

**seepex.com**  
all things flow

Your Pump Solution  
for the Oil and Gas Industry.



# State-of-the-art technology for fossil fuels.

The oil and gas industry places some of the toughest demands on its equipment and on suppliers. As an established global supplier of products and services for fluids handling and processing, we know what is required to deliver pumping solutions which make a difference.

Our global network of oil and gas application specialists focus on delivering our highly engineered products to you wherever you are in the field.

The first seepex progressive cavity pump was built in 1972 in Bottrop, Germany. Today, nearly 370 of our 630 worldwide employees work here on the development, manufacturing and distribution of pumping solutions for oil and gas production, the environment and many other industries. We have state-of-the-art manufacturing facilities and warehouses in Europe, Asia and North America and distributors in every major country.

Consultation, development, project management and support throughout the whole life cycle form the basis of our application expertise. Using our modular pump system we can design a pump tailor-made for each application. This ensures lower energy consumption, reduced maintenance costs, increased operational safety, better utilization of capacity and higher productivity and profits for our clients.

Two seepex multiphase pumps being fed by 15 wells 10 km away. A stator heating device protects the pump from cold during winter.



### **Oil and gas industry**

Including pumping of:

- Catalyst slurries
- Closed drain liquids
- Condensate
- Corrosion inhibitor
- Crude oil
- Drilling mud
- Multiphase
- Produced water
- Refinery waste water

# The characteristics that make our pumps special for the oil and gas industry.

Applying our technology correctly to the application is crucial for correct in-service performance.

We take a lot of care to understand the needs of your applications in order to apply our designs correctly. We don't just sell pumps. We sell pumps that work in your complex systems and understanding how our equipment interacts can be the difference between failure and success. Our pumps provide in general:

## **Low shear**

Our pumps handle products with low shear and a gentle pumping action. Oil and water mixtures are transported with least damage to the oil droplet size and no risk of creating emulsions that are hard to separate.

## **Self priming and no gas locking**

There is no need for additional auxiliary devices as our pumps are fully self priming. Gas locking is never a problem. The ability to perform suction lifts is also possible.

## **Handling of multiphase fluids**

Oil, water and gas are transported reliably by our uniquely configured pumps with control systems helping them deal with variable flow regimes.

## **Can handle solids**

Our pumps can handle solids. For our largest pumps we can handle solid sizes of 55 mm (0,18 ft). Sand is handled with ease with low internal fluid velocities resulting in a very erosion tolerant construction.

## **Low NPSH requirements**

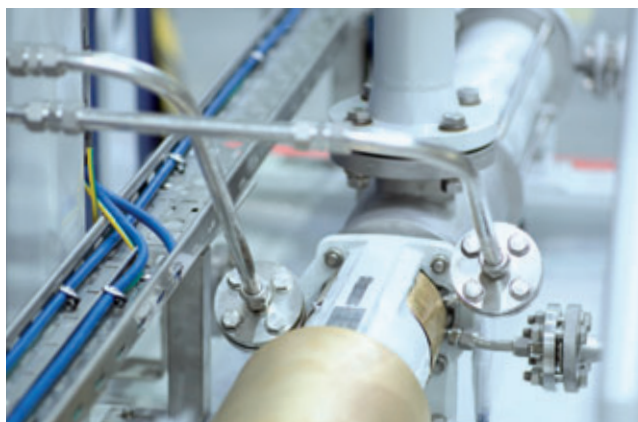
The NPSH requirement of our pumps is very low. This is useful when considering vessel emptying applications such as closed drain drums, flare knock-out (KO) drums, or any application with high vapour pressure liquids.

## **Viscosity is not a limitation**

From low viscous condensates through to a heavy dewatered oily sludge cake, our pumps never give up.

## **Stable flow**

Our pumps deliver accurate metered flow with every revolution of the rotor. Flow rate variation is minimal even across broad pressure ranges.



**Options and accessories that are typical for the oil and gas industry.**

# Engineered solutions.

Even a unique product has to fit in with global standards and customers engineering specifications.

Our engineering and project management teams are structured to handle your every technical requirement.

We are not only experts in the technical design and manufacture of progressive cavity pumps. Our engineers design, integrate and package fluid handling solutions, turning designs and drawing into reality:

- Research
- Modeling
- Pump selection
- Mechanical seals and systems
- Drive systems
- Instrumentation
- Piping
- Skids
- Control
- Testing
- 3rd party verification



**seepex multiphase research skid. Challenging the boundaries through research and testing.**

# Pumping solutions for drilling waste management.

In drilling waste management our pumps play a vital role for solids control. They convey cuttings and drilling mud to cleaning equipment.

Performance characteristics such as flow rate being proportional to rotational speed allows plant operators of centrifuge feed duties to perform flow estimations where flow meters would clog up.

Integrated into cuttings handling systems, the ability to handle heavy non flowable media has proven to be invaluable for off-shore installations especially where space is restricted.

**Applications** (see flow chart on next page)

- 1 BTE range pumps with open hopper and auger feed screw located under shale shaker transport cuttings for feeding into cuttings dryer
- 2 BN/NS/N pumps transport drilling mud from storage tanks into centrifuges

**Features**

- Handling a wide variety of liquid characteristics and solids content
- Shaft speed can be used as reference to calculate forward feed rates
- Variable flow rate achieved by simple speed control
- Compact pump design
- Cuttings pump replaces auger/conveyor screws with discrete pipe flow transfer
- Excellent field proven reliability



**Pump of range BN 10-6LS**

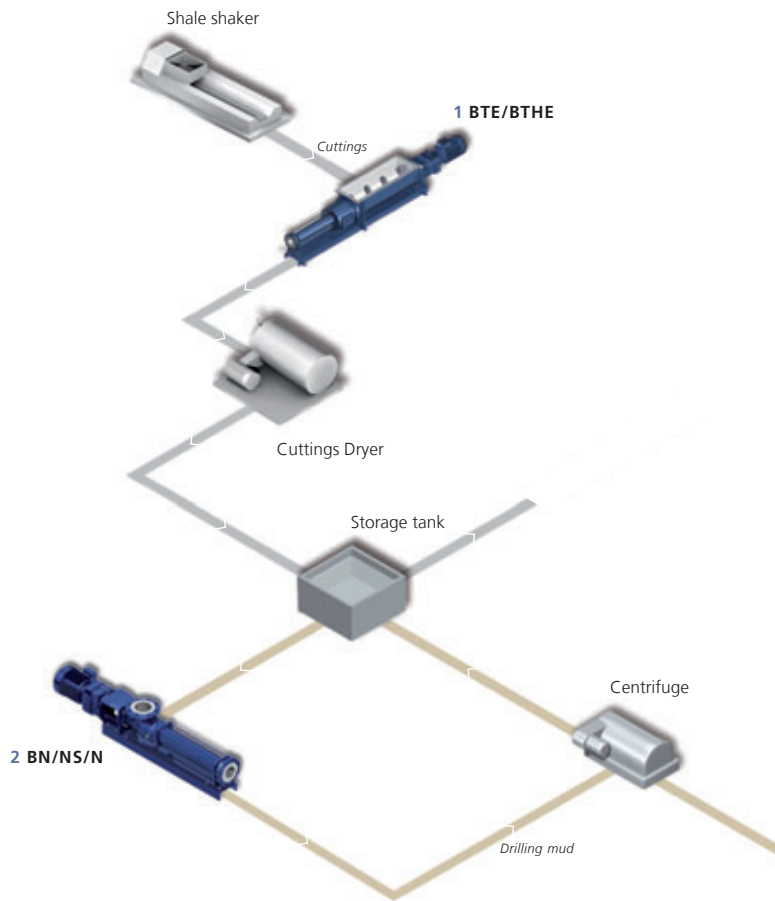
Conveying product: Produced water  
Conveying capacity: 3 m<sup>3</sup>/h (13 GPM) • Pressure: 2 bar (29 PSI)  
Temperature: 40 °C (104 °F)



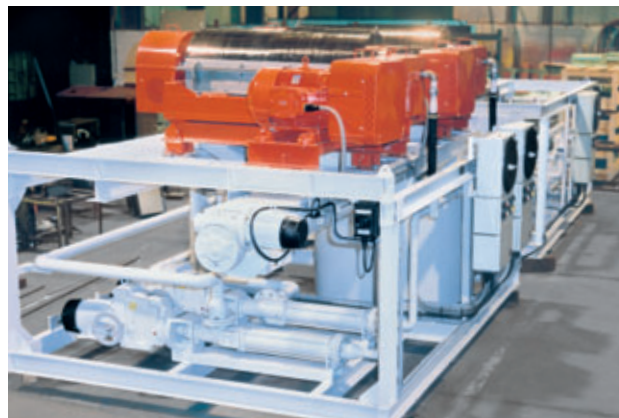
**Pump of range BN 17-6LS**

Conveying product: Drilling mud  
Conveying capacity: 12 m<sup>3</sup>/h (53 GPM) • Pressure: 2.5 bar (36 PSI)  
Temperature: 30 °C (86 °F)

Flow chart based on drilling waste management



**Pump of range BN 35-6LS**  
 Conveying product: Oil based drilling mud  
 Conveying capacity: 20 m<sup>3</sup>/h (88 GPM) • Pressure: 3.5 bar (50 PSI)  
 Temperature: 30 °C (68 °F)



**Pumps of range BN 35-6L**  
 Conveying product: Oil based drilling mud  
 Conveying capacity: 20 m<sup>3</sup>/h (88 GPM) • Pressure: 4 bar (58 PSI)  
 Temperature: 45 °C (113 °F)

# Pumping solutions for produced water treatment.

The effective separation of oil and water is a crucial part of any oil and gas production facility. Our low shear pumps do least damage to the oil droplet size and do not create emulsions.

Separation plant using gravity separation techniques is always optimized by low shear feeding equipment. The slow running speeds and gentle pumping action of our pumps eliminates problems caused by clogging inseparable emulsions.

Flow rates can be regulated via simple speed control which eliminates the need for control valves and spill back lines, which in turn further reduces points of shear in the process system.

**Applications** (see flow chart on next page, above)

- 1 BN/NS/N range pumps transport produced water to hydrocyclones
- 2 BN/NS/N range pumps transport reject oil back to the upstream separators or water to induced gas flotation (IGF) units

**Applications** (see flow chart on next page, below)

- 1 BN/NS/N pumps transport skimmed oil from induced gas flotation (IGF) unit

## Features

- Never creating emulsions
- Lowest shear design
- Flow rate control via simple speed adjustment



### Pumps of range BN 17-24

Conveying product: Produced water  
Conveying capacity: 10 m<sup>3</sup>/h (44 GPM) • Pressure: 21 bar (305 PSI)  
Temperature: 65 °C (149 °F)

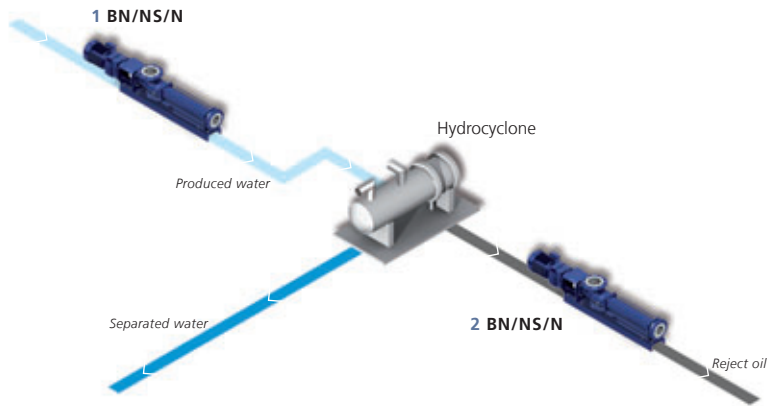


### Pumps of range BN 35-12 with equal wall stator

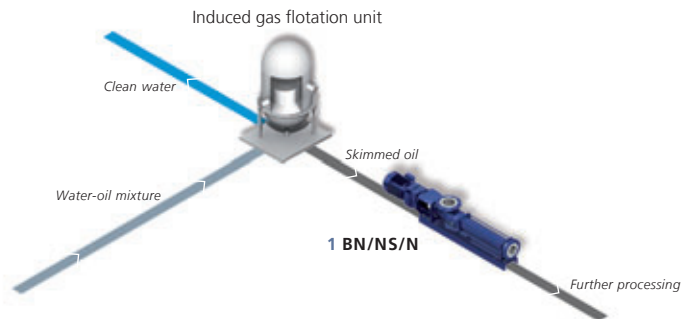
Conveying product: Produced water  
Conveying capacity: 17 m<sup>3</sup>/h (75 GPM) • Pressure: 10 bar (154 PSI)  
Temperature: 20 °C (68 °F)



Flow chart based on hydrocyclone feeding



Flow chart based on induced gas flotation



**Pump of range NS 70-18**  
 Conveying product: Oily water  
 Conveying capacity: 50 m<sup>3</sup>/h (220 GPM) • Pressure: 15 bar (217 PSI)  
 Temperature: 55 °C (131 °F)



**Pump of range N 240-12**  
 Conveying product: Produced water  
 Conveying capacity: 165 m<sup>3</sup>/h (726 GPM) • Pressure: 12 bar (174 PSI)  
 Temperature: 70 °C (158 °F)

# Pumping solutions for multiphase boosting and crude oil transfer.

Multiphase pumping has become an accepted method of multiphase boosting well flow and increasing revenue from a well site. Asset optimization programs now take advantage of multiphase pumping technology which allow bottom hole pressures to be reduced and production rates and well yields to increase. Where natural well pressure has fallen, it can be allowed to flow with multiphase boosting.

We provide a highly competitive product range driven by research and development. Package solutions allow for automatic control of the multiphase boosting system allowing pumps to achieve reliable behaviour in changing and challenging well conditions. Pump systems are delivered to be tolerant to changing flow regimes and prolonged slugging.

**Applications** (see flow chart on next page, above)

- 1 BN/NS/N range pumps transport multiphase liquids from oil wells to gathering stations

**Applications** (see flow chart on next page, below)

- 1 BN/NS/N range pumps transport crude oil from storage tanks to intermediate storage facilities

## Features

- Equal wall stators for cooler running temperatures
- Low internal fluid velocities negating effects of erosion with good component lifetimes
- Simple, single shaft sealing arrangements
- Low output speeds with shaft seals exposed to lower inlet pressures, extending life and increasing reliability
- Smooth vibration free operation in service
- Fully automated control systems which include instrumentation, piping and controls



### Pump of range NS 70-12V

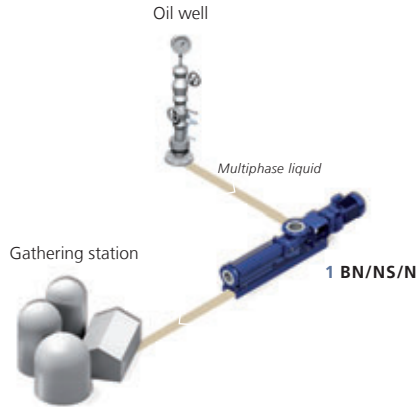
Conveying product: Multiphase liquid  
Conveying capacity: 55 m<sup>3</sup>/h (242 GPM) • Pressure: 18 bar (261 PSI)  
Temperature: 30 °C (86 °F)



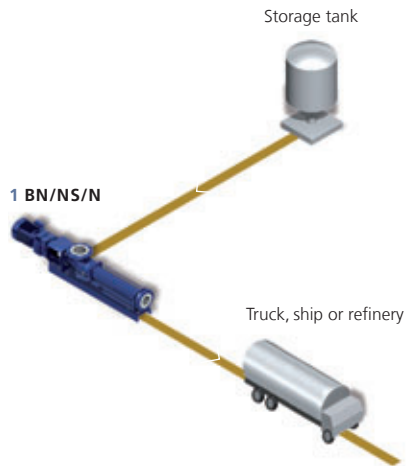
### Pump of range BN 10-12V

Conveying product: Multiphase liquid  
Conveying capacity: 10 m<sup>3</sup>/h (44 GPM) • Pressure: 14 bar (203 PSI)  
Temperature: 5–20 °C (41–68 °F)

Flow chart based on multiphase boosting



Flow chart based on crude oil transfer



**Pump of range N 240-12V**  
Conveying product: Crude oil  
Conveying capacity: 150 m<sup>3</sup>/h (660 GPM) • Pressure: 19 bar (275 PSI)  
Temperature: 5–40 °C (41–104 °F)



**Pump of range BN 70-12V**  
Conveying product: Crude oil  
Conveying capacity: 55 m<sup>3</sup>/h (242 GPM) • Pressure: 22 bar (319 PSI)  
Temperature: 10–50 °C (50–122 °F)

# Pumping solutions for refinery waste water and sludge applications.

The treatment of effluent streams in refining and petrochemical processing plants is a critical part. Ever tightening environmental legislation and advancing technologies present challenges for plant builders and operators.

We offer a single pump principle that can be applied to the diverse range of application challenges on refineries. Our pumps are delivered in horizontal, vertical, semi-submersible and in high solids handling configurations.

Oily waste water and oily slop streams from oil-water (API) separators and skim tanks are handled with our BN range pumps. Operations are optimized with a pump that can handle varying and high viscosities and does not clog when exposed to waxy paraffinic oils.

Sludges and slurries are handled effectively with seepex BN range pumps that are tolerant to the abrasive nature of such media. Catalyst slurries can be transported without any damage to the catalysts physical structure due to low shear pumping characteristics.

Dosing of corrosion inhibitors and general chemicals is achieved with our dosing pumps of range MD. Accurate and repeatable flow rate is achievable that compares with API 675.

Non flowable products like oily sludge cake with dry solids contents of approximately 60 % can be transported by our open hopper pumps of product group T.

**Applications** (see flow chart on next page, above)

- 1 BE range pumps transport slop oil from oil-water (API) separators to further processing
- 2 MD range pumps transport chemicals to aeration tanks
- 3 BN/NS/N range pumps transport waste water from aeration tanks to digester

**Applications** (see flow chart on next page, below)

- 1 BTHE range pumps transport dewatered sludges from belt presses and centrifuges to intermediate storage facilities
- 2 BTEI range pumps transport dewatered sludges from silos and intermediate storage facilities to dryer

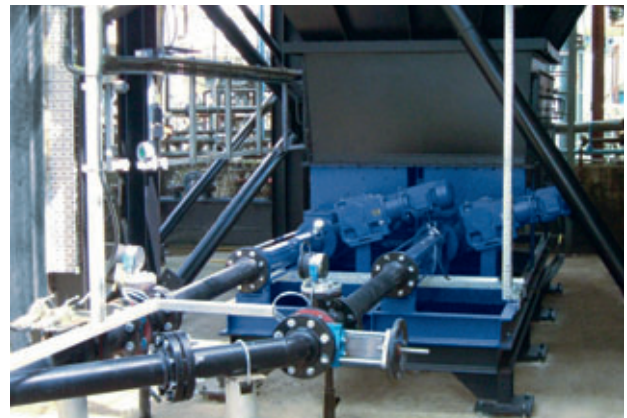
## Features

- Handling low to highly viscous liquids
- Self priming pumps capable of pulling high suction lifts (> 7 m static lift)
- Low shear characteristics ensuring no damage to particle size of catalysts or mixing of oil and water
- Low NPSH-R
- Horizontal and vertical pump installation possible
- Accurate repeatable linear flow rates
- Flow control through variable speed drives
- Open hopper and auger feed design for high solids cake handling



### Pumps of range BN 130-6L

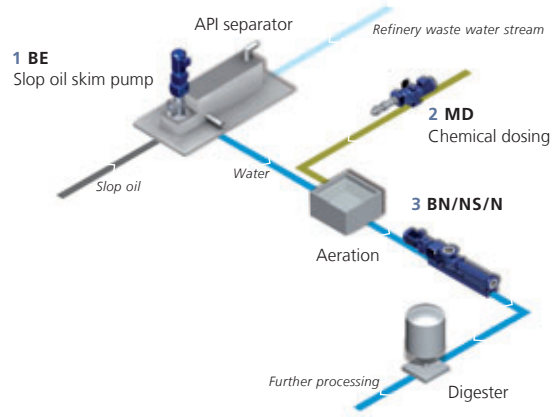
Conveying product: Aerated refinery sludge  
Conveying capacity: 115 m<sup>3</sup>/h (506 GPM) • Pressure: 1.3 bar (19 PSI)  
Temperature: 30 °C (86 °F)



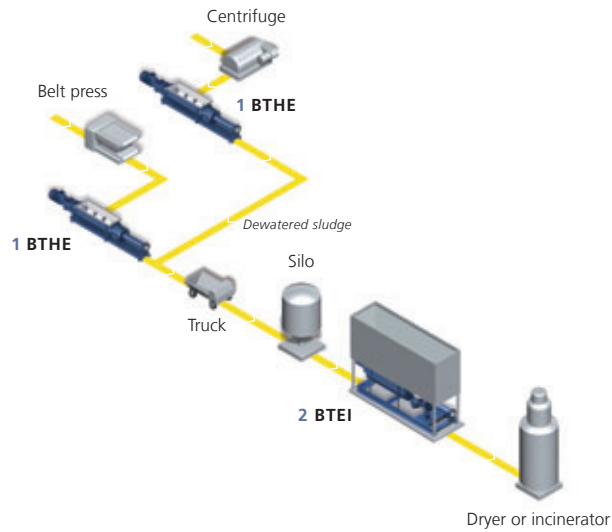
### Pumps of range BTEI 17-24

Conveying product: Oily sludge cake with a ds content of 60 %  
Conveying capacity: 4 m<sup>3</sup>/h (18 GPM) • Pressure: 16 bar (232 PSI)  
Temperature: 5–40 °C (41–104 °F)

Flow chart based on refinery waste water



Flow chart based on dewatered sludge



**Pumps of range MD 012-12**  
 Conveying product: Chemicals  
 Conveying capacity: 33 l/h (0.145 GPM) • Pressure: 10 bar (145 PSI)  
 Temperature: 60 °C (140 °F)



**Pumps of range BE 70-12 and 35-6L**  
 Conveying product: Slop oil drains  
 Conveying capacity: 48/17 m<sup>3</sup>/h (211/75 GPM) • Pressure: 8/6 bar (116/87 PSI)  
 Temperature: 37 °C (98 °F)



# Pumping solutions for vessel emptying.

Many applications and processes in the oil and gas industry rely on pumps taking liquid from vessels. The containment of liquid in vessels and subsequent emptying can present unique challenges for pump selections.

Some of those challenges are liquids with high vapour pressure resulting in low NPSH available, gaseous liquids and sand build up. Our pumps are self priming and do not gas lock.

The use of progressive cavity pumps on low NPSH-A applications can deliver compliant solutions for very low NPSH-A ~0.5 m (1.64 ft), with engineered solutions available to overcome installation and space challenges.

**Applications** (see flow chart on next page, above)

- 1 BN range pumps transport different products from vessels
- 2 BE range pumps mounted in a semi submersible arrangement as an alternative to BN range pumps **(1)**

**Applications** (see flow chart on next page, below)

- 1 BE range pumps installed in a vertical can to increase NPSH-A

## Features

- Low NPSH-A ~0.5 m
- Robust design
- Capable of handling low to high viscosities
- Low installed center line height
- Do not gas lock
- Self priming
- Self venting
- Capable of handling solids
- Non clogging



### Pump of range BN 70-12V

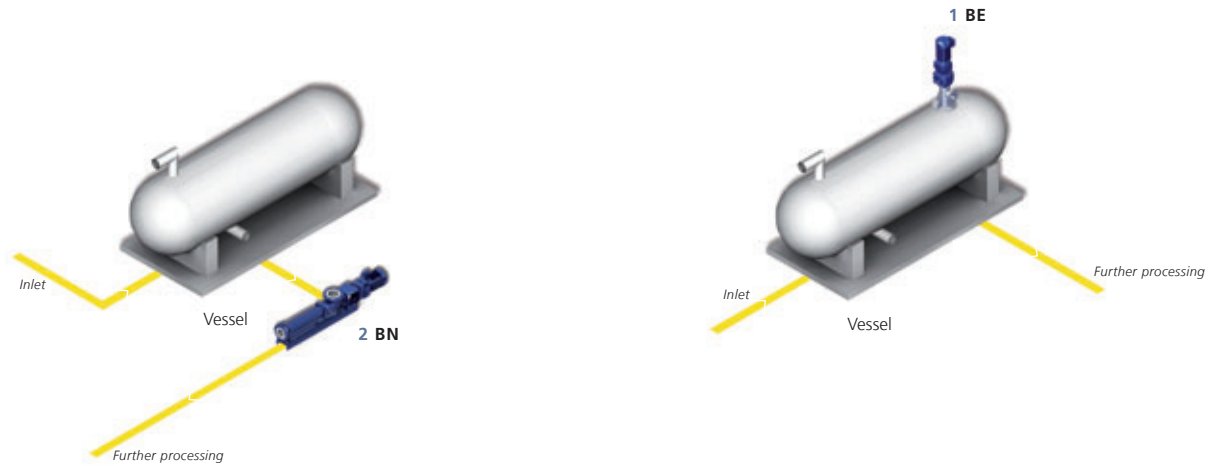
Conveying product: Different liquids  
Conveying capacity: 54 m<sup>3</sup>/h (237 GPM) • Pressure: 24 bar (348 PSI)  
Temperature: 5–20 °C (41–68 °F)



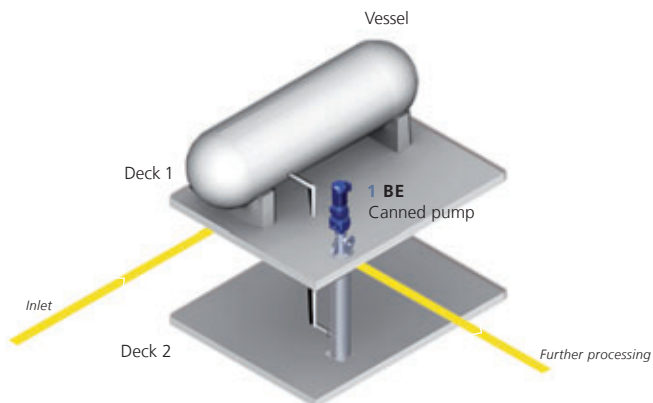
### Pumps of range BN 70-12V

Conveying product: Different liquids  
Conveying capacity: 52 m<sup>3</sup>/h (228 GPM) • Pressure: 15 bar (217 PSI)  
Temperature: 5–20 °C (41–68 °F)

Flow chart based on vessel emptying for offshore industry



Flow chart based on vessel emptying for offshore industry



**Pumps of range BE 35-12**

Conveying product: Closed drains liquids, produced water and hydrocarbons  
 Conveying capacity: 22 m<sup>3</sup>/h (96.8 GPM) • Pressure: 16 bar (232 PSI)  
 Temperature: 15–115 °C (59–239 °F)



**Pumps of range BN 17-48**

Conveying product: Produced water  
 Conveying capacity: 15 m<sup>3</sup>/h (66 GPM) • Pressure: 28 bar (406 PSI)  
 Temperature: 65 °C (149 °F)

# Your pump solutions at a glance.

seepex pumps transport thin to high-viscosity products with and without solids and low and high-temperature products, gently, with low pulsations and a low action. They also feature with excellent metering accuracy and can easily pump media such as produced water and chemical additives. All pumps can be engineered to meet the requirements of API 676.

BN range pumps with direct flange-mounted drives (block design) can be used in almost all areas of industry to convey thin to high viscosity materials with or without solids. NS/N range pumps feature a drive casing with free shaft end for universal configuration of drives through flexible couplings or V-belts.

- > Conveying capacity: 0.05–500 m<sup>3</sup>/h (0.132–2,200 GPM),  
Pressure: up to 48 bar (700 PSI)

seepex BT range pumps have a rectangular inlet hopper with a cylindrical compression zone and auger feed screw. The length of the hopper inlet is customized according to customer needs. These pumps are used to convey highly viscous products.

- > Conveying Capacity: 0.1–200 m<sup>3</sup>/h (0.44–880 GPM),  
Pressure: up to 36 bar (540 PSI)

seepex BTEI range pumps have a rectangular feed hopper with enlarged compression zone and an auger with enlarged diameter and pitch. The hopper length can be matched to the individual operating conditions.

- > Conveying capacity: 0.5–100 m<sup>3</sup>/h (2.2–440 GPM),  
Pressure: up to 36 bar (540 PSI)

## Range BN/NS/N

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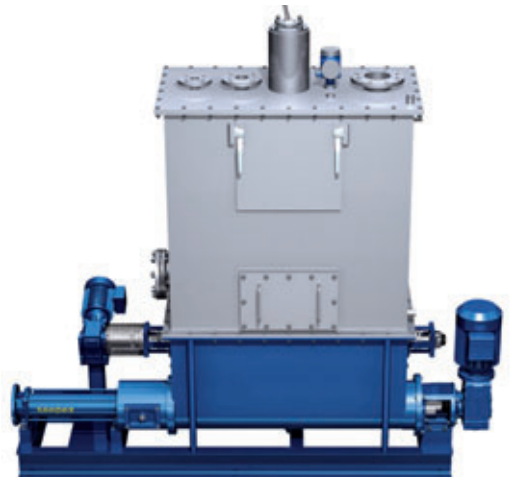
## Range BT

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## Range BTEI

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Pumps of the BTHE range feature a feed hopper with vertical hopper walls and a ribbon screw rotating centrally and on the edges. This guarantees optimum emptying of the feed hopper and optimized feed of the medium into the conveying elements of the pump. The length of the hopper opening is variable to suit the respective application conditions.

- > Conveying capacity: 0.5–100 m<sup>3</sup>/h (2.2–440 GPM),  
Pressure: up to 36 bar (540 PSI)

MD range pumps are used for pumping and dosing small quantities. They are especially suited for low-pulsation transport of low to highly-viscous or adhesive media as well as media containing solids and chemically aggressive media with a high dosing accuracy.

- > Conveying capacity: 0.2–1000 l/h (0.053–264 GPH),  
Pressure: up to 24 bar (360 PSI)

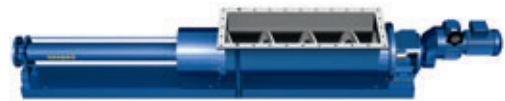
seepex semi-submersible pumps of range BE are used to empty tanks, drums, reservoirs and pits when limited space is available, or when the danger of cavitation is present. They can also be supplied in a can to further increase the NPSH-A at pump outlet.

- > Conveying capacity: 30 l/h–300 m<sup>3</sup>/h (0.132–1,320 GPM),  
Pressure: up to 12 bar (175 PSI)

See our “Product groups and ranges” brochure for further solutions for a wide range of applications.

#### Range BTHE

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#### Range MD

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#### Range BE (variant U)

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