

NETZSCH

Proven Excellence.



NETZSCH Planetary Mixer

For demanding mixing processes

Business Unit
GRINDING & DISPERSING

PML

Planetary Mixer
Low-Speed



PMH

Planetary Mixer
High-Speed

NETZSCH Planetary Mixer

powerful, efficient, gentle on the product

NETZSCH planetary mixers combine intensive mixing and dispersing action with high process reliability - even for the most demanding applications.

Thanks to the proven planetary system, not only do the mixing tools rotate on their own axes, they orbit a central axis in the stationary mixing container simultaneously as well. These superimposed movements ensure thorough mixing of the container contents – regardless of viscosity or product consistency.

The machines are specially designed for the processing of highly viscous, pasty and temperature-sensitive products. Even the finest powders and very light components can be dispersed into liquids quickly and evenly to the desired fineness.

There are suitable container presses available for complete emptying of the mixing containers - tailored to different container sizes and processing requirements.

This not only minimizes product loss but also considerably reduces the effort required for cleaning. NETZSCH planetary mixers thus offer a versatile, scalable solution for demanding industrial mixing processes - from the laboratory to large-scale production.

Why the system is convincing:



Gentle Processing

Particularly temperature-sensitive materials retain their quality, because the energy input is controlled



Increased Efficiency

Compared to conventional planetary systems, the newest generation shortens the production time by as much as 50%, with consistently high product quality.



Flexibility & Scalability

Across the entire series, all sizes feature variable speeds, heatable/coolable containers, and interchangeable tools – from the laboratory scale at 1 l up to 3 200 l for industrial production plants.

Optimal Dispersion

Extremely fine powders and even very light components are homogeneously distributed and dispersed in a closed process.



ATEX Model

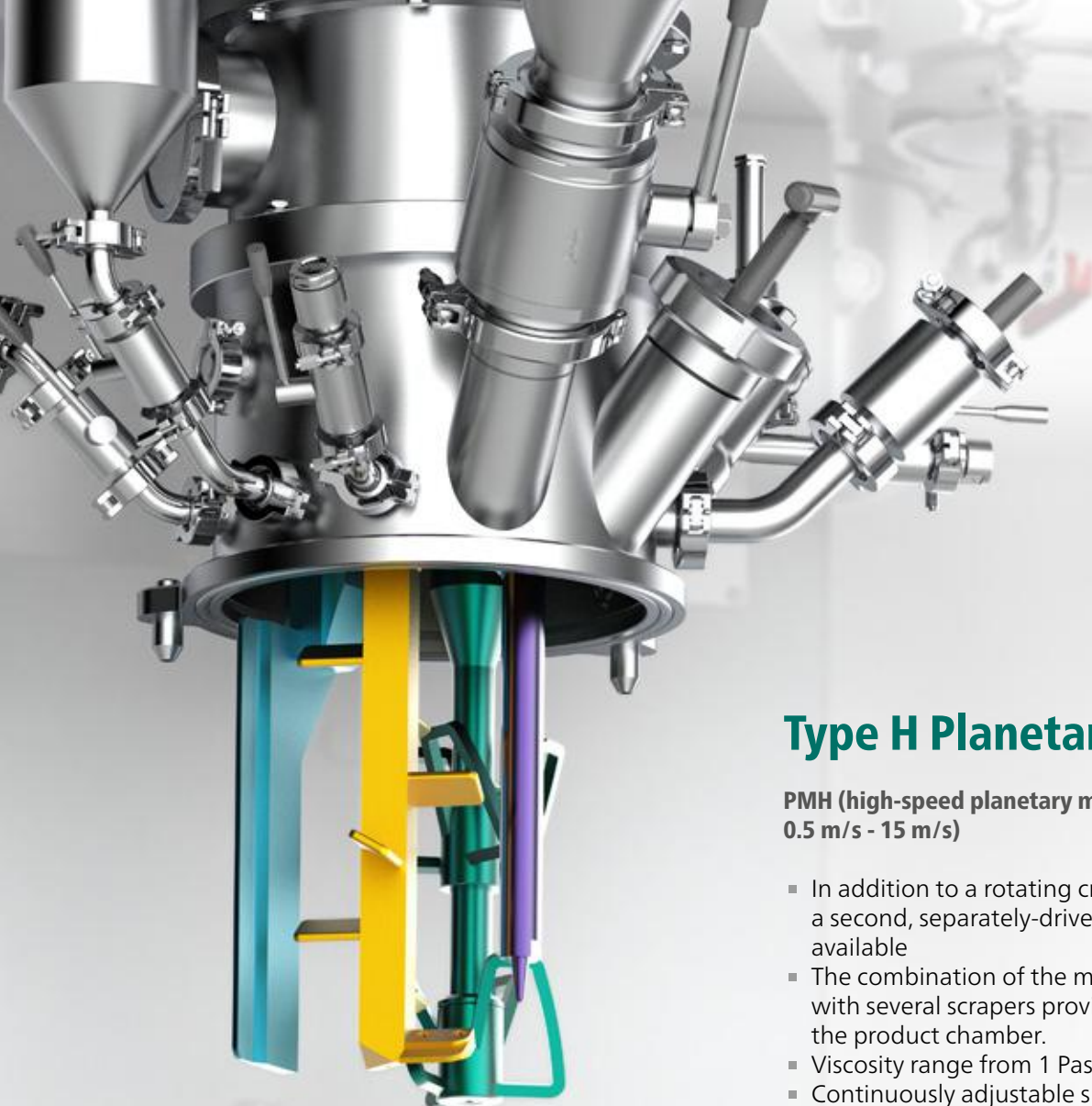
Zone 1/21, Zone 0 with inerting for zone reduction



Vacuum Model

Facilitates simultaneous degassing and reduces the air ingress.





Type H Planetary Mixer

PMH (high-speed planetary mixer peripheral speed 0.5 m/s - 15 m/s)

- In addition to a rotating cross beam agitator, a second, separately-driven dispersing tool is available
- The combination of the mixing tools in conjunction with several scrapers provides for 100% blending in the product chamber.
- Viscosity range from 1 Pas to approx. 10 000 Pas
- Continuously adjustable speeds
- Use of different tool combinations is possible



Separately driven **dispersing tool**, optionally equipped with butterfly, fine-toothed disc, high performance disc or cross beam agitator



Cross beam with bottom scraper



Temperature probe



Wall scraper
Number depending on size

Type H Planetary Mixer

PML (low-speed planetary mixer peripheral speed 0.5 m/s - 5 m/s)

- Two rotating mixing tools such as cross beam agitators are driven directly via a planetary system
- The optimal overlap of the mixing tools facilitates efficient and very gentle blending
- Viscosity range from 10 Pas to 10 000 Pas
- Continuously adjustable speed for optimal adjustment to the product



Cross beam with bottom scraper



Temperature probe



Wall scraper
Number depending on size



PM 4000



PM 400



PM 60



PM 18



PM 1



Suitable for every requirement

Sizes ranging from laboratory to production scale

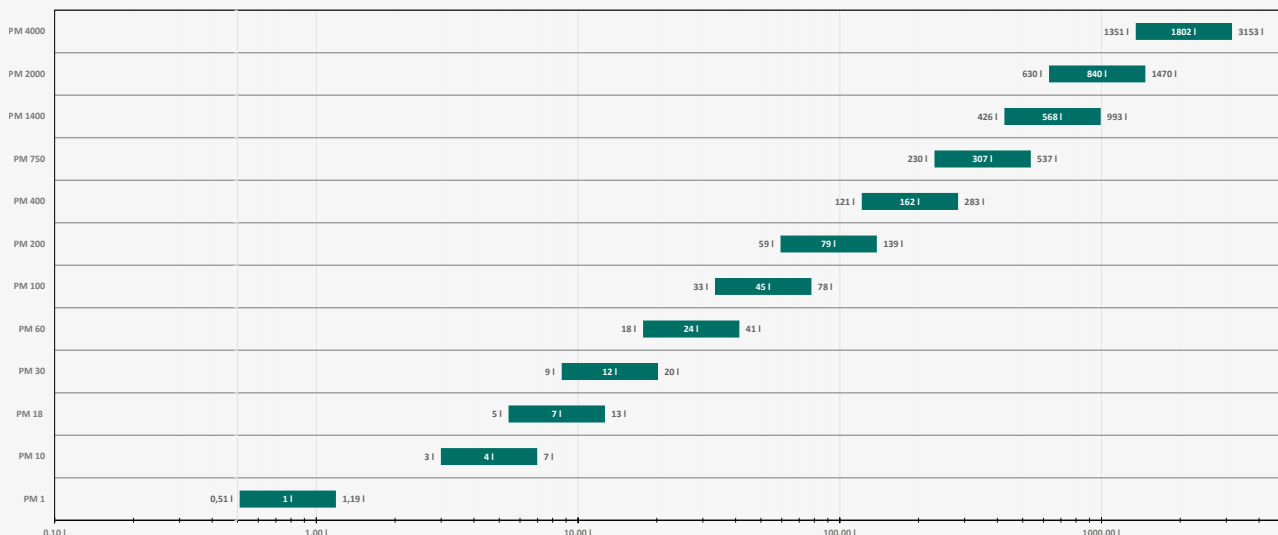
Whether for initial trials on a pilot plant scale or continuous large-scale use in production, NETZSCH planetary mixers are available in various sizes with practical gradations. The machines can be precisely adjusted to product quantity, process requirements and degree of automation. This allows processes to be carried out with reproducibility and a high degree of process reliability.

The coordination of the different sizes ensures reliable scale-up from laboratory to industrial scale.

Model	recommended effective Volume [l]	approx. Dimensions* W x H x D [mm]	Weight** [kg]
PMH/PML 1	0,5 - 1,2	1 200 x 1 300 x 750	~ 200
PMH/PML 10	3 - 7	900 x 2 500 x 1 200	~ 1 500
PMH/PML 18	5 - 13	900 x 2 500 x 1 200	~ 1 500
PMH/PML 30	9 - 20	1 200 x 2 700 x 2 100	~ 2 400
PMH/PML 60	18 - 40	1 200 x 2 700 x 2 100	~ 2 500
PMH/PML 100	30 - 80	1 600 x 3 000 x 2 100	~ 2 900
PMH/PML 200	60 - 140	1 600 x 3 300 x 2 300	~ 3 000
PMH/PML 400	120 - 285	1 800 x 3 500 x 3 000	~ 3 500
PMH/PML 750	230 - 540	2 000 x 4 500 x 3 000	~ 9 000
PMH/PML 1400	430 - 1 000	2 000 x 4 900 x 4 000	~ 14 000
PMH/PML 2000	630 - 1 500	4 000 x 6 500 x 3 000	~ 16 000
PMH/PML 4000	1 350 - 3 150	6 000 x 7 200 x 3 500	~ 42 000

*without user terminal | **without product

Size overlap for net volumes of 30 - 70% [l]



17 good Reasons...

Automatable processes such as automated cleaning and precise controls

Wide range of applications, from silicone and rubber to adhesives, dental compounds, battery compounds and pigment systems

High process reliability through closed design and controlled energy input

Highest dosing accuracy with precise load cells

Reduced cleaning effort thanks to cleaning lance, nozzles, heads, and a well-designed cleaning program

Simple and almost complete emptying of the mixing container with suitable container press, to facilitate efficient further processing

Gentle on products, particularly suitable for highly viscous, shear-sensitive, or temperature-sensitive products

Wide viscosity range
1 Pas to approx. 10 000 Pas (PMH) and 10 - 10 000 Pas (PML)

Continuous speeds for product conformity



Intensive mixing due to the planetary system with double tool action, uniform blending independent of viscosity or consistency

Gentle processing – even temperature-sensitive materials retain their quality

Optimal dispersing: dust-free and homogeneous distribution of even the finest powders and light components

Vacuum design enables simultaneous degassing and reduces oxygen ingress

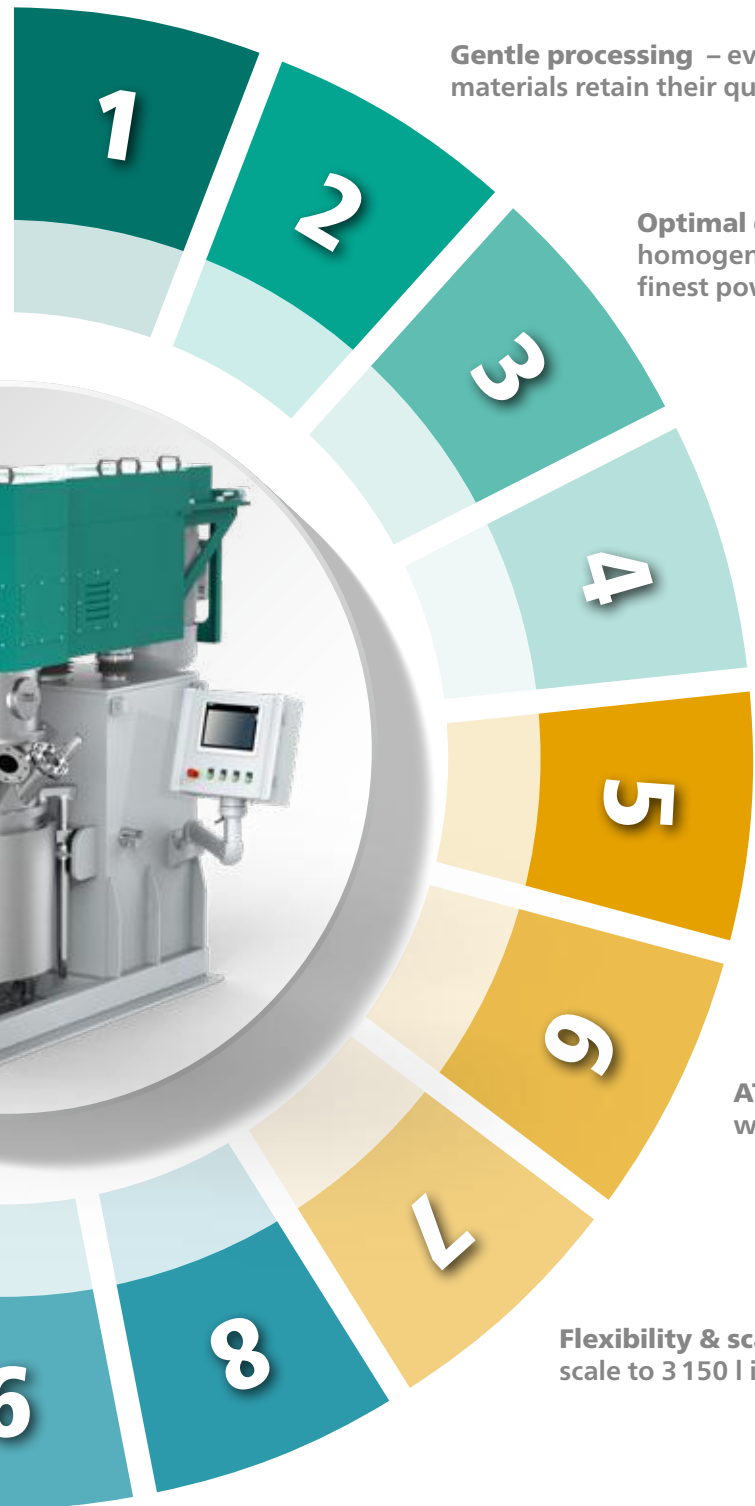
Up to 50% shorter production times compared to conventional planetary systems

ATEX Model available for Zone 1/21, Zone 0 with inerting

Flexibility & scalability from 1 l laboratory scale to 3 150 l industrial plants

Versatile tool combinations, e.g. butterfly, fine-toothed disc, high performance disc, cross beam

Highly adjustable
perfect process
optimization



Equipment – the best equipment for individual requirements

Modern plants rely on a variety of specialized components in order to meet the highest standards for cleanability, safety and efficiency. The optional equipment ensures a production process that is tailored to your needs. Automated systems and innovative technology simplify both maintenance and operation and ensure an end product with reproducible quality. So even demanding process management challenges can be reliably mastered.



▶ Cleaning lance

The cleaning lance is precisely positioned by a linear unit, and the cleaning cycle is controlled automatically. During normal operation, the lance remains fully retracted, while an automatic ball valve closes the opening to the product chamber.

Cleaning nozzles in the product chamber ◀

Cleaning nozzles clean the process chamber thoroughly and efficiently. Automatic control ensures repeatable cleaning results.



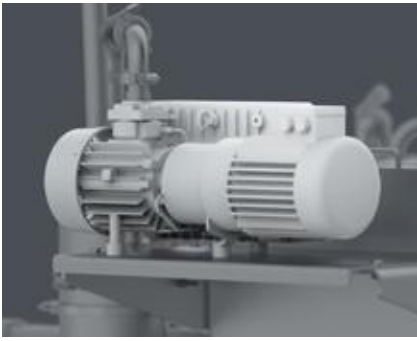
▶ Spray heads

Spray heads can be integrated into the lid, arranged opposite each other with a spray angle of 360°.

Load cells ◀

The entire machine can be placed on load cells to ensure accurate dosing of the recipe ingredients and to integrate the weighing process directly into the control system and thus into the process flow.





Vacuum pumps

Various vacuum pumps are available for evacuation of the product chamber. To save space, these are mounted and piped directly onto the machine. The pumps can be controlled automatically or manually.



Spiral heat exchanger

For condensing vapor that is extracted from the process, for example, by the vacuum pump. As a result, solvents remain in the product.



Condensation trap

The condensation trap serves to selectively capture solvent vapors. The captured solvents can either be returned to the process or separated and disposed of. This allows for targeted removal of solvents from the product.

Container outlets

Container outlets with minimal dead space offer maximum residual emptying and are precisely contoured to match the container design. They are available in three versions to meet different requirements in terms of hygiene, functionality, and convenience.

PMH/PML model sizes 1 to 100:



Basic Laboratory
Low dead space plug



Comfort Laboratory
Low dead space plug with valve



Premium Laboratory
Customized design

PMH/PML model sizes 200 to 4 000:



Basic Production
Low dead space plug



Comfort Production
Low dead space plug with valve



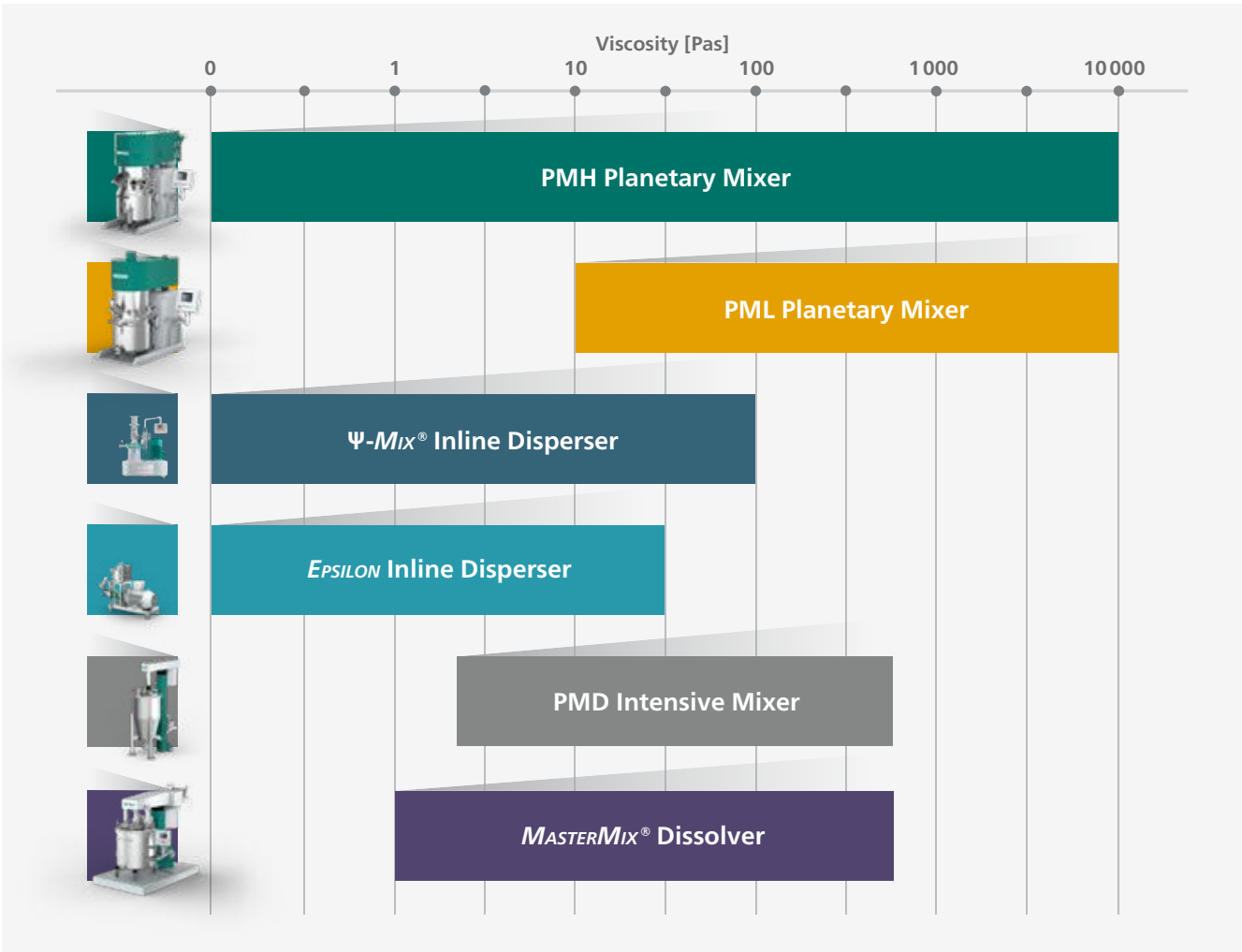
Premium Production
Customized design

Machine selection based on viscosity

From thin suspensions to highly viscous pastes – NETZSCH offers the right solution for every viscosity range.

The planetary mixer is particularly impressive in the high-viscosity range: it processes even extremely viscous, temperature-sensitive or powder-rich products efficiently and reliably.

Whether a dissolver, inline disperser or PML and PMH planetary mixer – with NETZSCH you can be sure of quality, flexibility and cost-effectiveness in every process.



Efficient emptying – with the right press-out unit

NETZSCH offers the right press-out units for clean, quick and virtually loss-free emptying of medium- and high-viscosity products – perfectly matched to our planetary mixers.

The press-out units are available as a system extension for container sizes up to 4000 liters and ensure

efficient further processing or filling of the product – directly from the mixing container. The container press-out unit is already integrated into the machine stand of models PML/PMH 10 - 18 to save space, which further increases ease of operation and process reliability.

Your advantages at a glance:

- almost complete emptying of the mixing container
- minimal product loss - higher yields
- easy, clean handling, even for highly viscous products
- significantly reduced cleaning effort
- time- and cost-saving further processing
- perfectly matched to all NETZSCH container sizes

With this solution, NETZSCH completes the end-to-end process from product preparation to emptying – cleanly, reliably, and economically.



Container press for planetary mixer 750

Wide range of applications – For the most demanding products and processes

The NETZSCH planetary mixing and kneading machines are designed for a variety of highly viscous, pasty and sensitive products. Their special mixing dynamics facilitate reliable and consistent processing even under challenging conditions - whether with high viscosity, shear-sensitive materials or temperature-sensitive components.

Typical areas of application:



▶ Silicone and rubber systems:
1-K and 2-K silicone pastes, liquid silicone rubber (LSR), rubber and caoutchouc pastes

Special compounds: dental and impression materials, fillers, plasters, PVC pastes (e.g. for profiles and seals)



▶ Adhesives and sealants:
Adhesives, sealing compounds, synthetic lubricants

Paints and pigment systems:
highly pigmented pastes, difficult-to-disperse pigments



▶ Battery and reaction compounds:
anode and cathode compounds for batteries, powdered reaction materials

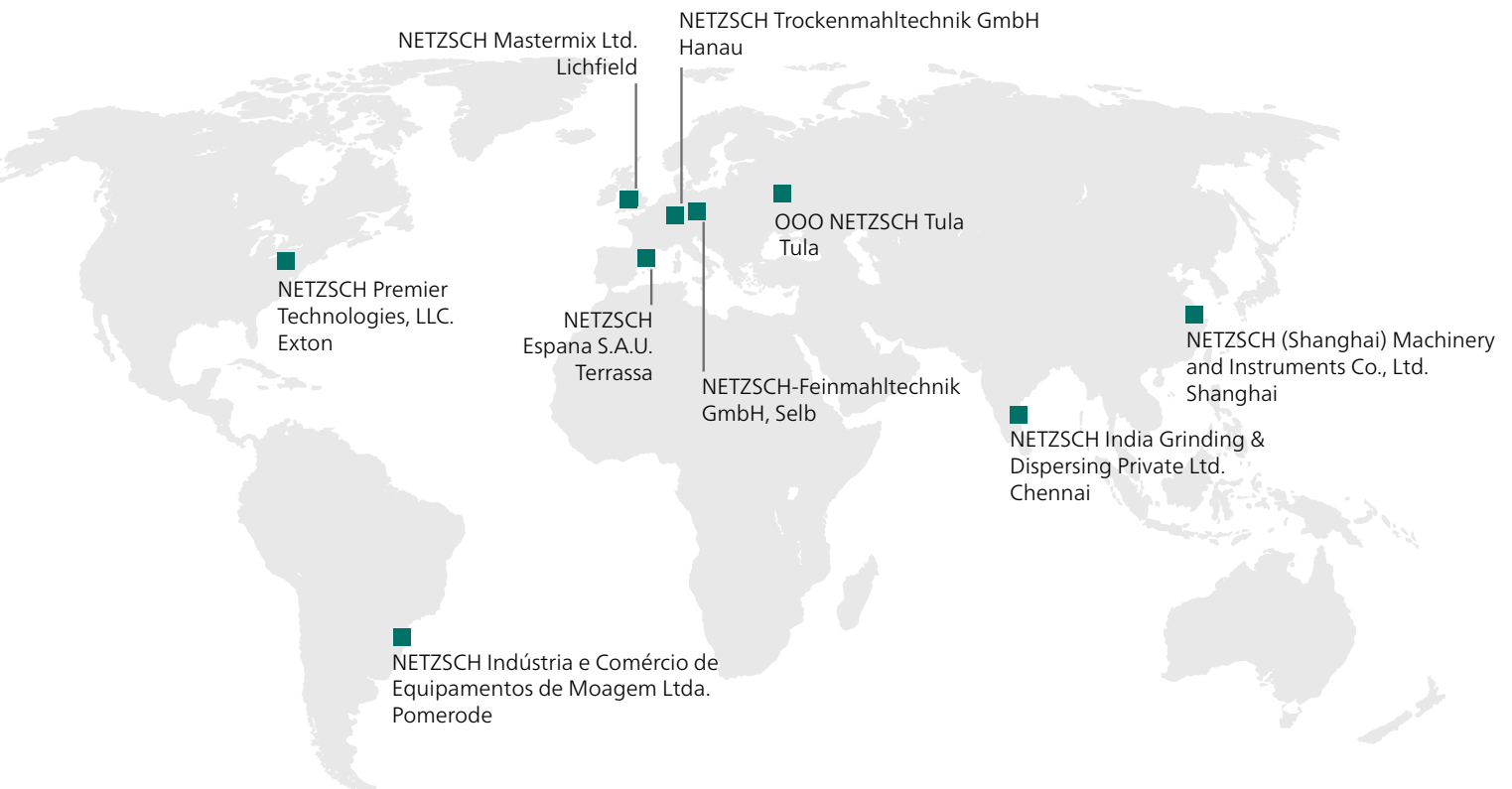
Application laboratories for product testing

Our comprehensive range of services includes our application laboratories, which are equipped in accordance with the latest technical standards. Our wet grinding and mixing laboratory is located in Selb, and our dry processing and classification pilot plant/laboratory is located in Hanau.

In these laboratories, we test the product you provide to be ground or processed to achieve the optimal grinding result according to your specifications. The tests can be carried out both on a laboratory scale and in pilot plant setups. After completion of the tests, we will provide you with a comprehensive report with the test results, along with the ground product.

We would be happy to invite you to take part in our in-house tests. This will ensure that the tests are carried out precisely according to your wishes and specifications. It will also give you the opportunity to gain your own impression of our company.

Further information on the web:



The owner-managed NETZSCH Group is a leading global technology company specializing in mechanical, plant and instrument engineering.

Under the management of Erich NETZSCH B.V. & Co. Holding KG, the company consists of the three business units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems, which are geared towards specific industries and products. A worldwide sales and service network has guaranteed customer proximity and competent service since 1873.

Proven Excellence.

Business Unit Grinding & Dispersing – The World’s Leading Grinding Technology

NETZSCH-Feinmahltechnik | Germany
NETZSCH Trockenmahltechnik | Germany
NETZSCH Vakumix | Germany
NETZSCH Lohnmahltechnik | Germany
NETZSCH Feinmahltechnik Polska | Poland
NETZSCH Mastermix | Great Britain
NETZSCH Broyage | France
NETZSCH Macinazione & Dispersione | Italy

NETZSCH España | Spain
NETZSCH Machinery and Instruments | China
NETZSCH India Grinding & Dispersing | India
NETZSCH Tula | Russia
NETZSCH Makine Sanayi ve Ticaret | Turkey
NETZSCH Premier Technologies | USA
NETZSCH Equipamentos de Moagem | Brazil



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