Since its founding in 1906, Claudius Peters has become one of the world’s most respected engineering houses and an innovative world leader. Its German engineering excellence continues to set benchmarks for the design, manufacture and commissioning of materials handling and processing systems for the coal, steel, gypsum, cement, alumina and bulk-handling industries.

From conception and installation through to commissioning and after-sales support, Claudius Peters provides world-class service to the world’s biggest pulverized coal producers.

The company is part of the Claudius Peters Group GmbH, headquartered in Buxtehude near Hamburg, Germany, with regional offices in the Americas, Asia and Europe.
Technikum

Standing as a true leader within the grinding industry, Claudius Peters is able to engineer tailor-made solutions that meet any desired product qualities and system performance requirements.

Claudius Peters continues to remain at the forefront of materials handling and processing technology by maintaining a vigorous research, development and test program at the headquarters’ Technikum (Technical Center) in Germany. Trial and testing facilities ensure that every new application is fully evaluated before proceeding to full-scale plant.

Specific technologies include:
- Tailor-made grinding systems
- Pneumatic conveying of the ground material
- Development and testing of new processes
EM Mill

The Claudius Peters EM Mill is the preferred grinding and drying technology for the production of pulverized bulk materials such as coal and petcoke, metal ores and other brittle minerals.

At the heart of its grinding system is the EM Mill, bringing the functions of grinding, drying and classifying together into one compact unit.

The Claudius Peters EM Mill produces highly uniform product quality with the fully automated control system managing the complete production cycle from start up to shut down.

Unlike traditional stationary milling rollers, the Claudius Peters EM Mill contains grinding balls which move freely, like giant ball bearings, between the grinding rings.
Safe operation
In continuous operation, a material bed forms between these balls and the grinding ring but when the mill shuts down the bed subsides and the balls sweep away the remaining material from the milling track. This is an important safety feature when grinding combustibles, for example coal.

Discharge of rejects
The EM Mill’s durable grinding system can withstand oversized particles without having to stop. Any shock force resulting from the balls moving over these obstacles is completely absorbed by the tensioning springs. The grinding balls automatically reject any foreign particle off the grinding track, they fall through the nozzle ring to the chamber below, and the scraper conveys them to the reject box. The reject box can be opened and inspected while the mill is in operation.

Achieving ever greater reliability and energy efficiency

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<th>EM Mill:</th>
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<td>Simple operation and maintenance</td>
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<td>Highest availability</td>
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<td>Maintenance free grinding elements</td>
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<td>Constant product quality</td>
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<td>No bearings inside mill</td>
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<td>Optimal performance with inlet temperatures of up to 650°C</td>
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<td>Highest lifetime of grinding elements</td>
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<td>Ultrafine grinding with optional dynamic classifier</td>
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<td>Simple integration of other Claudius Peters equipment to provide maximum flexibility</td>
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Capacity range for EM Mills.
Consistent mill performance
Constant movement ensures that the grinding balls maintain their perfectly spherical shape through the entire service life of the grinding set, delivering consistent mill performance throughout the grinding element’s life cycle.

This movement also provides the most even distribution of fine particles into the upcoming hot gas stream, leading to a uniform charging of the classifier on top of the machine. This ensures a maximum product quality and stability by either a static or dynamic classifier.

Robust design and easy maintenance
The robust design with no bearings or lubrication points inside the grinding zone, permits the highest hot gas temperatures for achieving the optimum drying conditions.

Unlike many other mills, the EM-Mill’s grinding elements function maintenance free. Additional costs and downtime for sealing, lubrication, oil changes and replacement of internal bearings are not required. Adjustments of internal features after e.g. a product change are also not required.

The robust design with no bearings or lubrication points inside the grinding zone, permits the highest hot gas temperatures for achieving the optimum drying conditions.

A wear life up to 40,000 hours depending on applications and various parameters can be achieved by employing highly wear resistant materials for the grinding elements.

The grinding elements as well as all other inner parts can be exchanged through large side doors without dismantling the classifier on top of the grinder. There is no need for an empty space above the machine which makes the whole installation compact and economic.
All inner parts can be exchanged through the mill door.

Robust design and easy access enable efficient maintenance.

EM Mill gearbox.
Reliability in Coal Grinding

Vertical roller mills grind, dry and classify coal in a single machine. State of the art design ensures low maintenance costs and reduced energy consumption.

SAFETY

Claudius Peters grinding plants can operate under a variety of safety criteria.

In the safest process, inert operation, the oxygen level is lowered to less than 10% under all operating conditions. All values of O₂ and CO are continuously monitored and optimized automatically, thereby preventing dust explosions.

Alternatively when inert operation is not possible, for instance in power station service, the pressure shock resistant mill design provides the highest possible operational safety.

The ball ring grinding mechanism of the EM-Mills cleans itself automatically during the shutting down phase. Therefore, self-ignition of coal built up on the grinding ring track is effectively prevented.

Claudius Peters milling and grinding plants comply fully with international safety standards and regulations.
Adding value

Due to the high moisture content of so called ‘low rank coals’ (moisture content up to 60%) the requested residual moisture will be achieved in a two-step system only.

Prior to the coal grinding plant a raw coal pre-drying plant will be installed.

In a first step the pre-crushed coal (< 25 mm) will be pre-dried using higher temperatures than allowed for pulverized coal at a reasonable airflow and a low pressure drop.

In a second step the coal will be ground to the requested fineness and further dried, if required.

Combination of the two steps is the most economical and safe solution for the design of coal preparation plants for low rank coals.
Complete turnkey solutions for cost-effective bulk materials handling

Coal grinding plant for cement kiln.

Coal indoor storage with stacker and reclaimer complete the scope of Claudius Peters.

Claudius Peters EM Mill.

Bentonite grinding plant with dispatch silo.
Innovation and know-how to drive efficiency even further

Maximum reliability combined with efficient operating costs, makes Claudius Peters the ideal partner for your next project. From stockyard and materials handling systems to grinding and pneumatic conveying, storage, injection or dispatch system the bulk material industry can rely on Claudius Peters.

Claudius Peters instill a real ethos of quality and care all the way down the line. From feasibility studies such as plant and raw material evaluation to process systems, including instrumentation and control for the entire production process, through to the modernization of existing facilities to meet specific client and regulatory needs, Claudius Peters provides the complete package.

Claudius Peters techniks include:

- Pneumatic conveying systems
- Silo technology
- High-pressure injection system
- Stockyard systems

Coal injection with dynamic distributor.
We know how

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