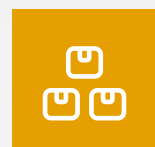


NETZSCH

Proven Excellence.



Products & Accessories

TORNADO® Rotary Lobe Pumps

Compact, robust and powerful

Pumps & Systems

NETZSCH Pumps & Systems

INNOVATIVE PUMP SOLUTIONS FOR YOUR APPLICATION AREA

NETZSCH Pumps & Systems, your global specialist for conveying complex media.

We promise you Proven Excellence – outstanding performance in all areas.

Designed specifically for difficult conveying situations, the products range from very small industrial metering pumps to high volume pumps for applications in the oil and gas sector or the mining industry. Our **NEMO® progressing cavity pumps**, **TORNADO® rotary lobe pumps**, **NOTOS® multi screw pumps**, **PERIPRO® peristaltic pumps**, **grinders, dosing equipment and accessories** offer customised, reliable solutions for your applications all over the world.

The high level of quality of our products and original spare parts is based on over 70 years of experience in development, production and distribution. We manufacture more than 75,000 pumps per year, which works to your benefit as our customer: The high level of reliability allows you to reduce your maintenance costs and take preventive action against unplanned downtime.

Our service and support does not end with the purchase. On the contrary – it starts well before an order is placed. From consultation, maintenance and spare parts to repairs and modernisation of your pump, we support you from the outset. And with our worldwide service network, we are here to help around the clock in the event of an emergency.



The NETZSCH product portfolio

All NETZSCH pumps can be used in a wide range of applications, for example:

- Bonding and sealing
- Chemicals
- Dosing
- Environmental technology
- Food and beverages
- Marine applications
- Mining
- Oil & gas production and transfer
- Paints and coatings
- Paper industry
- Pharmaceuticals and cosmetics
- Renewable energies
- Water and wastewater treatment

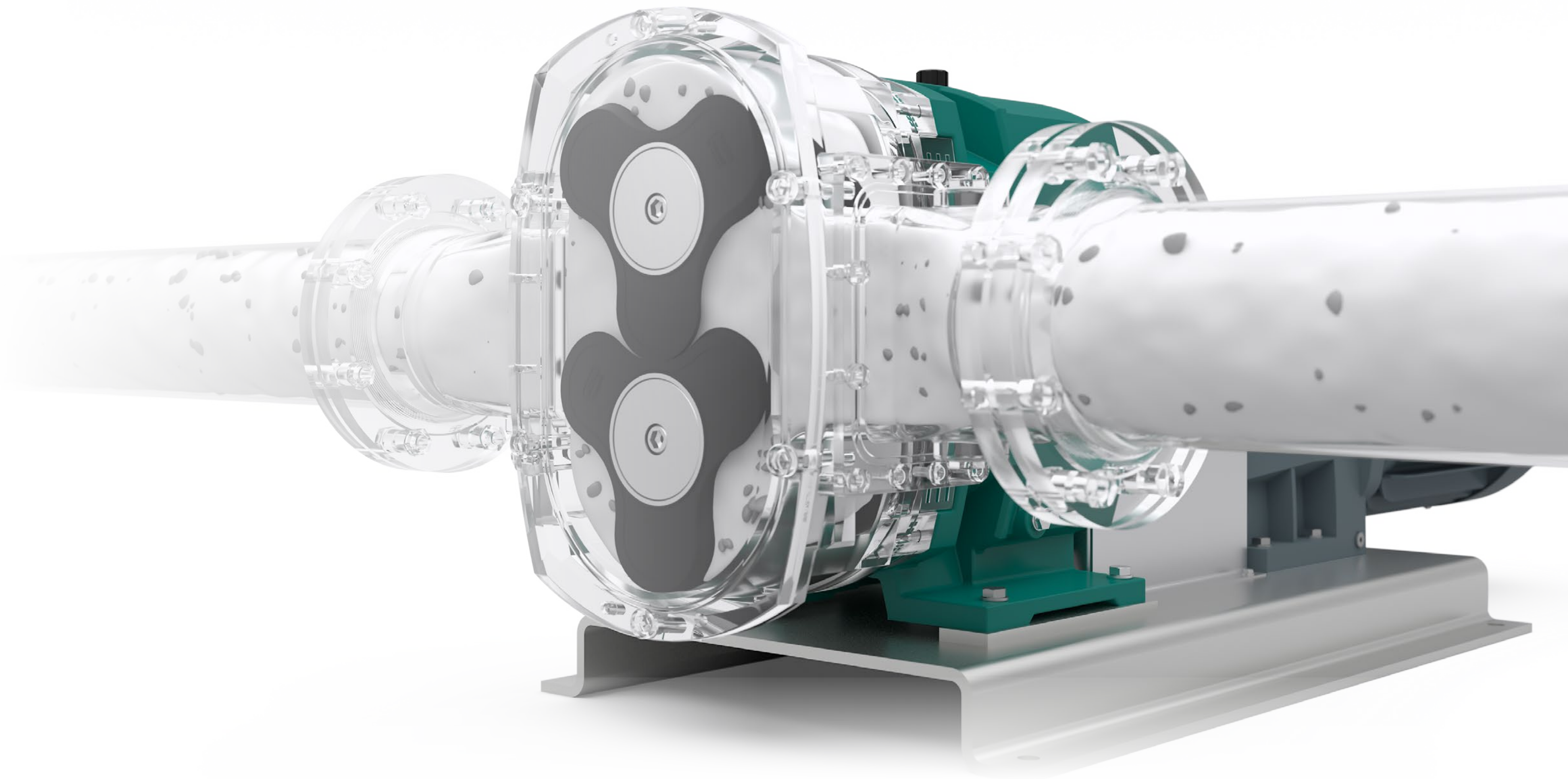


TORNADO® Rotary Lobe Pumps

MAXIMUM SERVICE FRIENDLINESS MEETS HIGH PERFORMANCE

Advantages of NETZSCH TORNADO® technology

- Excellent wear resistance
- Valveless design
- Self-priming
- High efficiency with low space requirement
- Simple Full Service in Place® maintenance for low downtimes and maintenance costs
- Tolerant to dry running
- High-level operating reliability and robust design
- Optimum material selection for every application
- Conveying of inhomogenous, gaseous, and abrasive media with solids and/or fibres
- High power density
- Conveying of shear-sensitive media and low- or high-viscosity media
- Pulsation free
- Variable speed and flow rate control by use of frequency inverter
- Conveying of both lubricating and non-lubricating media





☆ Functional principle

The TORNADO® rotary lobe pump is a rotating positive displacement pump. The medium is conveyed from the suction side to the discharge side by conveying elements in a geometrically defined chamber between the lobe and the pump housing.

☆ Environmental & leakage protection

Optimally dimensioned clearances ensure maximum energy efficiency, which increases the cost-effectiveness of your system and protects the environment. The proven spatial separation of the pump chamber from the bearing housing (GSS = Gearbox Security System Technology) guarantees absolute protection against contamination.

☆ Compact design & service friendliness

Thanks to its compact inline design, the pump is easy to integrate into your pipeline system. FSIP® maintenance allows quick and easy access to the pump chamber without dismantling the pump housing and piping, providing more space for inspection, cleaning and maintaining parts.

☆ Economic efficiency & operational safety

The optimized conveying chamber design ensures a longer service life for the lobes, housing and, in particular, the shaft seals. Thanks to the modular design, wear parts can be replaced easily and cost-effectively. In combination with improved efficiency, the life cycle costs of the pump are significantly reduced. At the same time, maintenance times are reduced to a minimum.

Our Product Philosophy

THE IDEAL PUMP FOR COMPLEX FLUIDS



Environmental, Energy, Agriculture

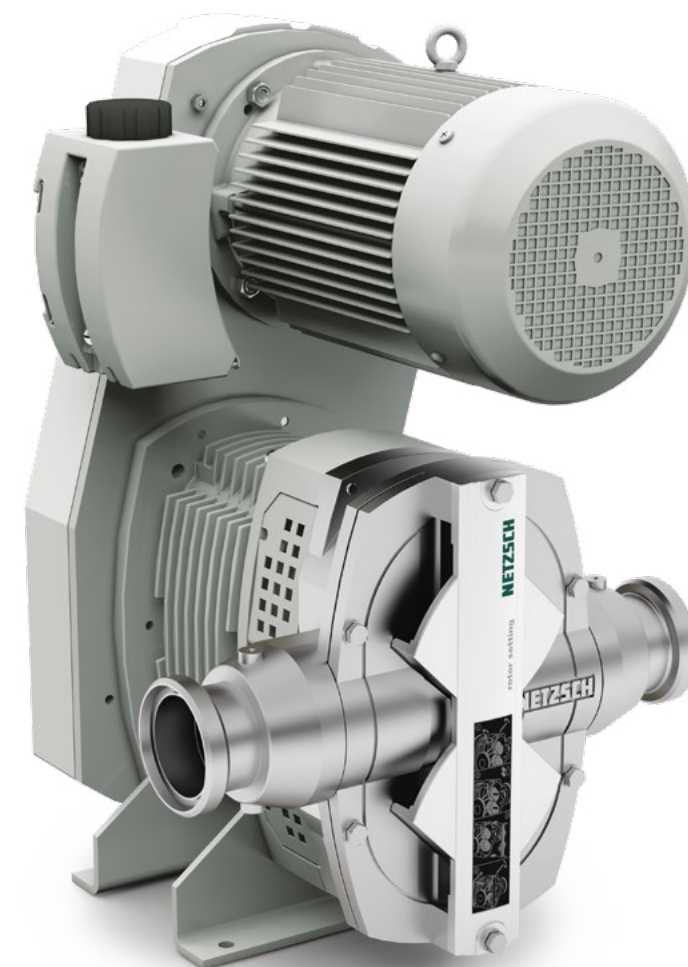


Technical details

- GSS (Gearbox Security System) technology for longterm reliability
- Tolerant to dry drunning
- Simple maintenance without removal from the pipeline
- ATEX and CE certified



Industrial, Chemical

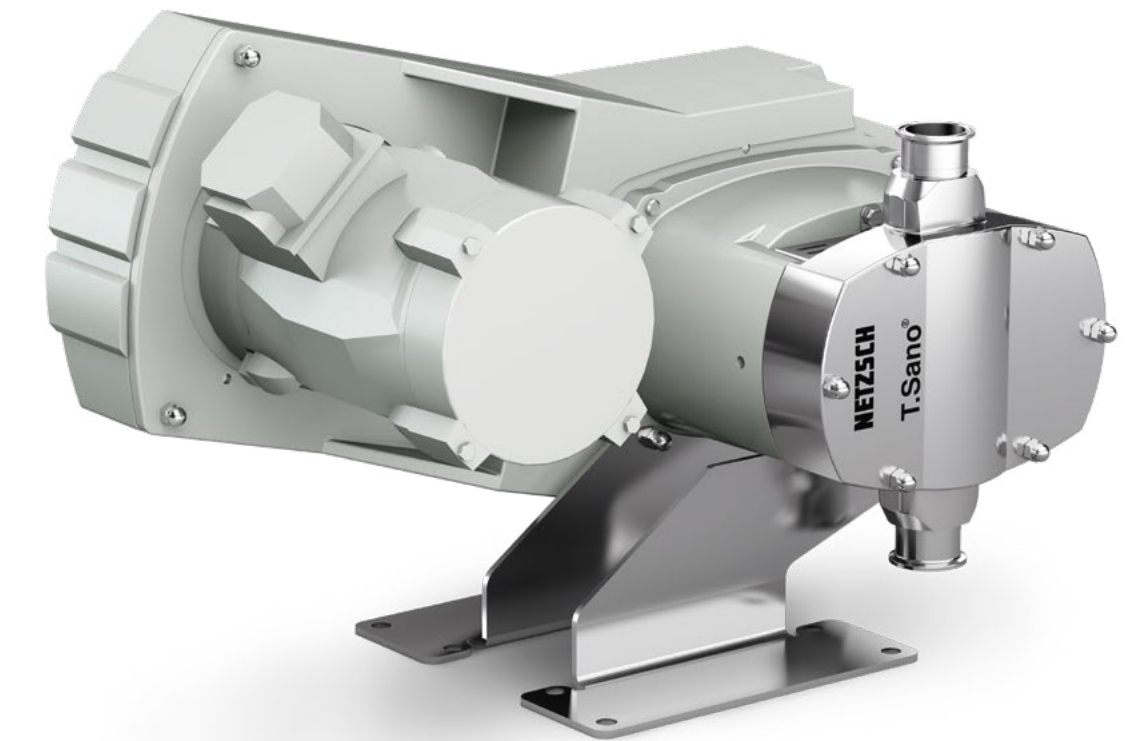


Technical details

- All-metall version for demanding media
- FSIP® design for particularly easy and low-cost maintenance
- Oil-free belt drive for smooth operation



Food & Pharmaceuticals



Technical details

- Oil and dead space free design in all-metall version for hygienic and food sector
- EHEDG certified (depending on media wetted elastomer and mechanical seal materials, flange sizes)
- CIP and SIP capable

TORNADO® T1-F DESIGN

1 Front cover

Easy maintenance / replacement of lobes, wear plates and shaft seals without dismantling the pump casing and piping.

2 Wear plates

Highly abrasion-resistant, chemically resistant and replaceable wear plates are located on both ends of the housing as standard.

3 Lobes

Depending on the application, two-, three- or four-wing, straight or helical lobes in various materials.

4 Shaft seal

Service-friendly shaft seals with low-wear, rotation-independent mechanical seals and a wide range of mechanical seal variants for any application.

5 Housing

One-piece pump housing with flow-optimised profile. Optionally with replaceable, chemically resistant and extremely wear-resistant radial wear plates.

6 Gearbox

Patented synchronous gearbox keeps any product leakage away and prevents product from entering the gearbox as well as gearbox oil from entering the pump chamber.

☆ Wear plates

Optional radial wear plates extend the service life of the pumps, particularly when handling abrasive or aggressive media. In case of wear, only the plates need replacement, not the entire housing.

☆ Housing

Corrosion-resistant stainless steel housing for increased safety and durability in demanding processes.

See the
3D model
here



TORNADO® T.Sano®

OIL-FREE CONVEYING OF DEMANDING MEDIA IN THE HYGIENIC AND FOOD SECTOR

1 Front cover

Quick and easy access to the entire pump chamber.

2 Lobes

All-metal two-wing lobes as standard: Thanks to simple geometry, each lobe can be installed and removed independently. Depending on the application, three-wing lobes or wing rotors are also available.

3 Shaft seal

Plug and play principle for various seal designs.

4 Housing

Flow-optimised, heatable pump housing with various connection options, such as milk thread, Tri-Clamp or SMS. Design in accordance with 3-A and EHEDG standards (e.g. surface quality and cleanability, etc.)

5 Bearing housing

Bearing housing construction for compact and robust design, resulting in a small space requirement.

6 Belt drive

Enables oil free operation, preventing any contamination of the pumped media.

7 Setting tool

Ensures optimal positioning of the lobes (as standard).

8 Belt cover

For inspection, the drive belt cover can be easily removed without having to remove the pump from the pipeline.

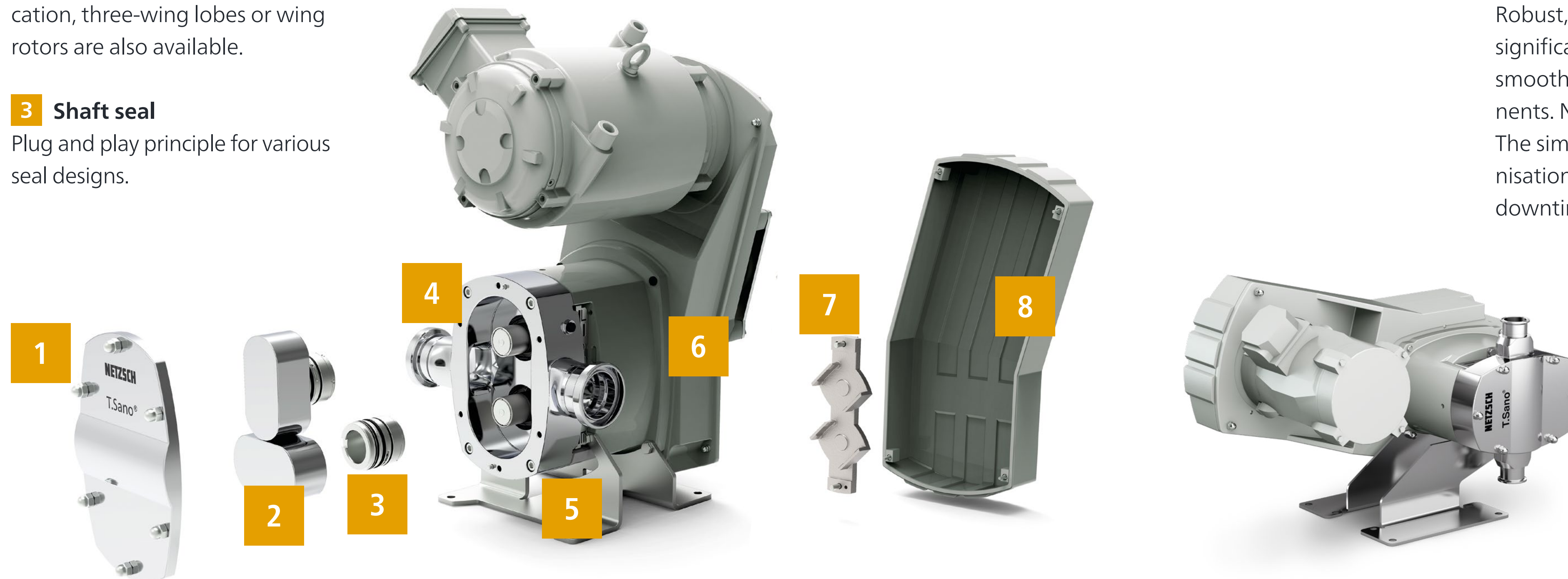
☆ Functional principle

Space-saving flange-mounted drive transmits the rotation via a toothed belt. Toothed on both sides, it synchronises the two pump shafts, which drive the lobes in opposite directions.

☆ Operational reliability and oil-free operation

Robust, synchronising belt drive significantly increases running smoothness and protects components. No oil losses or oil changes. The simple design of the synchronisation reduced maintenance and downtimes.

See the
3D model
here



TORNADO® T1 XXL-B-F

ROBUST AND RELIABLE



T1 XXL-B-F



Technical details

- High flow rate and discharge pressure
- Ideal for applications up to 1400 m³/h
- Easy installation, cleaning and maintenance
- Very robust design
- High suction capacity

Advantages of TORNADO® T1 XXL-B-F

- Constant flow rate
- Conveying of high-viscosity, solids-laden or thick media
- Gentle conveying of sensitive liquids
- Self-priming (advantage compared to most centrifugal pumps)
- High efficiency at low speeds for long service life of the pump
- Conveying of abrasive or contaminated fluids
- High efficiency and constant flow rate even with varying system pressure
- Full Service in Place® maintenance

Typical applications

- Sewage lifting in wastewater treatment
- Wellpoint dewatering
- Conveying of magma and molasses in sugar industry
- Petrochemical
- Mining
- Oil transfer, loading and unloading of ships
- Paper starch
- Membrane filtration (MBR)
- Mobile applications
- Among others



TORNADO® T1 XXL-B-F

DESIGN

1 Front cover

Easy maintenance / replacement of lobes, wear plates and shaft seals without dismantling the pump casing and piping.

2 Wear plates

Highly abrasion-resistant, chemically stable and replaceable wear plates are fitted to both ends of the housing as standard.

3 Lobes

Flow-optimised, three-wing lobes – individually adapted to the pumped medium. The material and geometry of the lobe are customised to the specific requirements of the medium for increased resistance and extended service life. Variants with optimised geometry are available for viscous, abrasive or solid-containing media.

4 Shaft seal

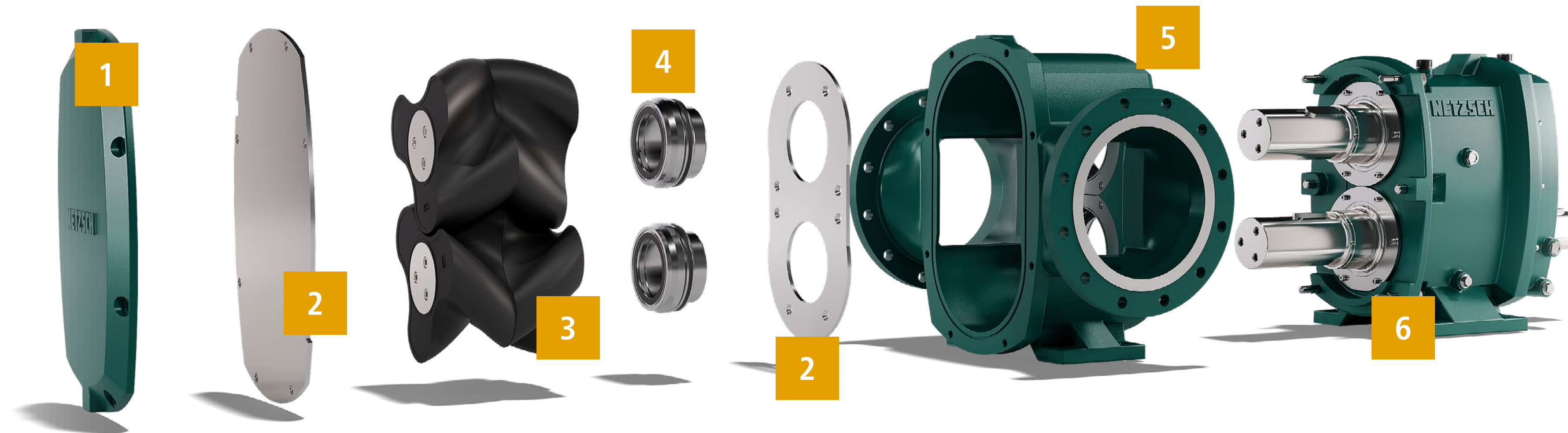
Service-friendly shaft sealing – low-wear, rotation independent and designed specifically for the application. Various mechanical seal concepts are available – from simple drive seals to double-acting cartridge systems. Front-loading design: Replacing the seals without dismantling the housing.

5 Housing

One-piece pump housing with a flow-optimized profile. Optionally, with chemically resistant radial wear plates. Cast-on flanges ensure a compact design.

6 Gearbox

Patented synchronous gearbox with separate seals for pump and gearbox keeps any product leakage away and prevents product from entering the gearbox as well as gearbox oil from entering the pump chamber.

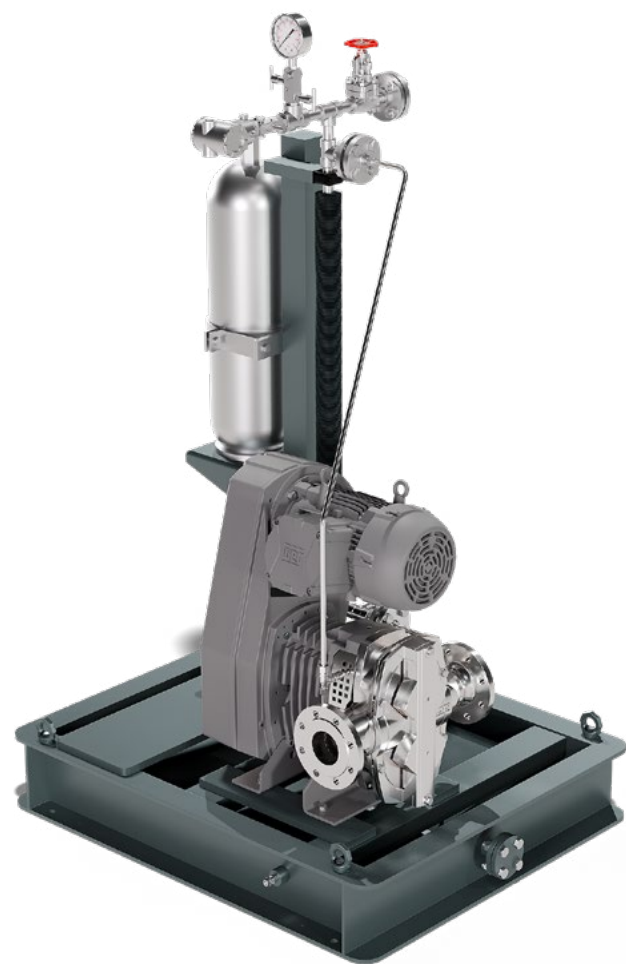


Optimum Process Reliability



Clever positioning of the shaft seal: Cartridge units integrated in the lobe

- Permanent direct flow of product to and around the seal faces, as they are installed in the pump chamber without dead space
- No wear of shafts, since seals are designed as robust cartridges
- Easy assembly and disassembly



Barrier pressure system

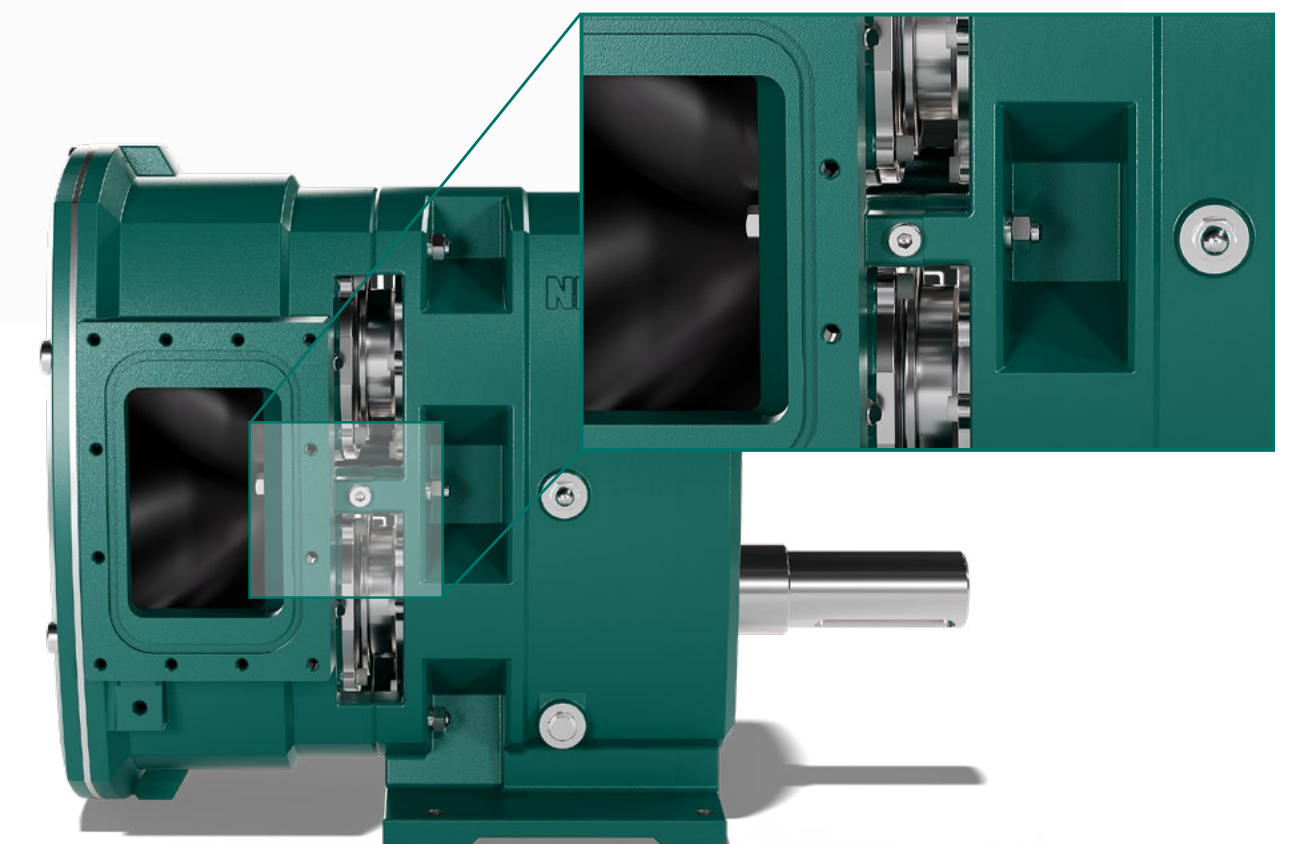
For reliable and safe operation of shaft seals, additional flushing, quench, or barrier pressure systems are often required to supply the seals with clean process fluid. Quench pots, constant lubrication devices, barrier pressure systems, or thermosiphon systems are available for double mechanical seals. All relevant API seal plans can be offered.

NETZSCH GSS TECHNOLOGY

The NETZSCH GSS technology (Gearbox Security System) guarantees you the highest level of operating safety due to the physical separation of pump chamber and gearbox.

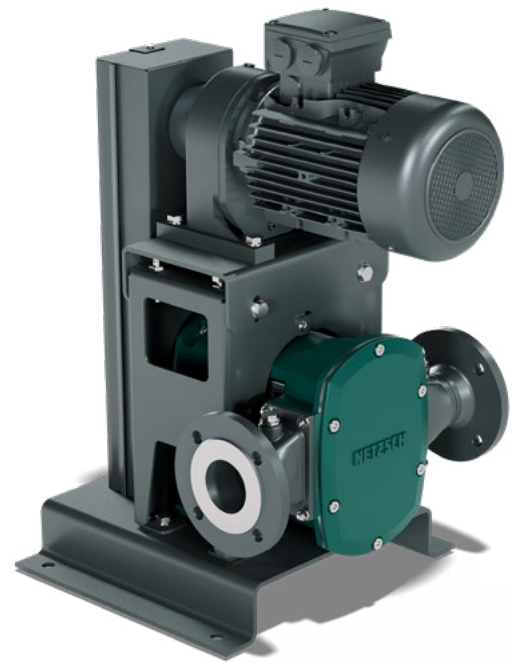
Your benefits

- Maximum operational safety
- No contamination of the gearbox by the medium
- No contamination of the pump chamber by gearbox oil
- Lubrication/cooling of the seal through easily accessible flushing/sealing water connections
- Visual inspection of the mechanical seals is always guaranteed



Customised for Your Application

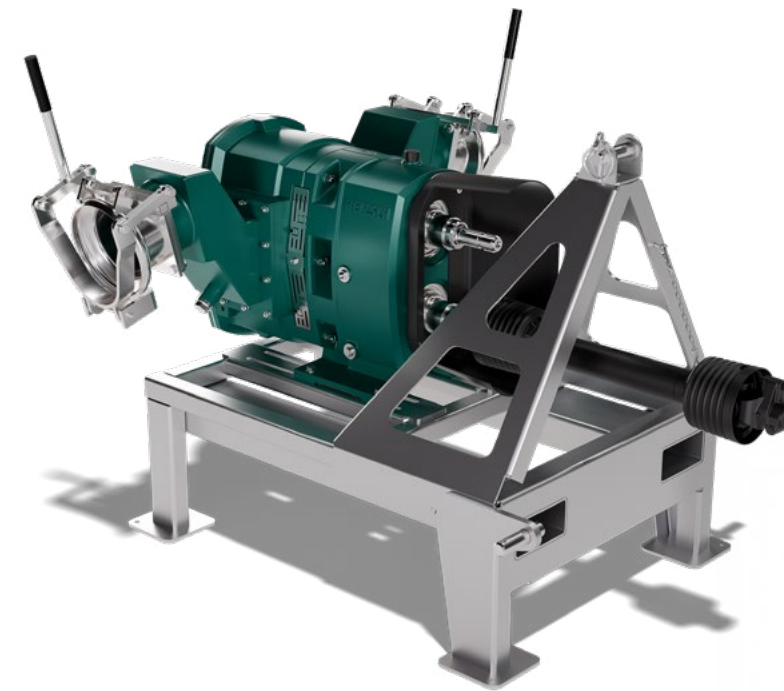
Versatile combination – flexible installation – consistent pumping capacity



Thanks to its compact design, installation is also possible where space is limited – with a motor above the pump for low footprint on request.



Can also be driven by a hydraulic motor. Especially suited for mobile applications, for example on tanker trucks (flexible, weight reduction, extremely compact).



Power take off (PTO) shaft extension for drive from truck or tractor; twin shaft extensions are available where reversible operation is required.

TORNADO® Mobil

- Constant flow rate, up to 1400 m³/h
- Diesel or electricity driven
- Pressures up to 6 bar, higher pressures on request
- Resistant to solids, with max. particle size up to 70 mm
- Resistant to abrasive media
- Self-priming
- Simple control

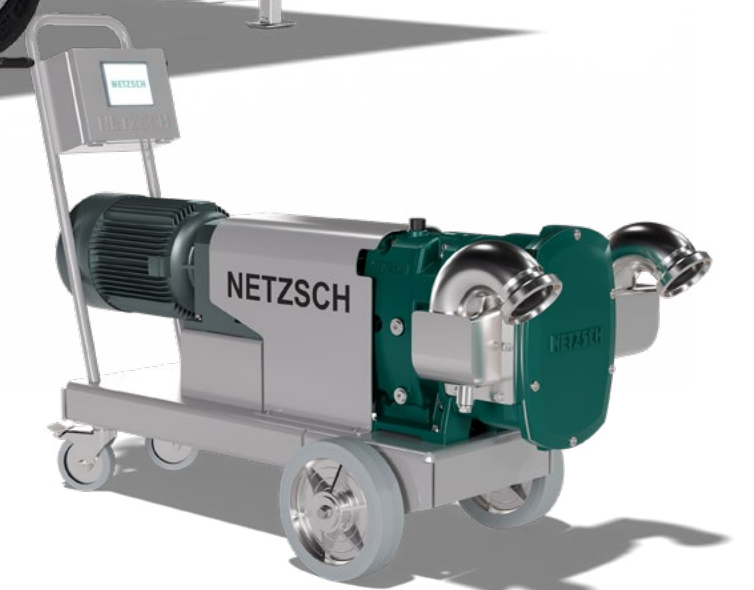
Ideal for

civil protection



Flexible use at any time

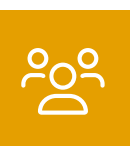
hand cart pumps



Service and Support

FOR US, PARTNERSHIP DOES NOT END WITH THE PURCHASE

We know no limits when it comes to offering our customers first rate service. Our promise is to deliver Proven Excellence – outstanding performance in all areas.



Unlimited personal support

Our experienced employees provide support and advice worldwide and around the clock, always tailored to your specific requirements. With our global network of service locations and warehouses, we guarantee prompt and efficient support, including on site and in person, so your pumps can always run smoothly.



Spare parts

NETZSCH original spare parts stand for the highest manufacturing quality. We ensure reliable quality through worldwide implementation of uniform standards as per ISO 9001. This enables reliable operation of your pumps with little downtime and low maintenance costs, and therefore continued optimum performance.



Technical training

The specialists from our Technical Service provide practical training for your employees at the NETZSCH training centres, online or at your facility. This allows you to benefit from cost savings and increased pump efficiency and to avoid mistakes during commissioning, maintenance or repairs.



**More information on
our service and support
can be found here:**

The owner-managed NETZSCH Group is a leading global technology company specializing in mechanical, plant and instrument engineering.

Under the management of Erich NETZSCH B.V. & Co. Holding KG, the company consists of the three business units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems, which are geared towards specific industries and products. A worldwide sales and service network has guaranteed customer proximity and competent service 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