

**NETZSCH**



## Environmental & Energy

Processes, Markets and Applications

# EXPERTISE CREATES TRUST

Intelligent solutions for a clean environment

Within the Business Unit Pumps & Systems, the business field Environmental & Energy has positioned itself as global specialists in the treatment of waste water and biogas technology. We provide special conveying systems and grinders – and, thus, the optimum solution for all stages of the process and for many challenges.

The Businessfield Environmental & Energy serves the following industries:

- Agriculture
- Cleaning waste water
- Construction industry
- Electroplating
- Marine equipment
- Renewable energies
- Purification of water and drinking water
- and much more

## What we offer

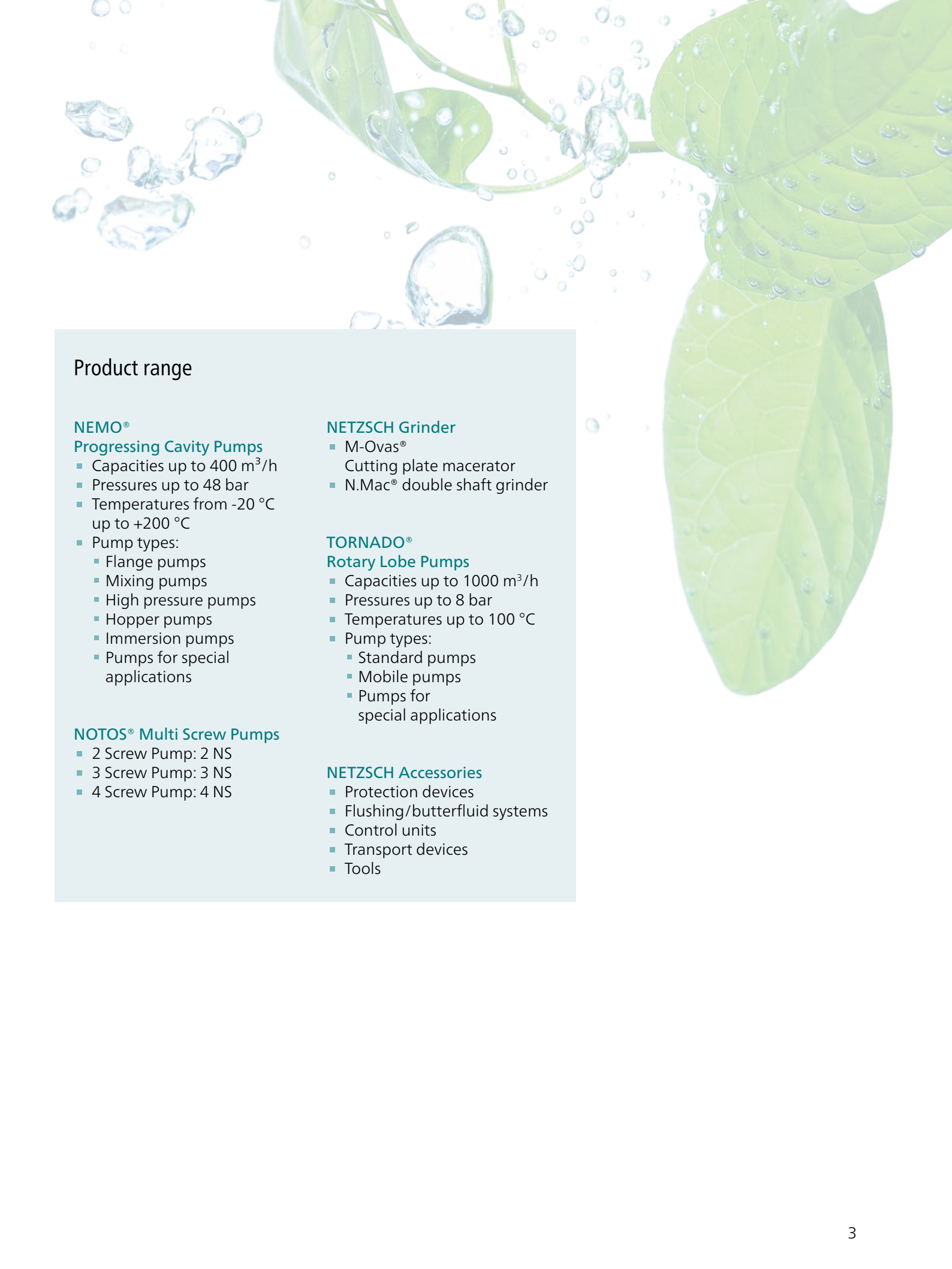
In the business field "Environment & Energy" we provide positive displacement pumps as conveying systems for all media in environmental technology. Due to their regulating characteristics, these pumps ensure a safe, reliable and efficient process. Here we differentiate between the NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps and NOTOS® multi screw pump.

## Why you succeed with us

The technically best pump is selected for the respective application. You benefit from reliable pumps and systems optimally tuned to your application and matched to the market. The NEMO® and TORNADO® pumps are supplemented by grinding systems and accessories.

## Who we are

NETZSCH Pumps & Systems is a family-run, medium-sized company headquartered in Waldkraiburg, founded in 1952. It employs more than 2,000 employees at five development and production sites and at 30 distribution companies, one partner and more than 200 NETZSCH representatives. NETZSCH is always close to you.



## Product range

### NEMO®

#### Progressing Cavity Pumps

- Capacities up to 400 m<sup>3</sup>/h
- Pressures up to 48 bar
- Temperatures from -20 °C up to +200 °C
- Pump types:
  - Flange pumps
  - Mixing pumps
  - High pressure pumps
  - Hopper pumps
  - Immersion pumps
  - Pumps for special applications

### NOTOS® Multi Screw Pumps

- 2 Screw Pump: 2 NS
- 3 Screw Pump: 3 NS
- 4 Screw Pump: 4 NS

### NETZSCH Grinder

- M-Ovas®  
Cutting plate macerator
- N.Mac® double shaft grinder

### TORNADO®

#### Rotary Lobe Pumps

- Capacities up to 1000 m<sup>3</sup>/h
- Pressures up to 8 bar
- Temperatures up to 100 °C
- Pump types:
  - Standard pumps
  - Mobile pumps
  - Pumps for special applications

### NETZSCH Accessories

- Protection devices
- Flushing/butterfluid systems
- Control units
- Transport devices
- Tools



# WASTE WATER TREATMENT PLANT

We provide you NEMO® progressing cavity pumps and TORNADO® rotary lobe pumps in diverse designs and materials, designed according to the location of use in the waste water treatment plant. Low viscosity and also abrasive sludge is reliably conveyed using our pumps with flanged connections. For media with a high dry material content, such as dewatered sludge, are suitable, either for different designs of the NEMO® hopper pumps with screw conveyors or also with our abPModule® to prevent bridging.

The TORNADO® rotary lobe pumps are predestined due to their compact construction for tight installation situations. They are just as robust as the progressing cavity pumps and suitable for media with large solids as well.

The grinders of NETZSCH protect lines and pumps and, alongside the wide range of accessories, also contribute to the process reliability of the overall plant.





### Your medium – We are prepared for everything

- Activated sludge
- Centrate
- Compacted sludge
- Concentrated sludge
- Conditioned sludge
- De-watered sludge
- Digested sludge
- Draff
- Faecal sludge
- Flocculating agent
- Flotation sludge
- Fresh sludge
- Grease and oil emulsion
- Gypsum suspension
- Gypsum slurry
- Hygienised sludge
- Industrial water
- Iron III chloride
- Kaolin sludge
- Landfill leachate
- Lime milk
- Liquid manure
- Liquid sludge
- Lubricant
- Metal-hydroxide sludge
- Mine water
- Mixed water
- Moor mud
- Polymer concentrate
- Polymer solution
- Primary sludge
- Pulps
- Purified sludge
- Raw sludge
- Raw waste water
- Refinery sludge
- Return sludge
- River mud
- Secondary sludge
- Sewage
- Slaughter waste
- Slop
- Stabilized sludge
- Surplus sludge
- Thick sludge
- Waste water

# CONSTRUCTION INDUSTRY AND CONSTRUCTION MATERIALS

## Extremely robust pumps to ensure success

The high pressure in terms of deadlines and costs in construction make it important for pumps to run perfectly and also to be capable of efficient operation. In addition, construction primarily involves dealing with granular and binding media containing solids. These are generally difficult for pumps to convey. Our self-priming, rotating positive displacement pumps are well-prepared for these difficult tasks. They are wear-resistant thanks to the material coatings and have an extremely high resistance to solid contents. They ensure reliable operation in construction.

When it comes to extremely abrasive media, such as concrete primer or waste water from concrete production, the high-performance TORNADO® rotary lobe pumps prove their worth with an above-average service life. The TORNADO® rotary lobe pumps' compact design makes them suitable for areas where space is restricted. The pump oil-free drive – the pumps are driven by a synchronised belt drive – means any possible pollution of the groundwater is avoided.

Pumps are tailored to the relevant applications using the appropriate accessories. If necessary, equipment can include skids for construction sites, remote control, switch cabinets and/or hydraulic drive.

## Your medium – We are prepared for everything

- Waste water from concrete production
- Concrete suspension
- Drilling sludge
- Gypsum suspension
- Gypsum slurry
- Adhesive bases
- Waste water
- Cement suspension









# BIOGAS PLANTS

## Process adaption for higher energy production

The inhomogeneous, liquid or solid, organic substances are decomposed through the use of microorganisms and, thereby, used to generate energy. Depending on the process sequence, it is necessary that the biomass is continuously fed to the fermenters.

Here, pump systems are required to convey the large quantity and sizes of grain in the solids flux without problems. NEMO® progressing cavity pumps as well as TORNADO® rotary lobe pumps are used for this application, sometimes combined with NETZSCH grinders.





## Advantages

- Variable, modular system
- Robust, compact and powerful pumps
- Pumping media with high solids content
- Large range of materials
- The correct joint for every application
- Mechanical seal as standard, further seals as an option
- aBP-Module® to prevent bridging

## Typical media:

- Biomass
- Bio waste
- Food waste
- Grains
- Haylage
- Manure
- Pomace





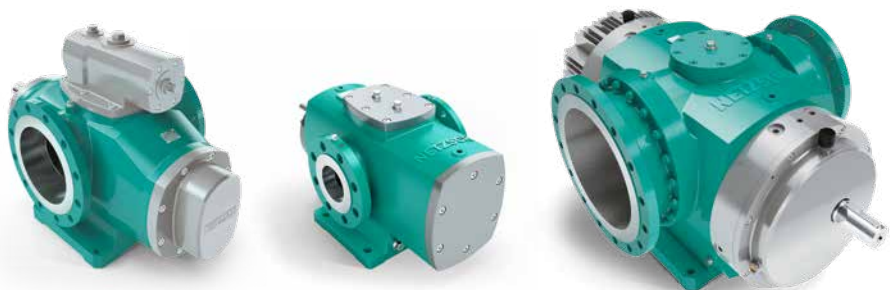
# MARINE AND SHIP EQUIPMENT

Whether as a fuel or gear pump, hydraulic pump, bilge and mud pump or as pump for loading or unloading oil tankers, commercial or naval ships NETZSCH pumps are wide spread.

NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps as well as NOTOS® multi screw pumps can be found in the engine room or on deck as transfer pumps. Highly viscous media such as black oil, pitch, tar and heavy oil are pumped as reliable as low viscosity media such as diesel oil, gasoline, hydrocarbons, salt and fresh water.

## Typical media:

- anchor chains oil
- diesel fuel oil
- oil
- residual oil
- sludge
- various chemicals
- waste oil
- waste water (grey and black water)



The NOTOS® pump family



# NEMO<sup>®</sup> progressing cavity pumps:

POWERFUL FOR OUR ENVIRONMENT

## NEMO<sup>®</sup> BY

### in block design

Compact design with directly flanged drive. It is distinguished by its low investment, operating and maintenance costs. Four rotor/stator geometries for optimum performance with every kind of application.

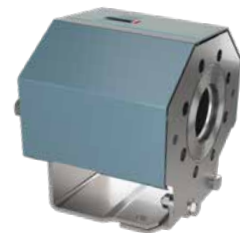


### The FSIP<sup>®</sup> design

The FSIP<sup>®</sup> design enables a particularly service-friendly maintenance without dis-assembling of the pump from the pipeline. By easier access to all rotating parts through cartridge joint and mechanical seals the maintenance is reduced. The downtimes and the associated costs are reduced. In addition, it reduces the required installation space, since the stator is removed laterally. The FSIP<sup>®</sup> design is offered in modification sets. So you can upgrade also existing pumps with lower costs.

### The xLC<sup>®</sup> stator adjustment unit

The xLC<sup>®</sup> stator adjustment unit makes it possible to reset the iFD stator<sup>®</sup> 2.0 several times before it eventually has to be replaced due to wear, thereby prolonging stator life significantly. The function of the xLC<sup>®</sup> unit is based on the iFD stator<sup>®</sup> 2.0. The xLC<sup>®</sup> unit is attached to the flange of the elastomer part of the stator and can compress or stretch it. In the case of wear the elastomer part of the stator can be compressed to restore the pretension between the rotor and stator ensuring an efficient sealing line. Depending on the application lifetime can be tripled or extended even further.



## NEMO<sup>®</sup> SY

### with bearing housing and drive shaft

The design with bearing housing and drive shaft means it can be used with all types of drive. Four rotor/stator geometries for optimum performance for the respective application. Also available in FSIP<sup>®</sup> design.



## NEMO® C.Pro®

### Mini dosing pump in plastic design

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



#### Further information

NEMO® C.Pro®  
Brochure NPS · 313

## NEMO® BO/BS

### in block design with directly flanged drive or NEMO® SO/SS with bearing housing and drive shaft

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



## NEMO® BF option with aBP-Module®

### in block design with directly flanged drive or with bearing housing and free shaft end

Housing with enlarged, 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.  
Optional with aBP-Module® to prevent bridging.



#### Further information

aBP-Module®  
Brochure NPS · 070

## NEMO® B.Max®

### in block design with directly flanged drive or with bearing housing and drive shaft end

Housing with large, rectangular feed hopper 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 for the biomass.



#### Further information

NEMO® B.Max®  
Brochure NPS · 060

Repowering  
Brochure NPS · 063

Technical notes: the hopper dimensions can be adjusted to suit the specific application.

# THE BEST CHOICE

for every application

TORNADO® rotary lobe pumps – powerful, robust, compact



TORNADO® self-priming, valveless positive displacement pumps for high-performance and optimally tailored to your individual requirements. They are used for continuous and smooth conveyance of almost all media, as well as for dosing in proportion to speed.

## Further information

TORNADO®  
Brochure NPS · 081

TORNADO® Mobile  
Brochure NPS · 045

## Broad range of applications

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

- With and without solids
- Low to high viscosity
- Thixotropic and dilatant
- Shear sensitive
- Abrasive
- Non-lubricating and lubricating

## TORNADO® Mobile

The NETZSCH TORNADO® Mobile is ideal for applications where pumps have to be used quickly and flexibly outside buildings and plants or away from any infrastructure. This unit comprises a mobile TORNADO® rotary lobe pump with diesel drive and conveys large quantities of sewage and sludge, independent of the local circumstances. Smaller units are available, too.



## Full Service in Place holds also true for our grinders

### Grinding systems, so that each media is pumpable

Powerful grinding systems are used to protect your plant and pump units contained therein. They ensure that impurities are separated or ground suitable for pumping. Thus, the risk of blocking and/or clogging in the pump systems is reliably prevented.

#### M-Ovas® cutting plate macerator

During the treatment of waste water, the impurities in the medium are directed through the specially shaped housing and gathered and cut by the rotating blades. This unit can be used for sludge with a throughput rate of up to max. 70 m<sup>3</sup>/h and a dry matter content of up to 12 % and is characterised by its ease of maintenance.

#### N.Mac® double shaft grinder

Capable of fragmenting large and solid particles, the N.Mac® Double Shaft Grinder is the ideal equipment to suit different applications such as wastewater treatment, biomass substrate handling, food and fruit scraps. Its various housing designs in channel and inline version allow installation into effluent channels or flange assembly to prevent pipe clogging and to protect downstream equipment, such as pumps.

#### Further information


Grinding Systems  
Brochure NPS · 040



M-Ovas® cutting plate macerator



N.Mac® double shaft grinder



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 3,400 employees at 210 sales and production centers in 35 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, NOTOS® multi screw pumps, macerators/grinders, dosing technology and equipment custom built and challenging solutions for different applications on a global basis.

NETZSCH Pumps & Systems – Solutions you can trust ■

BLUECOMPETENCE

Alliance Member

Partner of the Engineering Industry  
Sustainability Initiative

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