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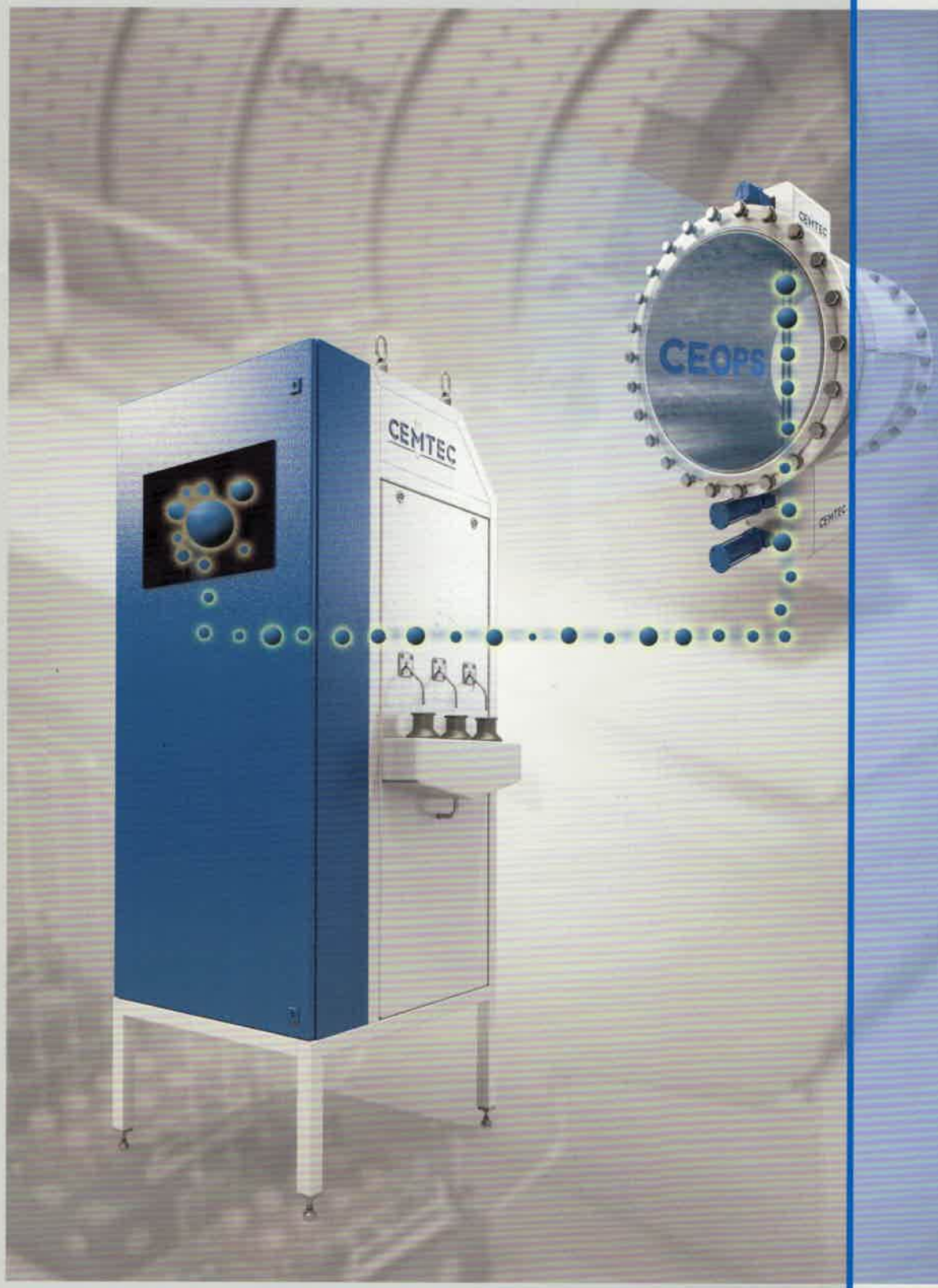


CEOPS ONLINE PARTICLE SIZING
FOR WET APPLICATIONS

CEMTEC

Cement & Mining Technology

CEMTEC – your partner for success.

CEMTEC operates on the basis of individual responsibility. Every member of our team has the right to make high-level decisions. The entire responsibility for a project – from planning to commissioning – rests with a single person. This means that you have the same, competent contact partner for all your queries, wishes and suggestions, without exception. In addition to standard orders, your individual requirements are also fulfilled rapidly and without complications.

CEMTEC HEADQUARTERS IN ENNS AUSTRIA

CEMTEC manages projects throughout the world for the cement and processing industry.

CEMTEC manages every project from start to finish. From planning to commissioning. Our product spectrum includes tube mills for grinding a wide range of bulk materials and minerals, as well as rotating drums for thermal treatment (calcination, drying, cooling) and mechanical processing (mixing, washing, conditioning, etc.) of different bulk materials. We also offer erection supervision, commissioning and technical support. Successful projects all over the world attest to the competence of CEMTEC.

Wet Process Design by Cemtec

Comminution circuits are the number one cost driver in every mineral processing plant. The production costs per ton of processed material are mostly linked to the final product fineness. In times of increasing energy prices the pressure on mill operators to decrease their costs is top priority.

On-target grinding to the required specification by real time analysis of product fineness is an effective option for avoiding additional costs. Every micron which is below fineness specifications causes disproportionately higher operating costs at lower throughputs. Besides this, dewatering and reagent costs are higher for too finely ground products.

The Cemtec Online Particle Sizer for wet applications – CEOPS wet – is the right solution for monitoring your process in real time. The system starts with a tailor-made sampling unit able to take representative samples from cyclone overflows, pump sumps or slurry pipes. Followed by sample dividing and dilution, the well proven Malvern Insitec unit measures particle size distribution by standard laser diffraction. Up to three individual samples can enter into the analyzing unit.

CEMTEC – your partner for fully integrated process supply

Constantly increasing energy prices combined with decreasing ore qualities demand tailor-made processing solutions. CEMTEC offers a broad range of process equipment starting from feed particle sizes up to 300 mm down to product sizes of below 10 µm. Allowing this jump in dispersity in an energy-efficient way requires a combination of in-depth understanding of ore properties like liberation size, mineralogy and grindability together with process and mechanical know-how. CEOPS is the missing link for fulfilling our approach of delivering energy-optimized processing plant solutions.

WET PROCESS DESIGN

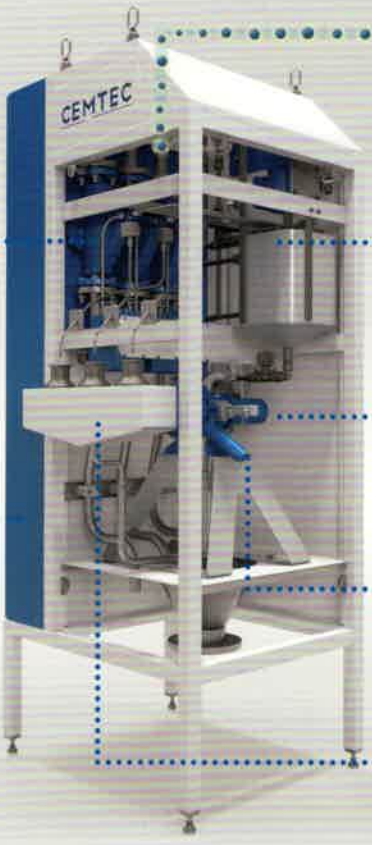
Major advantages of CEOPS:

- **Reduction of energy consumption by real time measurement of particle size distribution**
- **Effective process optimization**
- **Production quality in real time**
- **Representative sampling**
- **Simple and space-saving concept**
- **High return on investment**

Sampler for low-pressure cyclone overflow slurry pipes

Representative continuous sampling over the entire pipe cross section

Cleaning and flushing system to avoid sedimentation. Automatic flow control system



Online density and flow control of each incoming primary sample

Complete on-device control system based on proven Siemens technology. 15" interactive touch panel showing all features on one screen

Dilution agitator for achieving optimal feeding of solid concentration to laser unit

Malvern Insitec measurement unit

Return flow to process

External sampling for quality laboratory and calibration purposes

WET SYSTEM TECHNOLOGY

The CEOPS system is a customer-made solution entirely manufactured in Austria. The tailor-made approach guarantees representative sampling and an optimized feed consistency to the laser unit. There are multiple communication interfaces to integrate the CEOPS system into higher level control systems. Having these combinations offers various options for controlling grinding circuits in an optimized way.

CEMTEC

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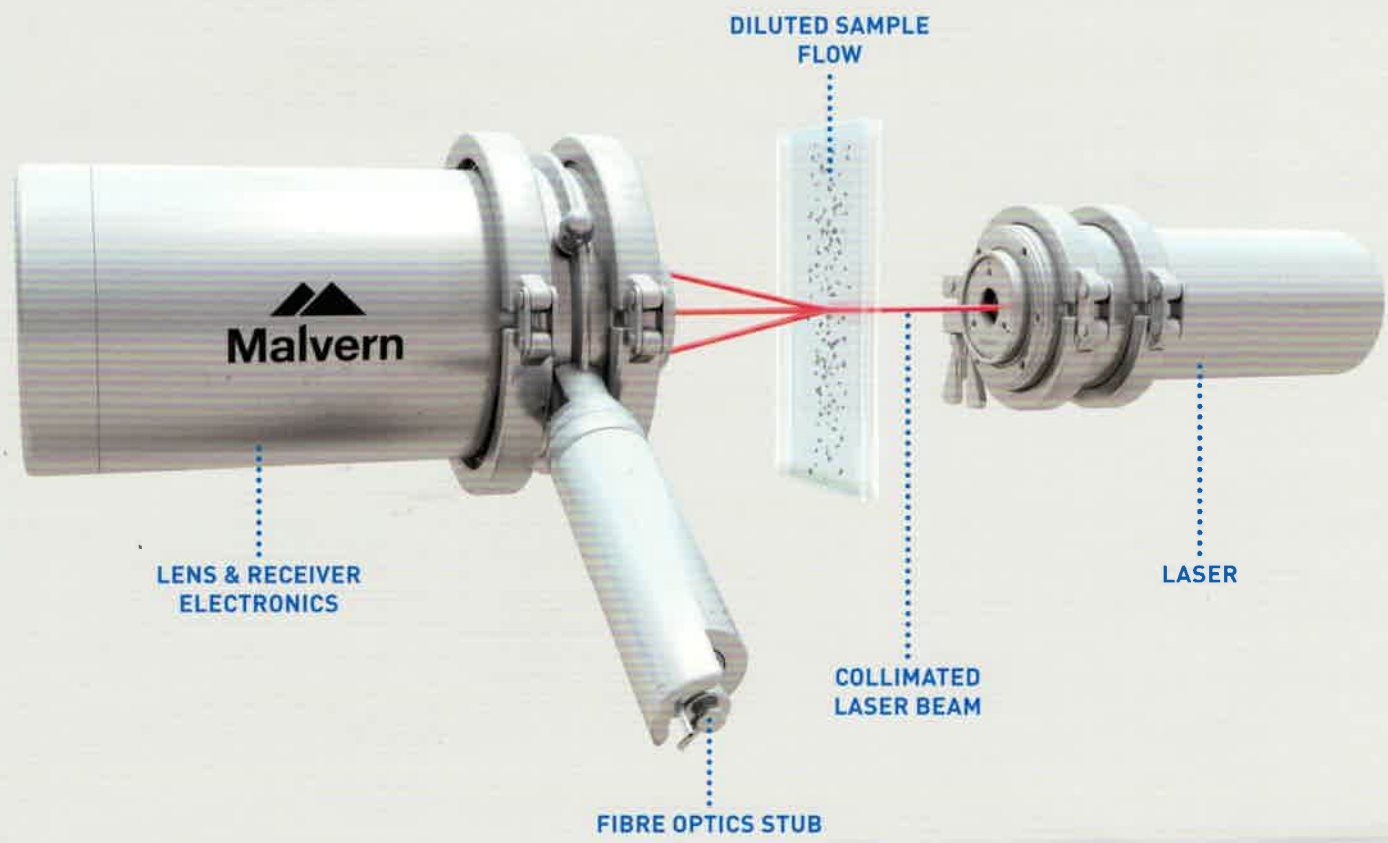
Malvern Insitec - a proven solution for measuring particle size

Wet particle size analyzers deliver fully automated real-time size measurement of particulates in batch or continuous processes. They are used to monitor and control suspensions, emulsions and slurries in a number of industries.

Engineered to withstand the rigors of the process environment, particle size analyzers use laser diffraction technology to measure particles in the size range 0.1 to 2500 µm, delivering real-time monitoring and control 24/7. This data provides a secure foundation for better process control, whether that control is manual or automated.

The system produces reliable, timely and complete data, reporting complete particle size distributions if needed in less than one second, giving instantaneous monitoring. Even processes with fast dynamics can be tracked effectively.



FEATURES

Laser diffraction

Laser diffraction measures particle size distributions by measuring the angular variation in intensity of light scattered as a laser beam passes through a dispersed particulate sample. Large particles scatter light at small angles relative to the laser beam and small particles scatter light at large angles, as illustrated above.

The angular scattering intensity data is then analyzed to calculate the size of the particles responsible for creating the scattering pattern, using associated patented multiple scattering algorithms. The particle size is reported as a volume-equivalent sphere diameter.

CEMENT & MINING TECHNOLOGY WORLDWIDE

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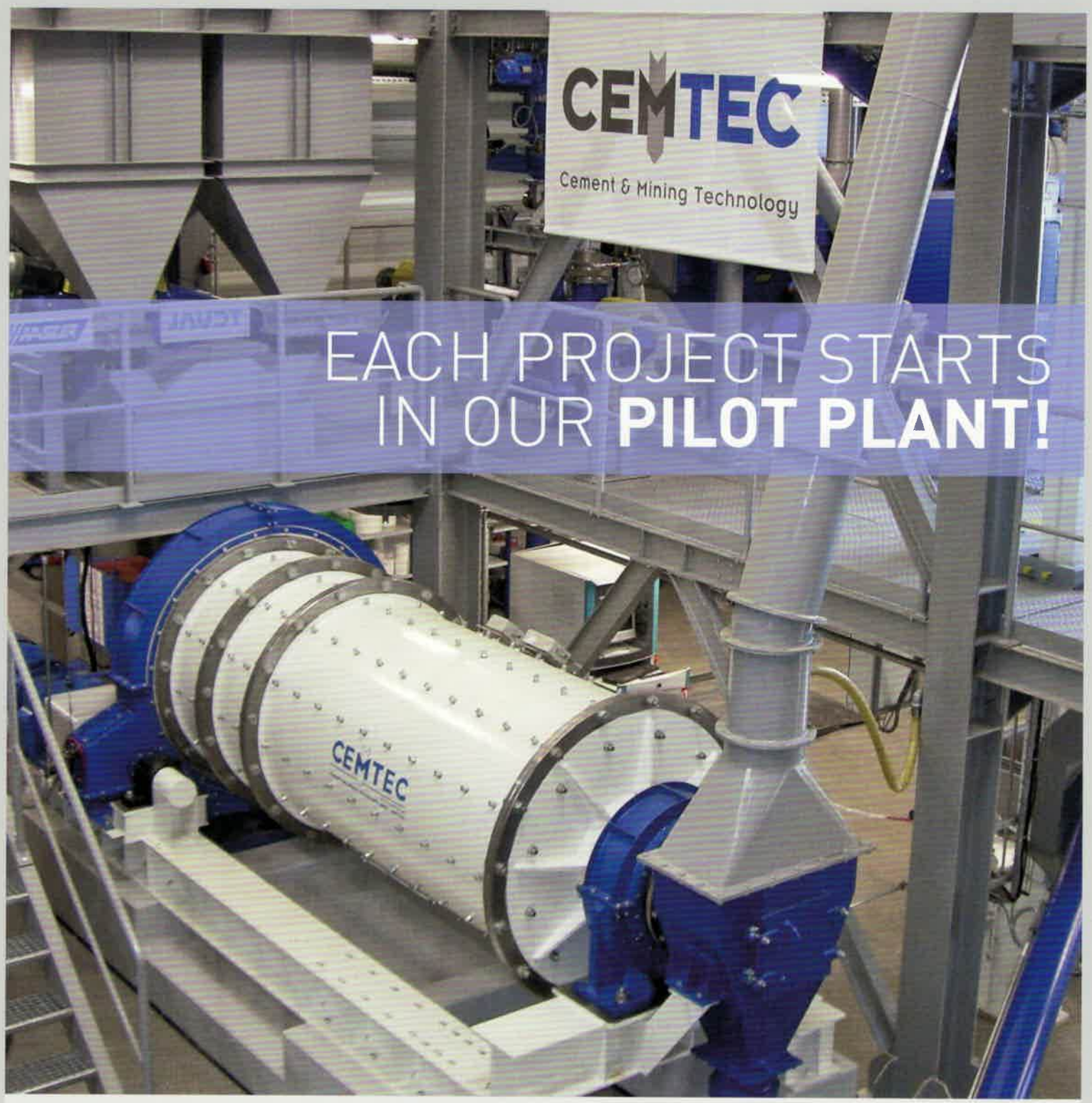

EACH PROJECT STARTS IN OUR **PILOT PLANT!**

CEMTEC

Cement & Mining Technology

HEADQUARTERS

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