NETZSCH
Proven Excellence.

NETZSCH Oilfield Pumps

Products and Accessories for Upstream, Midstream and Downstream Applications

Pumps & Systems

NETZSCH Group Business Unit Pumps & Systems

For decades, NETZSCH products have been used to solve the oil and gas industries' most difficult and challenging fluid handling applications. Even during market downturns, you will find the NETZSCH organization insuring the ongoing oil and gas operations everywhere in the world with after sale parts, service and consultation. As the industry challenges and technology changes have grown, NETZSCH has broadened the product portfolio, expanded our materials research and available elastomers to solve more difficult situations that have confronted the industry. Regardless of the fluid and associated application, NETZSCH has been at the forefront of providing sustained solutions in Upstream, Midstream and Downstream environments. 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 meet 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.

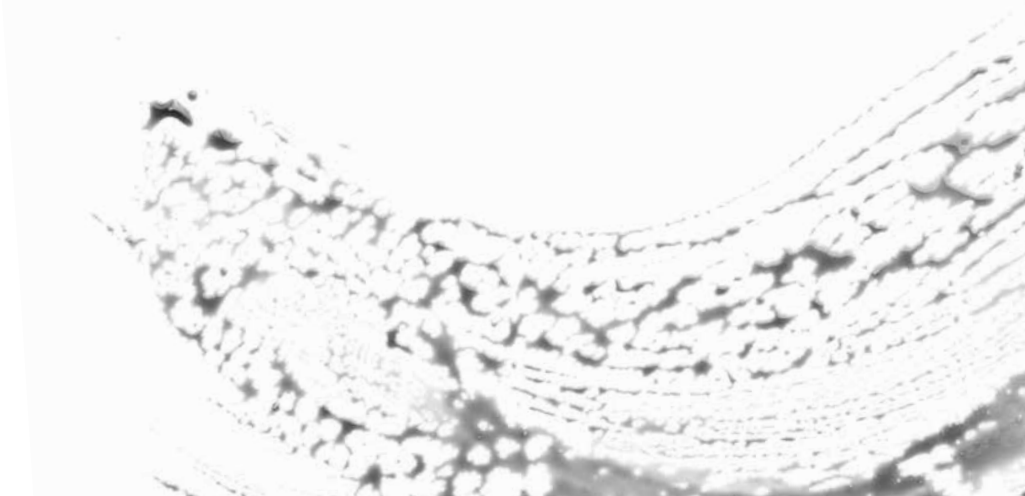
These systems are available with NEMO® Progressing Cavity Pumps, TORNADO® Rotary Lobe Pumps and NOTOS® Multiple Screw Pumps. They contribute to improved safety and reliability due to their robust construction and intelligent system integration.

Fluid Properties, pumped by: NEMO® and TORNADO® pumps

- Shear-sensitive
- Low to high viscosity
- With or without solids
- Dilatant or thixotropic
- Low to highly abrasive
- Adhesive
- Multiphase fluids
- Acidic/caustic

NOTOS® pumps

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



We face unique challenges

with our pump solutions

Wide Range of Applications

UPSTREAM

Enhanced oil recovery

- Water injection pumps
- EOR polymer transfer
- Surfactant transfer
- Drilling mud pump **

Produced water management

- Produced water transfer and boosting **
- Skimmed oil transfer
- Water Injection

Well services

- Well Testing: Crude Oil Transfer
- Drilling mud: Decanter centrifuge feeding
- Cuttings transfer
- Cuttings transfer prior to separation **
- Separator Feed
- Pipeline booster pumps (LACT systems) **
- Oil/water separation
- Flocculants

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

MIDSTREAM

- Drag Reduction Agents (DRA) **
- Pipeline Gels
- Crude oil transfer
- Tank farm transfer

Storage & Distribution

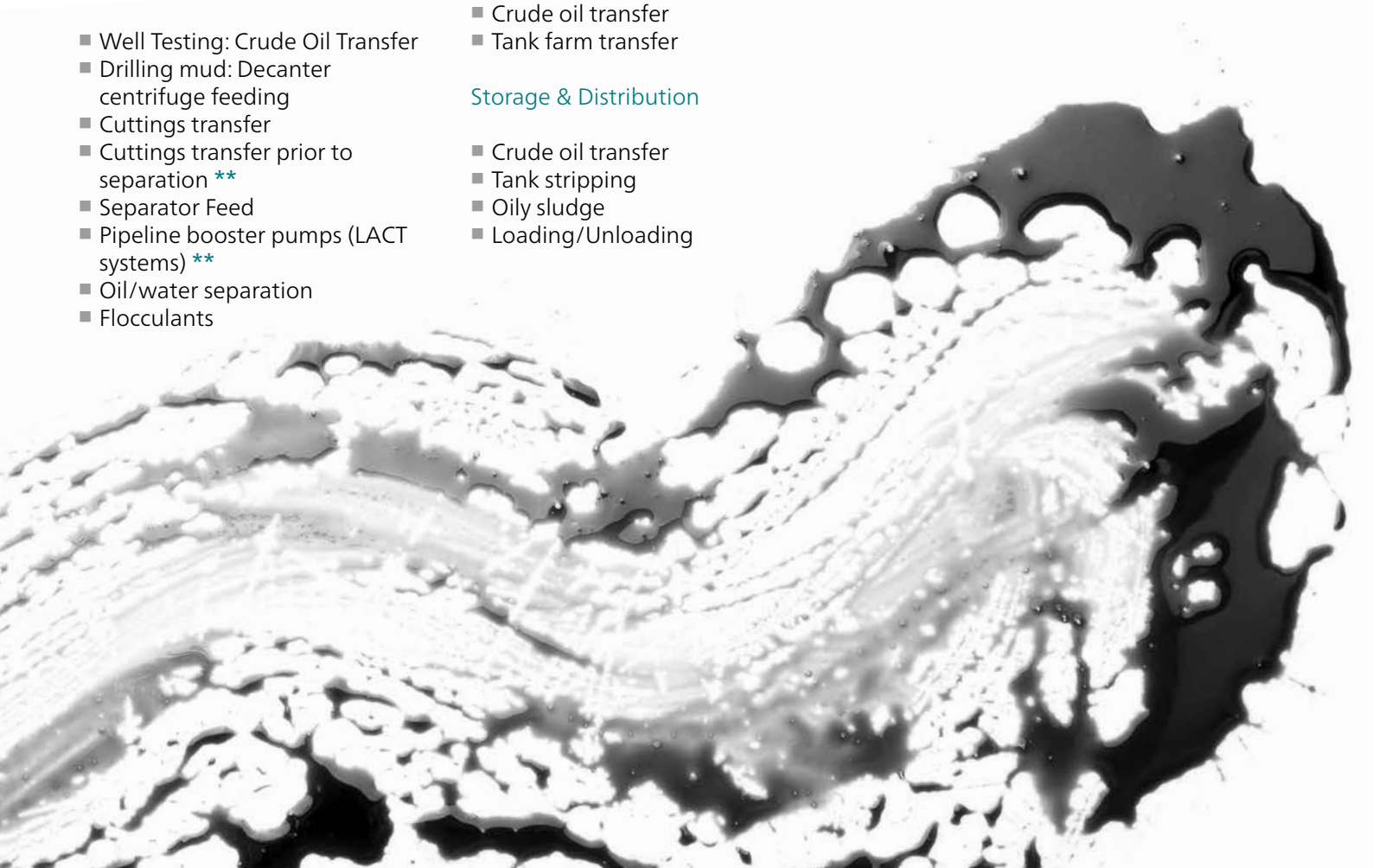
- Crude oil transfer
- Tank stripping
- Oily sludge
- Loading/Unloading

DOWNSTREAM

Refinery / Petrochemical

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

** Featured Application



Feature Application
LACT Pipeline Booster PCP Pumps

NETZSCH NEMO® Progressing Cavity Pumps are the best choice for LACT systems. They are efficient, extremely reliable and modular. Our field-proven advanced technology can effectively handle a wide range of hydrocarbons. NEMO® pumps provide a constant, smooth and non-pulsating flow. The volume practically remains unaffected by viscosity changes which ensures accurate flow readings downstream and eliminates the need for costly pulsation dampeners (which are a requirement in combination with reciprocating pumps).

The pump requirements are extremely high because it must accommodate a wide range of crude oil types and properties including:

- Various temperatures
- API Grades – from extra heavy oil with API gravity < 10° up to light sweet crude oil with a typical stream quality of 0.17 – 0.20% sulfur and 40 – 42° API gravity.
- Presence of entrained gases (H2S, CO2)
- Various BS & W contents
- Wax contents, contaminants, corrosives and deposits.

Unlike many other rotary positive displacement pumps, such as gear or external screw pumps, NEMO® progressing cavity pumps have only one mechanical seal, which is located on the low pressure, suction side of the pump. In addition, NEMO® progressing cavity pumps have no close metal-to-metal clearances or internal bushings, and operate at low speeds with lower shear and NPSH requirements. Repairs are easier and less expensive with only one major wearing part, the rubber stator.

Wide Range of Capacities and Pressures

- Flow rates up to 76,000 bpd / 2,200 gpm / 500 m^3/h
- Pressures up to 1,080 psi / 72 bar
- Special designs up to 3,000 psi / 207 bar
- Reduced wall stators produce up to 50% more pressure per stage and uniform wall stators up to 100% more pressure per stage, both resulting in a much shorter pump length

Feature Application
LACT Pipeline Booster MSP Pumps

The NETZSCH NOTOS® 3NS multiple screw pump is the next generation in LACT pipeline booster pump technology. Combining the efficient operation and small footprint of this technology makes it the ideal selection for pipeline booster pump service, whether in a LACT building for cold weather duty or sustaining the summer heat of the hot climate areas.

The NOTOS® 3NS stretches the boundaries with increased flow and pressure capability with GREATER reliability. The cartridge design makes servicing in the field an efficient, time saving operation. With the compact design and ability to cover 10,000 bpd / 300 gpm / 66 m^3/h + and 1,450 psi / 100 bar + pressures, the NOTOS® 3NS provides flexibility unrivaled by other manufacturers.

The cartridge design simplifies servicing in the field. Maintenance becomes an efficient and time saving operation.

Application Data

- Crude oil transfer
- Flow rate: 175 – 300 gpm / 40 – 68 m^3/h
- Pressure: 600 – 1,100 psi / 41 – 76 bar
- Full API Compliant

Customer Benefits

- Long service life
- Energy efficient
- Easy maintenance
- Light weight and small footprint
- Optional API 676 3rd edition

Feature Application
NETZSCH Cuttings Pumps
FOR SOLIDS HANDLING CHALLENGES IN THE OIL & GAS INDUSTRY

Ideal for Drilling Fluid Recovery

During fluid recovery, effective solids control is integral to the process. Whether you are dealing with oil based muds (OBM) or synthetic based muds, there are challenges once you have come off the flow-line shakers and the solids are to be processed through a vertical cuttings dryer (VCD) to recover additional drilling fluids.

Currently, most businesses employ an auger system, an excavator or both to feed the solids from the shakers into the VCD. This has proven to be a difficult and inefficient means of transfer.

Auger systems are maintenance intensive and costly to operate. They are generally long so as not to have too steep an angle to the VCD. Steepening this angle allows oil to drain back down the auger and not be effectively separated causing poor efficiency of the solids control system. This can make the solids feed into the VCD inconsistent thereby affecting performance.

Excavators present other concerns, too. Generally companies rent excavators to transfer solids from a holding bin to the VCD. This requires an operator to be present whenever solids need to be loaded which adds cost to the operation. Excavators are slow, messy and cannot continuously feed the VCD and so does not provide for maximum dryer performance.

NETZSCH, the global leader in progressing cavity pump technology and sales has produced a cuttings pump to improve the solids control of the drilling fluid recovery of the VCD. This pump makes it possible to efficiently transfer drill cuttings from the shaker or from a holding vessel to the VCD.

The NETZSCH Cuttings Pump delivers a constant flow of cuttings to the dryer and will not allow the fluids in the cuttings to separate and "back drain". The flow is highly controllable with a variable speed drive that allows the operator to control the flow to the dryer as it demands. Controllability is there whether the slurry has course solids or is colloidal in nature. The NETZSCH Cuttings Pump provides a consistent, low sheer flow for effective processing.

By not waiting on an excavator and then reducing the time required to move the cuttings from the shaker to the dryer, the VCD will be more effective at removing the oil-on cuttings (OOC) and water-on-cuttings (WOC) from the solids, capturing more of residual fluids.

When sourcing a VCD, be sure it includes the NETZSCH Cuttings Pump for superior performance and efficient operation.

Feature Application

Drag Reduction Agent (DRA) Applications

Application

Drag Reduction Agent (DRA) by nature due to its heavy molecular weight and high viscosity is one of the most difficult chemicals to handle and requires ancillary equipment other than the dosing pump and piping.

The DRA when injected into the pipelines helps reduce the frictional loss (between the fluid and pipe wall and within the fluid itself) and also helps in reducing the pressure loss across the pipeline. The skid is manufactured and packaged in a container designed with the complete control system for hazardous area classification with the MOC for pumps, tubes and fittings (all wetted parts) are SS316.

NETZSCH pumps can handle shear sensitive materials with out changing their properties and provides a constant flow as pressure may change. NETZSCH PC pumps can be mounted vertically (pictured) as a space- saving arrangement.

Application Data

- Media: DRA Chemicals
- Flow rate: 2 gpm / .45 m^3/h
- Pressure: 20 psi / 1.4 bar
- Temperature: Ambient
- Viscosity: 2,000 cps
- Others: Shear Sensitive

Customer Benefits

- Handles shear sensitive fluids
- Self Priming
- Space Saving – Pump mounted vertically
- Positive Displacement pump with constant flow to high pressure

Feature Application
Produced Water

NETZSCH produced water pumps withstand all environments and can be provided in a variety of metallurgies to resist chemicals and abrasive duty.

NETZSCH has numerous elastomers to handle the make up of your produced water to provide long life. Our joint options also handle whatever duty cycle is required to insure optimal drive train performance.

These pumps are on an offshore platform taking the water from a separator and transferring it to a hydrocyclone for further processing. NETZSCH was selected over other suppliers due to our ability to handle the high 250 psi /17 bar suction pressure and our hydraulically balanced sealed joints.

Feature Application
Mud Pumps

NETZSCH pumps have long provided equipment for transferring drilling mud (drilling fluid) because of the technology's ability to handle abrasive, viscous products and deliver a constant volume. During the mud recovery phase, many NETZSCH pumps are used to feed the decanter (centrifuge).

NETZSCH Pumps will not break down the solids, allowing the centrifuge to be more effective in separating the solids from the drilling fluids being recovered. Other pump technologies will break down the solids making the separation more difficult and less efficient.

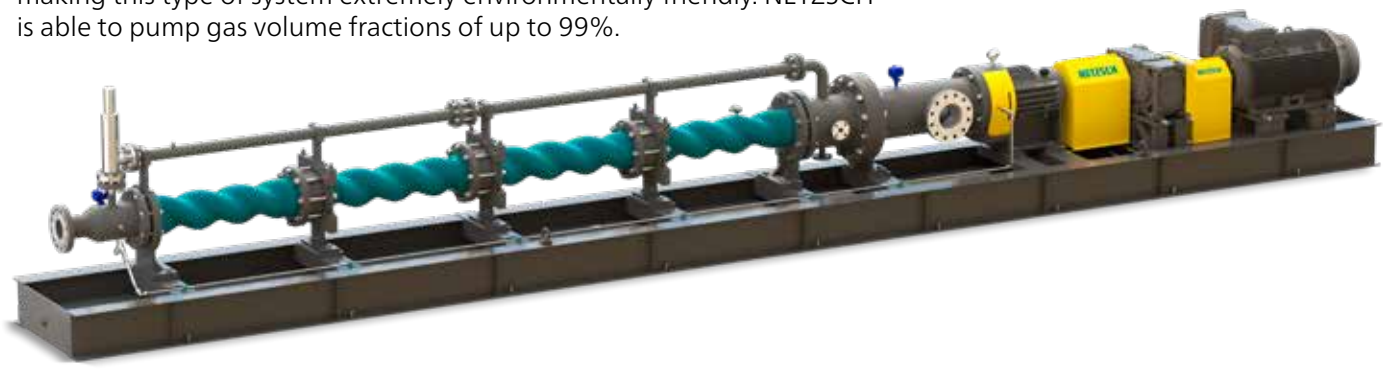
With the use of a variable speed drive, NETZSCH pumps can deliver mud to the separation phase at the required rate even if this feed rate requires some variance. The NETZSCH series of pumps offer a robust design that stands up to most harsh environments.

Feature Application

NETZSCH Multiphase Pumps

SUBSTITUTE THE EXPENSIVE ON-SITE SEPARATION

NETZSCH progressing cavity pumps are the first choice when API grades are below 25°. The ability to transfer multiphase fluids long distances eliminates the need for separation equipment at the well site, reducing capital costs substantially. This also eliminates the need to flare gas, making this type of system extremely environmentally friendly. NETZSCH is able to pump gas volume fractions of up to 99%.



Wide Range of Capacities and Pressures

- Flow rate from a few bpd up to 76,000 bpd / 2,200 gpm / 500 m^3/h
- Pressure up to 870 psi / 60 bar
- NEMO L. Cap® high performance pumps in single design covers flow rates up to 76,000 bpd / 2,200 gpm / 500 m^3/h and in twin design covers flow rates up to 152,000 bpd / 4,400 gpm / 1,000 m^3/h

Applications

- Pumping of oil, gas or water mixtures with solids
- Pumping from the well to the manifolds or gathering stations

Advantages

- These pumps meet the requirements of API 676 3rd edition and also NACE MR-0-175
- High content of sand and/or gas
- Low operating and maintenance cost
- Very low emulsifying effect on oil/water mixtures
- Efficient transport of oil/water mixtures with a very high content of sand and/or gas
- Efficient transport of highly viscous products
- Almost pulsation-free pumping
- Installation in any position near to no shear rate

Some Other Applications

NEMO®
progressing cavity pump

- Application: Multiphase Transfer
- NEMO® Pump NM148
- Multiphase: Crude Oil with water, sand and gas
- Flow: 22,650 bpd / 660 gpm / 150 m^3/h
- Pressure: 375 psi / 26 bar
- GVF: 70%

TORNADO® T2
rotary lobe pump

- Application: Oily water with H_2S
- TORNADO® T2 Pump
- Media: Oily water
- Flow: 5,100 bpd / 150 gpm / 34 m^3/h
- Pressure: 70 psi / 4.8 bar
- Temperature: 68°F to 104°F / 20 to 40°C
- Viscosity: 0.5 to 200 cSt

NETZSCH
Water Injection Pumps

- Application: Water Injection
- NEMO® Pump NWI 110
- Flow: 5,100 bpd / 150 gpm / 34 m^3/h
- Suction Pressure: 70 psi / 4.8 bar
- Discharge Pressure: 1,530 psi / 104 bar
- Temperature: ambient

N.Mac® Twin Shaft Grinder

NETZSCH N.Mac® Grinders provide additional benefit and protection to equipment in the oil and gas industry. On the solids control side, drill cuttings pose a threat to pumping and separation equipment in the drilling fluid recovery process. Placing an N.Mac grinder ahead of the pump feeding the cetrifuge, will reduce the rock size which will help to protect this equipment and increase the MTBF for reduced maintenance costs.

N.Mac® grinders can also be used on tank farms. When tanks are cleaned of unwanted sludge and debris build-up, the NETZSCH N.Mac® series of grinders reduce the size of all debris and build up which will protect downstream equipment from excessive damage and clogging. So it's clear that the NETZSCH N.Mac® grinders can save precious time and money when addressing tank clean-out activities.

Large Pipeline Pumps

NETZSCH has the product, expertise, and technology to provide great reliablity and serviceability over anyone else.

Applications

- Pipeline pumps for crude oil emulsion (low shear)
- Flow rate from a few bpd up to 76,000 bpd / 2,200 gpm / 500 m^3/h
- Constant discharge (pipeline) pressure of 350 psi / 24 bar
- 750 HP/Pump, 46 ft length, ~30,000 pounds skid weight
- Medium voltage drive & VFD
- MOC: Super duplex stainless steel / HNBR
- Double seals / Plan 53B