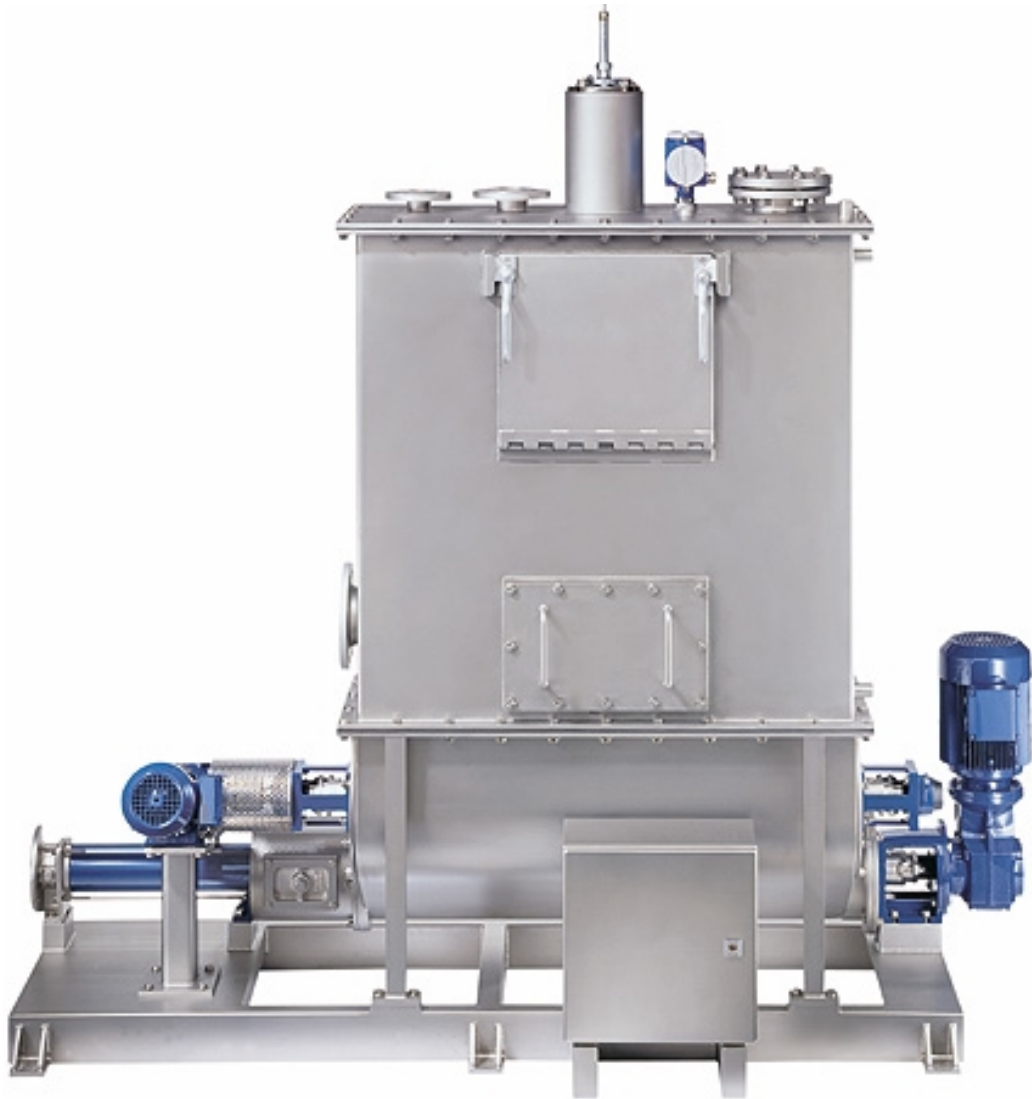


*ROTATING RIGHT*

# SEEPEX RANGE BTEI PROGRESSIVE CAVITY PUMPS

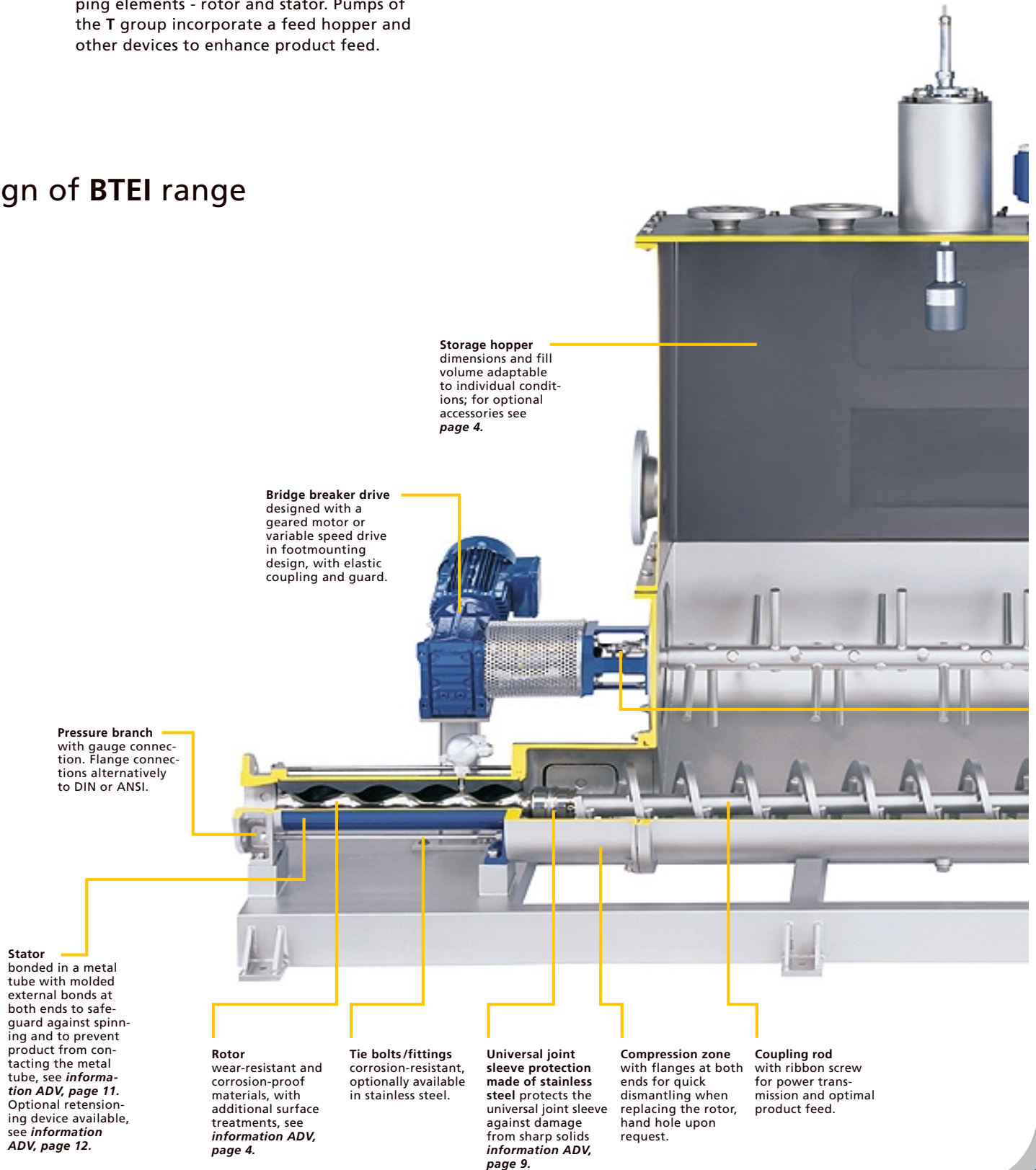
**BTEI**



**seepex** has many years of experience transporting highly viscous and non-flowable products. The conventional progressive cavity pump is unable to transport these products as they do not flow into the pumping elements - rotor and stator. Pumps of the T group incorporate a feed hopper and other devices to enhance product feed.

The T group incorporates eight ranges in block or free bare shaft design. They are available with capacities from 100 l/h- 250m<sup>3</sup>/h (0.44 to 1,100 USGPM) and pressures up to 48 bar (700 psi).

## Design of BTEI range



**Storage hopper**  
dimensions and fill volume adaptable to individual conditions; for optional accessories see [page 4](#).

**Bridge breaker drive**  
designed with a geared motor or variable speed drive in footmounting design, with elastic coupling and guard.

**Pressure branch**  
with gauge connection. Flange connections alternatively to DIN or ANSI.

**Stator**  
bonded in a metal tube with molded external bonds at both ends to safeguard against spinning and to prevent product from contacting the metal tube, see [information ADV, page 11](#). Optional retensioning device available, see [information ADV, page 12](#).

**Rotor**  
wear-resistant and corrosion-proof materials, with additional surface treatments, see [information ADV, page 4](#).

**Tie bolts/fittings**  
corrosion-resistant, optionally available in stainless steel.

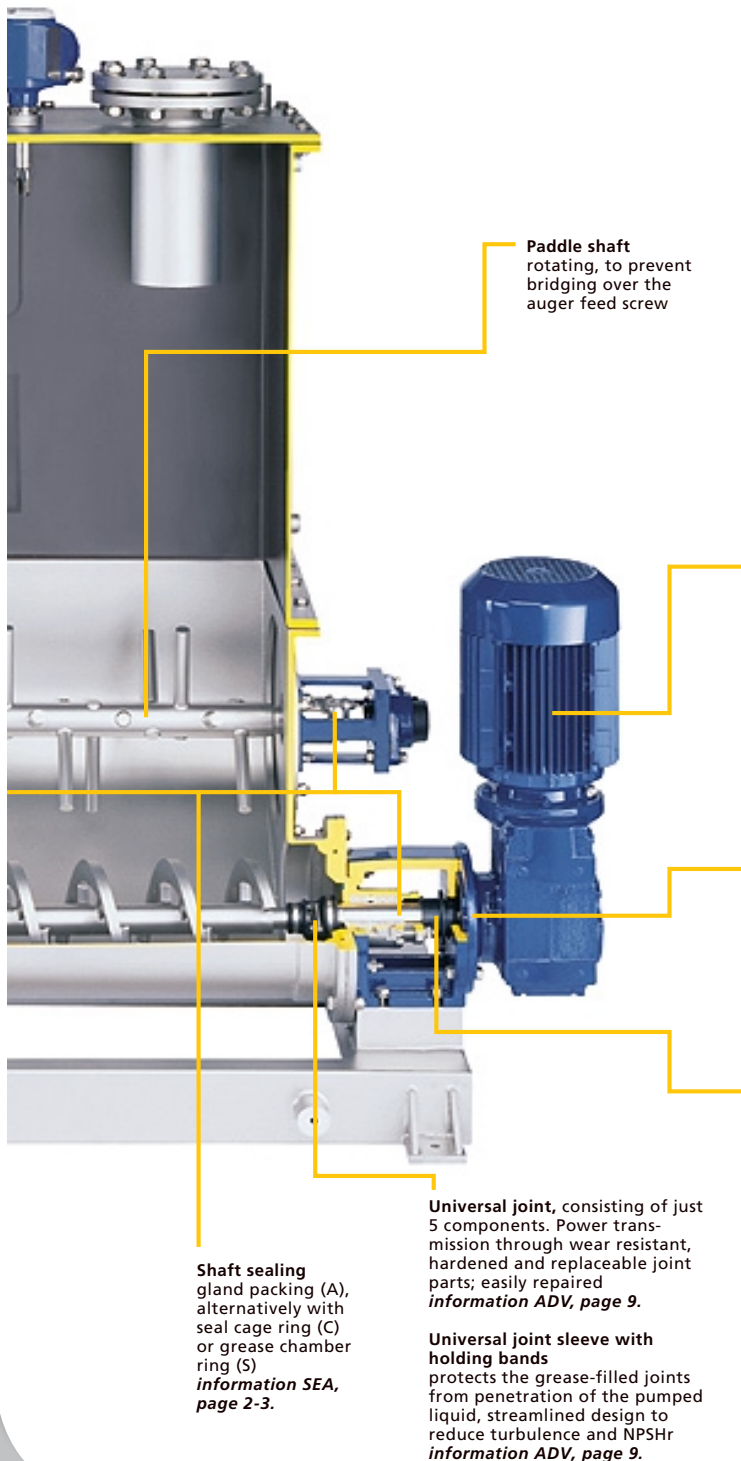
**Universal joint sleeve protection**  
made of stainless steel protects the universal joint sleeve against damage from sharp solids [information ADV, page 9](#).

**Compression zone**  
with flanges at both ends for quick dismantling when replacing the rotor, hand hole upon request.

**Coupling rod**  
with ribbon screw for power transmission and optimal product feed.

The **BTEI** range represents a further evolution of the successful **BTI** and **BTE** pumps. In addition to a bridge breaker they have a storage hopper which is adaptable to specific customer applications. This storage

hopper replaces a separate silo, thereby saving space within the plant. The **BTEI** range of pumps are available with capacities from 0.3-50 m<sup>3</sup>/h (1.3 to 220 USGPM) and pressures up to 48 bar (700 psi).

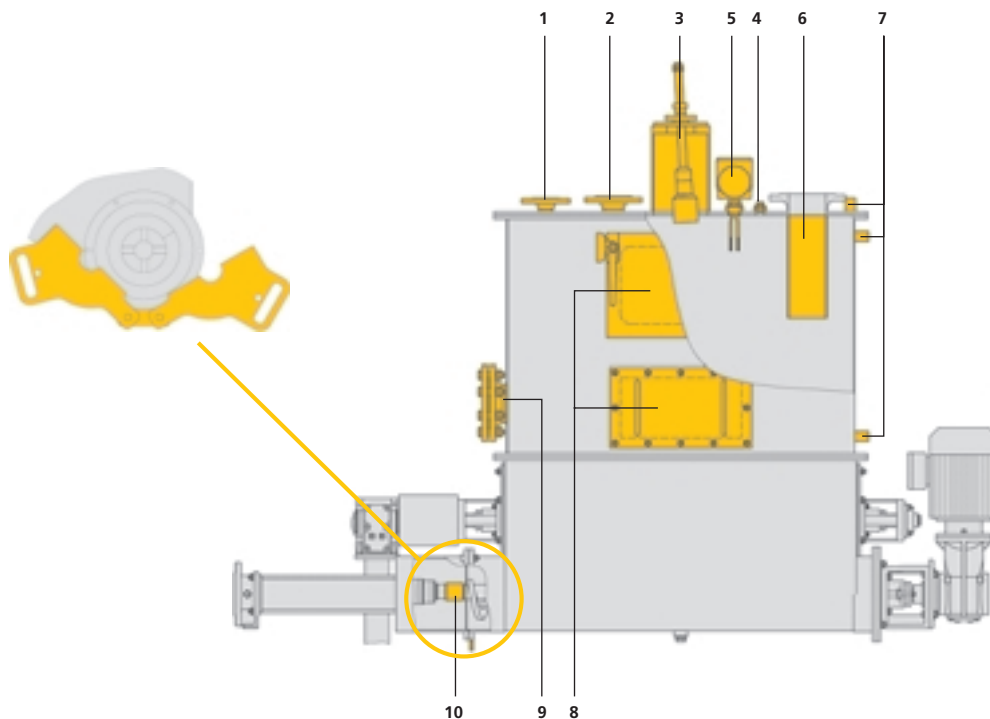


Arrangement of coupling rod and paddle shaft

In general **seepex BTEI** pumps are designed for specific applications. Besides the various ranges and materials available, there is a wide selection of accessories. These options are described in detail in the information **OPT**.

Additional options and accessories are available which can optimize the maintenance and performance of both the pump and the storage hopper of the **BTEI** range of pumps.

- |  |   |  |  |
|--|---|--|--|
| <b>1 Vent (in)</b>                         | to vent the storage hopper  | <b>6 Spray guard</b>                     | in connection with Item 5, to protect the vibration limit switch against dirt  |
| <b>2 Vent (out)</b>                        |   | <b>7 Earth connection</b>                | available for storage hopper and pump  |
| <b>3 Ultrasonic level measurement</b>      | maintaining a constant sludge level in the inlet hopper is necessary for optimum pump operation. The level can be reliably monitored using an ultrasonic sensor and transferred to a product feed regulator through an instrument transformer | <b>8 Inspection hatch</b>                | optional quick release locks for inspection purposes and to ease in cleaning inside the tank   |
| <b>4 Connection for CH4 measuring head</b> | optionally available CH4 measuring head to measure methane gas  | <b>9 Drain opening</b>                   | to drain storage hopper  |
| <b>5 Vibration limit switch</b>            | turns the pump off in case of storage hopper overflow   | <b>10 Quick coupling/shut-off device</b> | for quick disassembly of the rotor without the need of emptying the pump hopper, thereby preventing product from spilling during service |



# Applications

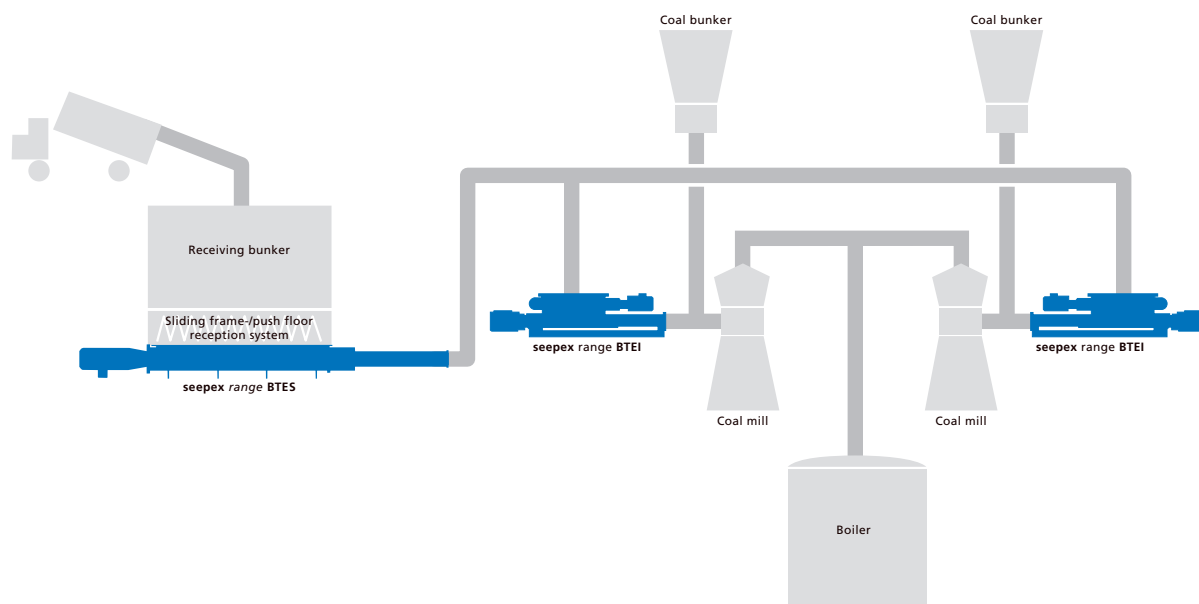
A typical application in a power plant is illustrated below. Together with brown coal, sewage sludge is fed to the combustion chamber through mixing mills and used as fuel. At maximum boiler load up to 5% of the fuel flow can be dry sewage sludge.

Due to low investment costs and the ease in upgrading older plants with this new technology, the **BTEI** becomes the perfect choice for many sludge-incineration applica-

tions in power plants as there is less impact on the environment in disposing of sewage sludge in this manner.

These plants are fully automated with various measurement and control devices. Optionally available ultrasonic level measurement integrated in the **BTEI** storage hopper guarantees consistent product level and continuous feed.

## Process of sewage sludge co-firing in a power plant



**Application of seepex pumps in sludge incineration**

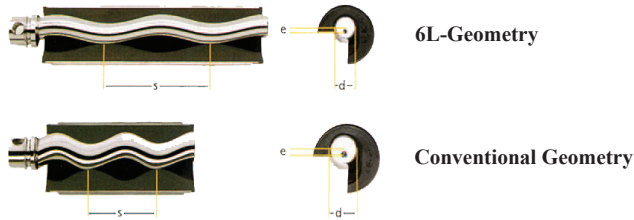
Sewage sludge is transported through a piston or seepex BTES pump into the seepex BTEI pump range. The pump transports the

sludge into the coal mills, where it is mixed with brown coal and transported further to the boiler.

# User Advantages

## Rotor - Stator-Geometries

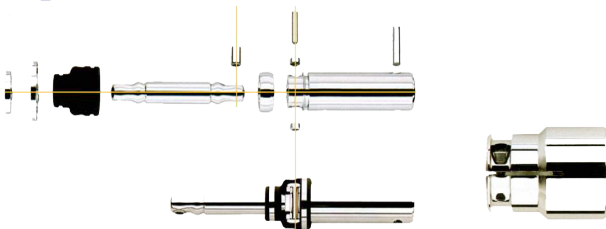
### seepex 6L - conventional geometry comparison



smaller rotor diameter  
 + reduced eccentricity  
 + increased pitch length  
 = 6L-Geometry with 20 % lower sliding velocity

- Improved service life (+35-50%) due to lower sliding velocity and longer sealing line
- Better pressure stability due to wider sealing line
- Reduced thrust loads on universal joints and bearings due to smaller rotor diameter and lower eccentricity
- Thrust loads of the conventional design exceed the thrust loads of the 6L-Geometry by approx. 50 %
- Smooth and almost pulsation-free operation
- The "stretched cavities" have a positive influence on vibrations, turbulences, pulsation and shear rates

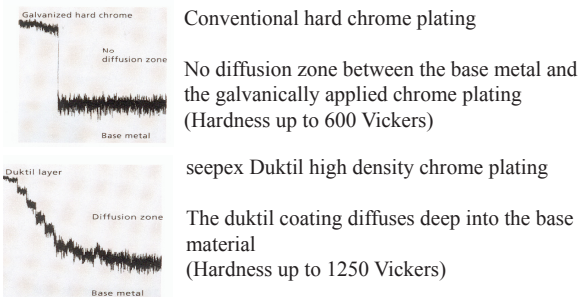
## seepex Universal Joint Design



### Benefits

- Only 4 hardened and wear resistant universal joint components (1 coupling rod bush, 2 guide bushes, 1 coupling rod pin)
- Positively sealed, gas and liquid tight elastomer universal joint sleeve
- Optional stainless steel universal joint sleeve protector with unconditioned - 10.000 h/24 months guarantee on the protected universal joint
- Simple and cost-effective to maintain
- Streamlined design, thus improved NPSH conditions
- Simple and cost-effective to maintain

## seepex has The Optimum Rotor Surface



Conventional hard chrome plating

No diffusion zone between the base metal and the galvanically applied chrome plating (Hardness up to 600 Vickers)

seepex Duktal high density chrome plating

The duktil coating diffuses deep into the base material (Hardness up to 1250 Vickers)

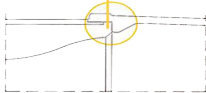
### Benefits of the high quality seepex rotor surface

- Reduced starting and operating torque
- Improved efficiencies
- Smoother operations
- Increased service life
- The hardness of the coating is 1250 Vickers versus 180 of the base material
- The adhesion to the base material is excellent with no surface fissures

## seepex Molded to size stators

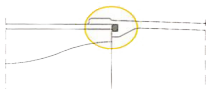


seepex molded to size stators are shrink compensated and have cast-on sealing surfaces.



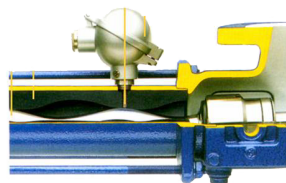
High manufacturing standards guarantee low torque requirements and high efficiencies.

A wide variety of elastomers is available.



Cut-to-size stators with separate gaskets or joints - unthinkable for seepex

## seepex Optional TSE Dry Run Protection



### Benefits

- Universal solution for all applications protects pump and stator against damages caused by frictional heat due to lack of liquid pumped
- Highly efficient low cost dry running protection system



TSE controller for panel mounting



Complete IP55 (NEMA 4) pump control panel with incorporated TSE controller



**Head Office:**  
 6120 Davies Road  
 Edmonton, AB  
 T6E 4M9

Phone: (780) 485-2010 • Toll Free: (866) 707-7867  
 Fax: (780) 485-1938  
 • Calgary • Drayton Valley • Lethbridge  
[www.rotatingright.com](http://www.rotatingright.com)