

DYNO[®]-MILL NPM *Nano Performance*

The new dimension
in wet ultrafine grinding
and dispersion



WAB – the expert in wet ultrafine grinding and dispersion

For decades WAB has been the unchallenged specialist in dispersion and grinding technology with its world-famous DYNO®-MILL. The exacting requirements for the final product also place extreme demands on the quality and wear resistance of the mills.

The new **Nano Performance Mill**, the DYNO®-MILL NPM, is designed for continuous dispersion and wet grinding of low viscous to viscous products in the sub-micron and nanometer ranges. The unique grinding bead separation system permits the use of ultrafine grinding beads from 0.05 – 0.2 mm. Patented DYNO® Accelerators ensure stable processing and high throughput rates.



Features of the DYNO®-MILL NPM – Nano Performance Mill

- Patented DYNO® Accelerators ensure powerful hydraulic grinding beads and guarantee high and uniform energy input for low viscous to viscous products
- Unique, dynamic separation system for optimum, stable grinding using the finest grinding beads from 0.05 to 0.2 mm
- Ideal for continuous and discontinuous operation with constant throughput and achievement of the narrowest possible particle size distribution
- Guaranteed long service life and nonmetallic grinding with high-quality ceramic components (SiC, ZrO₂)
- Low power consumption (kWh/kg product) thanks to efficient grinding
- Low process volume and ideal cooling properties perfect for heat-sensitive products
- Gentle hydrodynamic processing
- Easy operation, recording of operating data and guaranteed safety with the modern WAB-VIEW process control system
- Extremely simple cleaning with small quantities of fluid, easy handling with low operation and maintenance costs thanks to the design of the grinding chamber.
- With the unique, patented grinding principle, the DYNO®-MILL NPM guarantees product quality with the most sharply defined ranges of particle size in the range <100 nm to be obtained

Nothing but the best |
for your products and performance



Top quality comes from the use of high-grade materials

Maximum quality requirements, metal-free grinding/dispersion, high wear resistance and long service life mean that only the best materials are used in the DYNOMILL NPM. High-strength yttria/zirconia ceramic materials and silicon carbide are used for wear parts which come in contact with the product.

Ease of handling with low operating and maintenance costs

The DYNOMILL NPM is well engineered and can be

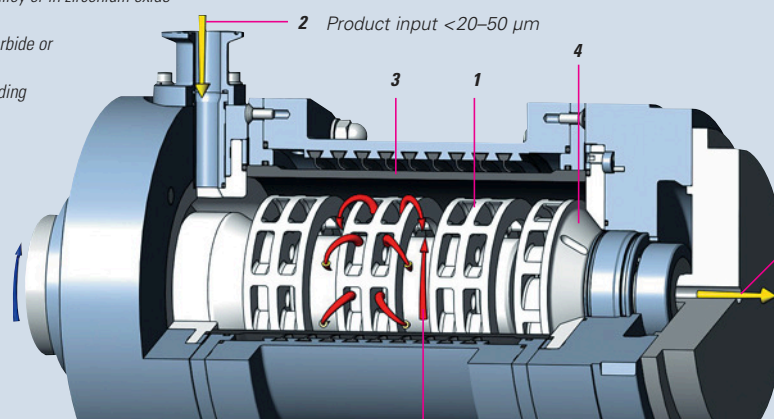
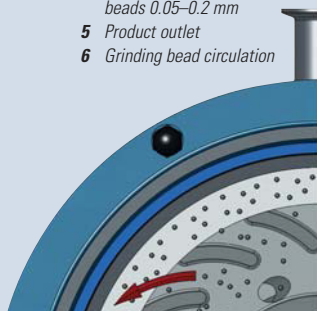
perfectly adapted to accommodate all user requirements. Operation, cleaning and opening for service are extremely simple. The components have smooth surfaces and are designed for easy access, enabling cleaning with the smallest possible quantities of solvents/fluids.

WAB VIEW: modern process control guarantees reproducibility

In addition to clear, simple operation of the mill, the WAB VIEW control guarantees that all process parameters can be monitored. The PLC control is modular and extendible (data acquisition, process control via product temperature or power input, communications via modem, connection to PC or process control system).

Mode of operation

- 1 DYNOMILL-Accelerators in hardened chrome alloy or in zirconium oxide
- 2 Product inlet/ grinding bead inlet
- 3 Coolable grinding container with silicon carbide or zirconium oxide grinding cylinder
- 4 Dynamic separation system for use of grinding beads 0.05–0.2 mm
- 5 Product outlet
- 6 Grinding bead circulation



New products and applications | thanks to the latest grinding technology



The ultramodern grinding technology of the DYNO®-MILL NPM sets new standards in countless branches of industry. The following is a small selection.

- | | | | |
|---------------------|---|------------------------------------|---|
| ■ Pharmacology | Dissolution of active ingredients, cancer therapy | ■ Paints and printing inks | T |
| ■ Cosmetics | Absorption (UV protection) | ■ Dental fillings | H |
| ■ Surfaces | Extreme hardness, self-cleaning | ■ Microelectronics, semiconductors | C |
| ■ Coatings | Nonstick properties, corrosion protection | ■ Microbiology | M |
| ■ Life science | Bioactive surfaces | ■ Ceramics | S |
| ■ Pigments | Color intensity, brilliance | ■ Batteries, catalysts | C |
| ■ Ink jet ink | Colorfastness and lightfastness | ■ Biotechnology | C |
| ■ Automobile paints | Scratch resistance, colour effects | ■ Agricultural chemistry | E |

Test the performance of the future

You can experience the future live in our pilot plant: test the DYNO®-MILL NPM and let yourself be surprised by its amazing capacity. We will be pleased to arrange an appointment for you as well as to support you with process engineering advice and services.



WAB global: our service and sales network

With over 40 sales and service locations, our global network is ready to serve our customers with competent advice and support, always guaranteeing fast response and hence the shortest possible outage times. In addition to the extensive stores at our headquarters, our subsidiaries in Germany and France as well as most sales and service locations maintain extensive spares.



Headquarters

Willy A. Bachofen AG Maschinenfabrik
Utengasse 15/17
CH-4005 Basel
Tel. +41 (0)61 6867 100
Fax +41 (0)61 6867 110
wab@wab.ch

Subsidiaries

Willy A. Bachofen GmbH
Liebigstrasse 16
D-61130 Nidderau-Heldenbergen
Tel. +49 (0)6187 93 94 0
Fax +49 (0)6187 93 94 29
wab@wab.de.com

WAB Machinery (Shen)
Block 3, Floor 1, Shun
No. 10 Industrial Distr
Shenzhen 518109, Chi
Tel. +86 (0) 755 2813
Fax: +86 (0) 755 2813