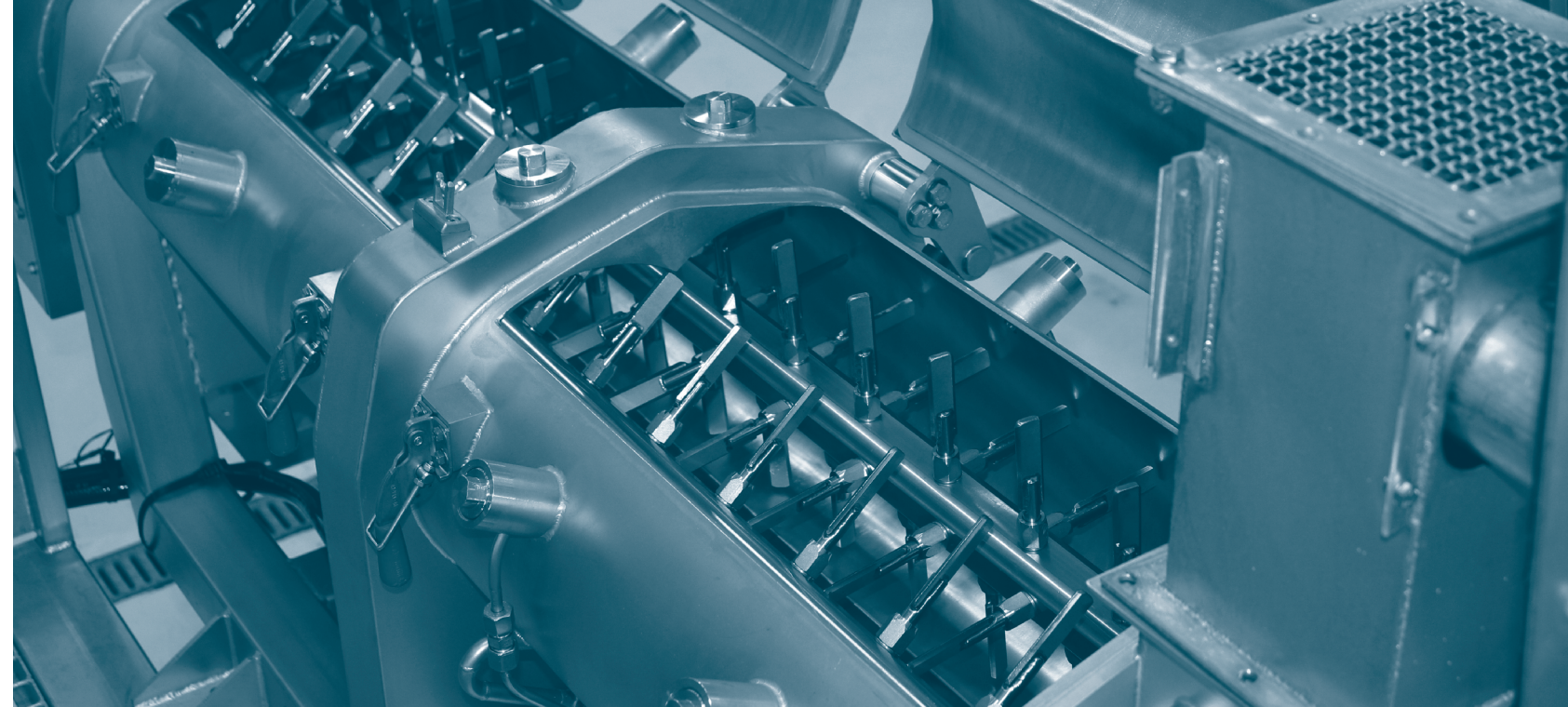


WORLDWIDE PRESENCE



HIGHLY FLEXIBLE & HYGIENIC DESIGN

PRECONDITIONER

WITH PATENTED AFC (ADVANCED FILLING CONTROL)

- INCREASED PROCESS FLEXIBILITY
- IMPROVED EFFICIENCY
- EASY CLEANING & MAINTENANCE

Leveraging its core expertise in twin-screw technology, Clextral provides its customers with turnkey processing lines that integrate extruders, dryers and ancillary equipment. Its reliable and innovative systems are quality and excellence benchmarks in its three key markets: Food & Feed, Green Industries and Powder Industries. Clextral is also designing and manufacturing high-precision industrial pumps for the energy and chemical markets. Its global offering includes upstream design and testing of industrial solutions, equipment manufacturing, on-site installation and full maintenance and continuous process improvement services. Based in Firminy (France), Clextral is present on all five continents, providing local support to its customers all over the World.



CLEXTRAL SAS

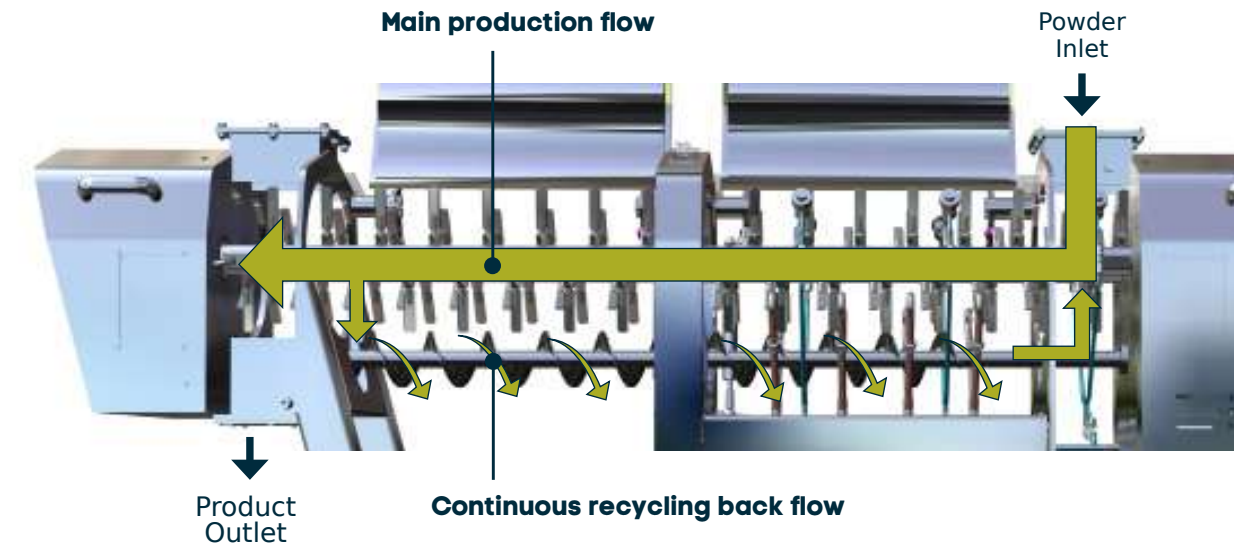
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KEY INNOVATION : PATENTED ADVANCED FILLING CONTROL (AFC)

The AFC is an exclusive conveying screw device that is positioned at the bottom of the tank. In production mode the screw rotates continuously against the main flow of the product enabling recycling of the material from the outlet to the entry point.



ENHANCED PROCESS FLEXIBILITY

The patented Advanced Filling Control (AFC) device considerably increases the filling ratio and residence time.

OPTIMIZED TANK FILLING

AFC generates precise product filling—particularly important in the first third of the mixing chamber, the preferential zone for steam injection.

QUICK RECIPE CHANGEOVER

Thanks to the AFC's reversible conveyance screw, the tank can be quickly emptied

NEW PRECONDITIONER+

PROCESS FLEXIBILITY AND IMPROVED EFFICIENCY

The Preconditioner+ offers major technological advances that are designed to increase the capacity of existing twin and single screw extruders and respond to process requirements:

- **Increased process flexibility** : residence time adjustment (AFC)
- **Improved efficiency** : higher temperature and improved precooking (gelatinization)
- **Easy cleaning & maintenance** : robust construction with easy access, hygienic design

The Preconditioner+ is equipped with two horizontal intermeshing shafts that operate in counter-rotating motion to efficiently blend the raw materials. The action of the shafts is augmented by adjustable paddles that work in combination with the AFC device (Advanced Filling Control) to optimize the product flow.

The AFC device controls the filling rate via an independent, variable speed motor.

CAPACITIES & RANGES

From 75L to 4500L
From 100 to 23 000 kg/h
(dry mix product)

ADVANCED FILLING CONTROL (AFC)
Exclusive reversible conveying screw at the bottom of the tank

CLEAN & ROBUST DESIGN

Simplified cleaning capabilities

HYGIENIC DESIGN :

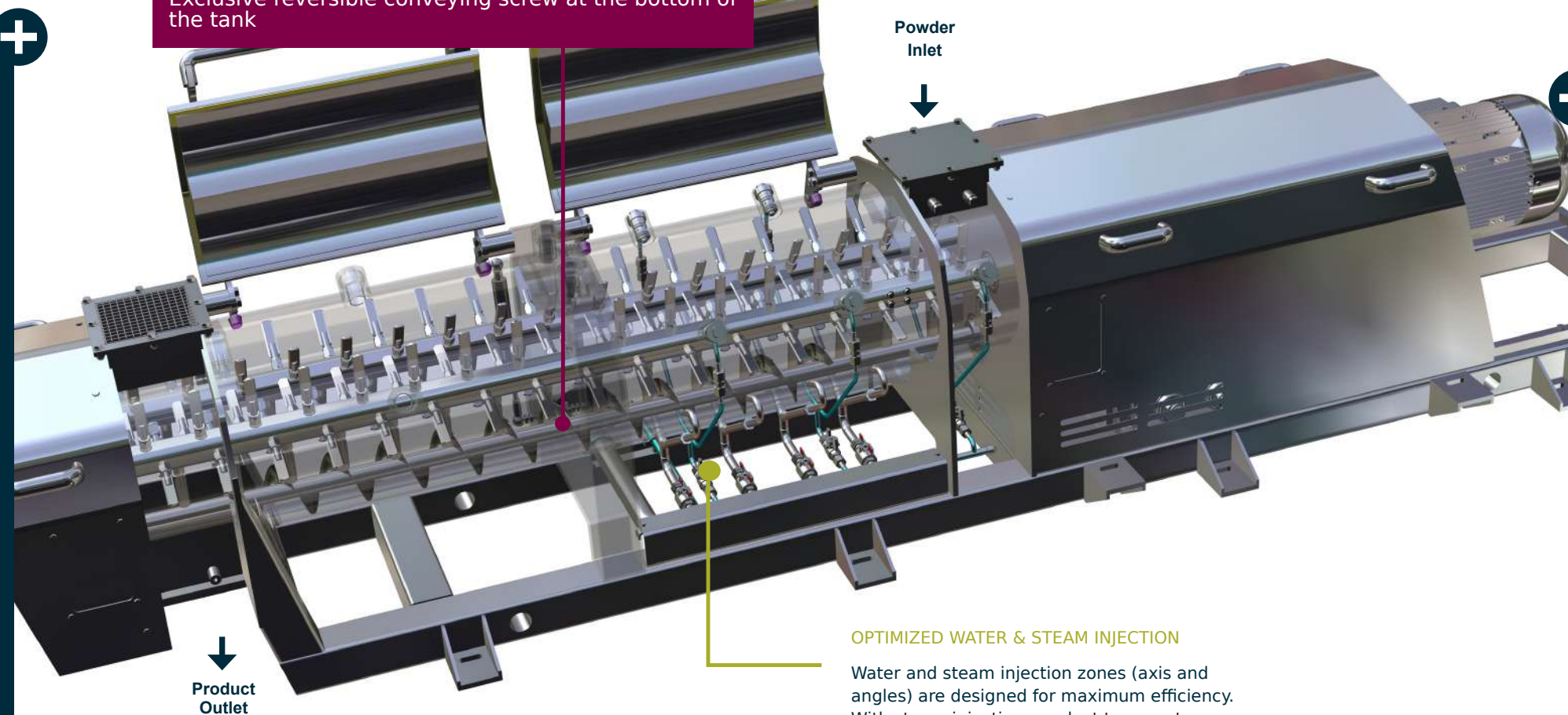
The Preconditioner+ has stainless steel construction and a hygienic design with minimum retention areas to ensure easy access and cleaning.

QUICK CLEANOUT :

In the discharge mode, the reversible AFC device operates as a conveyance screw to allow the entire line to be emptied in less than 2 minutes.

ROBUST DESIGN :

Powerful motors and drives ensure consistent, long-term performance. Specified for high filling ratios, the motors offer reliable restart even with a full tank after prolonged downtime.



OPTIMIZED WATER & STEAM INJECTION

Water and steam injection zones (axis and angles) are designed for maximum efficiency. With steam injection, product temperatures over 96°C can be achieved.

IMPROVED EFFICIENCY HIGHER TEMPERATURE & IMPROVED PRECOOKING

The **longer residence time** intensifies the pretreatment of the raw material: preheating, premoistening, pregelatinization.

Adjustable water and steam injection points are positioned to increase product exposure and enhance absorption during the mixing stage.

The new design can achieve product temperatures of over 96°C with optimized steam injection while limiting energy loss.

Improvements in the precooking stage result in a significant increase in starch gelatinization before the product enters the extruder.