

# NETZSCH

Proven Excellence.



## *LABSTAR* Laboratory Agitator Bead Mill

The standard solution for maximum flexibility and reproducibility

# LABSTAR Laboratory Agitator Bead Mill

*For the laboratory of*

The *LABSTAR* facilitates scientific academic work for all research and development tasks. The grinding and dispersing results from the tests on a laboratory scale with finenesses down to the nanometer range are exactly transferrable to production scale.

- Are you looking for precision and know-how?
- Do you expect accurate and reproducible results?
- Do you want to be completely flexible with no restrictions on your scientific curiosity?
- Are you looking for an all-round solution for a wide variety of tasks?
- Do you want to test different grinding systems on one platform?

... our *LABSTAR* is an extremely flexible laboratory mill, which meets all of these requirements and simplifies your day-to-day work.

## Your Benefits

- Clean operation
- Easy handling
- Lowest product use
- Versatile applications
- Extensive information
- High reproducibility
- Exact scale-up



today



## With this mill, research and development is fun

With this mill, you will develop solutions and achieve results that will still be talked about tomorrow. Designed as a table-top model, the agitator mill can be pivoted and is therefore extremely user-friendly. An operating position and different maintenance positions mean that test preparation and cleaning is child's play.

The bearing-side of the mill's process chamber is sealed via a double-acting cassette-type mechanical seal - as with the large production machines.

The drive of the agitator is infinitely adjustable directly via a frequency-controlled three-phase motor. The centrifugal separation system reliably retains the grinding media in the grinding chamber and allows the use of grinding beads with a diameter between 0.05 mm and 2.4 mm. The modular design facilitates conversion to different grinding systems. Thus, the machine can be used in both single and multi-pass mode, in circulating mode, in pendulum mode, as well as in closed batch mode. Different materials such as NElast coatings, ceramics and special steels ensure product compatibility for an extremely wide range of applications. Due to the platform concept, the *LABSTAR* can also be used for future grinding systems.

# LABSTAR Laboratory Agitator Bead Mill

## Handling &

### Very easy Handling without the Loss of Grinding Media

The grinding chamber of the *LABSTAR* laboratory machine can be swiveled. In the „Prepare“ position, different grinding systems can be coupled with the machine platform quickly and easily. The grinding media are simply filled from above into the process chamber. In the operating position, we guarantee a homogeneous distribution of grinding media in the grinding container. At the right angle of inclination, the service position allows the uncomplicated and residue-free discharge of the agitator bead mill. Screw connections allow quick disassembly of all components for cleaning.

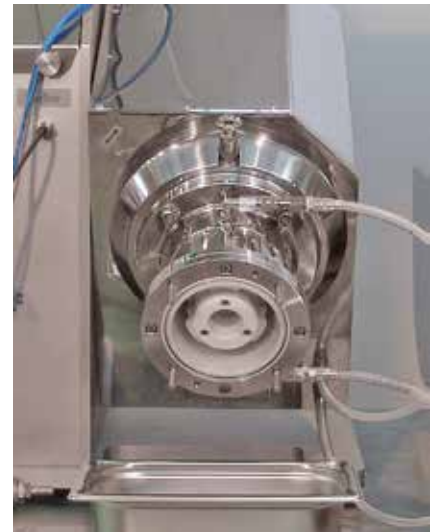
**FILL POSITION**  
Preparation



**OPERATING POSITION**  
Grinding & Sampling



**SERVICE POSITION**  
Emptying & Cleaning



# Control

## Control & Operation

The basic version of the *LABSTAR* is already equipped as a fully operational laboratory machine. It has a comprehensive safety system that switches the mill off in the event of a malfunction, thus guaranteeing occupational safety and preventing damage to the product and the machine. In an enhanced model, extensive measuring points record all process-relevant data and provide all the information needed for scientific academic work. The acquired process data, in conjunction with the specified grinding chamber geometry, is scale-up-capable and permits precise transfer to production machines.

## NETZSCH-CONNECT

Das NETZSCH-CONNECT enables you to acquire and store various process data from your machines or plants.

Here, data security and access control have the highest priority. This database-centered tool, controlled via web browser, can be implemented on any NETZSCH machine with SPS control (Siemens S7-300 or Wago 750-842) when linked to a network – an upgrade is also possible at any time. With this tool developed by NETZSCH, process data are continuously recorded, preprocessed and transmitted via a VPN network to a central server as an encrypted XML file.

With the appropriate access authorization, you and your process

specialists can view, analyze and export the data from any network-capable PC. You will receive information on relevant changes in your production process and be able to draw conclusions about effects on the production quality. Evaluation of process data enables the optimization of production, service and maintenance.

You will receive valuable information regarding production and down times and their possible causes. NETZSCH-CONNECT also gives you the option to make use of time and cost-saving remote service and process support from our NETZSCH specialists.

### Your Benefits

- Worldwide access via secure VPN gateway
- Customized configuration according to customer requirements, including reports on demand
- Cost-effective remote maintenance service and process support
- Notification system via e-mail or text in case of malfunction

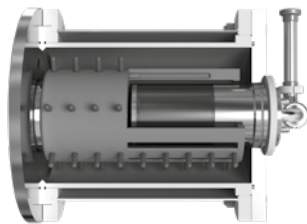
# LABSTAR Laboratory Agitator Bead Mill

## Equipment

### Grinding Systems

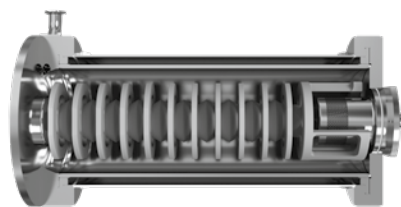
The LABSTAR leaves nothing to be desired in terms of application possibilities. All of the familiar grinding systems can be mounted on the LABSTAR.

**ZETA® System**



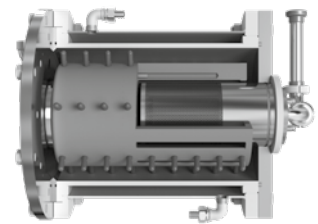
The ZETA® circulation system, patented in 1991, was specially developed for recirculation grinding. The ZETA® grinding system is available in various materials such as NETZSCH-CERAM Z, NETZSCH-CERAM N or NETZSCH-CERAM C or NElast. The grinding system is designed such that very flexible grinding media sizes between 0.1 mm and 2.0 mm can be used.

**DISCUS System**



The advanced disk grinding system DISCUS is primarily used for dispersion tasks in single and multi-pass operation with grinding media sizes between 0.3 mm and 2.4 mm. It is a logical advancement of the TRINEX® grinding system.

**NEOS® System**



The NEOS® grinding system is a horizontal peg grinding system for grinding temperature-sensitive systems with very small grinding media at extremely high product throughput rates in circulation mode. Based on the proven ZETA® grinding system, it was specially designed for reliable use of very small grinding media between 0.1 mm and 0.8 mm.

# Options

## Materials

In order to meet the requirements of a wide variety of products and to guarantee good product compatibility, we offer a large number of grinding chamber materials. The proper advice of our specialists will ensure low-wear operation of the mill.

Grinding chamber	Agitator shaft, chamber bottom, flange
Cr-Ni-Steel	
NElast	
Polyamide	
NETZSCH-CERAM Z	
NETZSCH-CERAM Z	NElast
NETZSCH-CERAM Z	Polyamide
NETZSCH-CERAM C	NETZSCH-CERAM N
NETZSCH-CERAM C	NElast

# LABSTAR Laboratory Agitator Bead Mill

## Technical

	ZETA®	LABSTAR DISCUS	NEOS®	MINISERIES (**)	MICROSERIES (**)
Speed [min <sup>-1</sup> ]		1,000 - 4,500		1,000 - 4,500	1,000 - 4,500
Grinding bead diameter [mm]	0.1 - 2.0	0.3 - 2.4	0.1 - 0.8	0.05 - 2.0	0.05 - 0.8
Grinding media volume (100%) [ml]	540	660	430	200	100
Grinding chamber volume [ml]	640	910	620	240	120
Batch size in recirculation mode [l]	1.2 - 7.0 (15)	1.5 - 7.0 (15)	1.5 - 7.0 (15)	0.5 - 7.0	0.4 - 7.0
Batch size in batch mode [ml] (*)	410	625	-	148	74

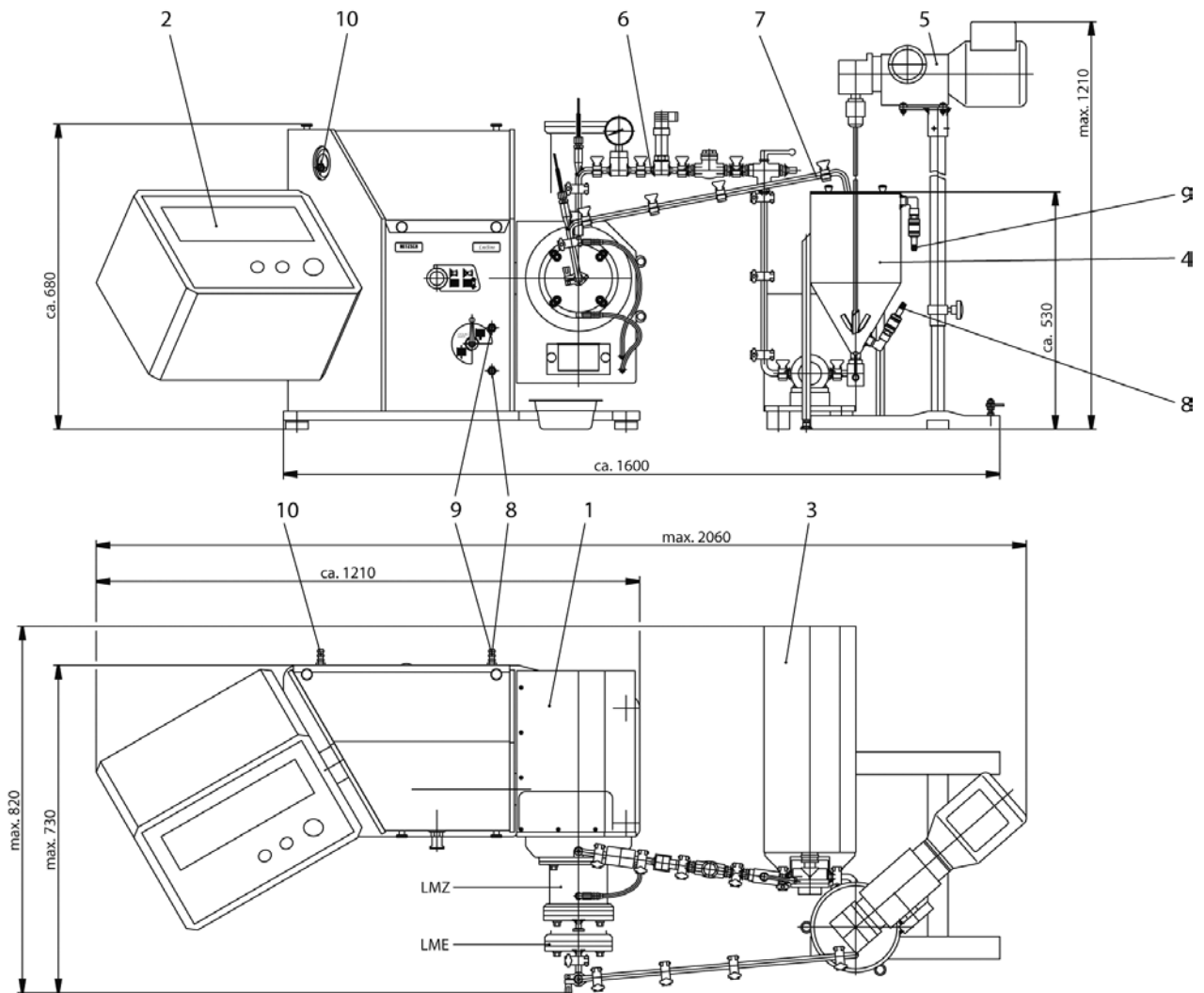
(\*) at 85% grinding media volume

(\*\*) conversion kit

### Overview

- LABSTAR weight approx. 150 kg
- Pump weight approx. 45 kg
- Agitator shaft drive 3.0 kW
- 400 V / 50 Hz / 3 phase
- Pump motor 0.37 kW / 400 V / 50 Hz / 3 phase
- Control box (not shown) for separate installation (1,000 x 1,200 x 350 mm)



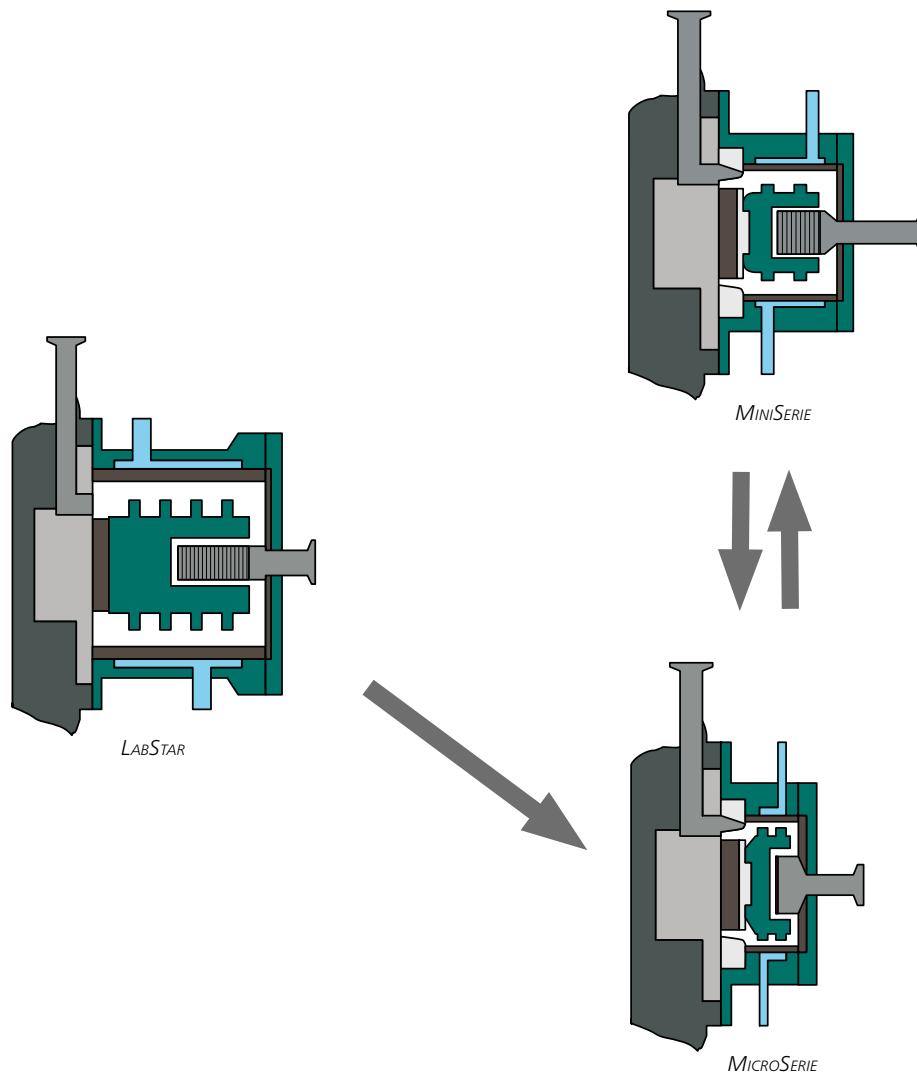


- |   |   |    |                                |
|---|---|----|--------------------------------|
| 1 | LABSTAR   | 6  | Product intake Ø 9.5           |
| 2 | Control panel   | 7  | Product outlet Ø 9.5           |
| 3 | Pump (hose, gear, diaphragm or progressive cavity pump) | 8  | Cooling water inlet Ø 13       |
| 4 | Batch tank  | 9  | Cooling water outlet Ø 13      |
| 5 | Stand mixer   | 10 | Compressed air connection Ø 13 |

# LABSTAR Laboratory Agitator Bead Mill

*Flexibility without*

The variation possibilities of the multifunctional laboratory mill - the *LABSTAR* - have been extended by another feature. Now you can not only select from the two scale-up-capable grinding systems *DISCUS* and *ZETA*<sup>®</sup>, as well as a variety of material options, but also convert to the smaller grinding chamber designs of the 230 ml *MINISERIES* and 110 ml *MICROSERIES*. A special conversion kit has been developed for this purpose, which requires short assembly times. This new additional feature makes the *LABSTAR* the most flexible all-round laboratory mill on the market.



# Limits

## A Selection of Applications

Printing Inks

Paints

Pigments, Dyes

(Textiles, Plastic, Film)

Pigment preparations

Pigment production

(Phthalo blue conversion)

Plant protection agents

Magnetic coatings

High-tech products: color filters, polishing agents for electronic components, ITO, ...)

Pharmaceuticals, Cosmetics

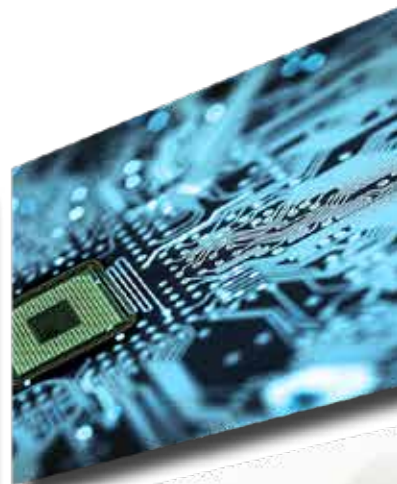
(sunscreen)


Paper coatings

Nano Applications:

LCD (Liquid Crystal Display)

MLCC (multilayer ceramic capacitors)





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 3,800 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

NETZSCH-Feinmahltechnik | Germany  
NETZSCH Trockenmahltechnik | Germany  
NETZSCH Vakumix | Germany  
NETZSCH Lohnmahltechnik | Germany  
NETZSCH Mastermix | Great Britain  
NETZSCH FRÈRES | France  
NETZSCH España | Spain  
ECUTEK | Spain

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

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