Dosing Technology
Emptying – Conveying – Dosing
You’ve got the application, we’ve got the solution

As a truly global producer of progressing cavity pumps NETZSCH Pumpen & Systeme GmbH has been developing, manufacturing and selling NEMO® progressing cavity pumps worldwide for more than six decades. These are the heart of the NETZSCH barrel emptying and dosing systems.

Our products are operating, amongst others, in the following industries:

- Food
- Cosmetics
- Chemical Industries
- Consumer goods
- Industrial goods
- Electrical equipment
- Electronic Packaging
### Product Range

<table>
<thead>
<tr>
<th>NETZSCH Barrel Emptying Units</th>
<th>NETZSCH Control Systems</th>
<th>NETZSCH Buffer Vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard units for the emptying of barrels from 1 l to 200 l. Capacities from ca. 6 ml up to ca. 10 m³/h. Clean emptying, residues &lt;1 % without liner.</td>
<td>Start/stop control 1K control</td>
<td>Buffer Volume ca. 1.0 l; delivers a constant feed pressure for the dispenser to ensure the highest levels of dosing accuracy. Also enables barrel changes without interrupting the production process.</td>
</tr>
</tbody>
</table>

### NETZSCH Dosing Systems

For best co-ordination/synchronization between emptying and dosing we offer combined barrel emptying unit, control system, buffer storage and dispenser.

### NEMO® Dispenser

Capacities from ca. 0.2 ml up to 4.0 ml chamber volume per revolution, dosing accuracy +/- 1 %.

---

### How fortunate to be able to choose

Always orientated around the benefits of the customer, the NETZSCH products range from the smallest dosing pumps with flow rates of a few milliliters to powerful pumps to transfer 1000 m³/h. In addition, we provide macerators and a wide range of accessories. Since we know and understand your process, we provide everything "around the pump" for your application.

### Always the right product

NEMO® pumps belong to the group of rotary positive displacement pumps. They consist of two conveying elements, the rotor and the fixed stator, in which the rotor rotates. For each individual application, the most technically suitable pump is chosen. Your advantages are pump types and series, which are ideally matched to your specific application.

### We are where you are

With more than 1,900 employees at five development and production sites as well as 30 sales offices, a co-operation partner (in Japan) and another 200 NETZSCH representatives NETZSCH Pumps & Systems is close to you wherever you are.
NETZSCH barrel emptying units draw themselves towards the bottom of the barrel and empty barrels and containers in chemical, pharmaceutical and food industries with the absolute minimum of product wastage. The heart of the barrel emptying unit is a NEMO® progressing cavity pump. When the pump is started a vacuum is created below the follower plate, which at the same time creates a light pressure on the media to guarantee a consistent suction into the pump. Versions: Frame in stainless steel, other materials optional, mobile or stationary.

Characteristics and Typical Components

NETZSCH barrel emptying units draw themselves towards the bottom of the barrel and empty barrels and containers in chemical, pharmaceutical and food industries with the absolute minimum of product wastage. The heart of the barrel emptying unit is a NEMO® progressing cavity pump. When the pump is started a vacuum is created below the follower plate, which at the same time creates a light pressure on the media to guarantee a consistent suction into the pump. Versions: Frame in stainless steel, other materials optional, mobile or stationary.

Characteristics of NETZSCH NBE 200
- Continuous or intermittent emptying
- No pressure or flow disruptions
- Emptying of conical barrels
- Low pressure conditions in the system
- Continuously adjustable discharge capacity through the speed of the drive
- Dosing directly from the barrel
- Capacity proportionally to the speed of the drive
- Equipped with frequency inverter for easy adjustment
- Simple linear guide rail

Characteristics of Media
- Low to very high viscosity
- Dilatant, thixotropic or having a viscous structure
- Shear and pressure sensitive
- Highly abrasive
- Lubricating and non-lubricating
- Adhesive and gel-like

Large Range of Capacities
- Capacities from approximately 6 ml/min to 10 m³/h

Barrel Sizes
- Barrels between 20 l to 200 l as standard

The follower plate, with soft lip sealing, presses tightly against the wall of the barrel ensuring almost complete emptying of the container.

The linear guide rail system, used to adjust the height of the pump, can be easily cleaned and accommodates various container sizes.

The standard control panel with frequency inverter is conveniently located, and allows for user-friendly adjustment of product delivery.
Advantages

- Gentle conveyance
- Free of pulsation
- Shear and pressure sensitive
- Smooth transport of media with solids
- Conveyance independent of temperature and viscosity
- Complete discharge, residues < 1 %
- Easy maintenance
- Low life cycle cost
- Stainless steel, easy to clean
NETZSCH Barrel Emptying Units for Dosing without Dripping

NETZSCH NBE 20 Barrel Emptying Unit

*all dimensions in mm

<table>
<thead>
<tr>
<th>NETZSCH NBE 20 Barrel Emptying Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base frame</td>
</tr>
<tr>
<td>Frame options</td>
</tr>
<tr>
<td>Material in contact with product</td>
</tr>
<tr>
<td>Barrel sizes</td>
</tr>
<tr>
<td>Wiping ring</td>
</tr>
<tr>
<td>Flow rate</td>
</tr>
<tr>
<td>Pump</td>
</tr>
<tr>
<td>Max. back pressure</td>
</tr>
<tr>
<td>Control</td>
</tr>
<tr>
<td>Optional</td>
</tr>
</tbody>
</table>

*depending on product
NETZSCH NBE 200 Barrel Emptying Unit

*all dimensions in mm

<table>
<thead>
<tr>
<th>NETZSCH NBE 200 Barrel Emptying Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base frame</strong></td>
</tr>
<tr>
<td><strong>Frame options</strong></td>
</tr>
<tr>
<td><strong>Material in contact with product</strong></td>
</tr>
<tr>
<td><strong>Barrel sizes</strong></td>
</tr>
<tr>
<td><strong>Wiping ring</strong></td>
</tr>
<tr>
<td><strong>Flow rate</strong></td>
</tr>
<tr>
<td><strong>Pump</strong></td>
</tr>
<tr>
<td><strong>Max. back pressure</strong></td>
</tr>
<tr>
<td><strong>Control</strong></td>
</tr>
<tr>
<td><strong>Optional</strong></td>
</tr>
</tbody>
</table>

*depending on product
NEMO® Dispensers – For the highest dosing accuracy

Characteristics and Typical Components

NEMO® dispensers guarantee very precise dosing and high repeatability. As a result of these qualities NEMO® dispensers are being used for various applications in the cosmetic industry, in the chemical industry, in the production of consumer goods or industrial goods, electrical equipment or electronic packaging.

NEMO® Dispenser Characteristics

NEMO® dispensers are mainly used for media with the following properties:

- Capacity proportional to the speed of drive
- Dosing accuracy ±1 % volumetric
- Versatile use in applications that require robotics and servo technology
- Valve free dosing method
- Optional heating
- Perfect for shear sensitive products, such as media with micro balloons

Media Characteristics

- Low to very high viscosity
- Abrasive media
- Anaerobic media
- Shear and pressure sensitive
- Dot- and bead application
- Suitable for all adhesives and sealants
- Excellent for casting applications
- Suitable for all kinds of solvents and soldering paste

Large Range of Capacities

- Capacities between approximately 0.2 to 4.0 ml/rev. and 9 ml/rev.
1 Drive
Planetary gear with reinforced bearing

2 Pump Housing
Manufactured from aluminium

3 Drive Shaft
With robust bearing for precise true-running of shaft

4 Shaft Sealing
Twin lip seal for highest vacuum pressure load

5 Rotor
In wear and corrosion resistant versions

6 Stator
In various qualities for highest durability and abrasion resistance

7 End connection
Manufactured from aluminium

**Advantages**
- Very gentle conveyance
- Pulsation free
- Compact design for easy installation in robotic application
- Gentle conveyance of media containing solids
- No dripping or thread-pulling
- Conveyance is independent of temperature and viscosity
NEMO® Dispensers – For the highest dosing accuracy

NEMO® Dispenser NDP0400-04

*all dimensions in mm

<table>
<thead>
<tr>
<th>NEMO® Dispensers NDP0400-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing volume</td>
</tr>
<tr>
<td>Min. dosing quantity</td>
</tr>
<tr>
<td>Stator materials</td>
</tr>
<tr>
<td>Flow rate</td>
</tr>
<tr>
<td>Max. dispense speed</td>
</tr>
<tr>
<td>Operating temperature</td>
</tr>
<tr>
<td>Max. back pressure</td>
</tr>
<tr>
<td>Max. inlet pressure</td>
</tr>
<tr>
<td>Weight incl. gearbox</td>
</tr>
</tbody>
</table>

*depending on product
NEMO® Dispenser NDP0600-03

*all dimensions in mm

<table>
<thead>
<tr>
<th>NEMO® Dispensers NDP0600-03</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing volume</td>
<td>~1 ml/rev.</td>
</tr>
<tr>
<td>Min. dosing quantity</td>
<td>0.25 ml*</td>
</tr>
<tr>
<td>Stator materials</td>
<td>NBR, EPDM, Viton, PTFE25%GF, (FDA Grades available)</td>
</tr>
<tr>
<td>Flow rate</td>
<td>6 – 200 ml/min*</td>
</tr>
<tr>
<td>Max. dispense speed</td>
<td>200 rpm*</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>up to +248 ºF/+120 ºC</td>
</tr>
<tr>
<td>Max. back pressure</td>
<td>up to 450 psi/30 bar*</td>
</tr>
<tr>
<td>Max. inlet pressure</td>
<td>145 psi/10 bar</td>
</tr>
<tr>
<td>Weight incl. gearbox</td>
<td>ca. 6.2 lbs/2.8 kg</td>
</tr>
</tbody>
</table>

*depending on product
NEMO® Dispensers NDP0800-03

*NEMO® Dispensers – For the highest dosing accuracy*

### NEMO® Dispenser NDP0800-03

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing volume</td>
<td>~ 2 ml/rev.</td>
</tr>
<tr>
<td>Min. dosing quantity</td>
<td>0.5 ml*</td>
</tr>
<tr>
<td>Stator materials</td>
<td>NBR, EPDM, Viton, PTFE25%GF, (FDA Grades available)</td>
</tr>
<tr>
<td>Flow rate</td>
<td>13 – 400 ml/min*</td>
</tr>
<tr>
<td>Max. dispense speed</td>
<td>200 rpm*</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>up to +248 °F / +120 °C</td>
</tr>
<tr>
<td>Max. back pressure</td>
<td>up to 450 psi / 30 bar*</td>
</tr>
<tr>
<td>Max. inlet pressure</td>
<td>145 psi / 10 bar</td>
</tr>
<tr>
<td>Weight incl. gearbox</td>
<td>ca. 6.6 lbs / 3 kg</td>
</tr>
</tbody>
</table>

*depending on product

*all dimensions in mm*
NEMO® Dispenser NDP1000-03

*all dimensions in mm

**NEMO® Dispensers NDP1000-03**

- Dosing volume: \(~4 \text{ ml/rev.}\)
- Min. dosing quantity: 1 ml*
- Stator materials: NBR, EPDM, Viton, PTFE25%GF, (FDA Grades available)
- Flow rate: 26 – 800 ml/min*
- Max. dispense speed: 200 rpm*
- Operating temperature: up to \(+248 \degree F /+120 \degree C\)
- Max. back pressure: up to 450 psi/30 bar*
- Max. inlet pressure: 145 psi/10 bar
- Weight incl. gearbox: ca. 7.2 lbs/3.3 kg

*depending on product*
Dosing Systems

As a complete dosing solution we offer you an optimally co-ordinated dosing system consisting of a barrel emptying unit, control system, buffer storage and a variety of application units.
1 Dosing Control

a) Visualisation
Simple, clear user screen with touch panel, complete with mimic diagram of the plant, displaying all important process parameters at a glance. Error message as clear text. User interface in English or German, other languages on request.

b) Installation
Available in all common installation types such as free standing and wall mounted control cabinets as well as console units.

c) Parameterisation
The servo controller parameters of the dispensers can be set via a touch panel, no additional software is required. Simple switching between the various control parameters.

2 Buffer Storage
The buffer storage vessel provides a constant pressure on the suction port of the dispenser to achieve the highest metering accuracy. It compensates for any pressure fluctuations and also allows a change of barrel without interrupting the process. The buffer storage volume is approximately 1.0 l.

3 Dispenser
Dispenser for highest dosing accuracy, details see p. 8 and p. 13

4 Barrel Emptying Unit
Dosing systems are available for barrel emptying units in various sizes, details see p. 4 and p. 7.
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 3,000 employees at 163 sales and production centers in 28 countries across the globe guarantee that expert service is never far from our customers.

The NETZSCH Business Unit Pumps & Systems offers with NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, screw pumps, macerators/grinders, dosing technology and equipment custom built and challenging solutions for different applications on a global basis.