NETZSCH

Pumps & Systems

Product Range

Company, Technology and Application Areas

NETZSCH Pumps & Systems – Solutions you can trust

Company

NETZSCH Group

Since 1873 NETZSCH has been developing and manufacturing instruments and machines for research and industry. Today the group employs more than 2,200 people and consists in the three global business units

- Analyzing & Testing
- Grinding & Dispersing
- Pumps & Systems

NETZSCH Holding

The NETZSCH Holding builds the bridge between the owning family and the business units and is mainly involved in the group strategy and the financial management.

NETZSCH

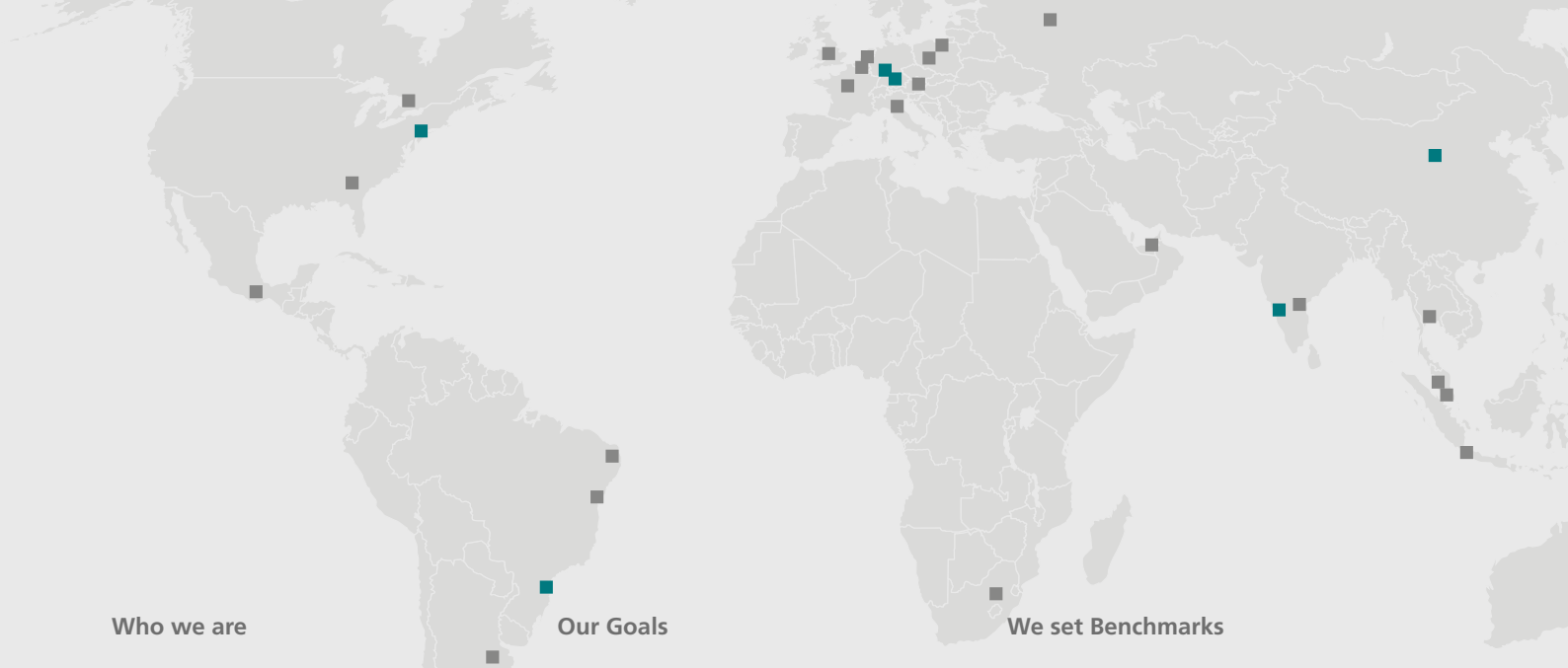
Contents

Business Unit Pumps & Systems

Development, Production, Sales and Locations

Europe, Middle East, Africa
NETZSCH Mohnopumpen GmbH Waldkraiburg, Germany

Central and South America
NETZSCH do Brasil Ltda. Pomerode, Brasil



Who we are

For more than five decades we've been supplying worldwide NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, screw pumps, macerators/grinders, dosing systems and equipment for custom built and challenging solutions for your applications.

Our Goals

NETZSCH wants to expand its worldwide market and technology leadership for the benefit of our customers. Hereby we don't see ourselves only as a developer and manufacturer, but more as your partner from project planning through case management to complete service concepts.

We set Benchmarks

Our innovative and high quality products are globally much valued and accepted.

USA and Canada
NETZSCH Incorporated Exton PA, USA

Asia and Pacific
NETZSCH Lanzhou Pumps Lanzhou, China

- Development and production sites
- International sales and service offices
- Cooperation partner HEISHIN Ltd., Japan

NETZSCH Technologies India Private Ltd., Chennai

In the Region for the Region

With more than 1,300 employees at six development and production sites as well as 25 sales offices, a cooperation partner (in Japan) and another 200 NETZSCH representatives we are close to you wherever you are.

Our Quality

With the worldwide implementation of common standards in accordance with DIN EN ISO 9001 in development and research we guarantee the highest quality at each production site.

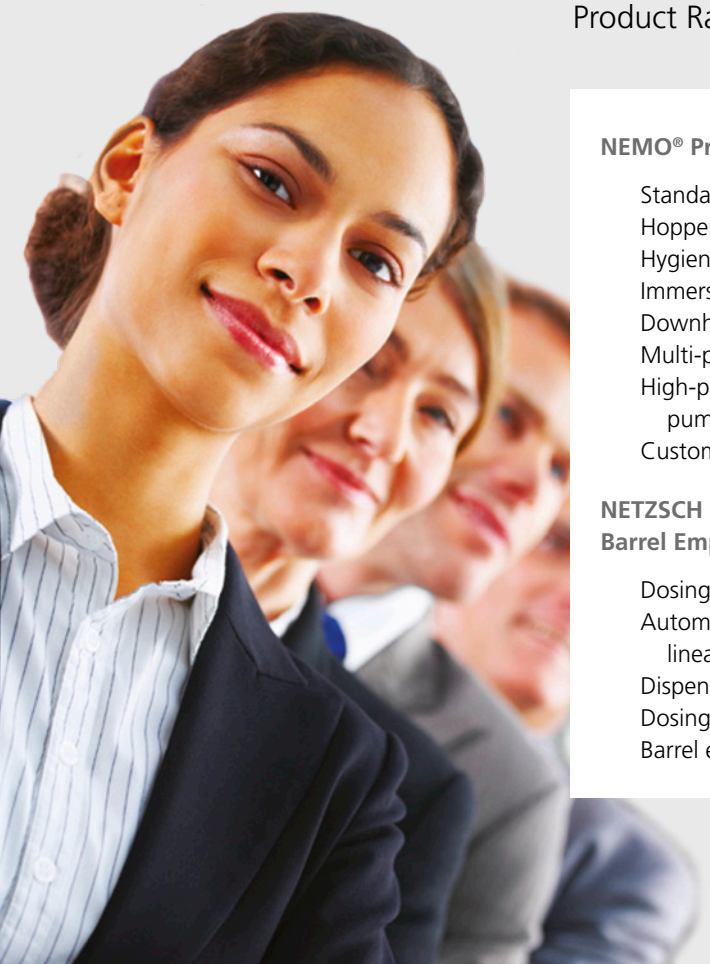
Our Position

With a production of over 40,000 pumps per year we underline our technology and market leadership.

Business Fields – Products and Components

Permanently quickening development cycles together with constantly increasing process requirements call for ambitious and uncompromising solutions for all industries. Through our worldwide business field organisation with experienced and competent specialists we meet and exceed the requirements of our customers.

Further information	
Business Field Environmental & Energy	Brochure NMP · 307 · 02
Business Field Chemical, Pulp & Paper	Brochure NMP · 306 · 02
Business Field Food & Pharmaceutical	Brochure NMP · 308 · 02
Business Field Oil & Gas	Brochure NMP · 309 · 02
Business Field Dosing Technology	Brochure NMP · 330 · 02



Product Range

NEMO® Progressing Cavity Pumps

- Standard pumps
- Hopper pumps
- Hygienic and aseptic pumps
- Immersible pumps
- Downhole pumps
- Multi-phase pumps
- High-pressure pumps (injection pumps)
- Custom-built pumps

NETZSCH Dosing Systems and Barrel Emptying Pumps

- Dosing systems
- Automatic Dosing systems with linear or six axis robot
- Dispenser and hand dispenser
- Dosing components and controls
- Barrel emptying pumps

TORNADO® Rotary Lobe Pumps

- Standard pumps
- Hygienic pumps
- Mobile pumps
- Custom-built pumps

NETZSCH Macerators

- Cutting plate macerator M.Ovas®
- Twin shaft macerator Taskmaster®

NETZSCH Accessories

- Protection devices
- Pressure relief valves
- Controls
- Trailers
- Tools

Environmental & Energy

Waste water treatment, agriculture, construction industry, mining and smelting works, renewable energies, electroplating, ship chandlers, waste water and drinking water purification and similar

Chemical, Pulp & Paper

Building material, biofuel, chemical and biochemical, paint and varnish, wood processing, ceramics and glass, leather/tanneries, paper and pulp/cellulose, explosives, textile and similar

Food & Pharmaceutical

Bakery products, breweries, fish and meat processing, beverages, dairies, fruit processing, pharmaceutical and cosmetic products, wine, sugar and starch and similar

Oil & Gas

Upstream
On and offshore oil production

Downstream
oil transfer, petrochemicals, refineries re-injection and similar

Dosing Technology

Cars, trains, planes and ship construction, electrical, renewable energies, pharmacy, food, bonding and sealing and similar

NEMO® Progressing Cavity Pumps

Characteristics and Typical Components

NEMO® progressing cavity pumps are utilized in various industries to convey many types of fluids in a continuous, low pulsating manner, while maintaining an accurate flow.

Wide Range of Applications

The pumps are specifically designed for products with the following characteristics:

- High solids content (maximum particle size up to 6"/150 mm) and free of solids
- Low to high viscosity (1 mPas - 3 million mPas)
- Thixotropic and dilatant
- Shear-sensitive
- Abrasive
- Lubricating and non-lubricating
- Aggressive (pH 0 - 14)
- Adhesive
- Toxic

Accessories

A wide variety of protection and monitoring accessories are available for these pumps (see pages 34 and 35). For further information simply order brochure NMP · 343 · 02

Large Range of Capacities and Pressures

- Capacities from a few millilitres up to 500 m^3/h (2,200 gpm)
- Number of stages ranging from 1 up to 8 for pressures from 6 (90 psi) up to 48 bar (680 psi) as standard, up to 240 bar (3,400 psi) as high pressure

Various Conveying Elements

Four different rotor/stator geometries are available allowing optimisation of the pump characteristics for specific applications.

Extensive Range of Materials of Construction

Wetted parts are available in numerous materials. Standard housings are made of cast iron and stainless steel. Parts are available in mild steel, stainless steel and tool steel. Other materials are available upon request. Elastomers like highly abrasion resistant natural rubber, oil-, acid- and alkali-proof elastomers, Aflas and Viton are available. When elastomers cannot be used due to high temperatures or compatibility reasons, NETZSCH offers a variety of solid materials.

A Wide Variety of Shaft Sealing Options

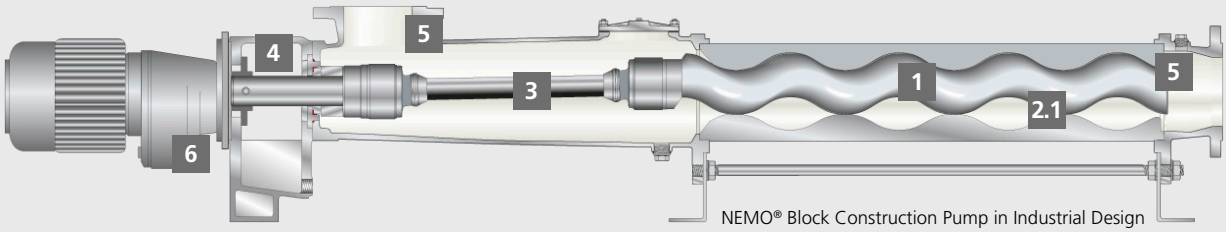
Shaft seals range from single-acting mechanical seals, with and without quench, to double-acting mechanical seals in back-to-back or tandem arrangement as well as cartridge seals as per customer specification. For certain applications there are gland packings, lip seals and specially designed seals. In the case of toxic fluids we offer a pump with a magnetic coupling which is 100 % leakproof.

Additional Features

- High suction capability up to 9 mwc (30 ftwc)
- Reversible direction of rotation and thus flow
- Installation in any position
- Smooth and quiet operation
- Temperatures of -20 up to +200 °C (-5 up to +570 °F)

Conveying Elements

Four different rotor/stator geometries are available for optimised performance. For further details see pages 18 and 19.



NEMO® Block Construction Pump in Industrial Design

NETZSCH iFD-Stator®

1 Rotor

In wear and corrosion resistant design, including the wear-free ceramic rotor, NEMO CERATEC®.

2.1 Stator with Conventional Technology

Vulcanised into a tube, with integrated seals on both ends in a variety of NEMOLAST® elastomers, plastics or metals. Stator inlet with chamber to facilitate the entry of the fluid into the conveying chamber.

2.2 Stator with iFD Technology

The stator consists of a disposable elastomer part and an aluminium outer sleeve in which the NEMOLAST® elastomer is housed. The advantages of this new technology are the reduced starting torque, the higher degree of efficiency, longer lifetime, simple and quick change as well as the easy disposal.
For further information of the iFD-Stator® simply order brochure NMP · 344 · 02

3 Drive Chain

Plug in shaft with coupling rod and two universal joints for power transmission from the drive to the rotor. For further details please see pages 20 and 21.

4 Shaft Seal

Standard design with single-acting, wear resistant, bidirectional mechanical seal; on request different types of single/double-acting mechanical seals by various manufacturers, cartridge and other special seals as well as gland packing. For toxic fluids, magnetic, leakage-free couplings are available.

5 Suction and Pressure Housing

Designed to optimise through flow with flanges or threads according to DIN and other international standards.
Materials in cast iron, chromium nickel molybdenium steel, rubber-coated or Halar® cast iron as well as special materials according to specifications.

Halar® is a registered trademark of Solvay Solexis

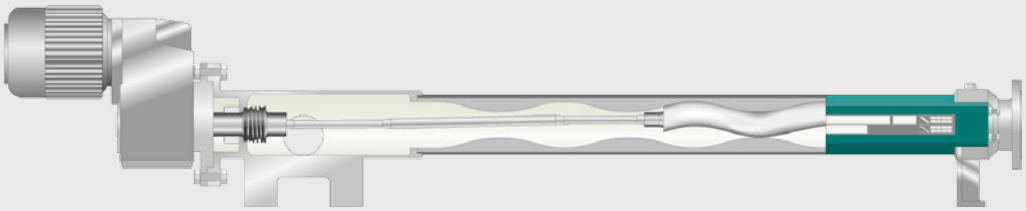
6 Block Construction Design

A drive flanged directly to the housing reduces length, weight and gives a constant shaft height, independent of construction and size of the drive. It is both maintenance- and service-friendly as well as economical.

NEMO® Progressing Cavity Pumps
Applications, Performance and Product Range

NEMO® M.Champ®

in block construction design with maintenance free flexible rod and integrated reserve stator



Performance
Capacities up to 85 m³/h (360 gpm). Pressures up to 6 bar (85 psi).

Range of Applications
Industrial applications in environmental industries for low to highly viscous fluids with or without solids.

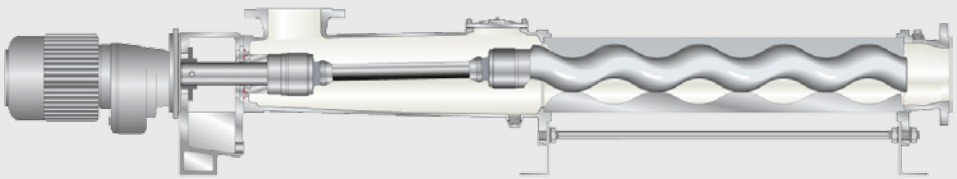
Description
Compact design with flanged robust IEC parallel shaft gear unit. The patented and integrated NEMOLAST® reversible stator and the simple design guarantee a long service life and low life cycle cost. Increased application possibilities with the use of P or L geometries.

Further information

NEMO® M.Champ®
Brochure NMP · 311 · 02

NEMO® BY

in in block construction design



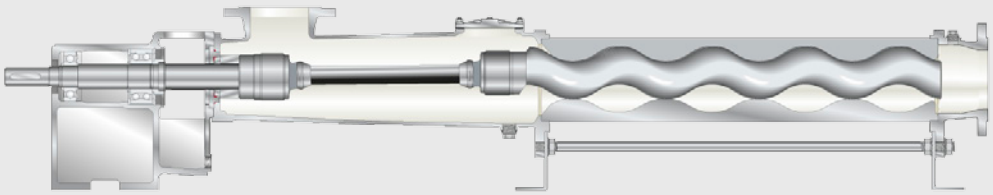
Performance
Capacities up to 400 m³/h (1,800 gpm). Pressures up to 24 bar (340 psi).

Range of Applications
Industrial applications in environmental, food, oil and chemical industries for low and highly viscous fluids with or without solids.

Description
Compact design with flanged drive; low investment and operating and maintenance costs. Four rotor/stator geometries for optimised performance.

NEMO® SY

with bearing housing and drive shaft



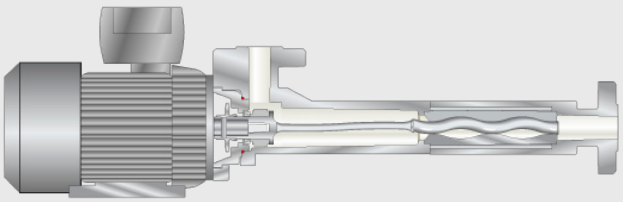
Performance
Capacities up to 500 m³/h (2,200 gpm). Pressures up to 48 bar (680 psi) as standard, up to 240 bar (3,400 psi) as high pressure.

Range of Applications
Industrial applications in environmental, food, oil and chemical industries for low and highly viscous fluids with or without solids.

Description
Design with bearing housing and drive shaft allows for universal use of all types of drives. Four rotor/stator geometries for optimised performance.

NEMO® C.Pro®

plastic dosing pump



Performance
Capacities from 0.5 up to 1,000 l/h (0.13 up to 260 gph). Pressures up to 20 bar (280 psi).

Range of Applications
Industrial applications in environmental and chemical industries for conveying and dosing of fluids of low or medium viscosity with or without solids.

Description
High dosing accuracy (deviation < 1 %). Compact design with directly flanged drive.

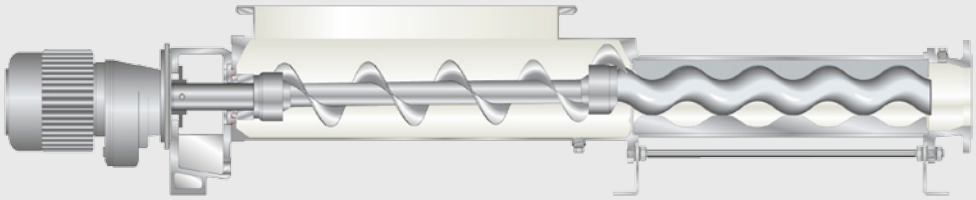
Further information

NEMO® C.Pro®
Brochure NMP · 313 · 02

NEMO® Progressing Cavity Pumps
Applications, Performance and Product Range

NEMO® BO/BS

in block construction design with directly flanged drive or as NEMO® SO/SS with bearing housing and drive shaft (no fig.)



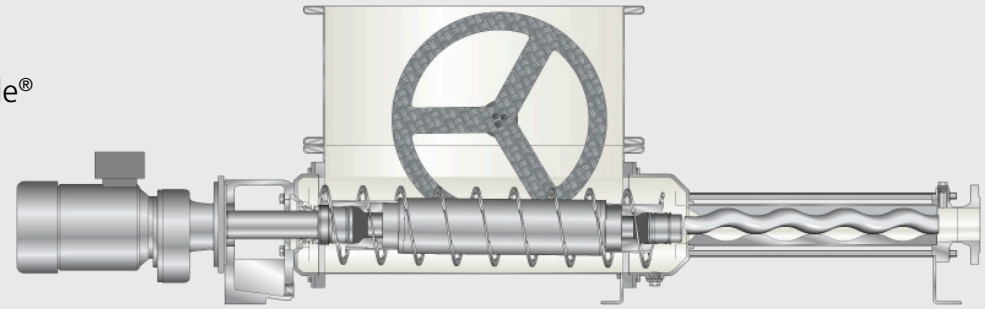
Performance
Capacities up to 200 m³/h (880 gpm). Pressures up to 18 bar (255 psi).

Range of Applications
Industrial applications in environmental, food and chemical industries for highly viscous and non free-flowing fluids with or without solids.

Description
Housing with removable rectangular/square hopper and coupling rod with feeding screw with or without force feed chamber for easier entry of the fluid into the rotor and stator.

NEMO® BF
optional with aBP-Module®

in block construction design with directly flanged drive or as NEMO® SF optional with aBP-Module® with bearing housing and drive shaft (no fig.)



Performance
Capacities up to 200 m³/h (880 gpm). Pressures up to 48 bar (680 psi).
NEMO® BF/SF with aBP-Module® available from size NM045 up to NM090.

Range of Applications
Industrial applications in environmental and chemical industries for highly viscous, compact and crumbly media that does not have a tendency to bridge. For media which tend to build bridges the pump is available with aBP-Module®.

Description
Housing with removable, enlarged rectangular hopper and tapered force feed chamber as well as coupling rod with patented, positioned feeding screw for optimal transfer of the medium to the rotor and stator.

Further information

aBP-Module®
Brochure NMP · 070 · 02

NEMO® BP

in block construction design with directly flanged drive or as NEMO® SP with bearing housing and drive shaft (no fig.)

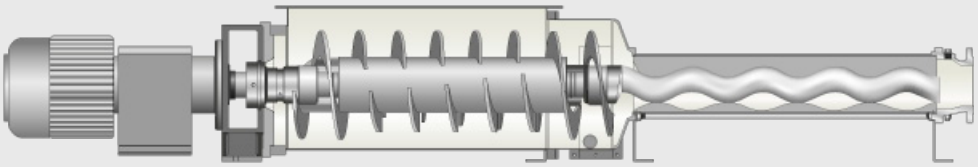
Performance
Capacities up to 200 m³/h (880 gpm). Pressures up to 48 bar (680 psi).
NEMO® BP/SP available from size NM090.

Range of Applications
Industrial applications in environmental and chemical industries for compact and crumbly media that may have a tendency to bridge.

Description
Housing with integrated bridge breaker, mixing additions, enlarged rectangular hopper and tapered force feed chamber as well as coupling rod with patented, positioned feeding screw for optimal transfer of the medium to the rotor and stator.

NEMO® B.Max®

in block construction design with directly flanged drive or with bearing housing and drive shaft (no fig.)



Performance
Capacities up to 70 m³/h (308 gpm). Pressures up to 48 bar (680 psi).

Range of Applications
Industrial applications in the biogas technology in environmental industries for highly viscous and non free-flowing fluids with or without solids.

Description
Housing with large, rectangular/square hopper and tapered force feed chamber, as well as coupling rod with patented, positioned feeding screw for optimal transfer of the medium to the rotor and stator. The ideally placed flushing stud at the hopper housing sees to the best (possible) blending of the substrates.

Further information

NEMO® B.Max®
Brochure NMP · 060 · 02

Technical Information: Adjustment of hopper dimensions to specific applications is possible.

NEMO® Progressing Cavity Pumps
Applications, Performance and Product Range

The pumps are designed and manufactured according to EHEDG and QHD-standards; they are suitable for CIP and SIP and are constructed in accordance with the US 3-A Sanitary Standards. Three rotor/stator geometries are available for optimal performance*.

Range of Applications

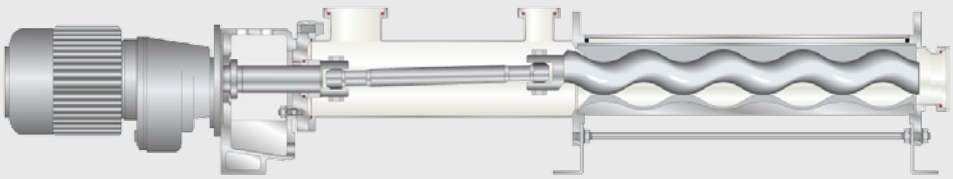
For hygienic applications and optimal cleaning in food, pharmaceutical, cosmetics and chemical/biochemical industries for non-viscous up to highly viscous fluids with or without solids.

Further information

Business Field Food & Pharmaceutical
Brochure NMP · 308 · 02

NEMO® BH

Hygienic pump

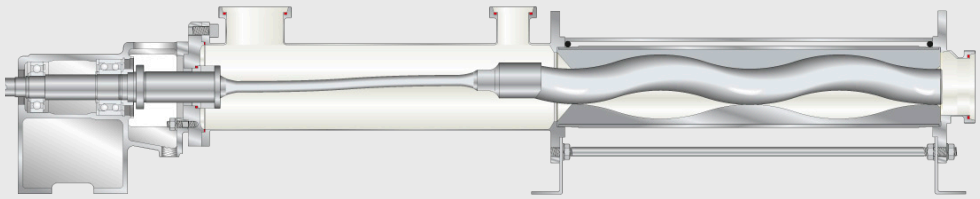


Performance
Capacities up to 200 m³/h (880 gpm). Pressures up to 24 bar (340 psi).

Description
Compact design with directly flanged drive resulting in low initial investment and economical operation and maintenance.

NEMO® SH

Hygienic Plus pump



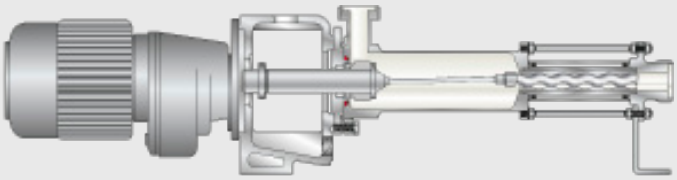
Performance
Capacities up to 140 m³/h (620 gpm). Pressures up to 24 bar (340 psi).

Description
The crevice, wear and maintenance-free flexible rod allows the conveyance of highly sensitive and abrasive products. Design with bearing housing and drive shaft allows for the use of all types of drives.

* except for NEMO® Hygienic Mini Plus

NEMO® MINI BH

Mini Hygienic Plus pump

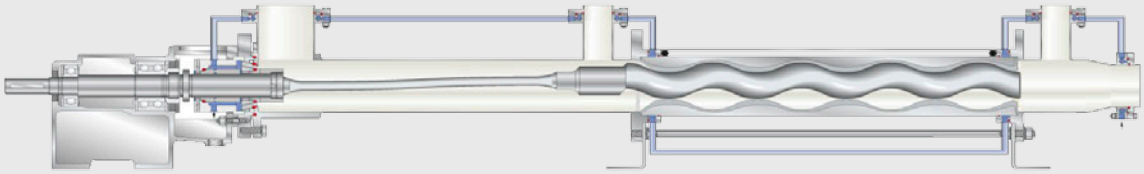


Performance
Capacities of 0.1 up to 500 l/h (0.025 up to 130 gph). Pressures up to 36 bar (510 psi).

Description
The smooth crevice-free flexible rod requires no maintenance and is not subject to wear, thus enabling the conveyance of highly sensitive and abrasive products. Compact design with directly flanged drive resulting in low initial investment and economical operation and maintenance. High dosing accuracy (deviation < 1 %).

NEMO® SA

Aseptic pump



Performance
Capacities up to 140 m^3/h (620 gpm). Pressures up to 24 bar (340 psi).

Description
The smooth crevice-free flexible rod requires no maintenance and is not subject to wear, thus enabling the conveyance of highly sensitive and abrasive products. The pump housing has a reduced diameter as well as a product entry moved towards the shaft seal (discharge in vertical position). This creates an absolutely crevice-free pump body generating an optimised flow of the product through the pump. For complete self-emptying, flushing ports are arranged tangentially and pressure ports are arranged eccentrically. To avoid contamination from the atmosphere, all seals are equipped with connections for flushing with sterile fluids, vapour or condensate and fitted with optional tubing. For changing product temperatures a standard stator with reduced wall thickness and a stator protector for dry running and overheating protection is available. Design with bearing housing and drive shaft allows for the use of all types of drives.

NEMO® Immersible Pumps
Applications, Performance and Product Range

NEMO® semi-submersible pumps are used for emptying barrels, containers, tanks, clarifiers, pits, etc. They are also used where space is limited and when cavitation may be a danger or where low NPSH is available.
Furthermore the pumps are suitable for emptying barrels containing materials harmful to water and the environment where emptying through a connection at the bottom of the barrel is not permitted.

Performance

Capacities up to 140 m^3/h (620 gpm).
Pressures up to 24 bar (340 psi).

Depending on the application a number of designs/immersion variations are available. The immersion depth is adjusted as required by the application.

Description

Compact design with directly flanged drive. Four rotor/stator geometries for optimal performance. Immersion depth up to 10 m. The length of the immersed tube can be modified by using an extended pump housing or an additional suction pipe or a combination of both.

NEMO® Immersible Pump BT with Suspension Bracket

This pump is used for emptying open barrels and containers. It is equipped with a suspension bow for crane suspension. Immersion depth up to 3 m.

NEMO® Immersible Pump BT with suspension bracket

NEMO® Immersible Pump BT with integral Mounting Plate

This pump is used in closed pits, tanks and containers where there is the possibility to vertically flange mount the pump to the tank lid. Depending on pump size, speed and immersion depth up to 10 m, an additional support guide is available to secure the pump to the bottom or to the wall near the bottom. Removal of the pump from a full tank is possible because the guide units are self-centering and secure the pump suction without fixings.
The pump with discharge connection below the mounting position the discharge connection of the pump is below the tank lid. The product is either piped to the outside vertically through the lid via a 90 ° elbow or horizontally through the tank wall. This minimises the dead space in the pump housing thus reducing the overall height of the pump above the tank lid. This version is normally used where there is only limited space available.

NEMO® Immersible Pump BT with integral mounting plate and horizontal discharge connection

NEMO® Immersible Pump BT with integral mounting plate and vertical discharge connection

Operational Characteristics and Conveying Principle of NEMO® Pumps in Different Geometries

Modular Design

NEMO® Pumps belong to the group of rotary positive displacement pumps. The conveying elements consist of the rotor which rotates within the fixed stator.

As all four pump geometries have the same outer dimensions, we have a modular design where - apart from rotor and stator - all other components are identical. When a change in flow rate or pressure is required, installed NEMO® Pumps can be adapted to the new operating conditions by simply changing rotor and stator.

S/L Geometry

The single helical screw/rotor has a circular cross section, an extremely long pitch and large thread depth which oscillates when the rotor is turned within the fixed stator. The cross section of the stator is the same profile as that of the rotor, however, the stator is a 180 ° internal twin start thread. As a result of the 1/2 ratio lobe geometry cavities are formed between the rotor and stator when the two are put together. By the turning movement of the rotor the progressing cavities between rotor and stator transport the fluid in a smooth and continuous manner from the suction to the discharge side of the stator. The flow rate is determined by the pitch of the rotor/stator, diameter and eccentricity as well as the speed of the pump. The pressure capability depends on the number of stages and the differential pressure per stage up to 6 bar (85 psi). The 2-stage NEMO® Pump in S geometry can reach a differential pressure up to 12 bar (170 psi) with a flow rate of 100 %. A single-stage NEMO® Pump in L geometry, has the same outer dimensions as the 2-stage pump in S geometry, the same diameter and eccentricity but a pitch double that of the S geometry rotor/stator. Therefore, the pump produces a flow rate of 200 % when compared to the S geometry at a differential pressure of up to 6 bar (85 psi).

- 1/2 lobe
- Double stage
- Flow rate: 100 %
- Differential pressure: 12 bar (170 psi)

S Geometry

- Very smooth conveyance
- Compact dimensions despite high number of stages
- Large cross sections of rotor inlet
- Low flow velocity/NPSH
- Conveyance of compacted products possible
- Conveyance of large solid particles

- 1/2 lobe
- Single stage
- Flow rate: 200 %
- Differential pressure: 6 bar (85 psi)

L Geometry

- Greater volumetric efficiency/long service life due to long seal lines between rotor and stator
- Compact dimensions together with high flow rates

D/P Geometry

The twin start helical rotor has an elliptical cross section, a long pitch and large thread depth. It rotates within a circular eccentric motion within the fixed stator, the form of which is the same geometry as the rotor, however, the stator is a triple start internal thread with 120 ° interval starts. As a result of the 2/3 ratio lobe geometry cavities are formed between the rotor and stator when the two are put together. By the turning movement of the rotor, the progressing cavities between rotor and stator transport the fluid in a smooth and continuous manner from the suction to the discharge side of the stator. The flow rate is determined by the pitch of rotor/stator, elliptic diameter and eccentricity as well as the speed of the pump. The pressure capability depends on the number of stages with the differential pressure being up to 6 bar (85 psi) per stage. In D/P geometry the cavities are approximately 75 % of the size of the S/L geometry however they open twice per revolution compared to once per revolution in 1/2 stage geometries. Therefore D/P geometry rotors/stators have a 50 % increase in the flow per revolution compared to S/L geometry. The 2-stage NEMO® Pump in D geometry can reach differential pressures of up to 12 bar (170 psi) at a flow rate of 150 % over that of the S geometry. A single-stage NEMO® Pump in P geometry, has the same outer dimensions as the 2-stage pump in D geometry, the same ellipse and eccentricity but a pitch double that of the D geometry rotor/stator. Therefore the pump produces a flow rate of 300 % over that of the S geometry at a differential pressure of up to 6 bar (85 psi).

D Geometry

- Extremely compact dimensions despite high pressures and flow rates capabilities
- Almost pulsation free conveyance
- High dosing accuracy

- 2/3 lobe
- Double stage
- Flow rate: 150 %
- Differential pressure: 12 bar (170 psi)

P Geometry

- Compact dimensions in conjunction with very high flow rates
- Almost pulsation free conveyance
- High dosing accuracy
- Good volumetric efficiency/long service life due to long seal line between rotor and stator

- 2/3 lobe
- Single stage
- Flow rate: 300 %
- Differential pressure: 6 bar (85 psi)

Type of Joints
The Proper NEMO® Joint for Every Application

The correct joint design in a NEMO® Pump has a decisive influence on the operational reliability and life cycle cost. The optimal joint for the respective pump series is selected depending upon application, operational conditions as pump series is selected depending upon application, operational conditions as well as the flow rates.

B Universal Pin Joint

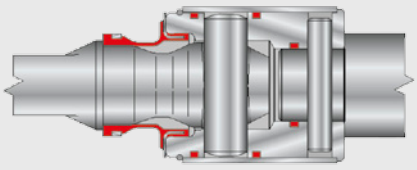
The NEMO® universal pin joint is the standard joint for NEMO® industrial pumps because of its simple design and outstanding reliability. To achieve a long service life, the joint is oil filled and sealed by the NEMO® SM® seal. The joint can also be used without seal in case of extremely high temperatures and products where elastomers are not suitable. The joint consists of a minimum number of parts that enables simple dismantling for maintenance.

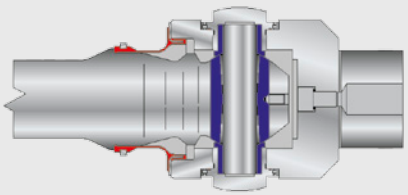
V Pin Joint

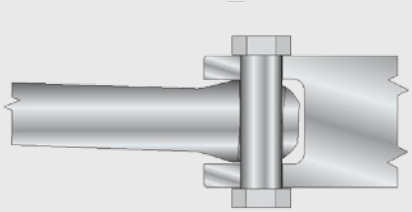
The operational characteristics of the NEMO® V pin joint are similar to those of the B pin joint. For longer service life in difficult applications they are strengthened by hardened bushings fitted into boreholes in the coupling rod and the rotor/drive shaft head. The V pin joints with hardened bushes are easy to remove for maintenance purposes. Standard on the 125 pump size.

H Hygienic Pin Joint

The open, patented pin joint was designed specifically for use in hygienic pumps. It is crevice and dead space free, polished and, therefore, easy to clean. The joint is made in accordance with US 3-A Sanitary Standards.







F NEMO® Flextec Flexible Rod

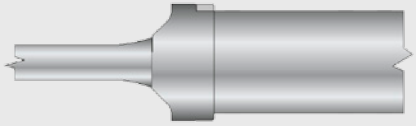
The flexible rod is wear- and maintenancefree because there are no components moving against each other as in other joint types. Neither lubrication nor seals are required. Therefore, the flexible rod is suitable for high pressures and temperatures. The flexible rod is also free from crevices and dead spaces which allows it to be used for pumping highly sensitive products in aseptic conditions. It is designed in accordance with the US 3-A Sanitary Standards.

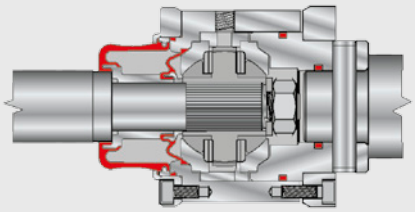
K Joint

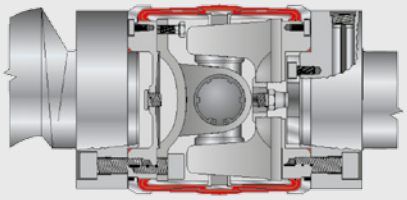
The patented K joint was designed for extremely arduous industrial applications involving constant pump running, frequent stop/starts or shock loads. It is kinematically designed so that the torque and axial loads are borne by separate elements within the joint. The joint is oil filled and hermetically sealed by two seals which are resistant (compatible) against the lubricant and the pumped product. Filling the space between the two seals with oil allows the use of the joints at pressures up to 12 bar (170 psi).

Z Double Seal Pivot Joint

For the largest flows and pressures possible with NEMO® pumps where the torques and axial loads are at their highest (in bearing housing size NM 125SY and above) the pumps are fitted as standard with a cartridge type precision pivot joint. The joint is oil filled, hermetically sealed by two seals which are resistant (compatible) against the lubricant and the pumped product. It is suitable for continuous operation.







NETZSCH in the Oilfield
General Features of NETZSCH Oilfield Pumps and Systems

Characteristics and Typical Components

NETZSCH offers the complete progressing cavity pump range for up and downstream production complete with the necessary equipment such as pump, drive head and motor, control cabinets, rods and other accessories. The range of pumps includes downhole pumps, submersible downhole pumps, transfer pumps, multi-phase pumps and injection pumps.

These pump systems are used for a continuous, pressure stable, non-emulsifying, almost pulsation-free conveyance of waste water and crude oil.

Wide Range of Applications

The pumps are mainly used for fluids with the following properties:

- High solid content (up to 30 % sand) and also free of solids
- Low to high viscosities
- Abrasive
- High content of gas
- High content of water
- High fluid and environmetal temperature

Upstream

Submersible Downhole Pumps

Above all, this system is suitable for deep installation including oglegged and horizontal bore holes. A remarkable feature of this conveying system is that no rods are required and, thus, wear on the tubing is dramatically reduced.

Large Range of Capacities and Pressures

- Capacities from 1 m^3/day (6 bpd) up to 350 m^3/day (2,200 bpd)
- Pressures up to 240 bar (3,400 psi)
- Installation depth up to 2,200 m (7,700 ft)

Contact for Upstream

NETZSCH Oilfield Products GmbH
Gebrüder-Netzsch-Straße 19
95100 Selb, Germany
Tel.: +49 9287 75-424
Fax: +49 9287 75-427
nop@netzsch.com
www.netzsch.com

NETZSCH
Downhole pump

NETZSCH

Downstream

Transfer Pumps, Multi Phase Pumps, Pumps for Oilfield Processing

NETZSCH Transfer and Multi-Phase Pumps have proved to have a long service life even in the case of fluids with high solids and gas contents. Consequently, operational and maintenance costs are low as well as is the initial investment cost.

When treating crude oil in oil field processing, NETZSCH pumps are used for procedures such as separation, H_2S and sulphur reduction, and gas purification or filtration, to name but a few.

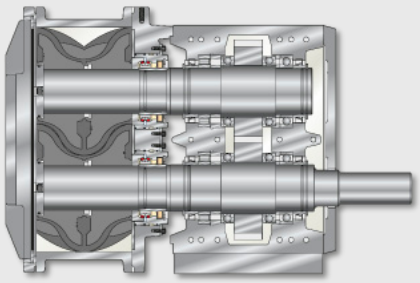
Injection Pumps

NETZSCH high-pressure pumps are rated for pressures up to 240 bar (3,400 psi) for universal applications. They are also suitable for water re-injection. The system is insensitive to high solid content in the fluid and has a low energy consumption due to its high efficiency.

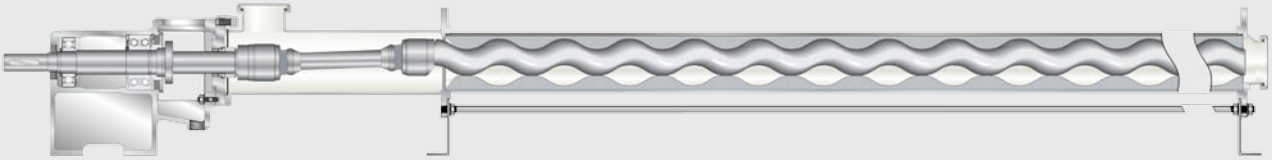
Large Range of Capacities and Pressures

- Capacities from a few bpd up to 700 m^3/h (75,500 bpd)
- Pressures up to 240 bar (2,830 psi)

NETZSCH Transfer- and Multi-phase pump



NETZSCH TORNADO® rotary lobe/transfer pump



NETZSCH Water re-injection pump

Further information

Business Field Oil & Gas Downstream
Brochure NMP · 309 · 02

TORNADO® Rotary Lobe Pumps

Characteristics and Typical Components

The NETZSCH TORNADO® positive displacement, self priming, valve-less pumps offer high performance and are selected and configured for the individual requirements of each application. They are designed for intermittent or continuous operation and provide gentle pumping of the pumped media and ideally suited to transfer, process and dosing applications.

Their major benefits include minimal space requirements due to their compact design, high performance density and maximum operational reliability based on the unique spatial separation between pump chamber and gear compartment. TORNADO® rotary lobe pumps are especially easy to service and maintain; all parts that come into contact with the product are immediately accessible without having to dismantle pipelines or drive.

A Broad Application Spectrum

NETZSCH TORNADO® pumps are suitable for a wide range of applications but are particularly good for liquids which:

- Contain large solids, solids up to 70 mm in diameter can be pumped
- Have a wide range of viscosities, from 1 mPas up to 1 million mPas
- Are shear sensitive, i.e. thixotropic, dilatent, pseudoplastic, etc
- Are fibrous and/or abrasive
- Are lubricative or non lubricative

Different Rotors

Rotors in different geometries and materials can be selected for the individual requirements of the product to be pumped.

Advantages

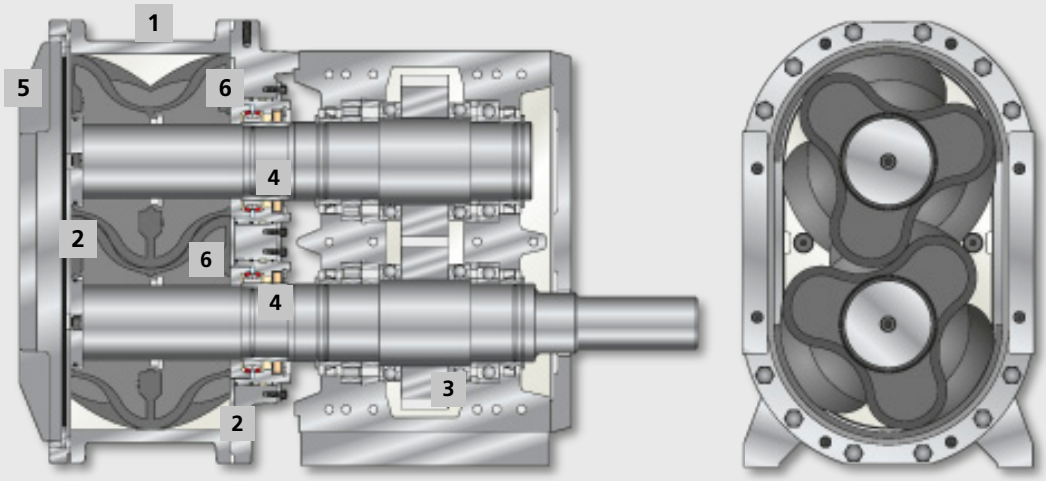
- Maximum operational reliability: the NETZSCH GSS-Technology (Gearbox Security System)
- User maintenance in place
- Small installation and maintenance envelope; compact construction
- Installation flexibility
- High suction lift capability – up to 8 mwc
- Dry running capability
- Reversible flow
- Low lifecycle costs

Large Range of Capacities and Pressures

- Capacities up to 1,000 m³/h
- Pressures up to 6 bar

Further information

TORNADO®
Brochure NMP · 080 · 02



1 Front Cover

Rotors, cover seal and product seals can be accessed for inspection, service or replacement by simply removing the front cover. Disassembly of the inlet and outlet pipework and pump housing is not necessary.

2 Wear Plates

Abrasion and chemically resistant, replaceable wear plates are fitted both sides of the rotors.

3 Rotors

Straight sided or helical rotors are selected to suit individual application requirements. Rotors are available as bi-lobe, tri-lobe or four-lobe and wide a range of materials are available.

4 Housing Crescents

Modular construction allows for the crescents to be simply replaced should wear occur. Pump life time can be further extended with the option of replaceable crescent liners.

5 Product Seals

Wide range of product seals and materials are available, which are selected to suit individual application requirements. Seal arrangements include easy access connections for seal quench or flush.

6 Pump Gear Box

The patented gear box design includes NETZSCH GSS-Technology separating the pump head from the gear box which eliminates cross contamination between the pump media and gear box lubricant.

NETZSCH Dosing Technology – NEMO® Dosing Components

Due to continuous development and consistent implementation of process expertise, NETZSCH belongs to the trend-setting problem solvers for the most difficult applications, from simple dosing to automatic application.

Our products integrate seamlessly into your process regardless of whether it is six axis or linear. We offer customised solutions for your requirements.

Product Range of Dosing Technology

The product range of dosing technology contains:

NEMO® Dispenser and Hand Dispenser

Capacities from ca. 0.05 ml up to 10 ml per revolution.

NEMO® Barrel Emptying Units

Standard units for the emptying of barrels from 1 l to 200 l. Special barrel emptying units, up to 1,000 l on request. Capacities from ca. 2 l/h up to ca. 4.8 m³/h. Clean emptying, better than 99 % emptying without liner.

NEMO® Cartridge Emptying Units

For the emptying of all popular cartridge sizes by means of a pneumatic cylinder, whereby no compressed air is introduced into the product during operation.

NEMO® Buffer Vessel

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 production.

NEMO® Mixing Components

Static mixers for 2 component applications.

NEMO® Control Systems

From simple start/stop control up to complex control for 2 component dosing; designed for each individual application.

NEMO® Automatic Dosing Unit

Tailor made solutions for applications ranging from simple dosing to fully automated solutions.

Advantages

- Low shear pumping and dosing of high viscosity, highly abrasive and filled products.
- Product remaining in barrel after emptying < 1-2 % of the total volume
- No pressure or flow hiatus in the system
- Valve less dosing system ideal for filled products
- Speed proportional dosing
- Volumetric dosing accuracy > 99 %
- Repeatable accuracy > 99 %
- Dosing accuracy is independent of the viscosity
- Simple integration with robots
- Continuous, gentle, and pulsation free
- With suck-back, no dripping or stringing by dosing
- Low life cycle costs
- Low system working pressures
- Complete heating possible
- Servo drives available for high loads

Further information

Business Field Dosing Technology
Brochure NMP · 330 · 02

Construction of an Automatic Dosing Unit with Linear Robot

1 Dispenser

2 Barrel emptying unit

3 Electrical control

4 Touch screen

5 Linear robot

6 Enclosure

Construction of an Automatic Dosing Unit with Six Axis Robot

1 Dispenser

2 Electrical control automation

3 Six axis robot

4 Rotary table

5 Enclosure

General Characteristics of NEMO® Barrel Emptying Pumps

Characteristics and Typical Components

NEMO® barrel emptying pumps 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 system is a NEMO® progressing cavity pump. When the NEMO® pump is started a vacuum is created bellow the follower plate, which at the same time creates a light pressure on the media to guarantee a consistent suction into the pump.

Wide Range of Applications

NEMO® barrel emptying pumps are predominantly used for media with the following properties:

- Low to very high viscosity
- Dilatant, thixotropic or having a viscous structure
- Highly filled products
- Shear and pressure sensitive
- Highly abrasive
- Lubricative and non lubricative
- Adhesive and gel like
- Heated and unheated

Advantages

- Nearly shear free conveyance and dosing of highly viscous, abrasive and filled products
- Continuous or intermittent discharge
- Complete discharge, residues < 1 - 2 %
- No pressure or flow hiatus
- Smooth dosing with hardly any pulsation
- Low pressure on the follower plate in the barrel
- Discharge of conical barrels
- Low pressure conditions in the system
- Continuously adjustable discharge capacity through the speed of the drive
- Dosing directly from the barrel

Large Range of Capacities

- Capacities from approximately 2 l/h to 4.8 m^3/h

Barrel Sizes

- Barrels between 1 l to 200 l as standard
- Special barrels up to 1,000 l

Further information

Business Field Dosing Technology
Brochure NMP · 330 · 02

Construction of a NEMO® Barrel Emptying Unit BET 200

1. Pneumatic cylinders
2. Adapter for pump
3. Follower plate
4. Frame
5. NEMO® Pump
6. Rotor/stator
7. Pneumatic control
8. Electrical control

Cutting Plate Macerator M-Ovas®

Features and Construction

The NETZSCH M-Ovas® is particularly useful in all industries, where particles in the medium endanger process reliability. All solids in the medium are reliably macerated to prevent pipework and downstream equipment from blocking.

High Delivery Capacities

- Flow capacities up to 300 m³/h of waste water and sludge with up to 7 % dry solids content
- Two sizes of model available depending on the flow rate

Wide Range of Applications

The NETZSCH M-Ovas® is particularly suitable for the use in the following industries:

- Sewage and waste water treatment
- Biogas plants
- Abattoirs
- Organic biological waste recycling plants
- Rendering plants
- Paper and pulp production
- Agriculture
- Sugar factories
- Leather production
- Spas and health resorts

Advantages

- Compact design for high flow rates
- Easy and fast disassembly of cutting plate and blade units
- Low energy demand at high flow rates
- Integrated stone trap with separate clean-out and drain ports
- Easy access allows simple disposal of the sediment
- Self-adjusting blades reduce maintenance and ensure optimal cutting performance
- Sealing by means of a mechanical seal with oil quench
- Easy to maintain

1 Housing

A hydrodynamic design with integrated stone trap for solids, with a clean-out port. The sediment can easily be removed by opening the cover plate. The housing is galvanized to ensure corrosion resistance. Available in stainless steel (optional).

2 Housing Cover

Cutting unit integrated into housing cover. A gas strut is fitted to the cover to assist opening. This allows for easy cleaning of solids in the stone trap.

3 Cutting Unit

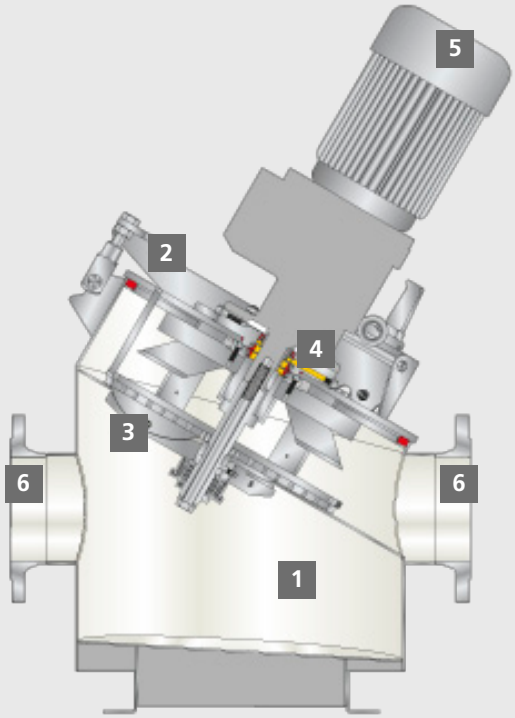
Cutting plate of wear resistant, hardened steel. Optimum cutting performance through a cutting unit with self-adjusting blade mechanism. Blades made from wear resistant hardened steel. The flywheel effect of the cutter head reduces the installed power. Easy exchange of cutting plate and cutting blades without the necessity to disassemble the pipework.

4 Shaft Seal

Hard metal faced mechanical seal with oil quench to prevent product leakage.

5 Drive

The standard drive unit has reinforced bearings.



6 In-line Version

Product inlet and outlet are positioned on the same level. The NETZSCH M-Ovas® can be directly connected to a horizontal pipeline or to a NEMO® pump inlet where flange is set at 90°.

Further information

Grinding Systems
Brochure NMP · 040 · 02

Twin Shaft Macerator Taskmaster®

Features and Construction

For applications with particularly chunky and sturdy solids in the waste water flow the NETZSCH Taskmaster® is needed.

The robust design of the NETZSCH Taskmaster® ensures a high performance coupled with trouble free operation. It offers the best performance even under the most arduous of operating conditions. The twin shaft macerator provides a free flow through, protecting the pumps and other plant equipment. Depending on the application one of five different models and sizes can be installed. Through the different, very low number of revolutions of the shafts the NETZSCH twin shaft macerator offers the option of self cleaning. Low power drives can be used even on high throughput applications.

Wide Range of Applications

The NETZSCH Taskmaster® is particularly suitable for the use in the following industries:

- Waste water treatment
- Agriculture
- Slaughterhouses and recycling plants
- Canning/tinning factories
- Industrial kitchens
- Sugar factories

Advantages

- Optimized cost performance ratio
- Low running costs through highest efficiency
- Cartridge design cutter assemblies allow simple and quick maintenance providing high operational safety
- Through the different, very low number of revolutions of the shafts the NETZSCH twin shaft macerator offers the option of self cleaning
- Robust design, trouble free operation, high performance

High Delivery Capacities

Capacieties up to 300 m^3/h with a solids content rate of up to 10 %

1 Housing

A robust hydrodynamic inline housing which can be directly connected into a pipeline. Also available as channel unit.

2 Cutting unit

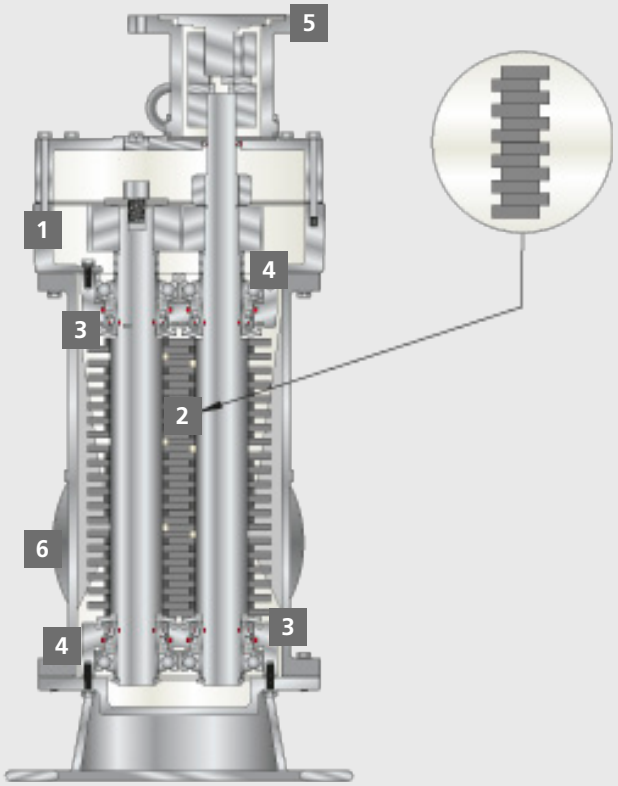
High quality blades made of special steel reliably macerate the solids in the medium. The cartridge units comprise of six cutters and six spacing rings. To reach the required particle size, a selection of different blades is available.

3 Shaft Seal

The shaft is sealed with a cartridge type mechanical seal.

4 Bearing

Robust bearings on both ends of the shafts ensure smooth running and prevent the shafts from spreading when especially hard solids are encountered.



5 Lantern

Via an elastic coupling with flange every IEC motor or drive can be accommodated.

6 In-line Version

Product inlet and outlet are positioned on the same level. The NETZSCH twin shaft macerator can be directly connected into a horizontal pipeline or to a pump inlet of a NEMO® pump or a NETZSCH TORNADO® industrial rotary lobe pump, where flange is set at 90°.

Further information

Grinding Systems
Brochure NMP · 040 · 02

Taskmaster® manufactured by Franklin Miller

NETZSCH Accessories from A - Z

Process monitoring

NETZSCH dry running and over-/ underpressure protection devices avoid thermal destruction of stators and protect the pump and accessory equipment from unsuitable pressures. These devices continuously measure the stator temperature, as well as suction/ discharge pressures, therefore increasing the operating reliability of the pump and minimising downtime.

- Diaphragm pressure gauge G3/4 Inch connection
- Diaphragm pressure gauge with DN50/PN40 flanged connection
- Dry running protection for NEMOLAST® stators
- Flow sensing unit for solid stators
- Multi function pressure instrument
- Pressure control device DTSL 3
- Speed monitoring device

NETZSCH Controls

- Dosing systems
- Filter press feed systems
- Frequency inverters
- Motor protection devices
- Pressure transducers

Further information

NETZSCH Original-Accessories
Brochure NMP · 343 · 02

Protection Units and Trolley Assemblies

- Covers for drive motors
- Fixed wheels
- Machine feet elastic, star
- Pulling handle in stainless steel
- Steerable wheels
- Trolley assemblies
- Wheel mounting plates

NETZSCH Optional Equipment, Fittings/Hoses and Tools

- Adjustable feet and foundation bolts
- Adjustable stator with adjusting device
- Automatic shut-off devices, valves, non return valves
- Bypass tubing with control switch or pressure relieve valve
- Chain wrench
- Chemical anchors
- Connecting, T and welding neck flanges
- Custom-engineered hoppers
- Coupling rod with mixing/agitator
- Gear joint filling unit
- Heating jacket
- Hoses and hose connections
- Mobile and trailer mounted units
- Pressure reliefe valve
- Ring dosing nozzle
- Special tools
- Stator removal tool
- Stone trap for heavy solids
- Vibration dampener

NETZSCH Service

Your Benefit

Consulting, service and quality are our strengths. When buying the pump you have decided on a quality product by NETZSCH with good reason. Strict quality standards, tests and the certification according to DIN EN ISO 9001 guarantee all parts are of a consistent quality to the highest degree. In order to maintain the capacity and quality of your pump, we will support you in all matters, also after the delivery of the pump. The experience from more than 500,000 pumps installed is the basis for this.

Service Partner

In your area well-trained service partners are available for quick and economic service of the pumps at your premises. You will find your personal service partner in our homepage at **www.netzsch.com** | Pumps | Consultation/Service.

24 h Spare Parts Emergency Service

Around the clock on 7 days a week:
+49 8638 63-6363

NETZSCH

NMP · 300 · 02 · 08/10 · 03 · Technical specifications are subject to change.