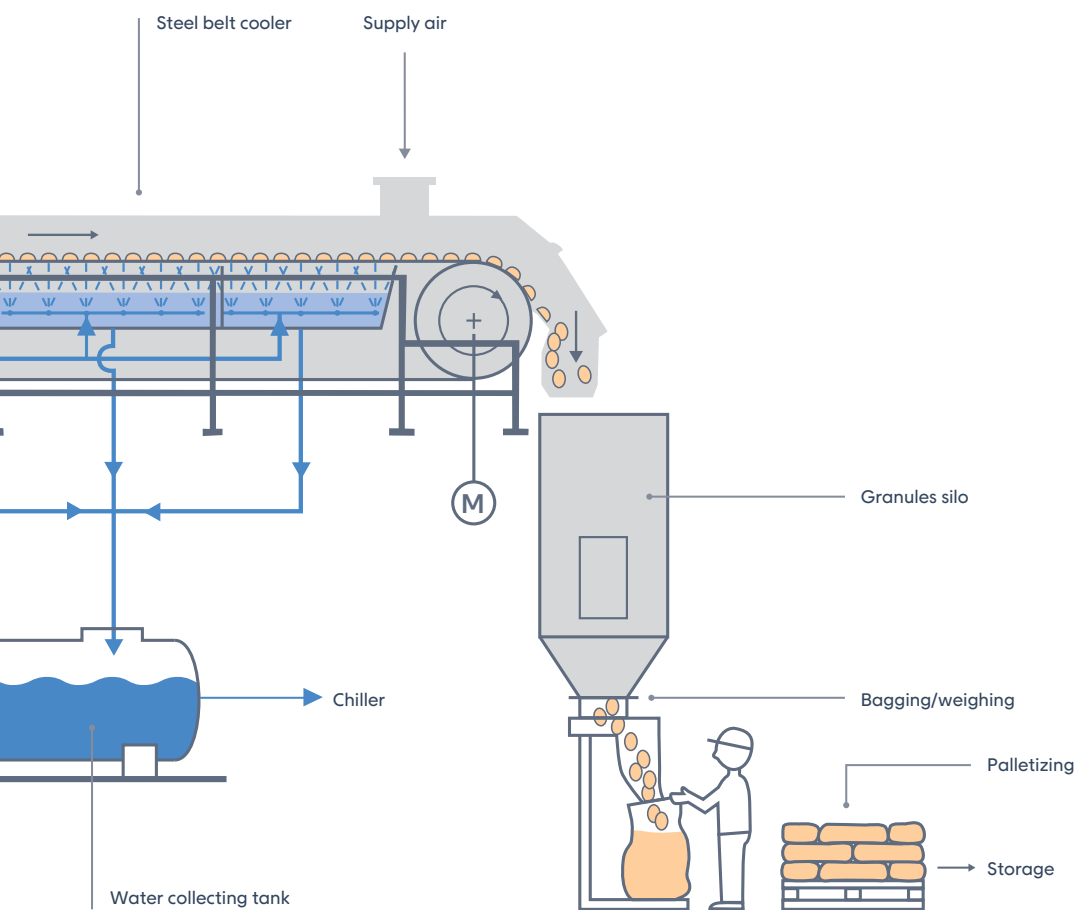
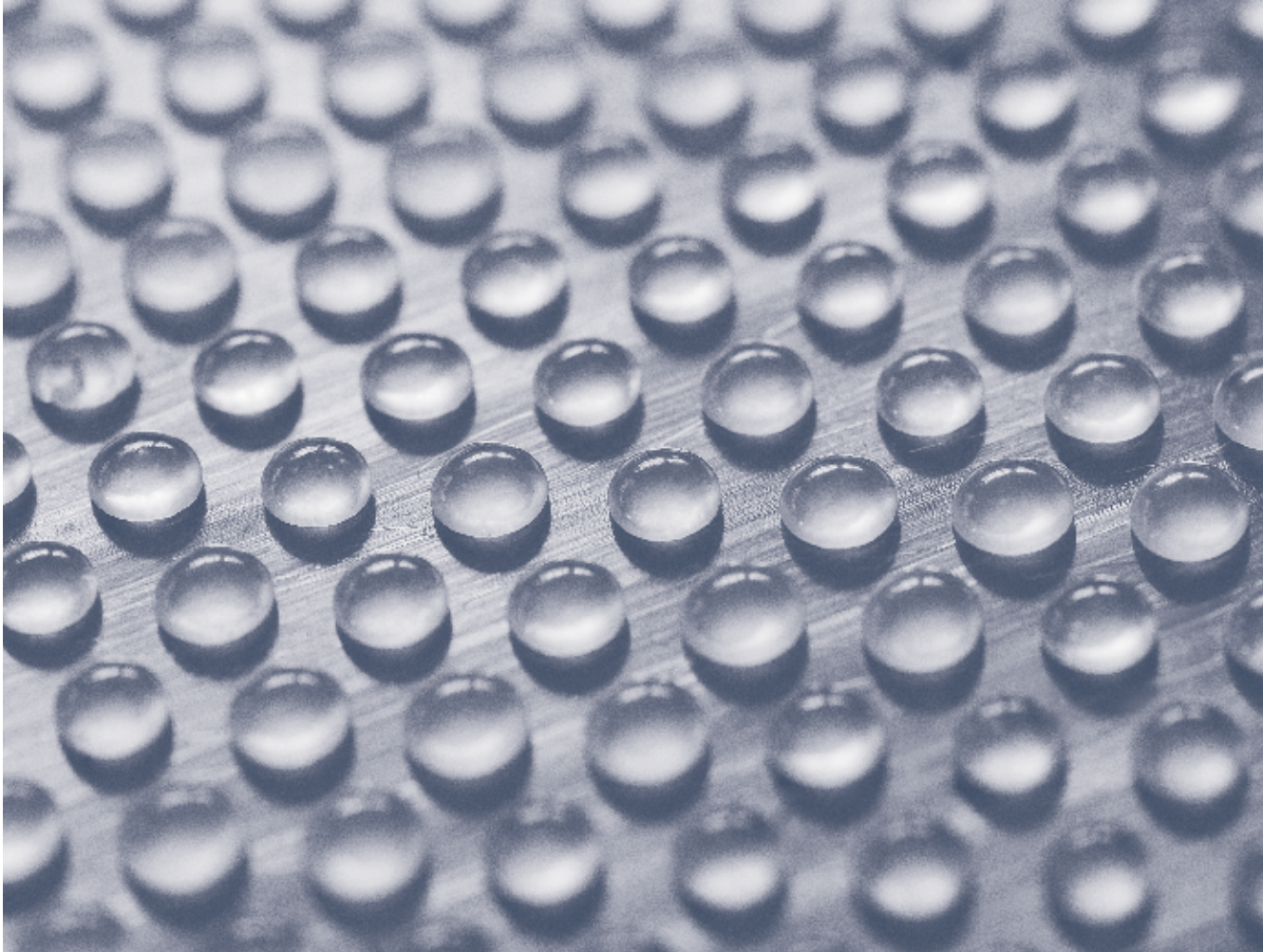
- Efficient cooling through good contact between resin and steel belt.
- Very wide product viscosity range (10–40 000 mPas).
- Very wide temperature range (feeding temperature up to 300 °C).

- Ability to process and solidify sticky and highly viscous resins.
- From melt to pastilles in one operation.
- Uniform, hemispherical granules – no need for breaking/grinding equipment.
- Environmentally friendly production – no exhaust air treatment required.
- Cooling water is recirculated – no consumption, no waste water.
- Easy changeover to different products or pastille sizes.

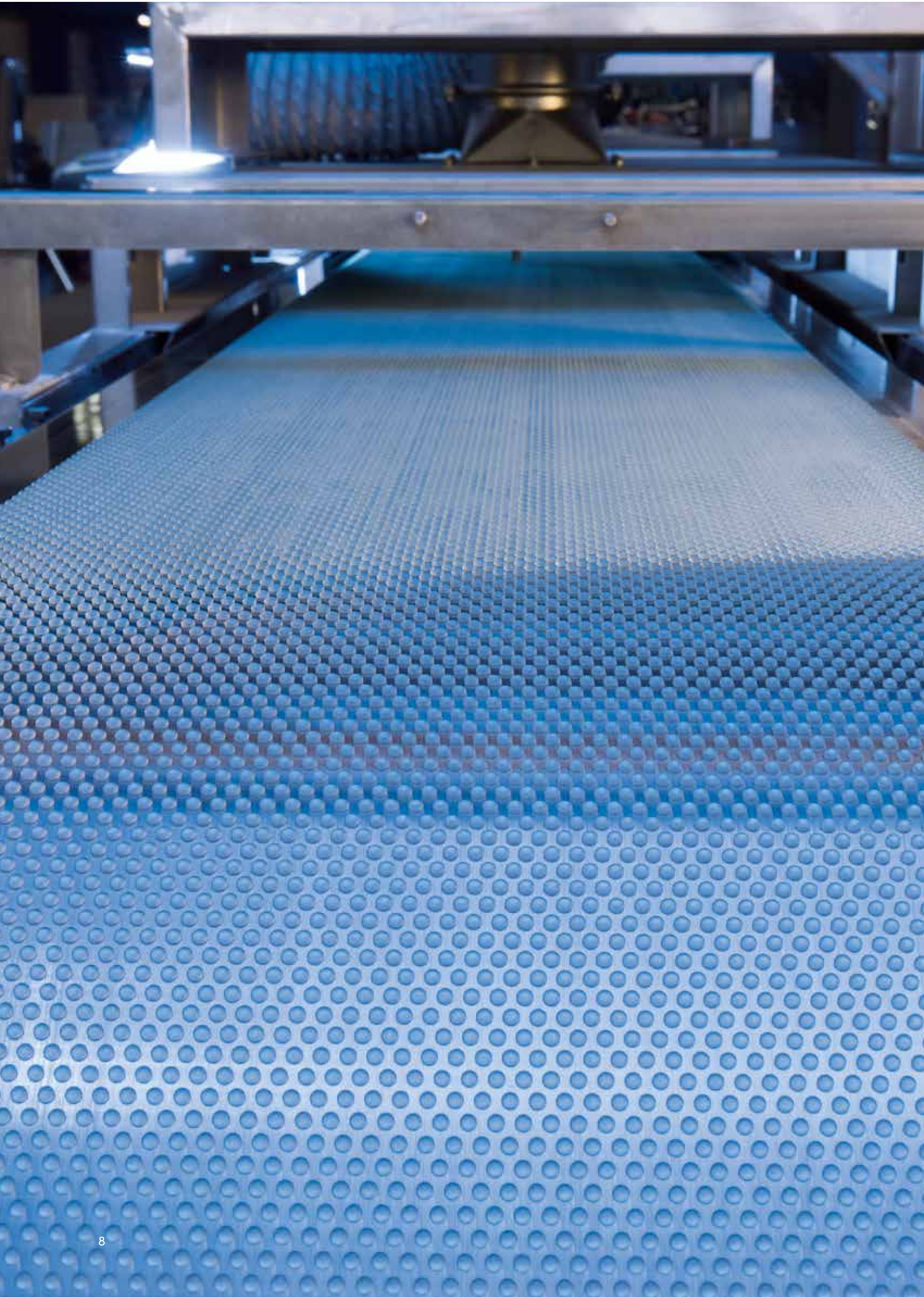


## Resin pastillation system













### Continuous, steel belt-based processing

The Rotoform consists of a heated, cylindrical stator and a perforated rotating shell that deposits drops of the molten product onto a continuously running steel belt. The speed of the Rotoform and steel belt is synchronized so the drops are deposited on the belt cleanly and without deformation.

As the steel belt carries the drops along the system, cold water is sprayed against the underside of the belt and heat is transferred, via the steel belt, from product to cooling water. And by the time the droplets reach the end of the system, they are solidified into hemispherical pastilles.

### Handling sensitive products

Our work with resin producers around the world has given us the experience to deliver process solutions for all kinds of resins, even the most difficult to handle.

Some products need particularly careful handling in terms of temperature profiles: too high a temperature for too long can result in product degradation.

Our experience and the accurate control over the cooling operation made possible by the Rotoform system – zoned cooling and a heated drum in the feed section are just two possibilities – means we can design and deliver processes to meet any need.

### High availability of plant

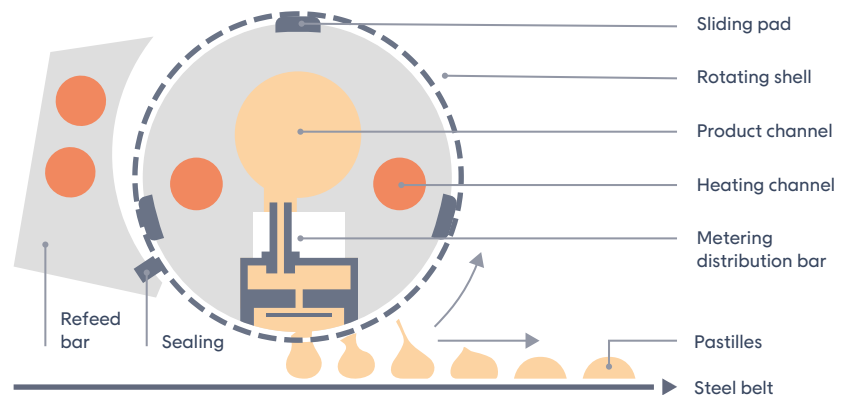
Another key advantage of a Rotoform granulation system is its ease of cleaning. The smooth surface of the steel belt is inherently easy to clean, while the Rotoform itself is designed for quick and efficient cleaning without the need for dismantling. This results in a high on-stream factor for more productive hours per year.

The savings in manpower and additional productivity gained by quick and easy cleaning can equate to an increase in capacity of as much as 30% compared with other systems.

### Complete process systems

Depending on the resin to be processed, components such as pumps, filters, piping and downstream handling equipment can be engineered for maximum performance. We can also design and supply complete, tailor-made installations including process control systems.

Rotoform process



Paraffin pastilles on a steel belt.

# IPCO service and support for complete peace of mind

Choose us as your partner supplier and you benefit not only from our expertise in the design and installation of chemical solidification and handling plant, but also from the reassurance of working with one of the world's most forward thinking engineering groups.

IPCO is a high-technology engineering business with advanced products and world-leading positions within selected areas.

We are able to offer the specialist skills and responsiveness of a medium-sized company, backed up by the strength and stability of a globally active company: the Swedish FAM AB group, owned by The Wallenberg Foundations.

## **Single source responsibility**

We can design, integrate and commission equipment for every stage of the process. From upstream preparation, filtering and delivery of chemical melts, through the solidification process itself, to downstream conveying, storage, and bagging.

We even manufacture our own steel belts to complete your customized Rotoform unit. We can also help you maximize productivity and achieve a faster ROI through:

- Operator training e.g. best practice, safety, problem solving.
- Maintenance training e.g. planned maintenance, in-house repairs.

- Process training e.g. optimizing system performance/product quality.
- Service support e.g. service agreements, spare parts.

Our systems are in use around the world – often in remote locations or challenging conditions – and we support them through a global service network. So wherever you're based, you can get the support you need from IPCO.

## **Pilot testing at our Productivity Center**

If you'd like to find out more about how we could help increase productivity, reliability and product quality at your operation, we'd be delighted to talk to you.

Or, if you'd like to put our systems to the test, we invite you to visit our Productivity Center in Germany where you can assess them in production conditions using your own products.









# — RESIN — — PRODUCTS — ROTOFORM — — PASTILLATION —