

# NETZSCH

Proven Excellence.



## NETZSCH Classifier Mill CSM *CERAMIC*

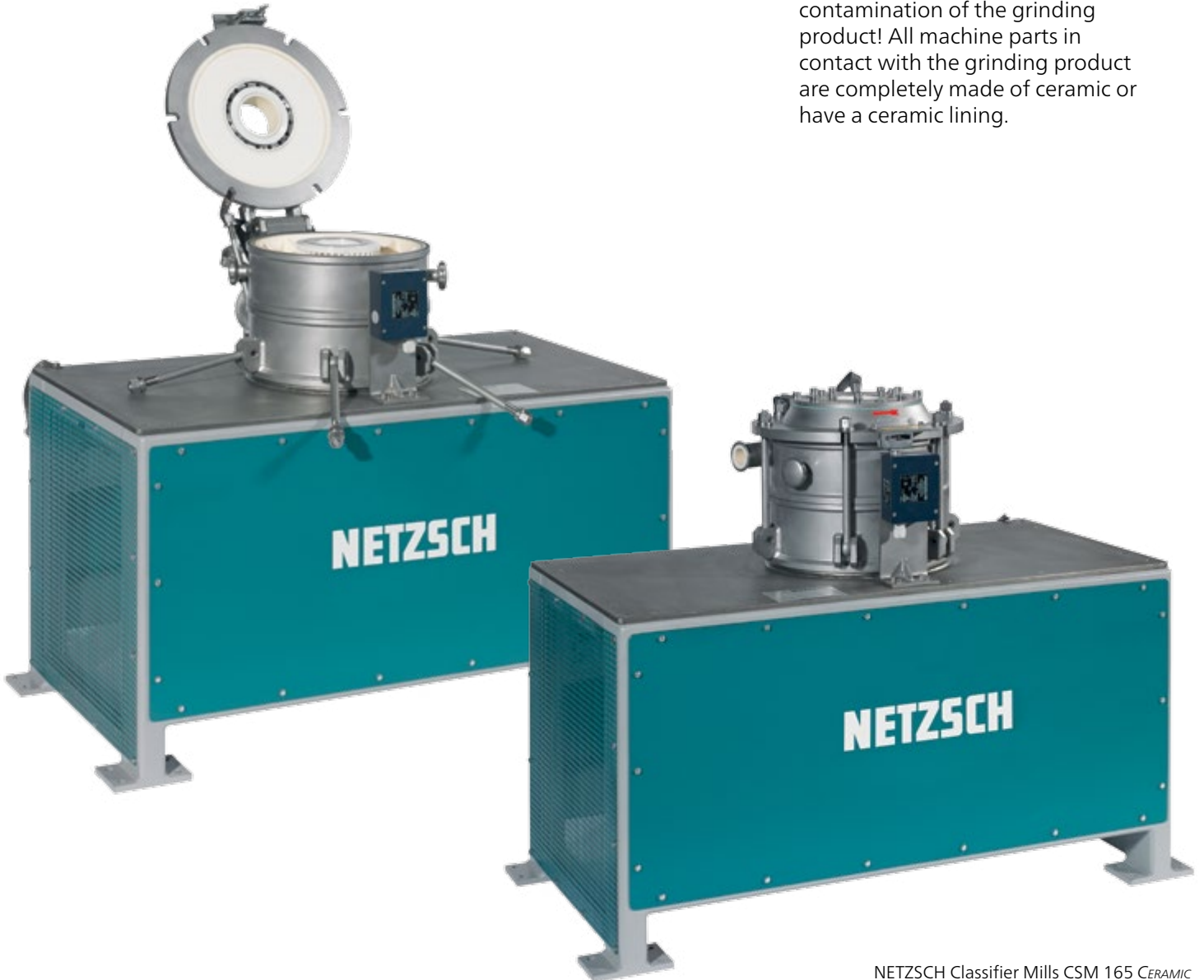
Impact Grinding without Metal Contamination

Business Unit  
GRINDING & DISPERSING

# NETZSCH Classifier Mill CSM CERAMIC

## Grinding without Contamination

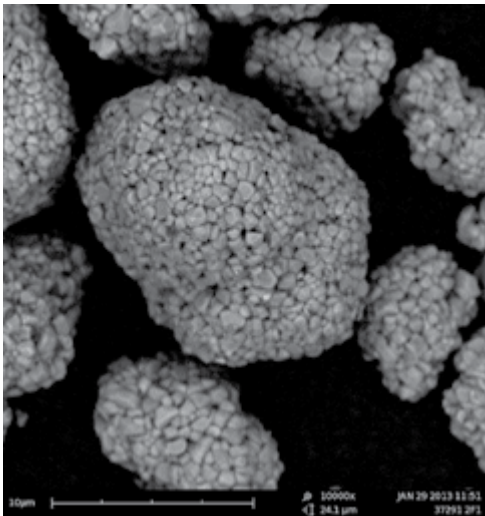
With the CERAMIC-execution of the CSM classifier mill, dry fine-grinding is possible without metal contamination of the grinding product! All machine parts in contact with the grinding product are completely made of ceramic or have a ceramic lining.



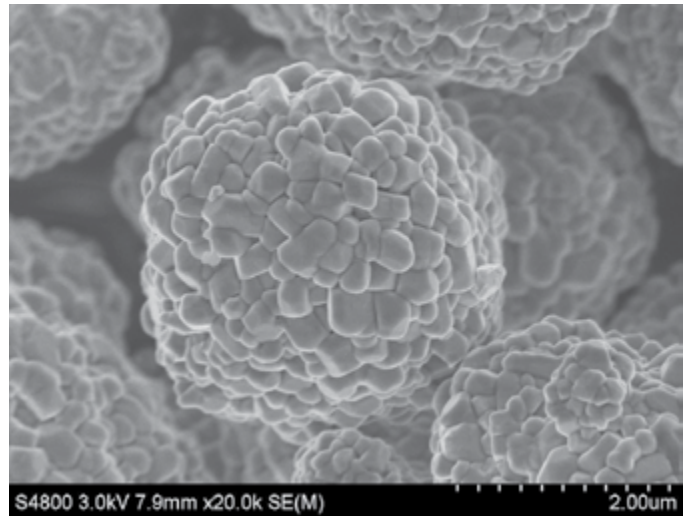
NETZSCH Classifier Mills CSM 165 CERAMIC

The classifier mill CSM combines an impact grinding mechanism with an integrated dynamic air classifier. Using this air classifier a very fine final fineness of less than 10  $\mu\text{m}$  can be obtained, without the disadvantage of an external grinding and classifying circuit. The internal circulation of the coarse product in the classifier is self-adjusting, which ensures a steady, energy and space saving operation. The grinding is carried out between a peripheral milling track and the beating tools.

Thanks to the highly-developed classifier technology with vertical classifier wheel, a rotationally symmetrical classification can be achieved, which guarantees a very high fineness with precise upper particle size limit, as well as an even loading of the classifier wheel.



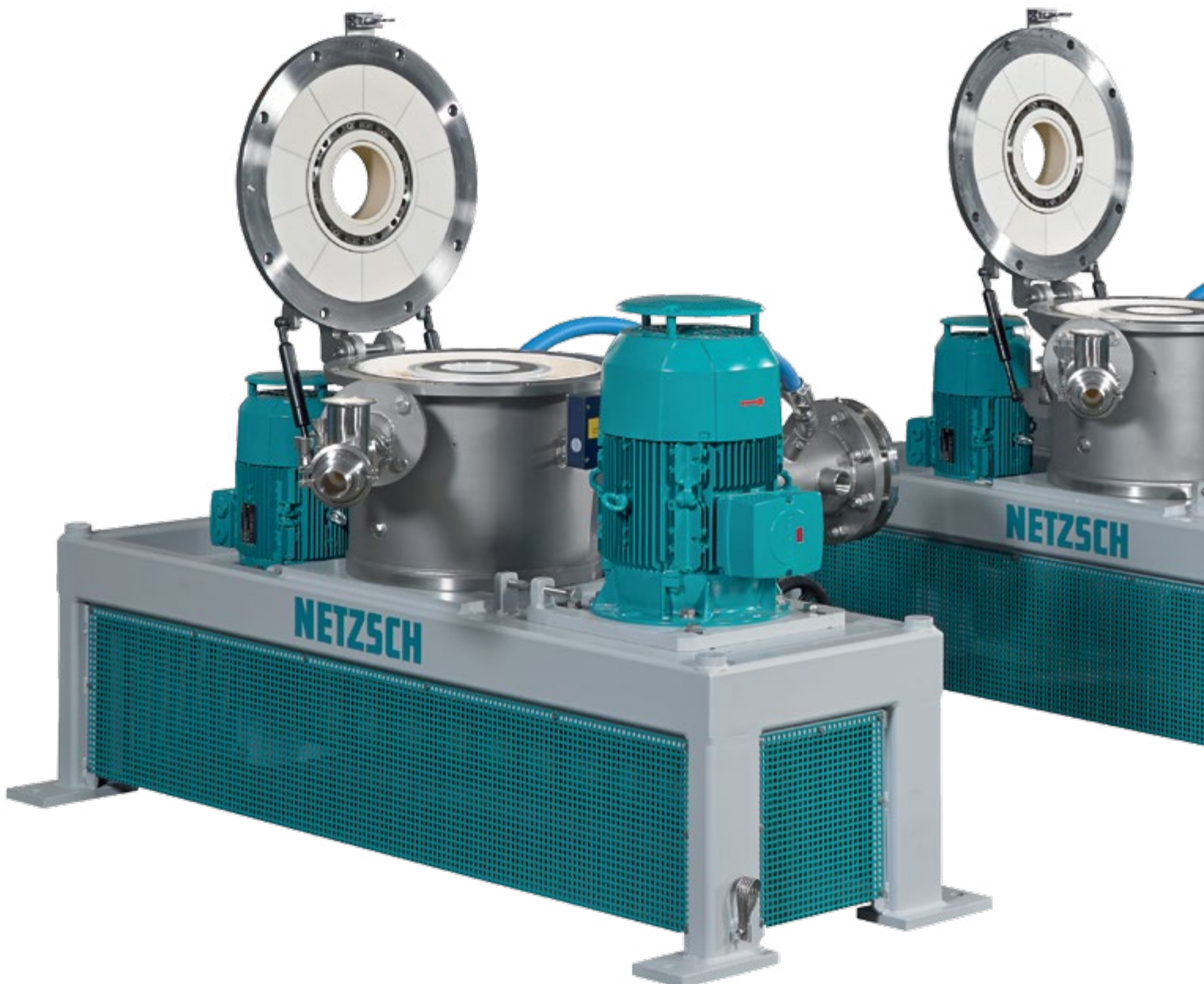
NCM final product after grinding



NCA final product after grinding

# Focus on your Advantages

- Impact rotor mill with integrated dynamic air classifier for steep particle size distribution with precisely defined maximum particle size.
- Highest product finenesses without metal contamination.
- Minimal warming of the grinding product due to controlled air ventilation.
- Closed-loop system to maintain low moisture content (as an option).
- Fast and easy cleaning and maintenance due to optimal access of the grinding chamber and classifier.
- Application-oriented product feeding via gravimetric dosing or injector system.
- No nonferrous metals (Copper, Zinc) or nonferrous alloys for product- and process gas contacted parts
- Variable installation possibilities and minor spatial requirements.





NETZSCH Classifier Mills CSM 260 CERAMIC

# Applications and Technical Data

| Technical Data                |                                | CSM 50  | CSM 80  | CSM 165 | CSM 260 | CSM 360  |
|-------------------------------|--------------------------------|---------|---------|---------|---------|----------|
| Power factor                  |                                | --      | --      | 0.3     | 0.5     | 1        |
| Grinding disc diameter        | mm                             | 146     | 182     | 300     | 406     | 610      |
| Classifier wheel diameter     | mm                             | 80      | 120     | 170     | 260     | 360      |
| Mill speed max.*              | min <sup>-1</sup>              | 15 000  | 12 000  | 3 800   | 2 800   | 1 850    |
| Mill driving power max.       | kW                             | 1.1     | 2.2     | 5.5     | 15      | 30       |
| Classifier speed max.         | min <sup>-1</sup>              | 12 000  | 6 500   | 4 500   | 4 200   | 3 000    |
| Classifier driving power max. | kW                             | 0.55    | 1.5     | 2.2     | 4       | 7.5      |
| Air volume flow max.          | m <sup>3</sup> h <sup>-1</sup> | 70      | 180     | 700     | 1 400   | 3 600    |
| Fineness d <sub>97</sub> **   | µm                             | 9 - 150 | 9 - 150 | 9 - 150 | 9 - 150 | 10 - 180 |

\* at a max. feed size of 1 mm (free of foreign particles)

\*\* based on limestone (density 2.7 kg/l)

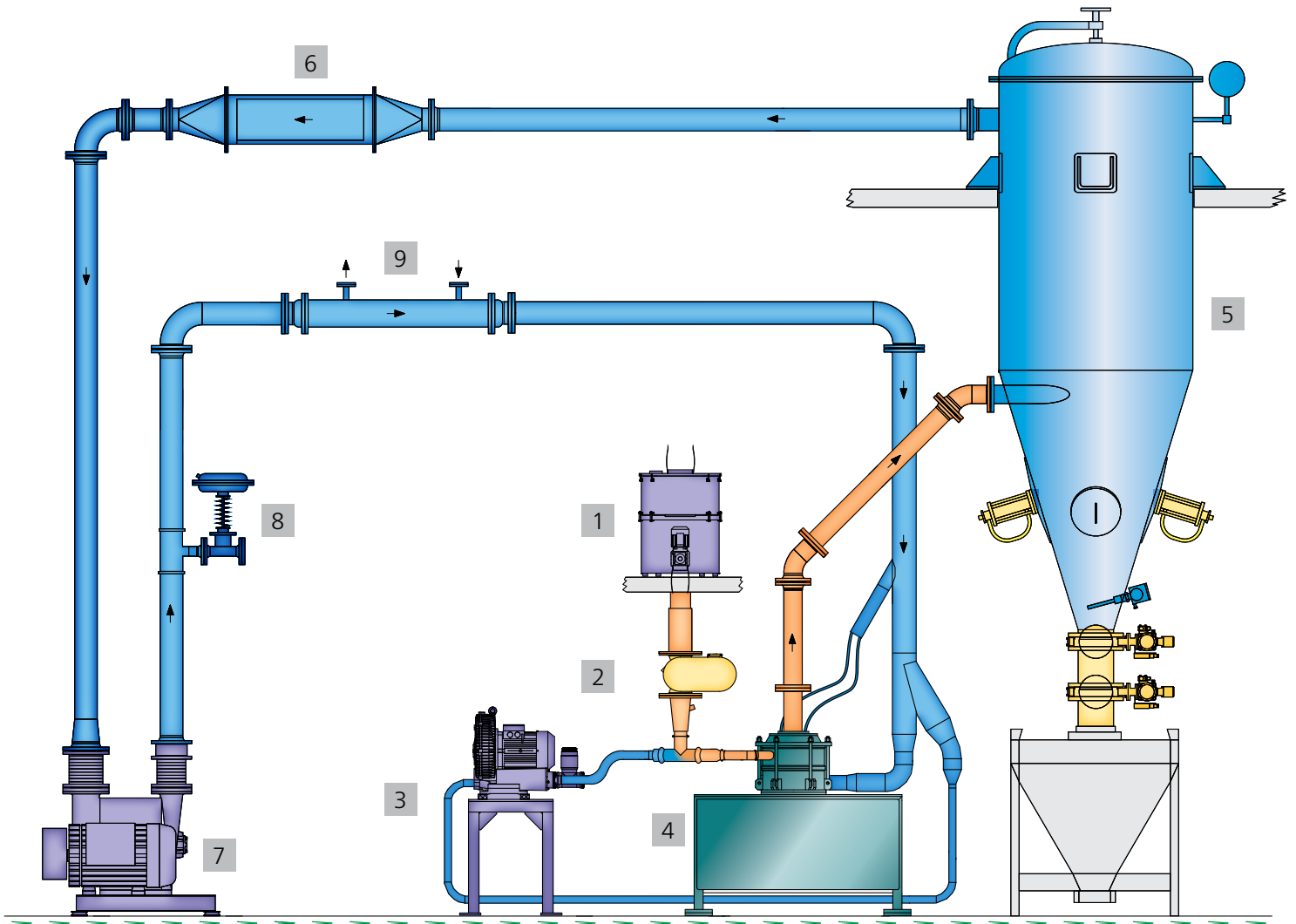
- Activated carbon
- Aluminum oxide
- Anhydrite
- Antimony
- Barium sulphate
- Battery materials
- Bentonite
- Bismuth oxide
- Boron nitride

- Calcium carbonate
- Dolomite
- Iron oxide
- Fly ash
- Flux powder
- Plaster
- Graphite
- Charcoal
- Slaked lime
- Limestone
- Terra alba
- Catalysts
- Cobalt metal
- Cobalt oxide


- Coal
- Coconut shells
- Lithium Cobalt Oxide (LCO)
- Lithium Iron Phosphate (LFP)
- Lithium Manganese Oxide (LMO)
- Lithium Nickel Cobalt Aluminum Oxide (NCA)
- Lithium Nickel Manganese Cobalt Oxide (NMC or NCM)
- Manganese phosphate
- Metal powder
- Neodymium
- Nickel
- Nickel hydroxide
- Nickel alloys
- Nickel compounds
- Beaded carbon black
- Carbon black
- Silica
- Silica gel
- Soapstone
- Titanium dioxide
- Vulcanite
- Tungsten carbide
- Wollastonite



## Grinding plant for inert gas loop operation



- |                                      |                  |
|--------------------------------------|------------------|
| 1 Feeding                            | 6 Safety filter  |
| 2 Rotary valve                       | 7 Blower         |
| 3 Blower                             | 8 Overflow valve |
| 4 Classifier Mill CSM <i>CERAMIC</i> | 9 Heat exchanger |
| 5 Fully-automatic filter             |                  |



The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 3,700 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

## Proven Excellence. ■

### Business Unit Grinding & Dispersing – The World's Leading Grinding Technology

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NETZSCH Vakumix – Germany  
NETZSCH Lohnmahltechnik – Germany  
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