
SEEPEX.
ALL THINGS FLOW
FIRST-CLASS SOLUTIONS
INNOVATIVE.
DIVERSE.
EFFICIENT.

ALL THINGS FLOW.

SEEPEX progressive cavity pumps, macerators and control systems are used wherever thin to highly viscous, aggressive or abrasive media needs to be pumped with minimal pulsation. Our portfolio comprises a variety of product groups and ranges, enabling a customized solution for every customer.

MODULAR PUMP SYSTEM

MARKET-SPECIFIC PRODUCT GROUPS WITH HIGH-PERFORMANCE RANGES

KEY FACTS

- Conveying capacity: 0.06 l/h to 500 m^3/h (0.016 USGPH to 2,200 USGPM)
- Pressure: up to 96 bar (1400 psi)
- Temperature: -20 to 180° C (0–360° F)

CUSTOMER-SPECIFIC SOLUTIONS

- Reduced life cycle costs
- High energy efficiency
- Leading innovation

SEEPEX was founded in 1972 in Bottrop, Germany and is known today as a leading specialist in progressive cavity pump technology, represented in over 70 countries. Agriculture, textiles, environmental engineering and many other markets: SEEPEX pumps operate reliably in the most significant industries.

Numerous patents demonstrate how SEEPEX is a leader in innovation – continuously developing new products and technologies. Our customers benefit from advantages such as drastically reduced life cycle costs, high energy efficiency and higher productivity.

Our experts place great emphasis on intensive customer interactions, using a holistic approach to examine the specific processes of each customer and find the ideal solution for even the most extreme application. Every SEEPEX pump is adapted to the respective industry branch, operation, installation site and conveyed substance.

Additionally, SEEPEX offers a comprehensive range of services for a long and economical pump life. With superior service and innovative design, the ultimate goal is reached: the best solution for the customer. All things flow.

RANGE OF CONVEYED MEDIA

- Thin to highly viscous
- Acidic to alkaline
- Low to high solids concentration
- Benign to hazardous
- With various properties, e.g. abrasive, gaseous, foaming, adhesive, sensitive

BENEFITS OF SEEPEX PUMPS

- Self priming
- High discharge pressures
- Flow almost independent of system pressure
- Direction of rotation reversible
- Continuous flow
- Minimal pulsation
- Suction lift up to 9 m (29.5 ft.) water column
- Required NPSH (Net Positive Suction Head) less than 1 m possible
- Less product shear

HIGH PERFORMANCE – LOW COSTS.

When investing in a pump or a complex pumping system, the purchase costs constitute only a fraction of the total investment. In developing and designing each pump, SEEPEX commits to minimizing total operating costs.

LIFE CYCLE COSTS (LCC)

Cost for installation, commissioning, maintenance, repair, downtime, loss of production and energy consumption

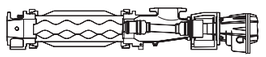
Progressive cavity pumps have a life of 15 to 20 years as a rule. By far the largest part of the total life cycle costs is energy consumption, repair and maintenance and downtime. This is evident by the original purchase price of the pump accounting for only 5–10% of the total life cycle costs.

In some industries, shorter downtimes and therefore less production downtime is critical, while others emphasize low maintenance and repair costs and the lowest possible energy consumption.

But no matter the industry or customer: SEEPEX has an extensive technical portfolio to deliver innovations for reduced life cycle costs over the complete lifetime.

OVERVIEW OF TECHNOLOGIES.

PAGE 8–11



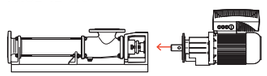
SMART CONVEYING TECHNOLOGY (SCT)

One person can quickly and easily perform maintenance on the Smart Stator and Smart Rotor in just a few steps – no special tools needed.

Benefits

- Reduction in maintenance time by up to 85%
- Up to 200% longer rotor and stator life
- Increased productivity due to reduced downtime

PAGE 12–13



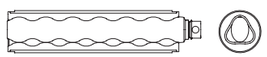
BLOCK DESIGN

A short, compact design and low axial forces.

Benefits

- Less space required
- Less maintenance
- Elimination of alignment problems
- Enhanced safety

PAGE 14–15



ROTOR AND STATOR GEOMETRIES

Exactly aligned with the conveying capacity, pressure and pumped medium.

Benefits

- Optimal performance
- Lower operating costs
- Long service life of the pump
- All geometries are interchangeable

PAGE 16–17

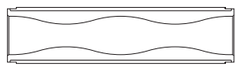
ROTOR

Optimized surface created from a comprehensive process using highly adapted materials and superior surface-hardness.

Benefits

- Optimum efficiency
- Low energy costs
- Smooth running

PAGE 18–19



STATOR

Individually custom-made for every size and pressure stage, featuring precisely crafted geometries produced in-house.

Benefits

- Optimum efficiency
- High pressure stability
- Reliable sealing

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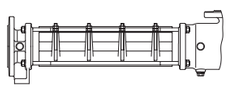


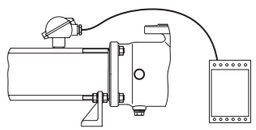
STATOR TENSIONING

A worn stator can be tightened evenly and within a few minutes.

Benefits

- Longer service life
- Optimized production capacity
- Enhanced efficiency

PAGE 21



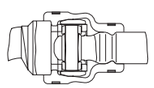
DRY-RUNNING PROTECTION DEVICE TSE

Monitors the temperature of the stator during operation and automatically switches off the pump when a limit value is reached.

Benefits

- High operational reliability
- Optimum product handling
- Longer service life of the pump

PAGE 22–25



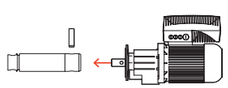
JOINTS

Consist of only a few, robust and easily replaceable parts for trouble-free operation.

Benefits

- Quick and easy disassembly
- For extreme temperatures and abrasive media
- Low maintenance and repair costs

PAGE 26



PLUG-IN SHAFT CONNECTION

For fast separation, joining, replacing and sealing.

SMART CONVEYING TECHNOLOGY: IMPROVED PRODUCTIVITY.

The design principle of Smart Conveying Technology (SCT): The Smart Stator is divided into two halves. Maintenance can easily be done by one person without the need to remove either the suction or discharge pipe work or use special tools. The result: Maintenance time is reduced by up to 85%.

Another design feature is the integrated retensioning device, which allows the clamping between the rotor and stator to be adjusted for optimum flow and readjusted when the flow rate reduces due to wear. Readjustment is done in a matter of minutes, returning pump performance to the required level without replacing any components. As such, the service life of both the rotor and stator is significantly extended, reducing the need for replacement parts and the life cycle costs of the SEEPEX pump.

SMART STATOR

Two, comparatively light, stator halves.

SMART ROTOR

With detachable rotor head connection for fast assembly/disassembly, while leaving the universal joint intact.

ADJUSTING SEGMENTS

For positioning and axially sealing the stator halves, adjusting the stator clamping and retensioning the stator halves.

SEGMENT RETAINER RINGS

For positioning and radially sealing the stator halves and locating the adjusting segments.

CLOSED SMART STATOR

DETACHABLE CONNECTION OF THE SMART ROTOR

A COMPELLING ECONOMIC SOLUTION.

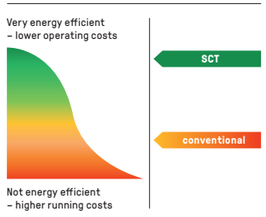
SCT not only extends the life of the pump but also increases efficiency and decreases costs. Reduced downtime and the subsequent increase in production are crucial for all industries, and low maintenance costs are important for all pump users. SEEPEX SCT pumps provide a compelling economic solution for all industries.

HOW DO OUR CUSTOMERS BENEFIT FROM SCT?

- Reduced maintenance time by up to 85%
- Reduced downtime
- Increased productivity
- Simple assembly/disassembly
- Integrated tensioning device results in up to three times the rotor and stator life
- Significantly reduced life cycle costs
- High efficiency due to adjustable clamping
- Less space required
- Environmentally friendly as components can easily be recycled

REDUCE ENERGY COSTS.

ENERGY EFFICIENCY



The reduction of energy consumption is a priority for most customers in all industries, but how can savings be implemented?

THE MOST COMMON METHODS FOR SAVING ENERGY:

- Reduce operating and starting torques
- Replace old and inefficient equipment with the latest and most efficient technology
- Utilize the most efficient drive technology

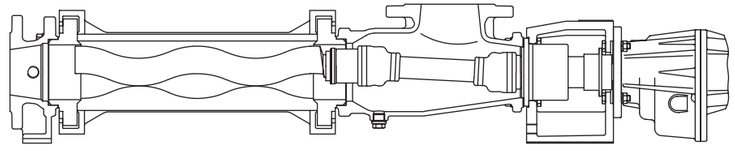
Compared to conventional pumps, SCT offers low energy costs. In a highly competitive market this provides commercial advantages for SCT users. Our SEEPEX experts are knowledgeable about many proven energy efficiency solutions and will survey your site to suggest improvements.

FOR HIGHER PRESSURES.

Our customers know SEEPEX stands for constant innovation and consistent customer orientation. With SCT, we continue to innovate based on our customers' needs. SCT is available in a 1-stage design for pressures up to 4 bar and in a 2-stage design for pressures up to 8 bar. Both designs offer a wide range of benefits.

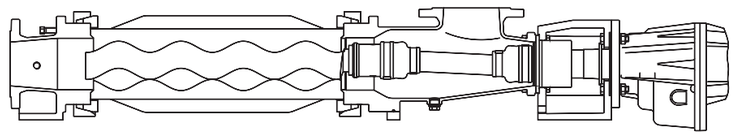
PRESSURE, 1-STAGE
UP TO 4 BAR (60 PSI)

1-STAGE DESIGN



PRESSURE, 2-STAGE
UP TO 8 BAR (120 PSI)

2-STAGE DESIGN



BLOCK DESIGN: COMPACT AND COST-EFFECTIVE.

Ever growing performance demands, spending cuts and limited space: In order to meet these requirements, SEEPEX is constantly innovating the construction of progressive cavity pumps. An essential element of these developments: the connection from the drive to the pump.

The block design is the most popular design of SEEPEX pumps. Their simple construction design has many advantages over more expensive versions including:

- Simple and cost-effective construction
- Especially service friendly
- Smaller footprint
- Easier installation
- Shorter lead times
- Standardized assembly

As as alternative, N/NS range pumps are also offered in a conventional design.

EXAMPLE 1: BLOCK DESIGN

BN range pumps with geared motor and base plate flanged directly to the pump.

EXAMPLE 2: CONVENTIONAL DESIGN

NS range pumps with free bare shaft, geared motor, flexible coupling with coupling guard and base plate.

BENEFITS

Short, compact design

- Installation in small spaces
- More space for assembly/disassembly

Service friendly

- Simple separation of pump from drive
- Faster replacement of rotating wearing parts
- Easy installation of all shaft seals

Few components

- Drive directly flanged to pump
- Drive casing, V-belt, motor chair and flexible coupling not required
- Low total weight

Economical

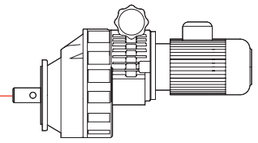
- The base plate is independent of the drive unit
- Significantly better value for the money

COMPACT AND COST-EFFECTIVE.

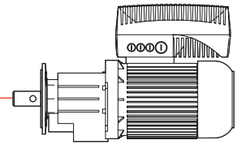
SEEPEX pumps in block design are a compact, cost-effective and service friendly design. SEEPEX pumps of many sizes and pressure stages can be delivered in block design. Carefully selected axial load, shaft dimensions and flange dimensions also allow the installation of drives from well-known, global manufacturers.

BLOCK-DESIGN IN DETAIL

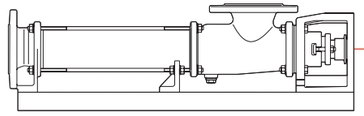
VARIABLE GEARED MOTOR



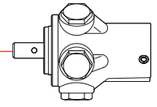
GEARED MOTOR WITH FREQUENCY INVERTER



BN RANGE PUMP WITH BASE PLATE



HYDRAULIC MOTOR

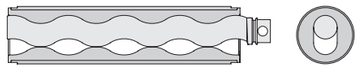


SEEPEX GEOMETRIES: TAILOR-MADE SOLUTIONS.

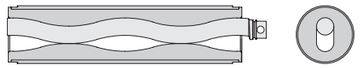
BENEFITS

- The right geometry for every application
- Optimal performance
- Lower operating costs
- Reduced power requirements
- Rapid return on investment
- Long service life of the pump

CONVENTIONAL GEOMETRY, MULTI-STAGE



6L GEOMETRY, SINGLE STAGE



We develop custom solutions for the different needs and requirements of our customers. This applies to supplying the correct rotor/stator geometry – exactly aligned to the conveying capacity, pressure and pumped medium.

CONVENTIONAL GEOMETRY

This time-tested standard geometry consists of a single-helix rotor with a short pitch and double internal helix stator.

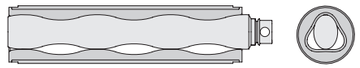
- Particularly versatile, suitable for almost any application
- Handles larger spherical solids
- For highly viscous fluids
- Lower NPSH
- Pressure: up to 96 bar (1400 psi)

6L GEOMETRY

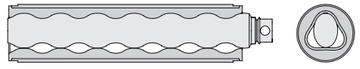
With a smaller rotor diameter and a longer pitch, the SEEPEX 6L geometry attains lower sliding speeds and longer service life through the large sealing line.

- Less wear, often double the service life
- Reduced thrust loads
- Lower shear rates and internal fluid velocity
- Pressure: up to 6 bar (90 psi)

TRICAM GEOMETRY (-6LT), SINGLE STAGE



TRICAM GEOMETRY (T), MULTI-STAGE



CONVENTIONAL GEOMETRY, STATOR WITH EVEN WALL THICKNESS

TRICAM GEOMETRY

The next evolution of the 6L geometry: With the double helix rotor in a three helix stator, the conveying capacity is increased by 50%.

- Increased flow by 50%
- Lower starting torque relative to running torque
- Trouble-free converting from 6L to Tricam geometry
- Pressure: up to 27 bar (392 psi)

STATOR WITH EVEN WALL THICKNESS

Stators with uniform elastomer wall thickness are particularly characterized by higher stage pressure.

- For high temperature medium
- More pressure in a smaller footprint
- A 33% reduction in starting torque
- Pressure: up to 96 bar (1400 psi)

THE ROTOR: OPTIMIZED OPERATION.

BENEFITS

- Optimum efficiency through optimized surfaces
- Energy conservation by reducing the starting and operating torque
- Smooth operation due to reduced surface roughness
- Long life due to harmonized components
- Cost savings on spare parts

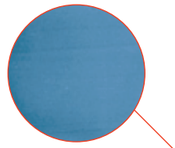
Rotors are the rotating core of SEEPEX pumps. Various basic geometries, diverse material qualities, different coatings and surface grades make SEEPEX rotors individually adapted, high-quality components for each specific application. That also applies to subsequent changes in the pumping process, as all geometries are interchangeable – without changing the dimensions of the pump.

OPTIMIZED ROTOR SURFACE

State-of-the-art machining, cutting and coating processes along with various polishing techniques create the optimum surfaces for all conveyed media.

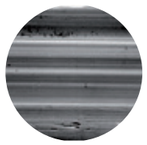
- Improved corrosion and wear resistance
- Improved friction and strength properties
- Minimized torques

SEEPEX DESIGN

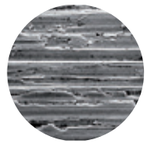


Rotor surface,
ground and polished

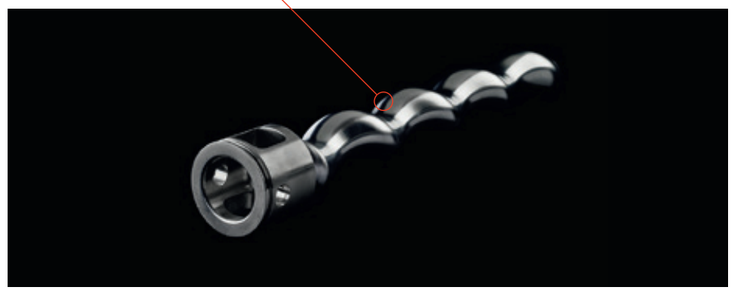
INDUSTRY STANDARD



Rotor surface, peeled



Rotor surface, ground

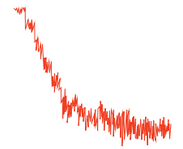


SPECIAL SURFACE COATING

Coating the rotor's surface makes a significant difference in its service life, especially when conveying abrasive products. The SEEPEX chrome-based plating, based on the ductile hardchroming procedure, uses a high temperature and current in an electrolytic process to fuse the basic material and hard chrome coating. This creates an extremely wear-resistant surface.

- Surface has an outstanding hardness
- Excellent values for abrasion resistance
- No peeling of the coating even under extreme operating conditions

SEEPEX CHROME PLATING

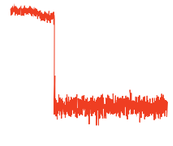


This diagram shows the advantageous deep diffusion zone of the ductile hardchroming in the basic material, which ensures outstanding service life.

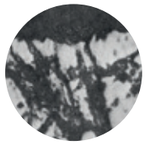
Bending test: Ductile hard chrome coating

Result: Excellent adhesion to the basic material, without cracks.

STANDARD CHROME PLATING



The boundary line between base material (below) and standard chrome coating (above) is clearly distinguishable. When the component is under mechanical stress stripping of the coating can occur.



Bending test: Standard hard chrome coating

Result: Poor adhesion, large parts of the coating have come loose.

THE STATOR: INDIVIDUALLY MADE.

BENEFITS

- High level of volumetric and mechanical efficiency
- Low driving power
- Lower starting and operating torque
- Good pressure stability
- Optimum pumping characteristics across the entire speed range
- Reliable sealing prevents corrosion and premature wearing
- Easy maintenance due to simple assembly

SEEPEX stators are manufactured individually for each size and pressure stage. The crucial advantage: This custom-made approach enables the manufacturing of integrated gaskets at both ends.

These integral gaskets are especially important for conveying toxic and aggressive products. As the stator tube or bonding chemicals do not come in contact with the product, corrosion is prevented. Moreover, this design meets the strict hygienic requirements of the food industry.

SEEPEX offers stators in a variety of elastomers, each manufactured with specially adapted cores based on their specific shrink factors.

PERFECT INTERFACE

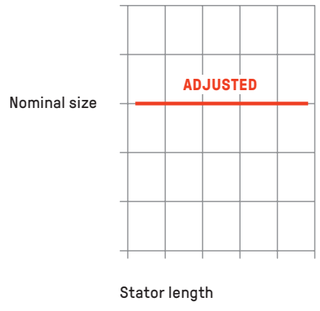
An even compression between the two main pumping elements – the rotor and stator – is crucial, because it guarantees high efficiency and low driving power. Unlike competitors' stators, which are manufactured from cylindrical cores and thus have a strong pull-in area at the ends, SEEPEX stators are manufactured from appropriately designed cores.

- Even compression throughout the entire length of the stator
- Protects the bonding adhesive from attack by ketones or alcohols
- Repeatable performance when stators are replaced

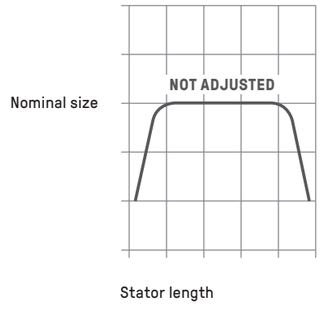
GEOMETRIES AND SEALING

Precision is the basis for performance. SEEPEX's stator manufacturing equipment is optimized for an equal geometry over the entire stator length. This way our stators provide the right amount of clamping and an optimal performance.

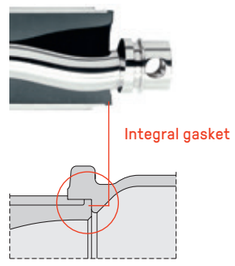
PRECISE SEEPEX GEOMETRIES



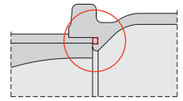
INDUSTRY GEOMETRIES



RELIABLE SEEPEX SEALING



STANDARD INDUSTRY SEALING



WORN STATOR? SIMPLE TENSIONING.

BENEFITS

- Longer service life
- Reduced spare parts costs
- Lower operating costs
- Reduced power requirements
- Fast return on original purchase costs

In response to natural wear, the tensioning device allows a worn stator to be tightened evenly. It tightens the stator by means of either four or eight tie bolts, thus restoring the original clamping and performance. This device provides increased longevity without sacrificing efficiency.

- Extended service life of the rotor and stator by 200%
- Particularly suitable for highly abrasive media

STATOR TENSIONING DEVICE WITH EIGHT TIE BOLTS FOR EVEN TIGHTENING OF THE STATOR

STATOR WITH SEVERAL AXIAL SLOTS TO ENSURE UNIFORM, RADIAL COMPRESSION WHEN TENSIONING

DRY-RUNNING PROTECTION.

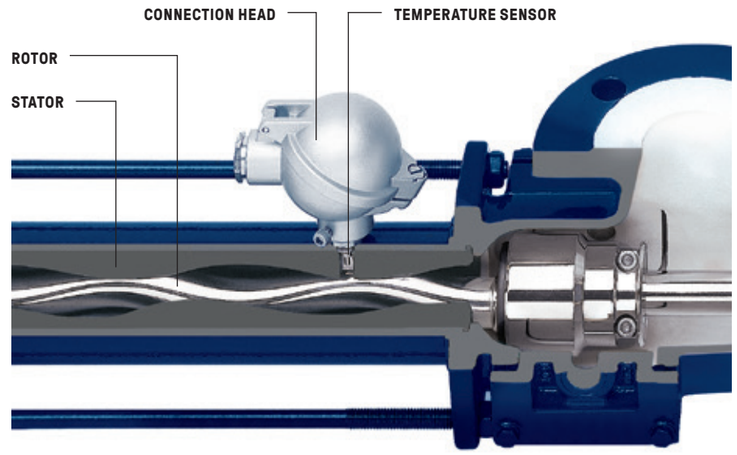
BENEFITS

- Longer service life of the pump
- Special designs also available
- CE and CUL approved
- Compact and cost-effective design (TSE-LC)

The optional dry-running protection device TSE is a SEEPEX invention, which provides reliable protection against dry running – the most common cause of failure in progressive cavity pumps.

An integrated stator temperature sensor electronically records the temperature at the interface of the rotor and stator, and constantly compares it to the preset limit on the TSE control device. If the limit is reached, the TSE device switches off the pump drive and triggers an alarm. TSE works not only with water but also with abrasive, viscous, sticky media and media prone to settling or coating.

TSE DRY-RUNNING PROTECTION DEVICE IN A PUMP



JOINTS: INNOVATIVE DESIGNS.

BENEFITS

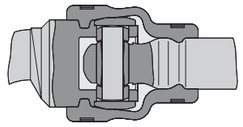
- Three joint types
- The right joint for any application
- Maximum corrosion and wear resistance
- Long service life
- A few components
- Simple assembly
- Hardened and polished components

SEEPEX pumps are used in virtually all areas of industry. As they need to work optimally in many different situations, there are three different types of joint designs to choose from.

PIN JOINT

The standard joint, completely filled with special grease, is hermetically sealed with a flexible universal joint sleeve and two holding bands. An optional universal joint protector also guards against mechanical damage.

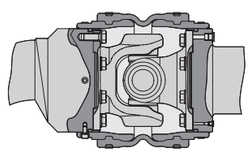
PIN JOINT

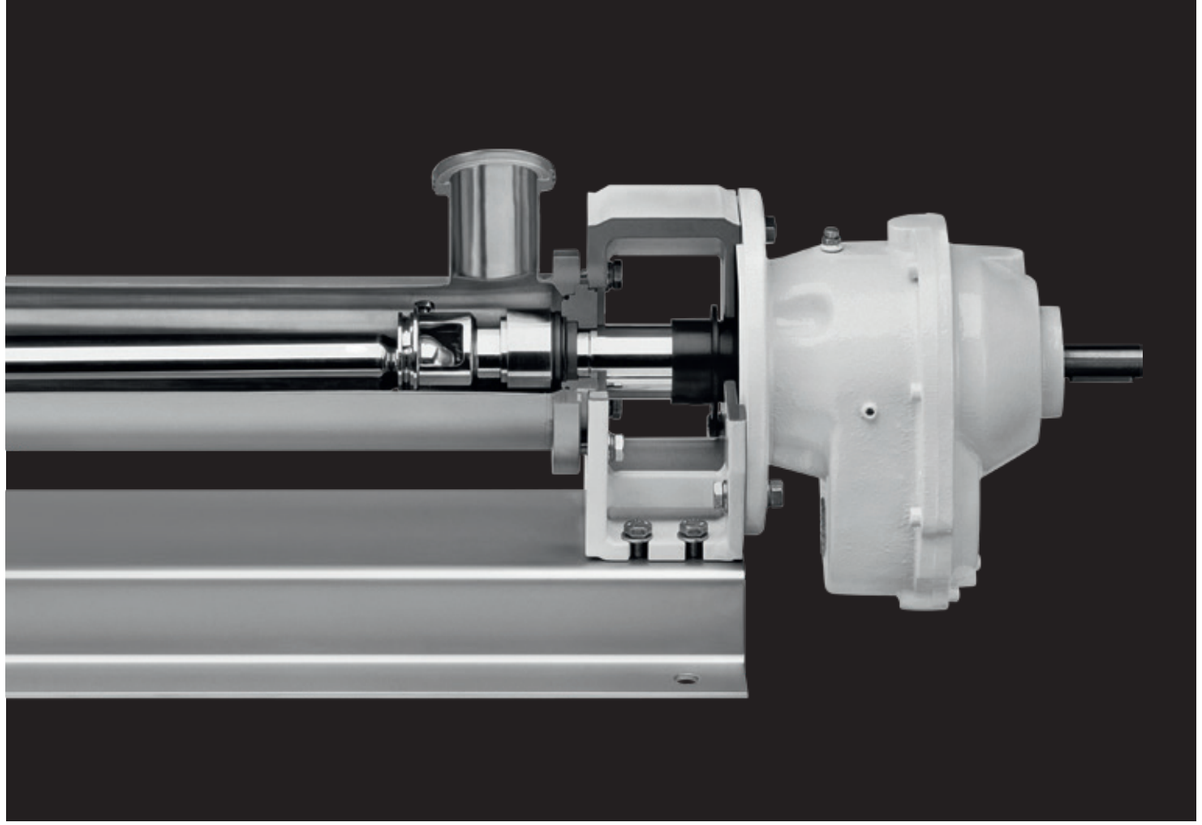


CARDAN JOINT

The cardan joint is used in pumps that operate under heavy load conditions. They are filled with oil and hermetically sealed with a flexible universal joint sleeve and holding bands. An optional universal joint protector also guards against damage from tramp metal or stones.

CARDAN JOINT



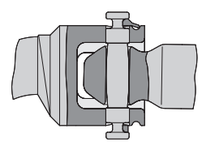


HYGIENIC JOINT

The open barrel-shaped pin joint can be cleaned without leaving residue through CIP cleaning. It was developed for higher pressures and meets the highest demands of cleanliness, safety and corrosion or wear resistance.

Service work can be performed easily and rapidly without the need for special tools. It is built with FDA approved components, certified according to the 3-A Sanitary Standards, USA and designed in compliance with the EHEDG directives.

OPEN HYGIENIC JOINT



ROBUST PIN JOINTS.

BENEFITS

- Fault-free operation
- Easy replacement of components
- Protects against abrasive media
- Optimum protection through complete sealing
- Additional protection due to universal joint sleeve

SEEPEX progressive cavity pumps are equipped with robust pin joints to enable the eccentric motion of the rotor. The hermetically-sealed joint sleeve enables fault-free operation, even with extreme temperatures and abrasive media.

OPTIMUM NPSH VALUE

The joint design is hydrodynamically optimized to avoid turbulence or restrictions at the entrance into the pumping elements.

- Achieves a lower NPSH value (Net Positive Suction Head)
- Larger solids can pass through the pump

REPLACING INDIVIDUAL COMPONENTS

The connecting element, the high-tensile strength coupling rod pin, interacts with a hardened, replaceable bushing. The coupling rod or the guide bushing can be replaced separately.

- The rotor, coupling rod and plug-in shaft don't need to be replaced

FLEXIBLE FULL SEALING

The entire joint, which is filled with special PTFE infused grease, is sealed with a flexible universal joint sleeve. The joint sleeve is fastened to the rotor head, the plug-in shaft head or the drive shaft head and to the coupling rod by means of holding bands.

- Excellent for continuous operation
- Optimally protected against penetration by abrasive media
- Pumped medium is protected against joint grease

JOINT SEAL WITHSTANDS HIGH PRESSURE

High pressure of 3-12 bar (45-175 psi):
In the case of high inlet pressure in the suction casing or in the case of clockwise pumps, an interior sleeve stabilizes the joint sleeves.

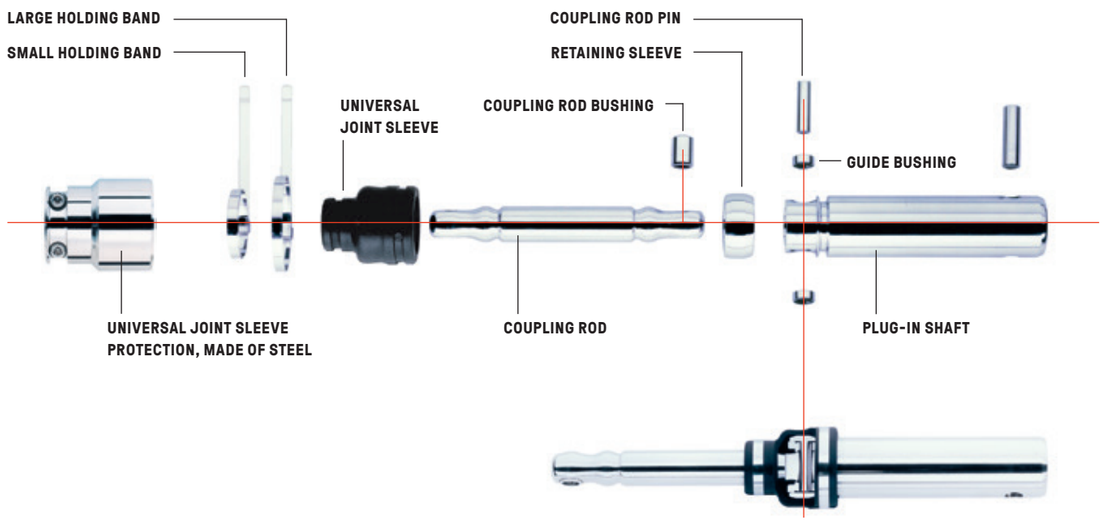
High pressure of 12-24 bar (175-350 psi):
The complete filling of the joint with special grease is ensured by means of additional grease filling fittings in the coupling rod.

- Prevents deformation of the universal joint sleeve from high pressure

ADDITIONAL PROTECTION

A steel universal joint sleeve is also available which offers protection from mechanical damage caused by hard solids such as plastic, wood and metal.

THE PIN JOINT IN DETAIL



PIN JOINT WITH JOINT SEAL, FULLY ASSEMBLED

PLUG-IN SHAFT CONNECTION: TIMESAVING.

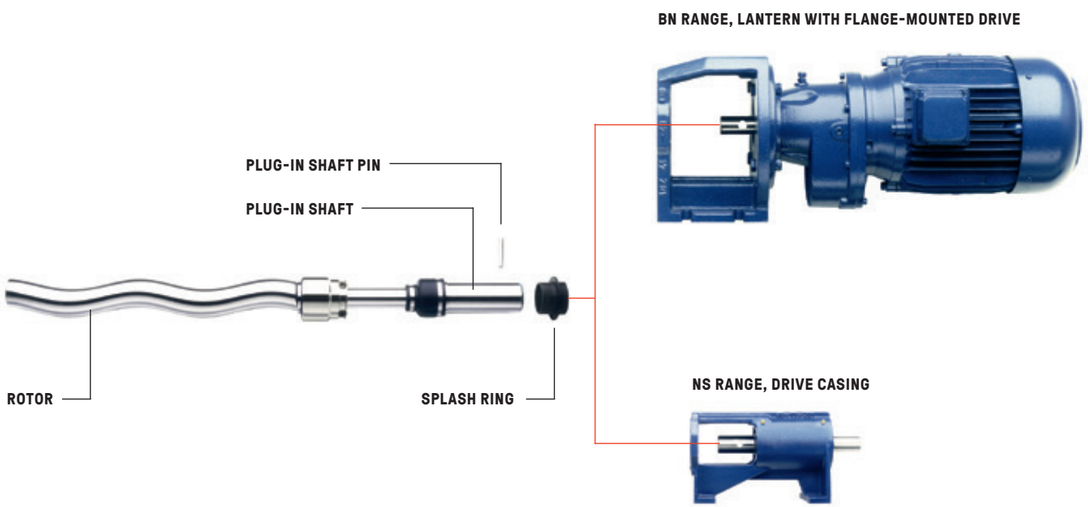
BENEFITS

- Shorter maintenance time
- Fewer downtimes
- Higher productivity

The SEEPEX plug-in shaft connection enables maintenance work to be carried out much quicker and easier. Rotating parts in contact with the product can be removed and replaced as a single ‘cartridge unit’. Simply move the splash ring on the plug-in shaft and push out the plug-in shaft pin.

- Complete rotating unit can be simply removed
- Rotating unit can be supplied as a replacement cartridge unit
- Plug-in shaft acts as a “wear” sleeve
- Bearing housing does not need to be dismantled

PLUG-IN SHAFT CONNECTION



UNIVERSAL APPLICATIONS.

FOOD AND BEVERAGE INDUSTRY

- Milk and dairy industry
- Brewing industry and distilleries
- Fishing industry
- Dough processing and bakeries
- Sugar industry
- Fruit and vegetable processing
- Poultry and meat processing
- Confectionery industry
- Wine industry

ENVIRONMENTAL ENGINEERING

- Wastewater and sludge treatment
- Sludge mixing
- Advanced digestion
- Sludge dewatering
- Sludge drying and incineration
- Metering chemical additives

POTABLE WATER

- Water treatment
- Desalination
- Sludge dewatering
- Chemical metering additives
- Disinfection

RENEWABLE ENERGIES

- Liquid biofuels
- Liquid substrates
- Food waste
- Biogas
- Fermentation products

PULP AND PAPER INDUSTRY

- Stock preparation
- Coating kitchen
- Paper machine
- Supply industry

OIL, GAS AND PETROCHEMICALS

- Multi-phase pumping
- Drilling fluids and drilling waste
- Oil/water separation
- Coal bed methane (CBM)
- Crude oil extraction
- FPSO

ADDITIONAL MARKETS

- Agriculture
- Chemical and biochemical industry
- Mining and mineral processing
- Galvanizing
- Ceramics industry
- Shipbuilding industry
- Drinking water processing
- Construction/stone/earth
- Transportation industry
- Paint and varnish industry
- Wood processing
- Pharmaceutical and cosmetic industry
- Textile industry
- Sludge finishing treatment

SEEPEX IS HERE FOR YOU.

SEEPEX not only delivers the right pump for the specific application – we work with our customers to develop custom-made solutions that work best for each process. With over 40 years of experience in pumping technology and extensive knowledge in various industries, we have the know-how to support you and provide a solution for any fluid handling challenge.

SEEPEX always focuses on the efficiency and productivity of the pumping solution. The cost of installation and commissioning, energy consumption, maintenance and repair, downtime: all of these should be kept as low as possible. Once the pump is delivered our after sales service begins with installation, start up, service during production and potential exchanges at the end of a pump's lifetime. Sometimes we even service a pump for 40 years or longer.

Let's go on this journey together.
SEEPEX. All things flow.

SEEPEX.

ALL THINGS FLOW

SEEPEX GmbH
www.seepex.com

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