

Grinding & Dispersing

## NETZSCH *NEOS*

Performance and Efficiency – More than a Step Ahead



unsere Technologie  
**IHR ERFOLG**

# NETZSCH *NEOS* Grinding System

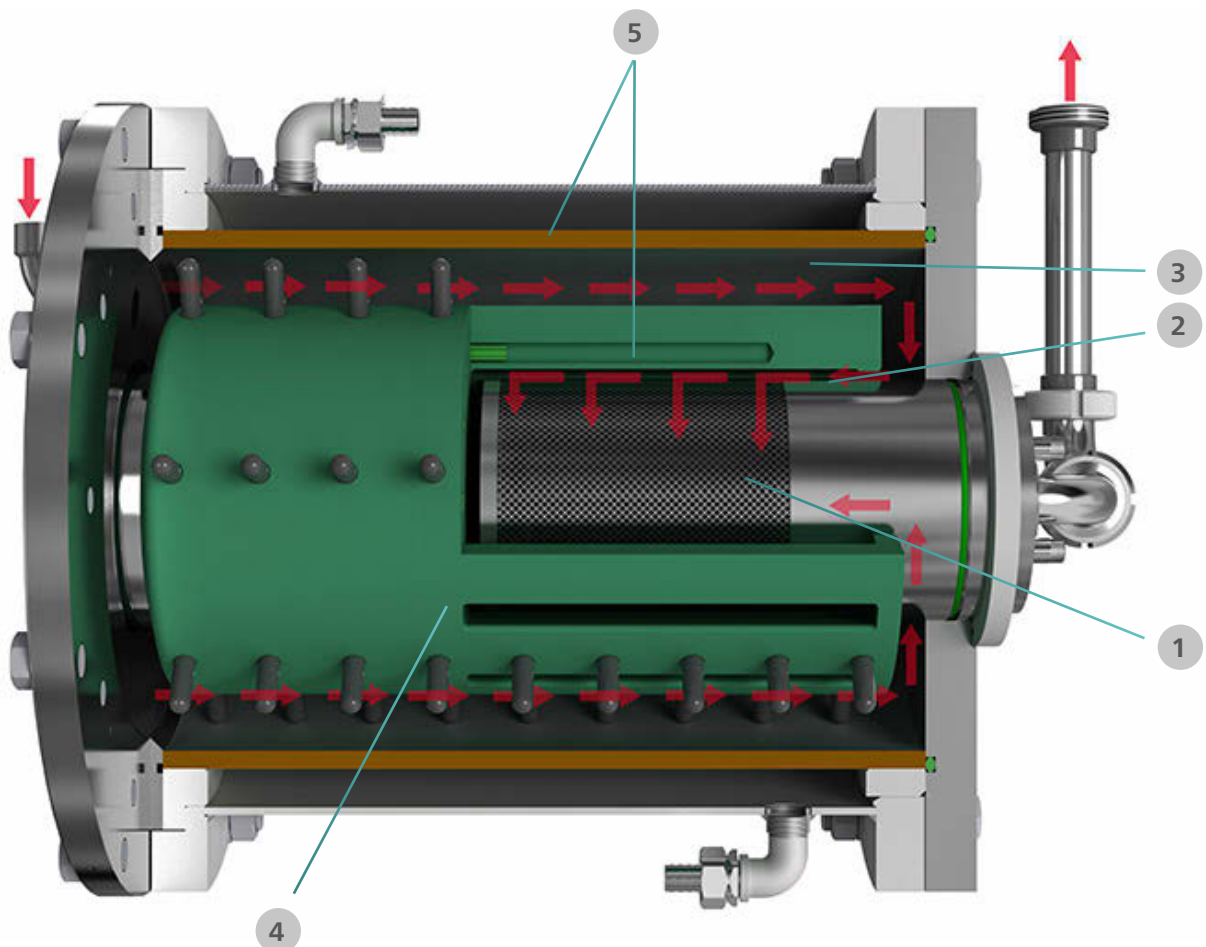
## Performance and Efficiency – More than a Step

The agitator cooling with the newly-developed Neos grinding system stands for maximum performance, product quality and efficiency.

Coupled with the reliable use of extremely small grinding media, you can achieve your required product quality with high production output and low specific energy consumption.

During the design phase, particular attention was given to achieving maximum cooling efficiency. As a result, it is possible to stay within the required temperature limits even with high power input.

This means a significant increase in production output compared to similar grinding systems.



### Features of the *NEOS* grinding system:

- 1 Maximum slotted pipe surface area
- 2 Optimized grinding media separation
- 3 Maximum cooling surface to grinding chamber volume ratio
- 4 New rotor design for efficient power input
- 5 Optimum grinding chamber cooling with NETZSCH-*CERAM C* inner tank and optional rotor cooling



## Model Sizes – from the laboratory to large-scale production

Models	Grinding chamber volume [l]	Batch size [l]	Drive [kW]	Throughput in circulation mode [kg/h]
<i>ALPHALAB</i>	0.5	2 - 10	3	70 - 200
<i>ALPHANEOS 2</i>	1.6	5 - 50	7.5	200 - 600
<i>ALPHANEOS 10</i>	8.5	30 - 500	22 / 30	1 000 - 3 000
<i>ALPHANEOS 20</i>	20	400 - 2 000	45 / 55	2 000 - 6 000
<i>ALPHANEOS 50</i>	55	1 000 - 4 000	90 / 110	4 000 - 12 000

### Application

- Printing Inks
- Lacquers & Coatings
- Agrochemistry
- Pigment Preparations

### Your Benefits

- The highest power input without overheating the product
- Maximum volume throughput
- The highest cooling efficiency
- Use of extremely small grinding beads (0.1 to 0.8 mm)
- Reproducible product quality
- High degree of process reliability
- Low operating costs
- Conversion of existing machines to the latest technology

# NETZSCH *NEOS* – Increase your Production

## High Power Input

A high power input is achieved with the new grinding system Neos which realizes a high productivity.

## Maximum Volume Throughput

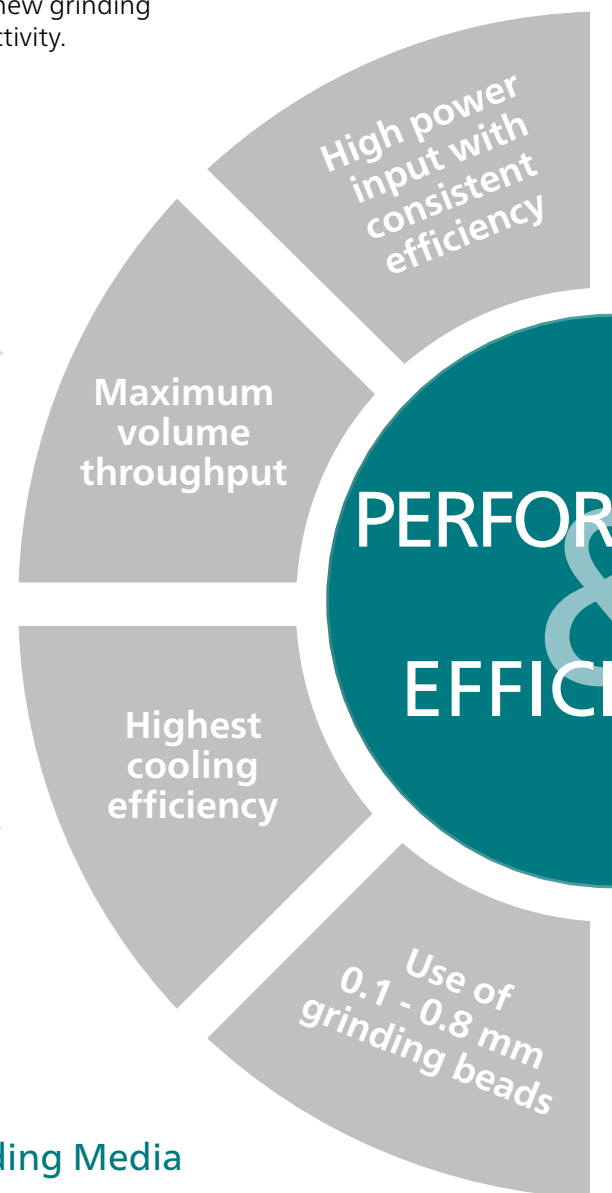
In the circulation mode, the required number of cycles is achieved very quickly due to the extremely high volume throughput.

## Optimized Cooling

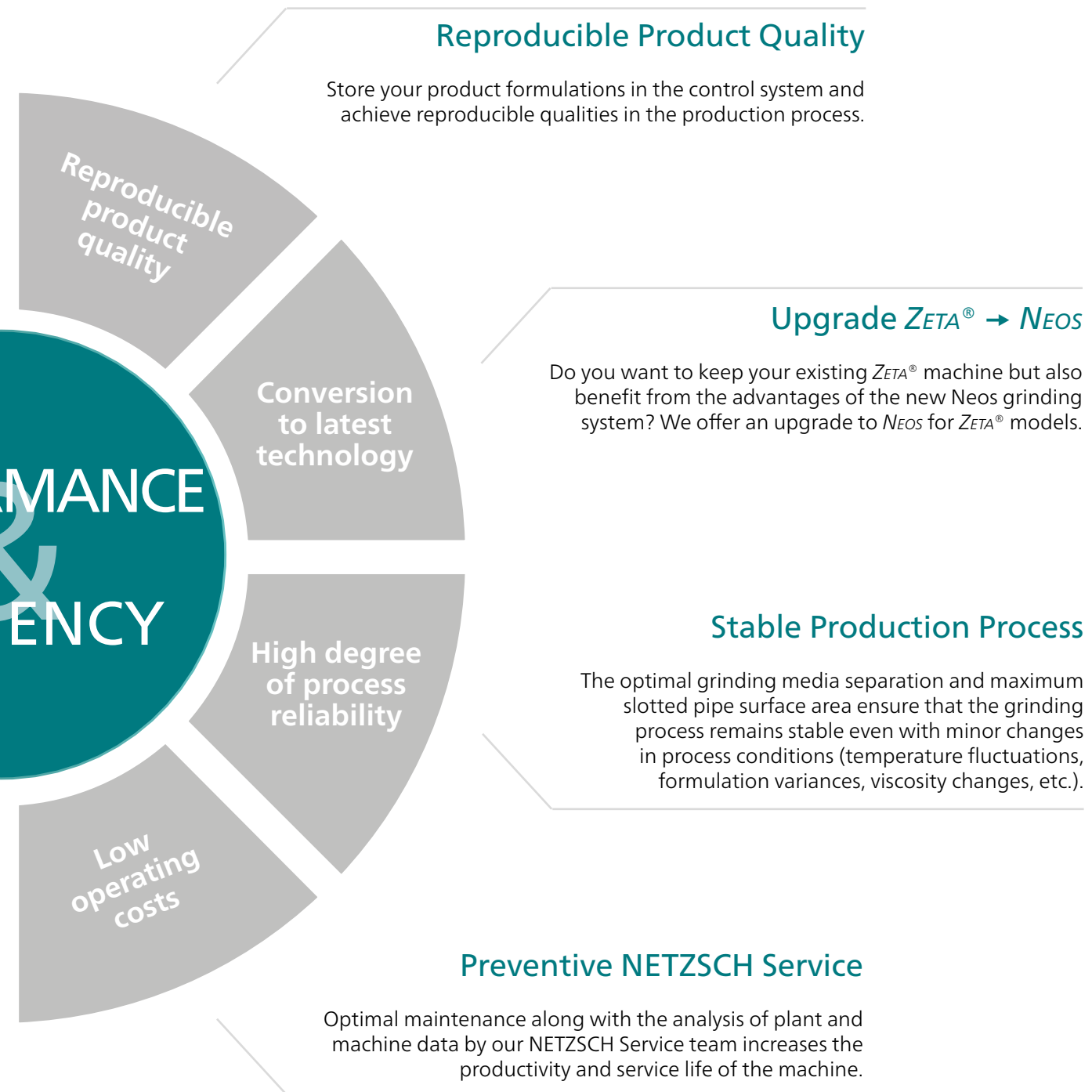
The highest cooling efficiency results from the use of new materials and optimum utilization of the available cooling surface.

## Use of extremely small Grinding Media

Select the right size of NETZSCH *ZETA*® BeadsPlus for your process.



# Capacity



# NETZSCH *NEOS* – Successfully implemented

Test the new *NEOS*

## NC Flexo Printing Inks

During production of an NC flexo printing ink with a *NEOS 20*, a net power input to the grinding chamber of 37 kW was possible without reaching the temperature limit of the product. In the existing process with an LMZ 25, the temperature limit was met with a net power input of 23 kW.

With the use of the new Neos in combination with optimized process parameters, the production performance was increased to more than 200% when employing a comparable machine size.

Machine	LMZ 25	<i>NEOS 20</i>
Grinding beads [mm]	0,9	0,8
Net power input [kW]	23	37
Temperature [°C]	49	43
Flow rate [kg/h]	1 500 - 2 000	3 500 - 4 000
Specific energy [kWh/t]	260	175
Net productivity [kg/h]	90	220
<b>Increase in productivity</b>		<b>240%</b>

Machine	LMZ 60	<i>NEOS 50</i>
Grinding beads [mm]	0,3	0,3
Net power input [kW]	40	72
Temperature [°C]	46	40
Flow rate [kg/h]	1 000	6 000
Specific energy [kWh/t]	2 500	2 500
Net productivity [kg/h]	16	29
<b>Increase in productivity</b>		<b>181%</b>

## Water-based Digital Inkjet

A prerequisite for efficient closed-loop grinding of the difficult-to-disperse digital printing ink was to achieve a high product throughput of 6 000 kg/h at controlled temperatures.

The net power input to the mill was increased to 72 kW with the Neos grinding system, resulting in a significant increase in production of 80% compared to the LMZ 60.

# Projects

## grinding system at our pilot plant

Included in our extensive range of services are our applications laboratories, which are equipped to the latest technical standards. Applications labs are available to you at our locations around the world in Germany, China, Brazil, Russia, India, Korea and the USA.

In these laboratories, we test the products you provide for us for grinding or processing, in order to achieve optimum results based on your specifications. The tests can be carried out on laboratory machines as well as production plants. Upon completion of the tests, we provide you with an informative report, including the test results. In addition, it is possible to characterize the products on site with appropriate technical analysis.

### Tests can be carried out for the process steps shown below:

- mixing and kneading
- dispersion
- fine grinding
- homogenization
- deaeration





# NETZSCH ALPHA<sup>®</sup> - Series

Modular machine platform for customized solutions

The new ALPHA<sup>®</sup> sets the standard in flexibility and handling and, thanks to its modularity, allows customer-specific solutions: different grinding systems can be mounted on one base stand – tailor-made for the requirements of your product.

Your benefit from the modular design is the cross-system standardization and, with it, the possibility to change a machine over to a new grinding system at a reasonable cost. In addition, the ALPHA<sup>®</sup> is also the platform for future NETZSCH technologies, which guarantees you long-term investment security.





## Focus on your benefits

- Common platform for four grinding systems allow for easy changeover
- Long-term investment security: *ALPHA*® is your platform for future NETZSCH technologies
- Cantilever grinding chamber and top-fed supply lines for optimal accessibility
- High level of work safety due to spatial separation of rotating machine parts from media-conveying installations allows safe access even during operation
- *ALPHA*® Cart service cart for removal of the grinding tank and accommodation of the grinding media



### Product inlet

The tangential intake of product in the direction of rotation reduces recirculation of the grinding media, leads to a pressure reduction and prevents backup. It also facilitates emptying of the grinding beads for service or maintenance.



### Cooling water flow

Optimal cooling of the grinding chamber and, depending on the system, the agitator shaft, makes extremely low processing temperatures possible. This means you can process even temperature-sensitive products.



### Supply connections

For optimal connection of the *ALPHA*® to existing piping systems, all supply lines feed into the machine from the top. Obstacles on the floor are avoided and the mill is accessible to industrial trucks from all sides.

# NETZSCH *ALPHANEOS*

## Operational Safety / Process Monitoring & Control

### NETZSCH-CONNECT – ready for Industry 4.0

Linking the NETZSCH *ALPHA*® to NETZSCH-CONNECT enables you to acquire and store various process data from your machine.

With the database-oriented tool, which can be controlled via web browser, process data are continuously recorded, pre-processed and transferred to a central server as encrypted XML files via a VPN network. With the appropriate access authorization, you and your process specialists can view, analyze and export the data from any network-capable PC.

This provides you with indications of relevant changes in your production process, allowing you to draw conclusions about effects on the production quality. The evaluation of process data over an extended period of time aids in the optimization of your production. Maintenance and service work can be better planned. In addition, you receive details on production and shutdowns as well as their possible causes.



## The choice is yours – Select the control system that is right for you:

### NETZSCH BASE

With the capability for efficient process control through recording of the energy input, the basic version, NETZSCH BASE, offers more than just the necessary safety functions. The automatic screen cleaning sequence facilitates trouble-free processing of the most difficult products.

- Measurement and display of the agitator motor performance
- Fault lights to indicate values above/below limits
- kWh meter to record energy input (kWh), preset value for process shutdown, display toggling to current power input (kW)
- Infinitely adjustable agitator and pump speeds by means of frequency converter
- Automatic screen cleaning sequence
- Mill control via pushbuttons

### NETZSCH GRAPH

Automatic operation is possible with the NETZSCH GRAPH control system. Operation, input and calculation parameters are shown on the graphic display. Automatic start allows reliable run-up of the machine to the preset operating parameters.

- Display of operation, input and calculation parameters (mill rotational and peripheral speed; gross and net mill output; pump speed; product pressure; product throughput – with optional flow meter, otherwise calculated from pump speed; product temperature and more ...)
- Presets for nominal and limiting values for automatic operation
- 7" color graphic display with touch-screen function and 16 colors

### NETZSCH GRAPH *PLUS*

Various control strategies are available with NETZSCH GRAPH Plus. The measured values are graphically assigned to the data points on the display. In automatic mode, the process parameters can be acquired from the process databank, which manages formulations for a maximum of 98 product data sets. This allows you to process any formulation automatically according to individual parameters.

- Display of operation, input and calculation parameters analogous to NETZSCH GRAPH
- Display of trend graphs for the most important process data
- Preset values for all operational modes for a batch
- Control strategies such as power, temperature, pressure or throughput control – flow meter required
- Shutdown functions can be selected and combined:
  - Timer
  - Energy input and/or number of cycles
  - For passage mode, shutdown is pressure-dependent
- 12" (IP) or 10.4" (ATEX) color graphic display with touch-screen function and 256 colors

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

NETZSCH-Feinmahltechnik GmbH  
Selb, Germany

NETZSCH Lohnmahltechnik GmbH  
Bobingen, Germany

NETZSCH Premier Technologies,  
LLC. Exton PA, USA

NETZSCH Indústria e Comércio de  
Equipamentos de Moagem Ltda.  
Pomerode, Brazil

NETZSCH Technologies India  
Private Ltd.  
Chennai, India

NETZSCH Trockenmahltechnik GmbH  
Hanau, Germany

NETZSCH España, S.A.U.  
Terrassa/Barcelona, Spain

NETZSCH Mastermix Ltd.  
Lichfield, Great Britain

NETZSCH (Shanghai) Machinery  
and Instruments Co., Ltd.  
Shanghai, China

NETZSCH FRÈRES S.A.R.L.  
Arpajon, France

NETZSCH Vakumix GmbH  
Weyhe-Dreye, Germany

AO NETZSCH Tula  
Tula, Russia

NETZSCH Korea Co., Ltd.  
Goyang, Korea

NETZSCH Makine Sanayi ve  
Ticaret Ltd. Sti.  
Izmir, Turkey

ECUTEK S.L.  
Barcelona, Spain

The NETZSCH Group is a mid-sized, family-owned German company engaging in the manufacture of machinery and instrumentation with worldwide production, sales, and service branches.

The three Business Units – Analyzing & Testing, Grinding & Dispersing and Pumps & Systems – provide tailored solutions for highest-level needs. Over 3400 employees at 210 sales and production centers in 35 countries across the globe guarantee that expert service is never far from our customers.

NETZSCH-Feinmahltechnik GmbH  
Sedanstraße 70  
95100 Selb  
Germany  
Tel.: +49 9287 797 0  
Fax: +49 9287 797 149  
info.nft@netsch.com

**NETZSCH®**

[www.netsch.com](http://www.netsch.com)