

NETZSCH

Proven Excellence.



Pumps for Wastewater Treatment Plants

Intelligent solutions for a clean environment

Pumps & Systems

Process sequence

OF A WASTE WATER TREATMENT PLANT

The process

We provide you NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps and PERIPRO peristaltic pumps in diverse designs and materials, designed according to the location of use in the waste water plant. Low viscosity and also abrasive sludge is reliably conveyed using our pumps with flanged connections. Designs of the NEMO® hopper pumps are available with screw conveyors or also with our aBP Module® to prevent bridging for media with a high dry material content, such as de-watered sludge.

The low pulsation NEMO® progressing cavity pump:

NEMO® progressing cavity pumps are used in all sectors of the environment to convey almost all types of media continuously, smoothly, with low pulsation and dosing in proportion to speed.

The robust PERIPRO peristaltic pump:

Its robustness is achieved with the use of very strong materials, integrated bearings, large-size rollers and a system of reliable and very secure connections that prevent the appearance of leaks during its operation.

The compact TORNADO® rotary lobe pump:

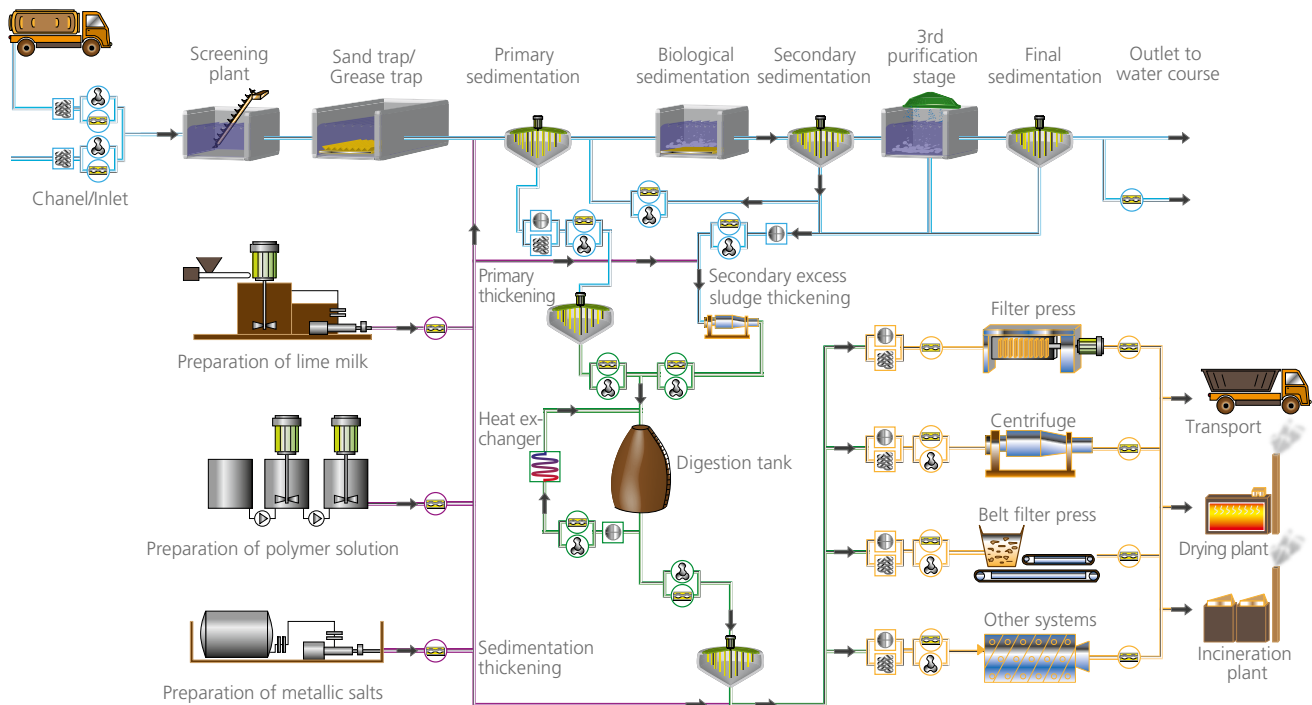
Due to their compact construction, TORNADO® rotary lobe pumps are predestined for confined installation situations. In robustness, they are no inferior to the progressing cavity pumps and are also very suitable for media with larger solid substances. As TORNADO® Mobile or on a hand trolley, they are used locally flexible and have proven their reliability in the event of a catastrophe.

Grinder for process reliability

The cutting plate macerator M-Ovas® and N.Mac® double shaft grinder protect lines and pumps and, alongside the wide range of accessories, also contribute to the process reliability of the overall plant.

NETZSCH Accessories

- Protection devices
- Flushing/pressurised flushing devices
- Control units
- Transport devices
- Tools



NEMO® progressing cavity pump



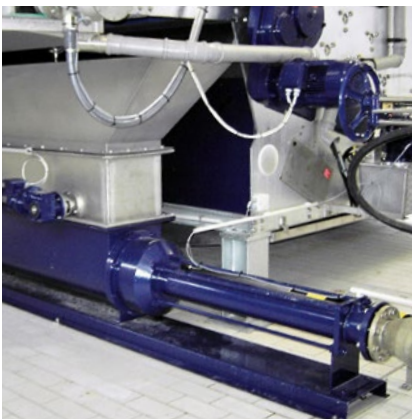
TORNADO® rotary lobe pumps



M-Ovas® cutting plate macerator



N.Mac® double shaft grinder



External view: NEMO® progressing cavity pump in a sewage plant with hopper and aBP-Module®



Internal view of the progressing cavity pump: Attachment with aBP-Module® to prevent bridging



TORNADO® rotary lobe pump conveys digested sludge in the sewage plant

Typical applications

IN THE WASTE WATER SECTOR

Flotation sludge

Flotation sludge and sludge foam represent flotation fractions of sludge that collect on the surface in the secondary settlement tanks. This effect is not desired and results in the flotation sludge, appearing as an air-medium mixture, needing to be pumped away. Ideal for this is the NEMO® progressing cavity pump, which reliably and continuously conveys, even with a high ratio of gas in the medium. For restricted spaces, the TORNADO® rotary lobe pump can also be used here.

Concentrated sludge

In an initial step, the water ratio and, thus, the overall volume of the sludge is reduced by means of gravity or mechanical thickening. Thereby, the objective is to attain a dry matter content of 4 % to 11 % in the medium. Thickened sludge is a flowable to viscous media that can also be pumped over long

distances. High counter-pressures are overcome by using multiple stage NEMO® progressing cavity pumps. The space-saving TORNADO® rotary lobe pump is also frequently used on this sludge.

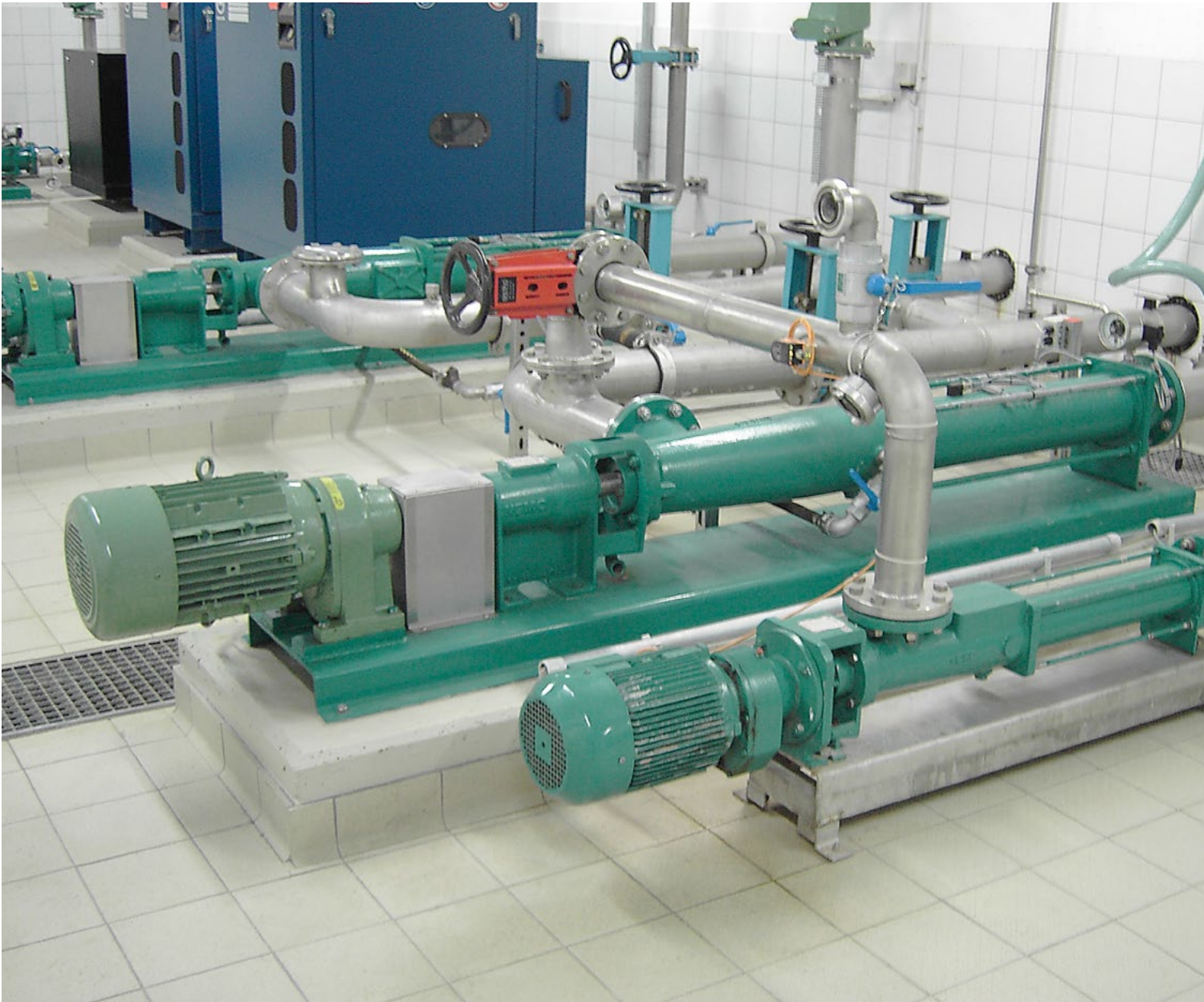
Flocculating agent

Flocculating agent is fed to the sludge before draining. It promotes formation of larger solid flakes in the sludge and, in this manner, contributes to improved de-watering. Normally, flocculating agent is dosed as a polymer solution or dispersion. Its viscosity and the requirement to be able to accurately dose the quantity, place requirements on pumps that the NEMO® progressing cavity pump can conform to.

De-watered sludge

During de-watering of the sludge, by adding flocculating agents in centrifuges, decanters, belt or

chamber filter presses, an additional reduction in the volume of between 65 % and 80 % can be attained. A crumbly, compacted product ensues that cannot flow. Due to the characteristics of the medium, forced feeding into the pump is required. Furthermore, bridging in the inlet area of the pump must be prevented. Fundamentally, NEMO® progressing cavity pumps with rectangular inlet hopper and feed and conveying screw are used for these applications. A feature of this pump is the horizontally positioned, patented conveying screw that ensures an optimum degree of filling of the delivery chamber. For sludge that tends towards bridging, the feed hopper of the NEMO® progressing cavity pump has an additional aBP-Module® or integrated bridge breaker.



NEMO® progressing cavity pumps convey digested sludge

Typical applications

IN THE WASTE WATER SECTOR

Liquid sludge

During the initial steps of cleaning waste water, liquid sludge occurs in large quantities as "waste". This is sludge with a dry matter content of approx. 1 % to 4 %. Depending on the origin, the ratio of the content of organic and inorganic substances can differ greatly. Pumps that can convey large quantities at low pressures, as well as feature a long service life, are normally required to convey low viscosity sludge. Both the NEMO® progressing cavity pumps as well as the TORNADO® rotary lobe pumps are used here. Particularly when using the L and P-geometry, NEMO® progressing cavity pumps feature a high power density. Another advantage is presented by long service life, to the long seal line and reduced sliding velocity of the rotor.

Lime milk

Lime milk is an inorganic suspension of lime hydrate and water. Alternatively, lime milk can also be

directly produced by quenching caustic lime with a surplus of water. Lime milk is used as an aid to filtration during the de-watering of sludge using filter presses. The structure and constitution of the calcium carbonate is dependent on the origin of the production process. It is a very abrasive medium. In order to attain high service life, NEMO® progressing cavity pumps are used equipped with rotors and stators of high-quality material. Here, the non-wear NEMO CERATEC® ceramic rotor, in combination with an extremely abrasion-resistant elastomer stator is ideal.

Marine waste water

Compact, light, robust and simple to use – these requirements are particularly applicable for pumps in ships. The pumps must also be versatile for universal use to keep down the cost of servicing and spare parts. The TORNADO® rotary lobe pump takes into account all of these demands. Therefore, it is used as a bilge pump as well as a

waste water pump: The core is the oil-free synchronised gear with belt drive. It reduces the weight of the pump by a minimum of 30 percent compared to a normal gear drive and the robust sub-assembly uses significantly less individual parts. The overall mechanism is extremely reliable, the number of spare parts is conceivably low. Because the system is not lubricated, extravagant lubricant changes are not necessary and leakage detrimental to the environment is excluded. After removing the drive cover, the entire synchronised gear including the belt can be accessed. Workload is kept to a minimum and downtimes are shorter. If maintenance or repair tasks are required in the pump room, these can be carried out quickly and easily by direct access from flange to flange.

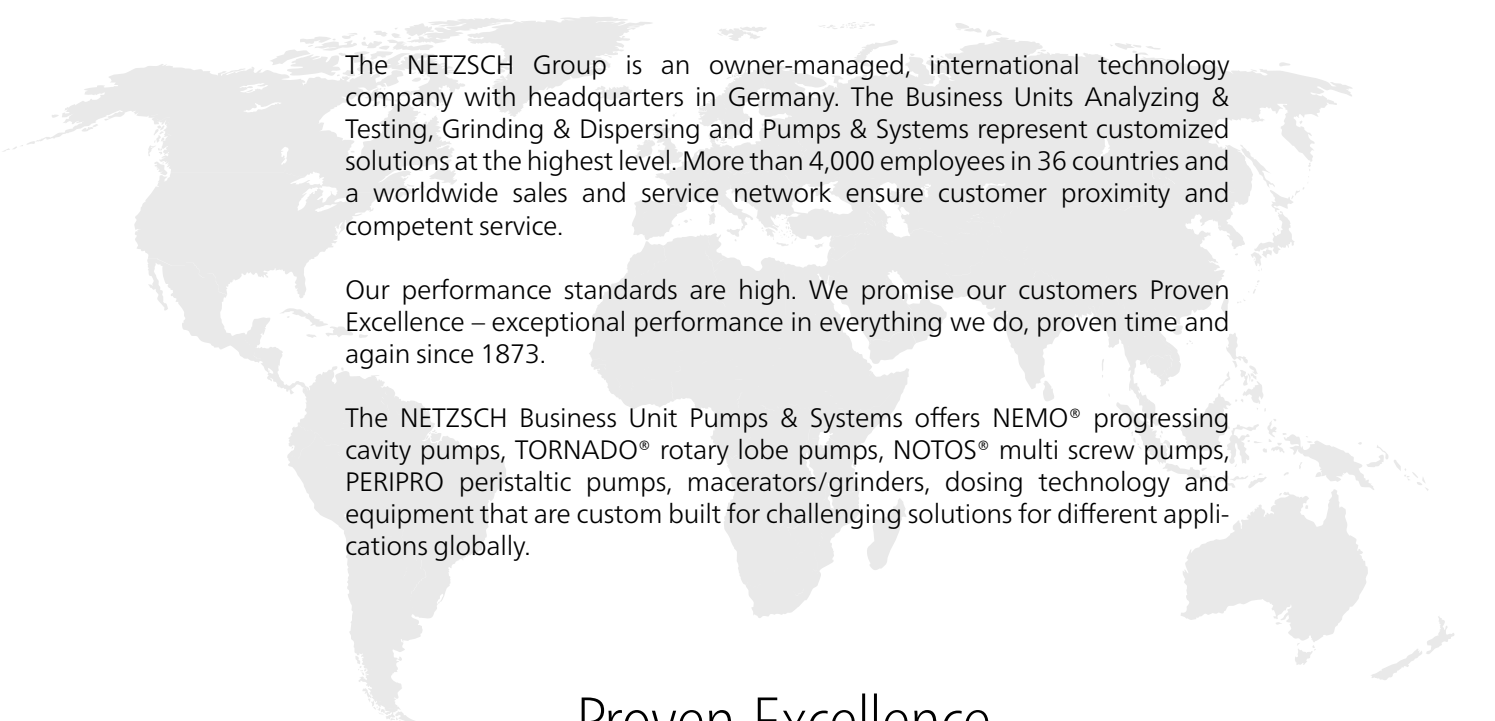
Also the NEMO® progressive cavity pump works reliably below deck: as a bilge pump it is used successfully.

Further information

NEMO CERATEC®
Brochure NPS · 347



TORNADO® rotary lobe pumps in digested sludge recirculation



The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 4,000 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

The NETZSCH Business Unit Pumps & Systems offers NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, NOTOS® multi screw pumps, PERIPRO peristaltic pumps, macerators/grinders, dosing technology and equipment that are custom built for challenging solutions for different applications globally.

Proven Excellence.

NETZSCH Pumpen & Systeme GmbH
Geretsrieder Straße 1
84478 Waldkraiburg
Germany
Phone: +49 8638 63-0
info.nps@netzsch.com
www.pumps-systems.netzsch.com

NETZSCH Asia Pacific Pte. Ltd.
Singapore
Phone: +65 6863 4453
info.nap@netzsch.com

PT. NETZSCH Indonesia
Jakarta, Indonesia
Phone: +62 21 296 75 385
info.nij@netzsch.com

NETZSCH Thailand Ltd.
Bangkok, Thailand
Phone: +66 2 152 7325
info.ntb@netzsch.com

NETZSCH (Malaysia) Sdn Bhd
Shah Alam, Malaysia
Phone: +60 3 5885 9201
info.nmk@netzsch.com

NETZSCH Vietnam Limited
Ho Chi Minh City, Vietnam
Phone: +84 28 6281 1042
info.nvh@netzsch.com

NETZSCH Australia Pty Ltd
Head Office Brisbane
Phone: +61 7 3488 8183
Regional Office Sydney
Phone: +61 2 9641 2840
nas@netzsch.com



NETZSCH®
www.netzsch.com