

NETZSCH

Proven Excellence.

PHARMA

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Pharma & Cosmetics

A comprehensive machine portfolio

Business Unit
GRINDING & DISPERSING

Pharma & Cosmetics

Your application – our solutions

Your competitive edge starts in the process

In pharmaceutical and cosmetic production, reproducibility, product quality, and process reliability are key factors for market success. NETZSCH offers more than just machines – we deliver integrated process solutions that make your production more efficient, safe, and scalable. From lab-scale to full production – all from a single source.

As a leading supplier of process equipment and systems for the pharmaceutical and cosmetic industries, NETZSCH covers the entire value chain:

- Fine and ultra-fine grinding
- Dispersing and emulsifying
- Mixing and homogenizing
- Dry and wet processing
- Complete plants and system solutions

Our technologies enable both standardized solutions and fully customized systems – precisely tailored to your processes, products, and regulatory requirements. For maximum efficiency, highest product quality, and sustainable production success.

Your benefits with NETZSCH:

- Reproducible product quality – batch after batch
- High process reliability through scalability
- Manufacturing in compliance with regulatory standards (GMP, FDA, ATEX)
- Reduced energy and raw material consumption
- System solutions instead of standalone machines



Our Equipment

For efficient and reliable production processes

Stable and cost-effective production requires reliable processes, reproducible results, and the highest product quality. NETZSCH production equipment enables efficient, scalable, and safe manufacturing – precisely tailored to your individual requirements.

Your added value:

- Consistent product quality, batch after batch
- High process reliability and reproducibility
- Efficient and cost-effective production processes
- Flexible adaptation to different applications
- Reduced downtime and optimized throughput

Inline Disperser *EPSILONVITA*®

Redefining efficient powder incorporation

The incorporation of powders into liquids is one of the most critical and time-consuming steps in pharmaceutical and cosmetic production. Insufficient wetting, dust formation, or long process times can significantly impact both quality and efficiency. With the Inline Disperser *EPSILONVITA*®, NETZSCH offers a solution that fundamentally optimizes this process – fast, reproducible, and fully integrated into closed systems.

Through an innovative combination of vacuum, flow dynamics, and targeted energy input, the powder is directly and uniformly wetted, creating the basis for stable products and efficient downstream processing.



Your added value:

- Significantly faster powder incorporation → increased productivity
- Dust-free, closed process → maximum safety
- Low shear forces & minimal product heating → ideal for sensitive formulations
- Reproducible dispersing quality

Technological strengths:

- Utilization of pressure and vacuum effects for optimal wetting
- Efficient pre-dispersion reduces subsequent process steps
- Can be combined with *KAPPAVITA*, *GAMMAVITA*, and *LAMBDAVITA*

Phase / Suspension Mixer *GAMMAVITA*

Maximum process versatility in a single machine

Whether mixing, melting, dispersing, or deaerating – in pharmaceutical and cosmetic production, multiple process steps must interact seamlessly. The NETZSCH *GAMMAVITA* combines these functions in one system, ensuring efficient, reproducible, and flexible processes, from the initial phase to the final product.

Your added value:

- Maximum process versatility in a single machine
- Short process times thanks to external recirculation loop
- Virtually complete discharge → minimal product losses
- Flexible scale-up from 10 l to 10,000 l

Technological highlights:

- Recirculation agitator or rotor/stator system for optimal mixing and homogenization
- Combination of:
 - Mixing
 - Dispersing
 - Melting
 - Deaerating
- CIP/SIP capable and fully GMP compliant
- Batch reporting in accordance with 21 CFR Part 11



Homogenizing Mixer *KAPPAVITA*

Perfect homogeneity for the highest product quality

In the production of demanding pharmaceutical and cosmetic products, uniform structures and stable emulsions are essential. The NETZSCH *KAPPAVITA* combines mixing, dispersing, homogenizing, and deaerating in a single system, ensuring reproducible results and maximum process control.

Your added value:

- Perfect homogeneity, even for highly viscous products
- High process stability thanks to patented systems
- Flexible batch sizes from 2 l up to 10,000 l

Technological highlights:

- Multi-stage rotor/stator system for finest dispersions
- Patented scraping system for efficient mixing
- Vacuum operation for air-free products



Homogenizers *LAMBDAVITA*

Inline homogenization for maximum efficiency

When processes need to be continuous, flexible, and high-performance, inline homogenization is essential. The NETZSCH *LAMBDAVITA* enables high throughput, finest dispersions, and flexible process integration, ideal for modern production concepts.

Your added value:

- Maximum flexibility: batch or continuous operation
- High throughput with consistent product quality
- Universally applicable for a wide range of products

Technological highlights:

- Rotor/stator system with extremely high shear forces
- Peripheral speeds up to 80 m/s (UST version)
- Direct incorporation of powders and liquids within the process
- ATEX-compliant designs available



Homogenizer *LAMBDAVITA CONTI*

Continuous production at the highest level

For applications where consistent product quality and high efficiency are essential, the *LAMBDAVITA CONTI* offers a powerful solution. Continuous processing ensures precise dosing and homogenization of multiple components, delivering consistently reproducible results.

Your added value:

- Continuous production instead of batch operation
- Consistent product quality at high throughput rates
- Reduced process times and minimized downtime
- Flexible integration into existing plants
- Automatable and reproducible processes

Technological highlights:

- Inline homogenization with rotor/stator technology
- Simultaneous dosing of multiple formulation components
- High shear forces for finest dispersions
- Adjustable process parameters depending on product requirements
- Fully integrable into *SYSTEM VITA*® concepts



Agitator Bead Mill *DELTA VITA*®

Nanotechnology for maximum API performance

The grinding of active pharmaceutical ingredients (APIs) is a key lever for improving solubility, bioavailability, and efficacy of modern drug products. With the *DELTA VITA*® agitator bead mills, NETZSCH offers a technology specifically developed for the pharmaceutical industry, enabling reproducible fine and ultra-fine grinding down to the nanometer range – from laboratory scale to full production.

Typical applications include the production of API suspensions and nanosuspensions, as well as the targeted enhancement of bioavailability for poorly soluble active ingredients. In addition, the systems are suitable for fine grinding in parenteral and oral dosage forms, dispersing and wetting of API particles, and homogenization of pharmaceutical formulations.



Your added value:

- Reliable scale-up from laboratory to production
- Reproducible nanoparticle quality
- High yield with minimal product loss
- Maximum process stability, even with large batch sizes
- Reduced API usage through improved bioavailability

Technologische Highlights:

- Batch sizes from 2 l up to 4,000 l
- Grinding down to the nanometer range
- Proven ZETA® mill technology for maximum energy efficiency
- Can be combined with GAMMAVITA to form a SYSTEM VITA® solution
- Cooling via double jacket
- Innovative bead separation system for safe operation
- Batch reporting in accordance with 21 CFR Part 11

Fine Impact Mill *CONDUX*® VITA

Precision dry grinding

Controlled micronization of solid materials is a key process step in pharmaceutical and cosmetic production. With the *CONDUX*® VITA, NETZSCH offers a flexible and high-performance solution for dry fine grinding of a wide range of products – precise, reproducible, and perfectly tailored to your application.

Your added value:

- High flexibility for a wide range of products
- Fineness down to $d_{50} = 4 \mu\text{m}$
- Optimized processes through modular grinding tools

Technologische Highlights:

- Combination of impact and shear forces
- Interchangeable grinding tools for maximum adaptability
- Throughput from 0.1 kg/h up to 660 kg/h



Agitator Bead Mill System ZETA®

Efficient wet grinding for highest product quality

The requirements for fine and ultra-fine grinding in pharmaceutical and cosmetic production are continuously increasing. With the ZETA® agitator bead mill, NETZSCH offers an energy-efficient solution for reproducible size reduction and dispersing – from laboratory scale to full production.

Typical applications include suspensions and dispersions, as well as the fine grinding of active ingredients and excipients. The proven ZETA® technology ensures maximum process stability and consistent results.

Your added value:

- High energy efficiency combined with maximum throughput
- Reproducible product quality, batch after batch
- Flexible adaptation to different products and processes
- Reliable scale-up from laboratory to production
- Reduced process times and optimized cost-efficiency

Technologische Highlights:

- Efficient grinding principle with optimized flow guidance
- Use of smallest grinding media for finest particle sizes
- Highly efficient bead separation system for safe operation
- Low product temperature increase due to efficient cooling
- Wide range of applications thanks to modular design



Vacuum DeAERATOR

Perfect deaeration for highest product quality

Entrapped air can significantly affect the quality, stability, and shelf life of pharmaceutical and cosmetic products. The NETZSCH DeAERATOR reliably removes air inclusions, ensuring visually flawless and process-stable end products.

Typical applications include creams, lotions, and gels, toothpaste and viscous cosmetic products, as well as emulsions and dispersions.

Your added value:

- Improved product stability and extended shelf life
- Air-free, homogeneous end products
- Optimized downstream processing and filling
- Reduced rejects and rework

Technologische Highlights:

- Deaeration based on the VDR principle (Vacuum Thin-Film Rotation)
- Gentle processing, even for highly viscous products
- Throughput capacities from 20 kg/h up to 4,000 kg/h
- Suitable for low to highly viscous media



Our Laboratory Equipment

From idea to reliable production

The development of new products requires precise testing, minimal material consumption, and reliable results. NETZSCH laboratory machines enable efficient process development and provide the foundation for a safe scale-up to production

All systems are perfectly aligned, ensuring a seamless transition from development to full-scale production.

Your added value:

- Minimal product quantities required, ideal for valuable raw materials
- Fast and reproducible test results
- Direct transferability to production-scale equipment
- High flexibility for a wide range of applications
- Reduced development time and costs

DELTA VITA® 1

Fast screening – maximum efficiency

Speed is a key factor in the development of new formulations. The *DELTA VITA® 1* enables parallel testing with minimal material consumption, making it ideal for efficient and rapid screening.

Your added value:

- Up to 40 tests simultaneously
- Minimal raw material consumption
- Fast decision-making in development

Technological highlights:

- Dual centrifuge mill
- Batch sizes from 1 ml up to 125 ml
- High comparability of results



DELTA VITA® MINI

Maximum results with minimal input

When only very small product quantities are available, the *DELTA VITA® MINI* offers maximum efficiency combined with precise and reliable results.

Your added value:

- Minimal product loss
- Fast and meaningful test results
- Ideal for early development phases

Technological highlights:

- Nano grinding of active pharmaceutical ingredients (APIs)
- Batch sizes from 0.15 l up to 0.5 l
- Flexible grinding chamber configuration



DELTAVITA® 15 - 300

Flexibility for development and scale-up

The laboratory agitator bead mills of the *DELTA*VITA® 15 – 300 series offer maximum flexibility for fine and ultra-fine grinding down to the nanometer range.

Your added value:

- Transferable results for reliable scale-up
- High flexibility in batch sizes
- Reproducible nanoparticle quality

Technological highlights:

- Fine grinding of API suspensions
- Batch sizes from 0.15 l up to 2 l
- Various grinding chamber sizes (15 ml to 300 ml)
- Batch reporting in accordance with 21 CFR Part 11



KAPPAVITA HM 2 - HM 10

Mixing and homogenizing at laboratory scale

The *KAPPA*VITA HM laboratory and pilot mixers enable realistic process conditions already during development.

Your added value:

- Realistic representation of production processes
- Reliable scale-up
- High flexibility for a wide range of products

Technological highlights:

- Combination of mixing, dispersing, and homogenizing
- Batch sizes from 0.8 l up to 10 l
- Integrated vacuum, heating, and cooling functions



Systems & Plants

Holistic solutions for maximum efficiency

NETZSCH Plant Engineering

For maximum process reliability and smooth validation

In pharmaceutical and cosmetic production, quality, safety, and traceability are essential. NETZSCH designs and delivers plants that fully meet these requirements – reliable, validatable, and future-proof.

As an ISO 9001-certified manufacturer, NETZSCH consistently operates in accordance with cGMP, FDA, and GAMP guidelines. All machines and systems are manufactured from high-quality materials suitable for pharmaceutical and cosmetic applications, meeting the highest regulatory standards.

Each system undergoes comprehensive testing, is precisely tailored to your specifications, and is fully documented.

Your added value:

- Complete solutions from a single source
- Highest quality and safety standards (cGMP, GAMP)
- Validatable and fully documented processes
- Customized design tailored to your production
- Global service and long-term partnership



SYSTEM VITA®

Modular plants – perfectly tailored to your processes

All machines are optimally coordinated, forming a continuous process chain with a unified control system. The result: maximum efficiency, high product quality, and minimized interfaces within production. From raw material to final product, an integrated system is created.

SYSTEM VITA® stands for customized plant concepts in which all components interact seamlessly. Depending on the application, the core consists of high-performance process machines such as KAPPAVITA and GAMMAVITA for mixing and homogenizing, as well as DELTAVITA® for ultra-fine grinding.

Your added value:

- Individually combinable technologies
- Continuous process chains without interface losses
- Optimized workflows and reduced process times
- Highest reproducibility and product quality

Technological highlights:

- Modular plant concept for maximum flexibility
- Integration of multiple process steps in one system
- Standardized control and automation solutions
- Scalable from laboratory scale to full production



SYSTEM VITA®, consisting of an agitator bead mill DELTAVITA® and a processing vessel GAMMAVITA

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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