

Roller Feeder for dry coating in battery manufacturing

The Coperion K-Tron Loss-in-Weight Roller Feeder is a unique new gravimetric solution designed for continuous feeding of dry electrode coating powder blends directly into the calender in electrode manufacturing. The blends typically include active materials (anode or cathode) as well as conductive and binder additives, including PTFE.

Ideal for laboratory and pilot production environments, the feeder is mounted on robust load cells utilizing high-accuracy SFT weighing technology. The system features two replaceable rollers housed within a compact enclosure. The innovative dual roller design, with its dynamic feeding gap, ensures gentle material handling while preventing bridging. This guarantees uniform and consistent material application across a coating width adjustable up to 400 mm.

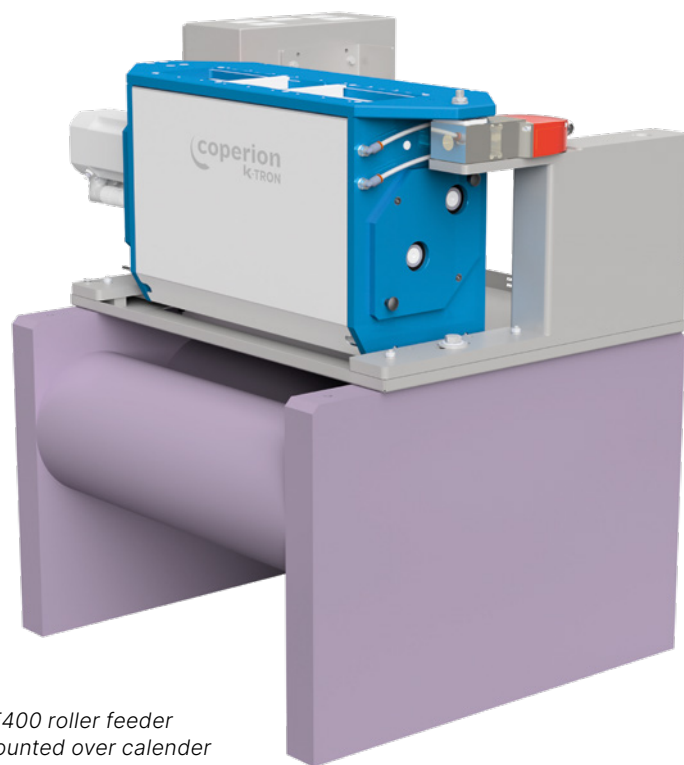
The design promotes process stability and repeatable results, which is essential for optimizing and scaling the electrode production process to achieve high-quality results.

Ideal for dry coating processes

The roller feeder was designed specifically for dry coating processes that eliminate solvents and energy-intensive drying steps. It is engineered to promote a more economical and efficient process by ensuring consistent mass distribution and reducing scrap material.

The RF400 utilizes advanced roller technology to ensure a consistent and uniform supply of electrode materials, minimizing variations that can lead to production inefficiencies. Designed with user-friendly controls and adjustable settings, the RF400 allows operators to easily customize feed rates, accommodating a wide range of anode and cathode formulations.

Constructed for durability and reliability, the roller feeder handles challenging powder blends with ease. As part of an integrated manufacturing solution, the loss-in-weight roller feeder enhances process automation, material utilization, and overall productivity in cutting-edge battery production lines.



RF400 roller feeder
mounted over calender



Features and Benefits

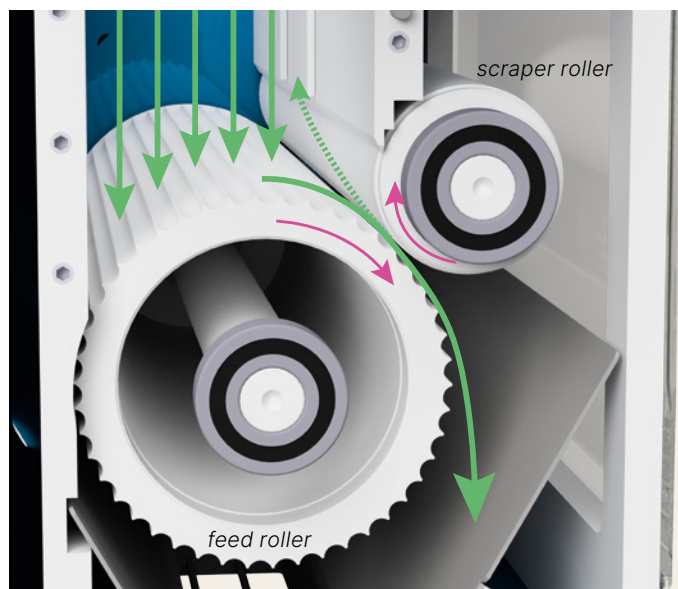
- Uniform and consistent material distribution
- Highly accurate feeding
- Gentle material handling
- Adjustable coating width, up to 400 mm
- Less material waste
- Improved overall production efficiency
- Compact design
- State-of-the-art KCM-III controls

Collaborative development

Developed as part of a research and development project at the University of Braunschweig in Germany (ProLIT) in collaboration with industry partners, with the goal of developing a method of depositing a consistent sheet of battery active material into the gap between calender rolls in order to create a thin film of material for use in electrodes.

Innovative design for precise active coating material delivery

This innovative roller feeder offers precise delivery of active coating materials, effectively handling challenging powder blends commonly encountered in electrode production. The roller feeder features advanced weighing technology that provides real-time measurements of material weight, allowing for precise control of material feed rates and minimizing variability. The gentle, controlled feeding action helps prevent material bridging and segregation, which promotes uniform coating and consistent layer thickness. By maintaining a steady and accurate material supply, the feeder optimizes process efficiency, helping to reduce material waste. Its robust design is ideal for continuous production, which is essential for high-volume, cost-effective battery manufacturing.

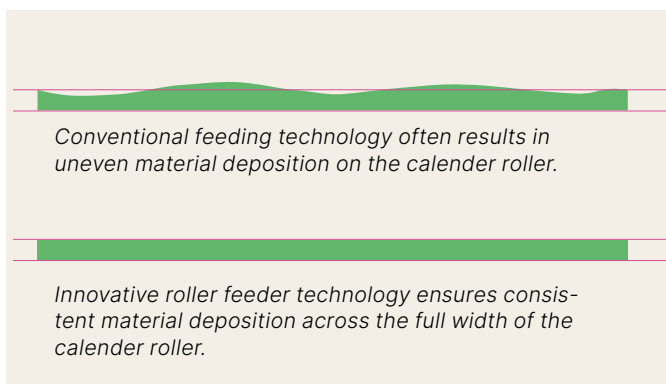


Unique new technology

Instead of traditional screws or vibratory trays, the roller feeder features two replaceable rollers to feed material into the calender below.

The wide inlet allows materials with challenging properties to fill the grooved feed roller uniformly across the entire width of the feeding area. The grooves in the feed roller scoop up the material and carry it toward the outlet. This action promotes active feeding of difficult materials while maintaining gentle handling through low energy input.

The smooth scraper roller allows only a regulated amount of material to pass through the discharge gap to be dropped to the calender below, and gently moves excess material back into the inlet area above. This prevents bridging of material at the outlet and avoids blockage of the discharge gap.



Consistent and uniform material deposition

The roller feeder evenly deposits material across the full width of the feeding area, ensuring a consistent layer of material is applied to the calender below. Uniform deposition is key to ensuring even compaction across the full width of the material film produced by the calender.



High accuracy feeding

Weighing performance is a combination of scale resolution, sophisticated filters, weighing speed and response time of the controller. The roller feeder features Smart Force Transducer (SFT) weighing technology and proven KCM-III controls, ensuring unparalleled accuracy and reliability in material handling. This combination allows for real-time monitoring and adjustments, allowing manufacturers to maintain precise feed rates and adapt to varying material characteristics.

Headquarters

Coperion GmbH | Theodorstrasse 10 | 70469 Stuttgart, Germany
info@coperion.com | coperion.com

Find your nearest
Coperion location

