



NETZSCH Pumps compliant to API 676 3rd edition

Individual Solutions for Mid- and Downstream

Pumps & Systems

NETZSCH API Compliant Pumps 676 3rd Edition

The highest standards for equipment and safety are a basic requirement for oil field work to ensure that processes remain safe and reliable.

NETZSCH offers pump systems consisting of a pump, drive, base plate and various accessories, which are meeting the requirements of API 676 3rd edition, NACE MR0175, MR0103, NORSOK and many more. The sophisticated and reliable design meets the particular pump job requirements and contributes to efficient process control.

These systems are available with NEMO[®] Progressing Cavity Pumps, TORNADO[®] Rotary Lobe Pumps and NOTOS[®] Multi Screw Pumps. They contribute to improved safety and reliability due to their robust construction and intelligent system integration.

Fluid Properties, pumped by NEMO[®] and TORNADO[®]

Fluid Properties, pumped by NOTOS[®]

- Shear-sensitive
- Low to high viscosity
- With or without solids
- Dilatant or thixotropic
- Low to highly abrasive
- Adhesive
- Multiphase liquids

Shear-sensitive

- Lubricating and non lubricating
- Low to high viscosity
- With low solid content
- Dilatant or thixotropic
- Low to medium abrasive
- Adhesive



We face unique challenges with our pump solutions

Wide Range of Applications

Enhanced oil recovery

- Water injection pumps
- EOR polymer transfer
- Surfactant transfer

Produced water management

- Produced water transfer
- and boosting
- Skimmed oil transfer

Well services

- Well Testing: Crude Oil Transfer
- Drilling mud: Decanter centrifuge feeding

Oil & Gas processing

- Open & closed drains transfer
- Flare KO drum pumps
- Crude oil transfer
- Hydrocarbon condensate transfer
- Rich MEG/Glycol
- Hydrocarbon sludge
- Multiphase transfer
- Pipeline reinjection
- Pipeline pumps in LACT units
- Pipeline booster pumps

Refinery

- Asphalt, bitumen tower bottoms
- Fuel oils
- Kerosine, diesel
- Catalyst slurry
- Lubricant oil
- Oily water treatment
- Sludge transfer

Storage & Distribution

- Crude oil transfer
- Tank stripping
- Oily sludge
- Loading/Unloading

Our Multi Screw Pump Family

The NOTOS[®] mulitiple screw pump family consists of three series in various arrangements which serve a wide range of industries and applications. The superior quality standard meets the highest level of requirements for our customers.

2NS – Two Screw Pump

- Flow up to 2,860 gpm / 650 m³/h
- Pressure up to 230 psi / 16 bar
- Temperature up to 570°F / 300°C
- Viscosity up to 100,000 cSt
- From non to light abrasive
- Corrosive
- Low to medium viscosities
- Lubricant fluids



3NS – Three Screw Pump

- Flow up to 1,760 gpm / 400 m³/h
- Pressures up to 1,450 psi / 100 bar
- Temperature up to 570°F / 300°C
- Viscosity up to 15,000 cSt
- Non abrasive
- Non corrosive
- Low to medium viscosities
- Lubricant fluids

4NS – Geared Twin Screw Pump

- Flow up to 11,000 gpm / 2,500 m³/h
- Pressures up to 1,160 psi / 80 bar
- Temperature up to 570°F / 300°C
- Viscosity up to 200,000 cSt
- From non to medium abrasive
- Corrosive
- Low to high viscosities
- Non lubricant and lubricant fluids





NOTOS[®] in API-Compliant Design



API 682 4th edition compliant

Pump design meets API 671 API 676 spacer coupling API 676 base plate

Pump Data

- Pump type: 4NS Geared Twin Screw Pump
- Capacity: up to 11,000 gpm / 2,500 m³/h
- Pressure: up to 1,160 psi / 80 bar
- Medium: Asphalt, bitumen, diesel, crude oil, polymer, produced water with or without traces of solid
- Medium temperature: up to 570°F / 300°C
- Ambient temperature: -49°F to +136°F / -45°C to +58°C

Customer Benefits

- High performance with small footprint
- HEUD highest efficiency due to optimized screw profile
- One-piece screw design for maximum stiffness
- Customized design to fit individual needs
- Able to handle a wide range of temperatures and viscosities

Safety Accessories

- Seal support system
- Pressure relief valve
- Leakage, temperature and vibration sensors
- Noise enclosure

API Compliant Pump: TORNADO®

Pump Data

Pump type: TORNADO[®] T.Proc Rotary Lobe Pump Maximum wear resistance Capacity: up to 4,400 gpm / 1,000 m³/h Available as rubber/metal or Pressure: up to 145 psi / 10 bar metal/metal construction to best Medium: Oil, oily water, produced water, slurries fit individual requirements and mixtures with gas FSIP[®] Full Service-In-Place. Can be serviced in the oilfield. Medium temperature: up to 302°F / 150°C Ambient temperature: Oil free design -49°F to +136°F / -45°C to +58°C Safety Accessories Dry running protection Pressure relief valves Seal system Maintenance free: API base plate Robust drive and timing belt API Seal System: We offer all relevant API seal plans Motor acc. to IEC or NEMA standard By-pass with pressure relief valve Component mechanical seal or cartridge type: Compliant to API 682-Pump head: Easy to access for maintenance Life time lubricated bearing housing, oil free API Baseplate

Customer Benefits

API Compliant Pump: NEMO®

Pump Data

- Pump type: NEMO[®] Progressing Cavity Pump
- Capacity: up to 485 gpm / 110 m³/h
- Maximum allowable working pressure (MAWP): up to 720 psi / 48 bar
- Medium: Produced water, slurries, polymer, MEG, crude oil with or without solid
- Casing design pressure: 725 psi / 50 bar
- Special feature: NORSOK/NACE MR0175/MR0103 on request

Customer Benefits

- All pressurized parts cast no welding documentation
- Less documentation, inspections and less risk in manufacturing
- More robust 2xAPI 676 nozzle loads standard

Motor and gearbox acc to IEC or NEMA standards

Reduced lead times



API676 base plate

Drain connection – cast, flanged elbow

NETZSCH API Compliant Pump 676 3rd Edition

As an example of the fulfillment of the API requirements please see the NEMO[®] L.Cap[®] pump, detailed below: the biggest progressing cavity pump in the world.

Safety Accessories

- Pressure relief valves according API
- Pressure monitoring
- Overpressure protection and many more





Seal Support System API 682 4th edition We offer the following standard options for API seal plans : 13, 31, 32, 45, 51, 52, 53 A+B, 62, 65, 75

> Motor Low voltage to high voltage: 6600V/750 KW (1,000 HP)

Coupling API 671

Gearbox

API 677 (optional API 613 with cooling system)

Bearing Housing With grease lubrication, oil used as option

Mechanical Seal API 682 4th ed.

Pump casing Flanged drain connection

Pump Data

- Pump type: NEMO[®] L.Cap[®] Progressing Cavity Pump
- Capacity: Up to 4,400 gpm / 1,000 m³/h
- Pressure: Up to 1,000 psi / 72 bar
- Medium: Oil, gas or water mixtures with solids
- Medium temperature: Up to 302°F / 150°C
- Ambient temperature: -49°F to +136°F / -45°C to +58°C

Applications

NEMO[®] progressing cavity pump

- Application: Multiphase Transfer
- Pump: NM148
- Multiphase: Crude Oil with water, sand and gas
- Flow: 660 gpm / 150 m³/h
- Pressure: 375 psi / 26 bar
- GVF: 70%

TORNADO[®] T2 rotary lobe pump

- Application: Oily water with H₂S
- Pump: TORNADO[®] T2 rotary lobe pump
- Media: Oily water
- Flow: 150 gpm / 35 m³/h
- Pressure: 70 psi / 4.8 bar
- Temperature: 68°F to 104°F / 20 to 40°C
- Viscosity: 0.5 to 200 cSt







NOTOS®

multi screw pump

- Application: Fuel Oil Transfer
- Pump: NOTOS[®] 4NS
- Geared twin screw pumps
- Media: Fuel oil 1A
- Flow: 570 gpm / 130 m³/h
- Pressure: 220 psi / 15.1 bar
- Temperature: 140°F / 60°C
- Viscosity: 605 cSt

NETZSCH Seal Support Systems

According to API 682 4th edition the pump supplier is responsible for the complete unit including the sealing system. With the design of the NETZSCH system we achieve the integration between seal and the respective support systems. As a result, your process will become more reliable and efficient.



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, metering technology and equipment custom built for challenging solutions for different applications globally.

Proven Excellence.

NETZSCH Pumpen & Systeme GmbH Geretsrieder Straße 1 84478 Waldkraiburg Deutschland Tel.: +49 8638 63-0 info.nps@netzsch.com

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

PT. NETZSCH Indonesia Jakarta, Indonesia Tel.: +62 21 296 75 385 info.nij@netzsch.com NETZSCH Thailand Ltd. Bangkok, Thailand Tel.: +66 2 152 7325 info.ntb@netzsch.com

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

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

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

