

NETZSCH



Highest Reliability throughout the Season

NETZSCH Positive Displacement Pumps for Sugar Manufacturing

FOR SUGAR MANUFACTURING

through all stages

Sugar is produced in more than 120 countries and the **global production exceeds 180 Million tons** a year. Approximately 78% is produced from sugar cane, a genus of grasses, which is in tropical countries. The remaining 22% is produced from sugar beet, a root crop, grown mostly in moderate temperature zones of the north.

NETZSCH positive displacement pumps are successfully used since decades in nearly **every stage of sugar production** offering the highest level in reliability of operation.

For the applications in sugar manufacturing **NEMO® progressing cavity pumps TORNADO® rotary lobe and NOTOS® multi screw pumps** and can all be considered, each of them offering specific benefits.

NETZSCH, as producer of three pump technologies, is ideally positioned to offer impartial and qualified advice, to help you **choose the pump technology best suited** to your application.



Milk of lime

Product Features

- Abrasive
- Lightly corrosive
- Viscosity: Low
- Density: 1,01 kg/l
- Temperature: 20 - 30 °C
- Suction: Flooded

Benefits of the NEMO® Pump

- Low pulsation
- Continuous dosing flow
- Dosing precision even with suspended solids
- Easy installation and cleaning
- Operation speed: medium/low



Thick Juice

Product Features

- Non abrasive
- Non corrosive
- Viscosity: moderate
- Brix: 70 %
- Density: 1,1 kg/dm³
- Temperature: 80 °C
- Suction: flooded

Benefits of the TORNADO® Pump

- Compact design
- No lubricating oil required
- Maintenance free
- Service in place



Application Examples

Magma

Product Features

- Abrasive
- Non corrosive
- Viscosity: high
- Brix: 88 - 90 %
- Density: 1,5 kg/dm³
- Temperature: 40 - 60 °C
- Suction: flooded

Benefits of the NEMO® Pump

- Capable to cope with high viscosity levels
- Capable to cope with particles/sugar lumps
- High suction lift, low NPSHr values
- Long lasting, reliable operation



Application Massecuite

Product Features

- Abrasive
- Non corrosive
- Viscosity: high
- Brix: 92 - 94 °C
- Density: 1,5 kg/l
- Temperature: 40 °C
- Suction: vacuum

Benefits of the NEMO® Pump

- No damage of sugar crystals
- No special adjustments needed during assembly
- Mechanical seal works under low pressure
- Operation speed: low



Run-off-syrup

Product Features

- Non abrasive
- Non corrosive
- Viscosity: high
- Solids: 75 - 82 %
- Density: 1,4 kg/l
- Temperature:
depending on application
- Suction: flooded

Benefits of the TORNADO® Pump

- Compact design
- No lubrication oil required
- Maintenance free
- Service in place



Molasses

Product Features

- Non abrasive
- Non corrosive
- Viscosity: high
- Solids: 75 - 82 %
- Density: 1,4 kg/l
- Temperature:
depending on application
- Suction: flooded

Benefits of the NEMO® Pump

- Capable to cope with high viscosity levels
- High suction lift, low NPSHr values
- Long lasting operation



Application Examples

Additives

Product Features

- Non abrasive
- Corrosive
- Viscosity: low
- Density: 1,0 - 1,2kg/dm³
- Temperature: 20 °C
- Suction: flooded

Benefits of the TORNADO® Pump

- High dosing accuracy
- Wide range of material options
- Service in place
- Low pulsation
- No impact on physical-chemical media properties



Lubricant oil for reducer and milling turbines

Product Features

- Lubricant
- Non corrosive
- Viscosity: 5 to 150 cSt
- Temperature: 20 to 60 °C
- Suction: negative and drowned

Benefits of the NOTOS® Pump

- Reliability solution for lubrication of steam turbine bearings and mill reducers
- Low maintenance cost
- Flexible design adapting to field conditions
- Robustness in fuel pumping for boilers



Comprehensive and uncompromising: the NETZSCH modular system makes flexible solutions possible

Individual pump selection

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 different geometries, so that the right solution can always be found for your application.

Large variety of joints

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.

Large variety of shaft seals

The range of mechanical shaft seals includes single acting seals with and without quench, double-acting seals arranged back to back or in tandem, and cartridge seals.

For specific applications, gland packing, lip seals and other special seals are available.

Large variety of materials

Our range of metallic materials extends from simple grey cast iron and chrome-nickel steel to highly acid-resistant materials such as Duplex, Hastelloy¹ and titanium to suit different conveying tasks. Ceramics and plastics round off the list for aggressive and abrasive applications. Elastomers range from highly abrasion-resistant natural rubber, to oil-, acid- and alkali-resistant elastomers.

Your benefits

- High suction lift (up to 9 m), vacuum conditions
- High reliability – well tried out in the sugar industry
- Reliable against abrasive media, such as magma and masecuite
- Smooth conveyance – low damage rate on sugar crystals
- Long process cycles
- Almost pulsation-free conveyance
- Flow rate in proportion to speed
- High dosing accuracy over a wide speed range
- Flow rate independent of variances in pressure or viscosity
- Elastomers according to FDA and EU-VO and 1935/2004
- Horizontal or vertical installation

NEMO[®] Progressing Cavity Pumps

SMOOTH CONVEYANCE AND STRONG PERFORMANCE

NEMO[®] Progressing Cavity Pumps have a long history in the sugar industry for their continuous, pressure-stable, gentle and low-pulsation conveyance characteristics. For pressure up to 8 bar the compact, robust and powerful TORNADO[®] rotary lobe pump is an equally reliable alternative, especially when a small footprint or a flexible installation is required.

Large capacity and pressure range

- Flow rates from just a few ml/h up to 1000 m³/h
- Number of stages ranging from 1 to 8 for pressures from 6 to 48 bar (standard)

Broad range of applications

Within the sugar manufacturing process our Nemo[®] Progressing Cavity Pumps are used for the following applications:

- Mud
- Sugar beet slices/Cosettes
- Lime milk
- Additives/Chemicals
- Thick juice
- Run-off syrups
- Molasses
- Magma
- Masecuite



TORNADO® Rotary Lobe Pumps

POWERFUL, ROBUST AND COMPACT

TORNADO® self-priming, valveless positive displacement pumps for high-performance are 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.

Performance

Flow rates up to 1000 m³/h at pressures up to 8 bar.

Fields of application

Industrial applications including fluid to viscous media conveyance.

Features

Designed after the FSIP® concept (Full Service in Place), it makes servicing of the rotating parts simple and fast. Different configurations available for optimum performance with every kind of application.

Your benefits

- Valve-free construction
- Self priming
- Handling solids or fibrous matter
- Compact design
- Pumping media with high or low viscosity
- Handling shear sensitive fluids
- Operating at temperatures up to 100 °C
- Reversible operation
- Service without disconnecting from pipework
- Tolerance of dry running



NOTOS® Multi Screw Pumps

FOR HIGH SUCTION CAPACITY



2 NS – Two Screw Pump

NOTOS® two screw pumps have one drive screw, transferring torque through a hydrodynamic film to the rotating intermeshing driven screw.

- Flow up to 500 m³/h (2200 gpm)
- Pressure up to 16 bar (230 psi)
- Temperature up to 300°C (570°F)
- Viscosity up to 100.000 cSt

3 NS – Three Screw Pump

NOTOS® three screw pumps have one drive screw, transferring torque through a hydrodynamic film to the two rotating intermeshing driven screws.

- Flow up to 350 m³/h (1500 gpm)
- Pressure up to 80 bar (1160 psi)
- Temperature up to 300°C (570°F)
- Viscosity up to 15.000 cSt

4 NS – Geared Twin Screw Pump

NOTOS® geared twin screw pumps have two shafts and four screws. The torque is transferred to the driven shaft via helical gears. The design is hydraulically balanced.

- Flow up to 1500 m³/h (6600 gpm)
- Pressure up to 80 bar (1160 psi)
- Temperature up to 300°C (570°F)
- Viscosity up to 200.000 cSt

Your benefits

- High efficiency especially for high viscous media
- Self priming
- Excellent suction capability
- Gentle product handling
- Continuous flow with low pulsation
- Low lifecycle cost
- Long service life
- Quiet operation

NETZSCH Pumps & Systems – Your partner for high quality products and first class service

With NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, NOTOS multiple screw pumps, macerators, dosing systems and accessories, the Pump & System sector of the NETZSCH Group has been offering customized and sophisticated solutions for applications in all sectors at a global level for more than 60 years.

Benefit from the network of a global player – at your location

Besides the constantly high product quality, NETZSCH offers his customers comprehensive services, which are based on decades of application experience as a pump manufacturer, as well as on customer expectations towards a global market leader. Our consultation starts with an application specific pump design and its complete documentation for operation and maintenance. On request we support you during the whole life cycle of your NETZSCH product.


Regardless of where your sugar manufacturing site is located, we are there for you:

- almost 2,000 NETZSCH employees
- more than 30 sites worldwide, with experienced co-operation partners in Japan
- more than 200 NETZSCH representatives and service partners worldwide

By means of this global network NETZSCH ensures that internationally operating companies, too, will receive fast and professional help for technical problems on site. We will always find a solution; even for unusual challenges.

Our services for you

- Commissioning
- Maintenance
- Service contracts
- Maintenance strategy
- Training and consulting



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 ■

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