

The Coperion and Coperion K-Tron Test Centers. Helping you optimize your processes.





>> Discover our test center capabilities for advanced testing of your processes. In addition to our simulation and scale-up expertise, we have excellent facilities for extensive testing and further process development under realistic production conditions. This way we are able to optimally design your processing systems with state-of-the-art technology.

Coperion and Coperion K-Tron provide test centers for feeding and extrusion applications, components and conveying systems. These test centers are the ideal platform for advanced testing of any challenge in a production plant, such as product behavior, new formulations and throughput rates. They support the determination of the ideal equipment configuration for an

application as well as the development of first-class designs for processing systems under realistic production conditions, while also further enhancing our existing technology through internal testing. Some of our test centers also feature laboratories, where our engineers have access to numerous analysis options to evaluate product quality and characteristics.











>> Test Labs for Compounding & Extrusion

Coperion has the world's most extensive test labs for compounding and extrusion systems. The modular design of the twin screw extruders permits them to be set up specifically for each test. Depending on the processing task, the latest Coperion and Coperion K-Tron developments such as the Feed Enhancement Technology FET, twin screw side devolatilization

units ZS-EG or Coperion K-Tron Bulk Solid Activator ActiFlow $^{\text{\tiny M}}$ and Electronic Pressure Compensation EPC are integrated into the test set-up. This allows processes with throughput rates from just a few kg/h up to a medium production scale to be developed or optimized. The Coperion experts convert the test results to production scale with proven scale-up methods.

KEY BENEFITS

- > A total of 30 extrusion systems permanently available for testing – from laboratory extruder ZSK 18 MEGAlab to ZSK 70
- >Throughputs ranging from 1 kg/h to 2 t/h
- > Various ingredient feeder configurations for optimal feeding to the extruder
- > Comprehensive auxiliary equipment for conveying and pelletizing
- > Specially equipped test lab for devolatilization tests in Stuttgart, Germany
- > Laboratories for real-time analyses of product quality
- > Simulation programs for calculating melt flow, optimizing processes and designing individual components

- >Stuttgart, Germany
- >Sewell, New Jersey, USA
- > Nanjing, China



>> Test Centers for Material Handling

The Coperion and Coperion K-Tron test centers for material handling are some of the most advanced facilities in the world for studying bulk solids handling and processing. They are the experimental foundation on which future applications in production plants, such as the properties of new bulk materials and optimal conveying modes can be tested. The test

centers provide excellent facilities for an extensive range of tests, starting with laboratory analyses through to trials on an industrial scale across all process stages. Our continuous development work produces innovations which secure our technological leadership.

KEY BENEFITS

- > Broad variety of conveying systems for testing bulk material handling characteristics - from dilute phase to dense phase, with and without bypass system, hydraulic conveying and many more
- > More than 2,000 m [6,562 ft] in total of conveying line for trials
- > Above 300 t/h [661.300 lb/h] conveying capacity
- > Affiliated laboratories for immediate analysis of the trial results
- Database with over 15,000 bulk materials samples
- > Development of in-house test equipment and simulations
- > Numerous tests of material handling processes, like heating, cooling, drying, blending, mixing, elutriating etc.
- > Attrition tests
- > Tests and evaluation for silo design

- > Weingarten, Germany
- >Kansas State University Bulk Solids Innovation Center in Salina, Kansas, USA



>> Test Labs for Feeding & Conveying

Coperion K-Tron conducts tests with process materials to answer critical process questions and determine the best configuration of the feeding or conveying equipment. We have developed a vast body of expertise and a wide range of feeding and conveying technology options to address the multitude of challenges that can arise for process operations involving bulk material (solid or liquid). Your equipment selection – and the success of your application – will be greatly influenced by the specific characteristics of the materials you must feed or convey, the recipe precision needed for your process and the throughput required.

KEY BENEFITS

- > Wide range of feeding equipment available: volumetric feeders, gravimetric feeders and weigh belt feeders as well as low-rate micro-ingredient feeders
- > Feeding tests: accuracy measurements in the requested feed range, optimization of the feeder configuration, evaluation of process safety, long term testing of feeding systems
- >Several conveying systems for dilute phase and dense phase conveying
- >Bin design and selection of flow aid devices
- > Analyses available of Return on Investment (ROI) based upon optimal feeder accuracy and ingredient costs

- > Niederlenz, Switzerland
- > Sewell, New Jersey, USA
- >Shanghai, China



>> Test Centers for Food, Pet Food, Pharma Processes

To meet the requirements of the food and pet food industry, Coperion and Coperion K-Tron have equipped their test centers with relevant technologies. In addition, these labs can also handle a wide variety of pharmaceutical materials in a non GMP environment, dependent upon review of the material handling

requirements. Due to these capabilities, the test centers can handle advanced testing of challenging food, pet food and pharma applications, such as various process set-ups, product behavior and new formulations.

FEEDING & EXTRUSION

- > The test center in Stuttgart comprises a room specially equipped for food, pet food and even certain pharma requirements
- >A total of 30 extrusion systems permanently available for testing – from laboratory extruder ZSK 18 MEGAlab to ZSK 70
- > Wide range of auxiliary equipment available: volumetric feeders, gravimetric feeders, weigh belt feeders, low-rate micro-ingredient feeders, pelletizing systems, etc.

COMPONENTS & CONVEYING

- > Several conveying systems including various versions of dilute phase and dense phase conveying
- > More than 50 conveying and separating systems for testing bulk solid properties, such as flow functions, conveying factors, filtration data, wall friction, time and moisture affects, particle shape, size and critical dimensions

LOCATIONS

- >Stuttgart, Germany >Sev
- > Sewell, New Jersey, USA
- > Niederlenz, Switzerland
- > Nanjing & Shanghai, China

- > Weingarten, Germany
- > Salina, Kansas, USA
- > Niederlenz, Switzerland
- > Shanghai, China

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