

Pumps & Systems

# NEMO<sup>®</sup> Progressing Cavity Pumps

Comprehensive and uncompromising solutions for all industries



NETZSCH Pumps & Systems – Solutions you can trust

# NEMO<sup>®</sup> Progressing Cavity Pumps

# Good reasons for choosing NETZSCH technology

For six decades and at five sites all over the world, NETZSCH has been developing and producing high-quality, innovative pump systems supported by a large number of patents.

Always focused on benefit to the customer, the NETZSCH product range covers everything from the smallest dosing pumps with flow rates of a few ml to high-performance pumps that pump up to 1000 m<sup>3</sup>/h. We also supply grinders and a comprehensive range of accessories. We supply everything in and around the pump to suit your application perfectly, because we understand and know your process.

We guarantee proximity to our customers with 30 branches and more than 130 agencies around the world. Our application-oriented organisational structure across seven business fields ensures that each of your contacts at NETZSCH® has detailed knowledge of the application, that national and international standards are complied with, and that contact routes are short, delivery is fast and on-site service is competent.

The following pages are an overview of the entire range of NEMO<sup>®</sup> progressing

cavity pumps. Each individual pump is precisely tuned to the requirements of the application to deliver optimum performance, service life and reliability.

The pumps are available with conveying elements in four different rotor/stator geometries, so that the right solution can always be found for your application. (pages 14 and 15)

Another benefit from our continued investment in product development is a range of gear joints selected to suit each and every application no matter how demanding.

And last but not least, we supply a comprehensive range of options and accessories, as well as expert service, as we want you to stay in close contact with NETZSCH even after your pump has been commissioned. (pages 22 and 23)

Please see for yourself and contact us.



Rotor 1

From wear- and corrosion-resistant metal designs to the wear-free ceramic rotor NEMO CERATEC®.

#### 2 Stator

We manufacture stators to the latest standards. Stators minimise the tolerance range thereby optimising the performance of the pump. Our unique, fully networked production and process data monitoring system, developed in-house, is backed up by consistent quality testing.

2.1 Stator with conventional technology

Vulcanised into the tubes with sealing collars on both sides in a wide variety of NEMOLAST<sup>®</sup> elastomers, plastics and metals\*1). Stator inlet with funnelshaped opening to improve product infeed into the conveying chamber.

2.2 Stator with iFD technology

The iFD Stator<sup>®</sup> consists of a two-part reusable housing with a polygonal profile and the NEMOLAST<sup>®</sup> elastomer housed within. The advantages of this new technology include a lower breakaway torque, higher efficiency, increased service life, simple and quick replacement, and straightforward disposal. Further information provided in brochure NPS · 344

3 Drive train

The drive and connecting shaft with coupling rod and two universal joints provide the power transmission from the drive to the rotor.

#### Shaft sealing 4

Standard design with single-acting, wear-resistant, bi-directional mechanical seals. On request, single/doubleacting mechanical seals from a range

Optional: iFD-Stator® 2.0

of manufacturers, as well as cartridge and special seals and stuffing-box packing.

Suction and pressure Housing

Hydrodynamic design with flange or thread connections in accordance with DIN and international standards. Grey cast iron, chromium-nickel-molybdenum steel, rubber-lined or Halar®coated cast iron and special materials as per requirements.

Halar® is a registered trademark of Solvay Solexis

6 Block design

As the drive is directly flanged onto the pump's lantern, the dimensions are compact, the overall weight is low, the shaft heights are constant irrespective of the design and size of the drive - the pump requires low maintenance, is easy to maintain and economical.

# NEMO<sup>®</sup> Progressing Cavity Pumps

# Features and design

NEMO<sup>®</sup> progressing cavity pumps are used in all sectors of industries to convey almost all types of media continuously, smoothly, with low pulsation and dosing in proportion to speed. **Broad range of applications** 

The pumps are primarily used with media that have the following features:

- Containing solids (max. solid size up to 150 mm) and free of solids
- Low to high viscosity (1 mPas 3 millions mPas)
- Thixotropic and dilatant
- Shear sensitive
- Abrasive
- Non-lubricating and lubricating
- Aggressive (pH 0 14)
- Adhesive
- Toxic

Large capacity and pressure range

- Flow rates from just a few ml/h up to 1000 m<sup>3</sup>/h
- Number of stages ranging from 1 to 8 for pressures from 6 to 48 bar (standard) or up to 240 bar (high pressure)

A range of different conveying elements

Four different rotor/stator geometries are available to ensure the design is optimally adapted to the specific task. Further details see pages 14 and 15.





Wide range of materials

Our range of metallic materials extends from simple grey cast iron and chrome-nickel steel to highly acidresistant materials such as Duplex, Hastelloy and titanium to suit different conveying tasks. Ceramics and plastics round off the list for aggressive and abrasive applications. Our elastomers range from highly abrasion-resistant natural rubber, to oil-, acid- and alkaliresistant elastomers and finally Aflas and Viton. For products in which elastomers cannot be used because of high temperatures or for reasons of durability, a large number of solidbased stators made from plastics and metallic materials is available.

Large variety of shaft seals

The range of mechanical shaft seals includes simple seals with and without quench, double-acting seals arranged back to back or in tandem, and cartridge seals. For specific applications, stuffing-box packing, lip seals and special seals are available. A pump with magnetic coupling is available for use with toxic media – to guarantee 100% that there are no leaks. **Additional features** 

- High suction capacity up to 9 mH<sub>2</sub>O
- Direction of rotation and flow can be reversed
- Can be installed in any position
- Quiet, smooth running
- Temperatures from 20 °C to + 200 °C





Continuous and smooth conveying

# NEMO<sup>®</sup> Progressing Cavity Pumps – Fields of application, performance characteristics and overview of the series

# NEMO<sup>®</sup> industrial pumps

## NEMO<sup>®</sup> BY

in block design



**Performance** Flow rates up to 400 m<sup>3</sup>/h at pressures up to 24 bar.

**Fields of application** Industrial applications in environmental technology and in the food, oil and chemical industries for fluid to viscous media with and without solids.

Features

Compact design with directly flanged drive. Its low investment, operating and maintenance costs really make it stand out. Four rotor / stator geometries for optimum performance with every kind of application.



Performance

Flow rates up to 500 m<sup>3</sup>/h at pressures up to 48 bar (standard) or up to 240 bar (special applications).

**Fields of application** 

Industrial applications in environmental technology and in the food, oil and chemical industries for fluid to viscous media with and without solids.

Features

Design with bearing housing and two-part shaft allows all types of drive to be used universally and makes servicing the rotating parts simple and fast. Four rotor / stator geometries for optimum performance with every kind of application.



with bearing housing and drive shaft

## NEMO® C.Pro®

Mini dosing pump in plastic design



#### Performance

Flow rates from 0.5 up to 1,500  $m^3/h$  at pressures up to 20 bar.

### **Fields of application**

Industrial applications in environmental and chemical technology to convey and dose low- to moderately viscous media with and without solids.

### Features

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

**Further information** 

NEMO<sup>®</sup> C.Pro<sup>®</sup> Brochure NPS · 313

# NEMO<sup>®</sup> Hygienic Pumps

The pumps are designed and manufactured in accordance with EHEDG and QHD guidelines, are CIP/ SIP-capable and comply with the US 3-A Sanitary Standards. Two rotor/ stator geometries are available to ensure optimum performance in the specific application\*.

## **Fields of application**

Hygienic applications and optimum cleaning in the foodstuff, pharmaceutical, cosmetic and biotechnology industries for low and highly viscous media with and without solids.

## **Further information**

Food & Pharmaceutical Brochure NPS · 308

# NEMO<sup>®</sup> BH

Hygienic pump



**Performance** Flow rates up to 140 m<sup>3</sup>/h at pressures up to 24 bar.

#### Features

Compact design with directly flanged drive. Its low investment, operating and maintenance costs really make it stand out.

# NEMO<sup>®</sup> Progressing Cavity Pumps – Fields of application, performance characteristics and overview of the series

# NEMO<sup>®</sup> SH

Hygiene Plus Pump



**Performance** Flow rates up to 140 m<sup>3</sup>/h at pressures up to 24 bar.

Features

The flexible rod is free of dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and abrasive products. The design with bearing housing and drive shaft means it can be used with all types of drive.



**Performance** Flow rates up to 40 m<sup>3</sup>/h at pressures up to 12 bar.

## Features

This pump is suitable for all hygienic applications in the foodstuff, pharmaceutical, cosmetic and biotechnology industries, especially for viscous media which have to be heated or cooled. The pump operates reliably and guarantees your process because the specially designed mechanical seals are arranged with no dead spaces, the housing and stator are heated, the products are conveyed smoothly and it can be cleaned to standard. It can also be taken apart easily for maintenance thanks to quick-fit connections. It is available with various rotor/ stator geometries and has open hygienic pin joints, exposed housing seals, mixing elements on the coupling rod and a heating jacket over the entire area of the stator and pump housing. All surfaces that come into contact with the product are polished. This prevents medium deposits forming and facilitates cleaning.

# NEMO<sup>®</sup> BH

Hygiene Plus Pumpe with heating jacket

## NEMO® MINI BH

Hygiene Mini Plus Pump



Performance

Flow rates from 0.1 up to 500 m<sup>3</sup>/h at pressures up to 36 bar.

### Features

The flexible rod is free of dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and abrasive products. High dosing accuracy (deviation of < 1%). Compact design with directly flanged drive gives you low investment, operating and maintenance costs.



**Performance** Flow rates up to 140 m<sup>3</sup>/h at pressures up to 24 bar.

#### Features

The flexible rod is free of dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and abrasive products. The pump housing has a reduced diameter and a product inlet displaced towards the shaft sealing (outlet in vertical installation). The pump chamber is therefore completely free of dead space and the flow of the product through the pump is also optimised. The cleaning ports are arranged tangentially and pressure port eccentrically for residue-free self-emptying. All sealing points are designed for steam or sterile condensate and the pipe work is installed ready for use to prevent contamination from the environment. As standard, the stator is supplied with reduced elastomer wall thickness for use at varying product temperatures and with a stator protector to prevent dry running and overheating. The design with bearing housing and drive shaft means it can be used with all types of drive.

# NEMO<sup>®</sup> Progressing Cavity Pumps – Fields of application, performance characteristics and overview of the series

# NEMO<sup>®</sup> Hopper Pumps

## NEMO® BO/BS

in block design with directly flanged drive or NEMO® SO/SS with bearing housing and drive shaft (top fig.)



**Performance** Flow rates up to 200 m<sup>3</sup>/h at pressures up to 24 bar.

**Fields of application** 

Industrial applications in environmental technology, the food industry and the chemical industry for viscous to non-free flowing media with and without solids.

#### Features

Housing with rectangular/quadratic feed hopper and coupling rod with conveying screw with compression chamber for improved product feeding into the conveying elements.



**Performance** Flow rates up to 200 m<sup>3</sup>/h at pressures up to 48 bar. NEMO® BF/SF with aBP-Modules® available from size NM045 NM090.

#### **Fields of application**

Industrial applications in environmental technology, the food industry and the chemical industry for highly viscous, compacted and crumbly media. For media that tend to bridge, the pump is fitted with the optional aBP-Module<sup>®</sup>.

#### Features

Housing with enlarged, rectangular feed hopper and with removable, coneshaped compression chamber, coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements.

# NEMO<sup>®</sup> BF optionally aBP-Module<sup>®</sup>

in block design with directly flanged drive or NEMO® SF with bearing housing and drive shaft (top fig.)

### **Further information**

aBP-Module® Brochure NPS · 070

# NEMO<sup>®</sup> BP

in block design with directly flanged drive or NEMO® SP with bearing housing and drive shaft (top fig.)

NEMO<sup>®</sup> B.Max<sup>®</sup>

in block design with directly flanged drive or with bearing housing and drive shaft (top fig.)



**Performance** Flow rates up to 200 m<sup>3</sup>/h at pressures up to 48 bar. NEMO<sup>®</sup> BP/SP available from size NM090.

**Fields of application** 

Industrial applications in environmental technology, the food industry and the chemical industry for compacted, lumpy and crumbly media that tends to bridge.

#### Features

Housing with integrated bridge breaker to prevent bridging and to mix in additives, enlarged rectangular feed hopper and removable, cone-shaped compression chamber, coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements.



Performance Flow rates up to 70 m<sup>3</sup>/h at pressures up to 48 bar.

**Fields of application** 

Industrial applications in biogas and environmental technology for viscous to non-free flowing media with and without solids.

#### Features

Housing with large, rectangular feed hopper and with removable, cone-shaped compression chamber, coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements. The additional, hydrodynamically designed flushing stud installed on the hopper housing ensures the substrates are fed and mixed optimally into the biomass.

# NEMO<sup>®</sup> Immersion Pumps – Fields of application, performance characteristics and overview of the series

NEMO<sup>®</sup> Immersion Pumps are used to empty barrels, containers, tanks, sedimentation tanks, pits etc. and where space is restricted, there is a risk of cavitation or there is very low NPSH.

The pumps are also used to empty containers holding materials that are hazardous to water or the environment for which standard emptying via a flange on the bottom of the container is not permitted.

### Performance

Flow rates up to 140 m<sup>3</sup>/h at pressures up to 24 bar.

Depending on the specific application, various models/immersion variants are available. The immersion depth is adapted specifically to the application.

## Features

Compact design with directly flanged drive. Four rotor / stator geometries for optimum performance with every kind of application. Immersion depths up to 10m. The immersion tube length can be modified by extending the pump housing, adding a suction pipe or by a combination of the two. NEMO<sup>®</sup> Immersion Pump BT with Suspension Bracket

This pump is used to empty open barrels and containers. It is fitted with a clamp to be suspended from a crane. Immersion depth up to 3m.



NEMO<sup>®</sup> Immersion Pump BT with suspension bracket

NEMO<sup>®</sup> 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 selfcentering 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<sup>®</sup> Immersible Pump BT with integral mounting plate and horizontal discharge connection

NEMO<sup>®</sup> Immersible Pump BT with integral mounting plate and vertical discharge connection

# Operating method and conveying principle in NEMO PUMPS® with different NEMO® rotor/stator geometries

# Modular system

NEMO<sup>®</sup> Pumps belong to the group of rotary positive displacement pumps. The two conveying elements are the rotor and the fixed stator, in which the rotor eccentrically turns. 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 geometry

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



- 1/2 lobeDouble stage
- Flow rate: 100%
- Differential pressure: 12 bar

L geometry

- Good volumetric efficiency/long service life thanks to long seal line between rotor and stator
- Compact dimensions with high flow rates



- Single stage
- Elaw rata 200
- Flow rate: 200%
- Differential pressure: 6 bar

#### **D** geometry

- Very compact dimensions despite high pressures and flow rates
- Almost pulsation-free pumping
- High dosing accuracy



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

P geometry

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



0

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

# NEMOLAST<sup>®</sup> – elastomer quality developed, continuously tested and optimised at NETZSCH



Testing properties and quality

Development

Elastomer research & development is in-house at NETZSCH. At its in-house laboratory and in close collaboration with selected materials suppliers established over many years, NETZSCH develops and tests elastomer blends and optimises them for the specific requirements of customers. We therefore offer each customer the optimum quality of elastomer for the media to be conveyed in terms of abrasion resistance, temperature range, dynamic load and chemical resistance – something other suppliers cannot offer. Only using original NETZSCH spare parts guarantees our pumps remain reliable.



Developing new blends



Manufacturing blends



Specific requirements in oil production and transfer

This applies in particular to the difficult operating conditions in oil production. NETZSCH stators stand out with their long service life, leading to a significant reduction in operating costs.

Both for elastomer development as well as for optimal material selection the specific drilling and fluid conditions have to be considered. NETZSCH pumps are always used as multiphase pumps, which means that gas-oilwater mixtures and various solids are conveyed simultaneously or alternately.

Therefore, we have developed special elastomer mixtures, for conveying these in changing and variable concentrations phases. Additional challenges to the material are the fluctuating and sometimes very high temperatures and the high differential pressure up to 300 bar between the suction and pressure side. Very aggressive gases (such as H<sub>2</sub>S and CO<sub>2</sub>) or oils (with high aromatic content) can also be present.

### Production

60 years of experience in a wide range of industries and processes and 40 years of experience developing and manufacturing elastomers for NEMO<sup>®</sup> pumps led up to the development of complex bonded parts made of glass fibre, metal and elastomer for the housing inserts of our new generation of TORNADO<sup>®</sup> T2 rotary lobe pumps. To meet the constantly growing demand for our pumps and the associated demand for spare parts, NETZSCH invested in a new 4000 m<sup>2</sup> production hall in Waldkraiburg to produce elastomer parts using the latest production methods and the latest product standards. Alongside five extruder sets to manufacturer

conventional tube stators, injection moulding machines and presses were also acquired to manufacture iFD stators, lobes and housing inserts for rotary lobe pumps.



Extruder with stator for oil production



Press with housing insert for TORNADO® T2



Injection moulding machine for iFD-Stator®

# NEMOLAST<sup>®</sup> – elastomer quality developed, continuously tested and optimised at NETZSCH

NEMOLAST <sup>®</sup> – stator qualities							
Material description/NEMOLAST <sup>®</sup> Code	11	31	43	<b>46</b> * <sup>2)</sup>	61T		
Colour	black	black	white	black	black		
Base polymer	Natural rubber/ butadiene rubber (NR/BR)	Chlorinated polyethylene (CM)	Ethylene propylene diene rubber (EPDM)	Ethylene propylene diene rubber (EPDM)	Hydrogenated acrylonitrile butadiene rubber (HNBR)		
Ageing resistance	0	++	+	+	++		
Ozone resistance	-	++	+	++	++		
Petrol resistance					0		
Oil and fat resistance		-			++		
Acid resistance	0	++	0	+	0		
Alkali resistance	0	++	0	+	0		
Hot water	0	+	+	+	0		
Min. operating temperature	-20	-10	-20	-25	-5		
Max. operating temperature	+90	+110	+100	+130	+140		
Abrasion resistance mm <sup>3</sup>	<40	<90	<320	<130	<40		
Abrasion resistance	++	++	0	+	++		
Hardness range (shore)	64 ± 5	73 ± 5	70 ± 5	70 ± 5	73 ± 5		
FDA	No	No	No	Yes	No		
Nitrosamine-free	No	No	No	Yes	No		

## NEMOLAST<sup>®</sup> stator qualities for oil production and transfer



Please take into consideration that the given material limits are a guideline. The final selection has to be based on a detailed analysis (e.g. swelling test).



					Solid Stators	
62L* <sup>2)</sup>	65L* <sup>1)</sup>	66L* <sup>2)</sup>	85	<b>91</b> * <sup>2)</sup>	teflon	cast iron *3)
black	black	black	opaque	black	white	grey
Acrylonitrile butadiene rubber (NBR)	Acrylonitrile butadiene rubber (NBR)	Acrylonitrile butadiene rubber (NBR)	Silicone rubber (SI)	Fluororubber (FKM FPM)	Polytetrafluoro- ethylene	Grey cast iron
0	0	0	+	++	++	
-	-	-	+	++	++	
0	0	0		++	++	For
+	+	+	+	++	++	neutral
0	0	0		++	++	media
0	0	0	+	++	++	
0	0	0	+	++	++	
-5	-5	-5	-40	-5	-20	-20
+100	+100	+100	+150	+160	+160	+200
<60	<70	<130	<60	<160	-	-
++	++	+	++	+	-	-
73 ± 5	70 ± 5	68 ± 5	65 ± 5	73 ± 5	-	-
No	Yes	Yes	Yes	No	Yes	-
Yes	Yes	Yes	Yes	No	-	-

\*1) Only for TORNADO® T2 rotary lobe pumps \*2) also for TORNADO® T2 Rotary Lobe Pumps \*3) different solid stator materials on request



# Joint designs The right NEMO<sup>®</sup> joint for every application

Having the right joint in your NEMO<sup>®</sup> pump has a decisive impact on operational reliability and life-cycle costs. The optimum joint is selected on the basis of the application, the operating conditions, the conveyed media and the pump series.

#### **B** Universal Pin Joint

The NEMO® universal pin joint is the standard joint for NEMO® industrial pumps thanks to its simple design and outstanding degree of reliability. The joint has a very long service life, as it is oil-filled and sealed using a NEMO® SM® seal. The joint can also be used without a seal at extremely high temperatures and flow rates where elastomers are not suitable. The joint has just a small number of components and can therefore be easily dismantled for maintenance.

#### V Pin Joint

The NEMO® V pin joint functions in the same way as the B pin joint, but has a longer service life under tough operating conditions thanks to hardened bushings, which are fitted into boreholes in the coupling rod and the rotor/drive shaft head and can be replaced easily during maintenance.

#### **H Hygienic Pin Joint**

This open, patented pin joint has been developed specifically for use in NEMO® hygienic pumps. The joint has no crevices or dead space and is polished, so is easy to clean. The hygienic pin joint meets the requirements of the US 3-A Sanitary Standards.



#### **Flextec Flexible Rod**

This flexible rod is wear- and maintenance-free, because no parts move against each other as in other joint types. It also does not require lubricants or seals, so that it can be used at the extremely high ambient pressures and temperatures. As it is free of crevices and dead space, the flexible rod is also used to convey highly sensitive products in aseptic conditions. The flexible rod meets the requirements of the US 3-A Sanitary Standards.

#### K Joint

The patented K joint was designed for highly demanding industrial applications. It is kinematically designed so that the torque and axial loads are shared by separate elements within the joint. The joint is oil-lubricated and sealed hermetically by two joint seals that are resistant to/compatible with the lubricant and the pumped product. Filling the space between the two joint seals additionally with oil means that the joint can be used at ambient pressures of up to 12 bar. Z Double Seal Pivot Joint

For large flows and/or pressures (from bearing block size NM125SY upward), NEMO® industrial pumps are equipped with kinematic precision cartridgetype double seal pivot joints, which have been designed with extremely high permanent loads, torques and axial forces in mind. The joint is oillubricated and sealed hermetically by two joint seals that are resistant to/ compatible with the lubricant and the pumped product.



# NETZSCH Accessories & Service from A to Z

# Accessories to increase the operational safety of both pump and plant to prevent downtimes

**Process monitoring** 

Dry running protectors safeguard elastomer parts of the pump against thermal damage and protect the pump.

- Dry running protection (STPA2A, STP2D)
- Flow sensors for solid stators
- Speed monitoring device

Overpressure and underpressure protectors safeguard the pump and protect downstream aggregates and valves against overpressure and underpressure.

- Diaphragm Pressure Gauge
- Pressure control device DTSL 3
- Multi-function pressure instrument
- By-pass line

Seal Support Systems

Additional flushing, quench or pressurised flushing systems that flush or close the seals with clean conveyed medium are often required to ensure shaft seals function correctly and reliably.

- Quench pot
- Permanent lubricator
- Pressurised flush for double mechanical seals

**Tools and additional equipment** 

A large number of useful equipment is available to correctly maintain and smoothly operate your pumps.

- Gear joint filling unit
- Ring dosing nozzle
- Chemical anchor
- Stator removal tool

**Protection Units and Trolleys** 

In all areas of production within the food, pharmaceutical and cosmetic industries, a range of optional parts are available to ensure uncompromising hygiene and to enable mobile use.

- Covers for drives
- Transport devices
- Machine feet flexible, rigid

**Further information** 

NETZSCH Customer Service Brochure NPS · 400



# **NETZSCH Service**

## The benefit to you

Advice, service and quality are out strengths. Strict quality standards, test procedures and certification in accordance with DIN EN ISO 9001 guarantee that you receive the very highest quality without exception. To maintain the performance and quality of your pump, we continue to provide support after delivery in all aspects of your pump to ensure it operates reliably in your system. We have experience over 60 years with more than 500,000 installed pumps behind us.

#### **Spare Parts and Service**

In your area welltrained 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 & Systems | Consultation/ Service.







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 systems and equipment custom built and challenging solutions for different applications on a global basis.





