

ROTARY LOBE, CIRCUMFERENTIAL PISTON & TWIN SCREW PUMPS

# PACKO

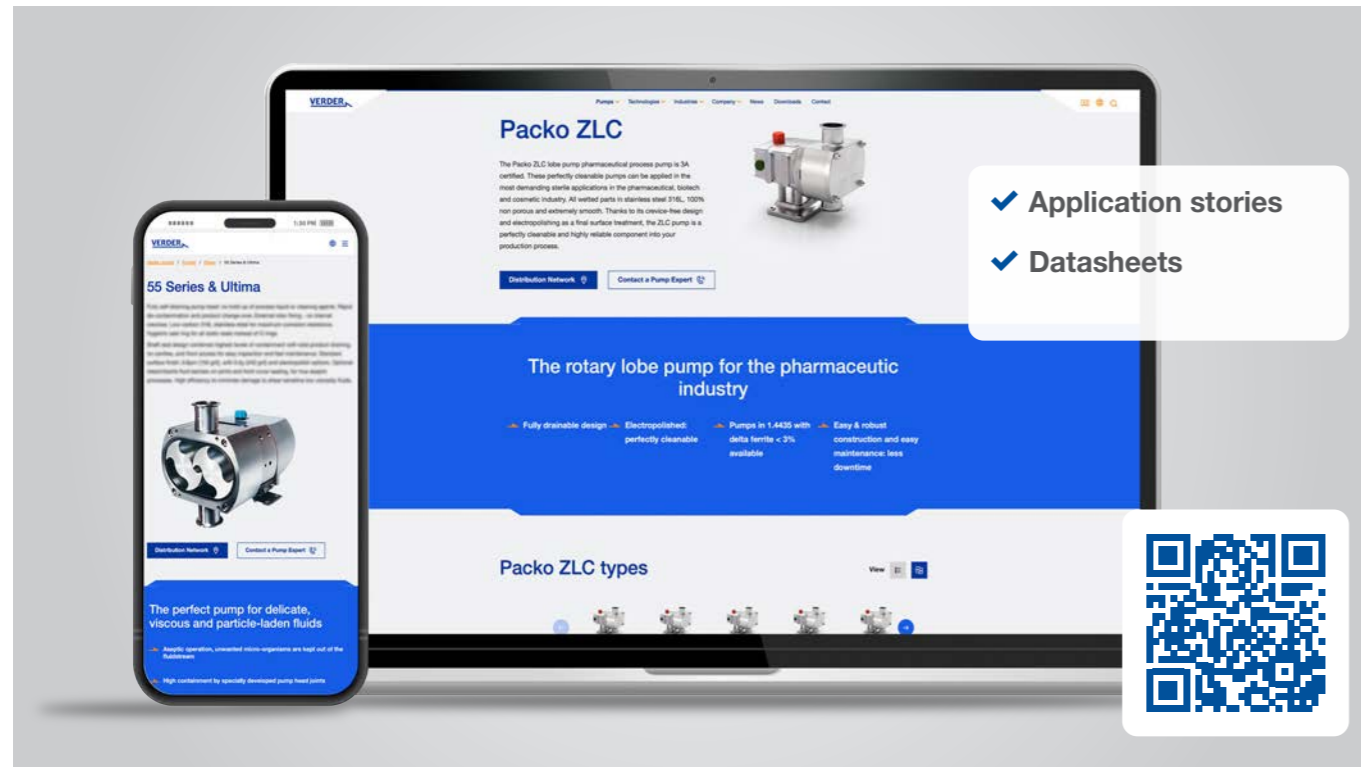
The hygienic pump specialist



- ✓ Large selection
- ✓ Best quality
- ✓ Highest standards

# GET IN TOUCH

With the hygienic pump manufacturer



## Contact VERDER or PACKO

If you would like to know more about PACKO pumps then please visit our website [www.packopumps.com](http://www.packopumps.com) where you will find the full breakdown of our pump range as well as application stories, latest news and technical datasheets and more.

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To provide you with the best possible service PACKO are supported by a distribution network that covers all five continents and is continuing to expand. Our group of distributors includes members of the VERDER GROUP and experienced independent companies. Our worldwide distribution network also help to provide our customers local support and spares availability.

PACKO® is a registered trademark of the VERDER GROUP.

# THE VERDER GROUP

Enabling progress



The VERDER group is a family-owned business formed over 60 years ago in the Netherlands; the group consists of a worldwide network of production and sales offices. Group companies are involved in the development and distribution of industrial and hygienic pump solutions, high-tech equipment for quality control and Research & Development into solid material (solids sample preparation and analytical technologies).

- 1 Company
- 27 Countries
- > 60 Years of expertise
- > 20 Manufacturing companies
- Global network
- Local distributors
- In-house service & maintenance
- A solution for every application
- In-depth knowledge of processes and applications

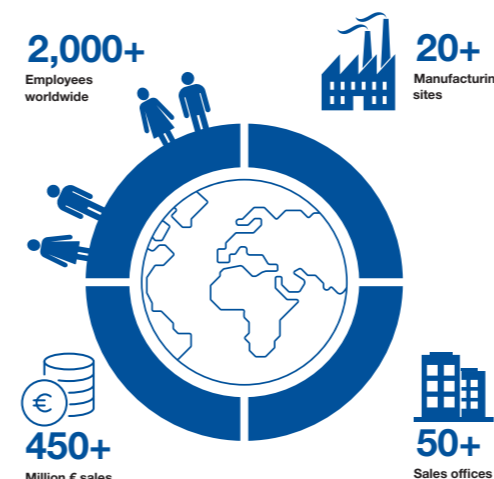
For years, Verder has led in innovation, driving our and our customers' success. Our global network of over 70 sales and manufacturing sites offers personalized sales and technical services, ensuring close customer relationships crucial for providing specific support and building lasting, trusting partnerships.

Verder is dedicated to making a positive impact by aligning with the UN's Sustainable Development Goals (SDGs) through our Environmental, Social, and Governance (ESG) program. Our goal is to lessen our environmental footprint, enhance employee well-being, and uphold ethical practices.

## Inventing to make the world a better place

We leverage our expertise in sample preparation, analytical equipment, and professional pumping to empower our customers. We enable progress by improving their operations, we contribute to safer, more efficient, and sustainable processes, products, and services. Our contributions are pivotal in securing safe food supplies, ensuring responsive healthcare, and safeguarding clean drinking water in millions of households.

As a united family, we embrace our societal responsibilities with passion and a commitment to excellence. Our collective efforts are aimed at fostering a healthier, safer, and more sustainable world for all.

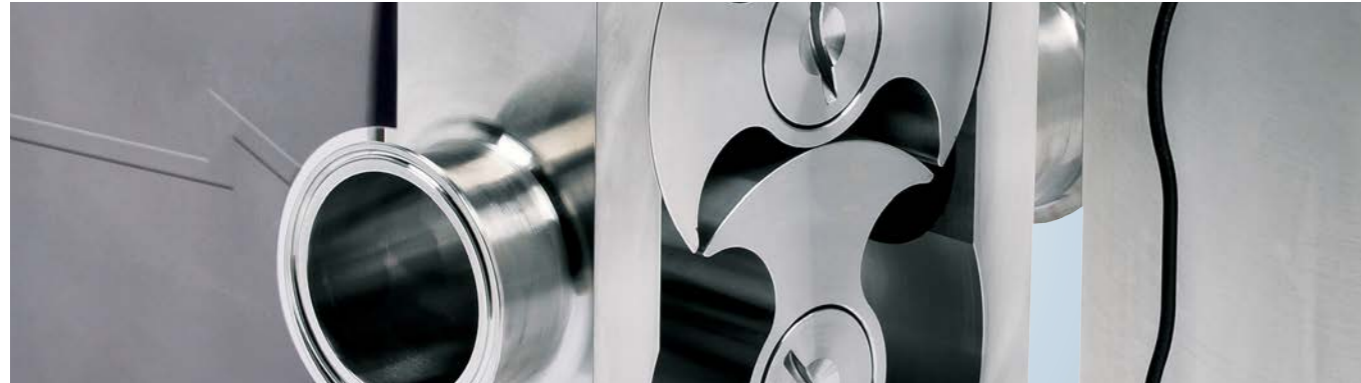


ENABLING PROGRESS.



# PACKO

## Lobe and twin screw pumps



The hygienic pumps from Verder are problem solvers for the hygienic market. We offer a high quality program of hygienic pumps, each having its own special advantages in specific application areas. Most pumps in our hygienic portfolio are manufactured in industrial, food or pharmaceutical versions.

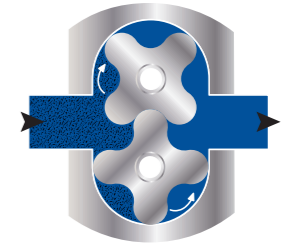


PACKO's range of pumps includes a variety of types, each representing the state of the art in its specific application. The pumps are available in various configurations to suit your specific applications. PACKO's centrifugal, rotary lobe and twin-screw pump cover almost all application in situations where a hygienic pump level is required.

# OPERATION PRINCIPLE

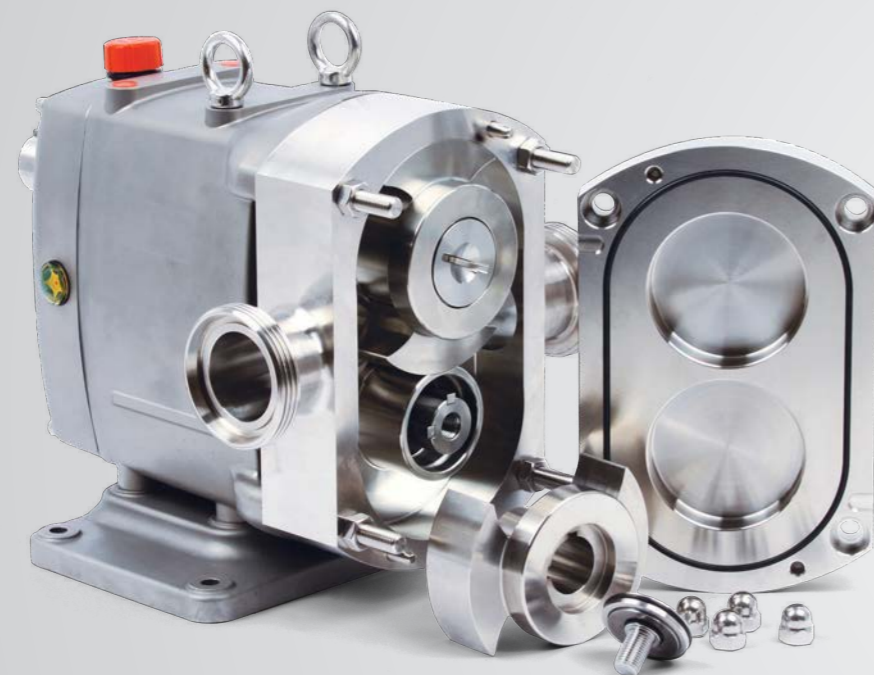
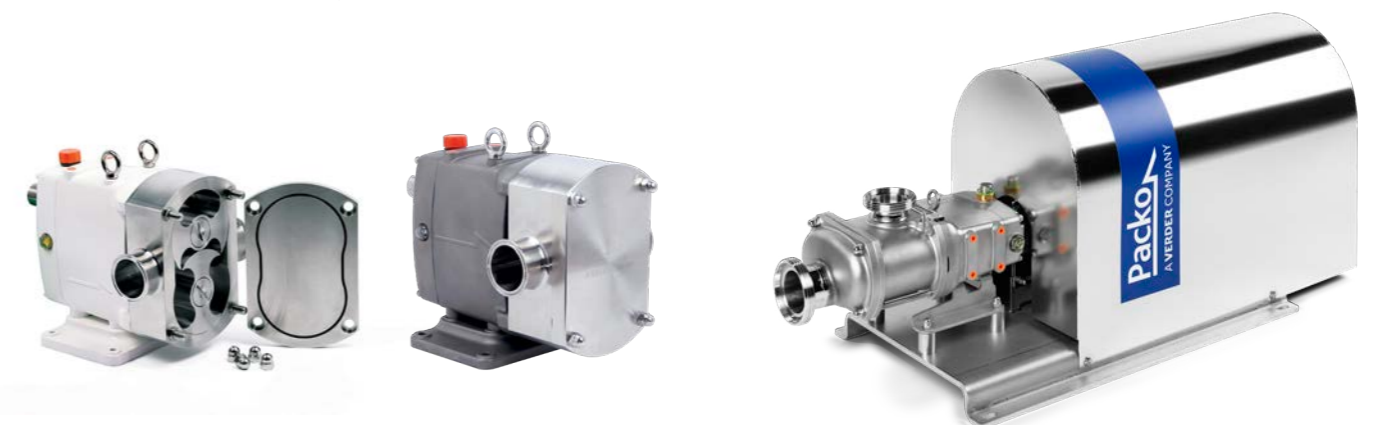
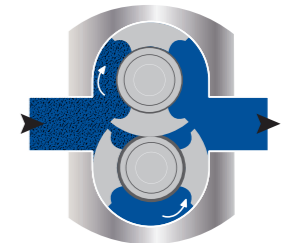
## How does a lobe pump work?

In a rotary lobe pump the inlet pressure transfers the fluid into the void created by the diverging rotor lobes. As the lobes continue to rotate, liquid is trapped within the cavity between the lobes and transported to the discharge side of the pump. The converging lobes displaces fluid into the discharge port creating a pressure differential across the pump head. The fluid is carried between rotor lobe surfaces from inlet to outlet. The rotor surfaces cooperate to provide continuous sealing.



### Circumferential piston pump

Circumferential piston pumps utilise twin or single wing rotors. Manufactured in a special non galling alloy they enable the pump to run with close clearances to optimise efficiency. They can achieve relatively high pressures and are very efficient, even on low viscosity fluids. The circumferential piston pump operates on a similar principle as the rotary lobe pump. The arc shaped rotor wings travel in annular cylinders within the pump head, transporting product from the inlet to the discharge port. The fluid is carried from inlet to outlet in spaces between piston surfaces. There are no sealing contacts between rotor surfaces.



## What are your benefits using a PACKO lobe pump?

### Meets all cleanability processes

- Self draining pump head
- Innovative sealing design with no dead zones
- Modular pump design for easy disassembly for COP (Clean out of place) and CIP (Clean in place)
- Interior surface finish up to 0.4 µm
- Casing profile cusps maximize efficiency and draining capability

### Extended and improved pump life

- Timed non-contacting rotors minimize shear while providing extended run-dry capability
- Helical timing gears provide high torque and quieter operation for extended pump life
- Tapered roller bearings provide higher operating speed and better discharge pressures
- Improved volumetric efficiency

### Ease of maintenance

- Fast front loaded seal change while pump is still in-line
- Easy front access shimming for setting rotor clearance
- Removable foot for easier placement

# THE PACKO PROGRAM

## An overview



### PACKO ZS SERIES

- Twin screw pump
- High energy efficiency
  - Integrated gear adapter
  - 2-in-1 and careful operation
  - Perfect for CIP and SIP

Max. flow	100 m³/h
Max. pressure	12 bar



### PACKO ZL SERIES

- Rotary lobe pump
- High grade 0.6 µ Ra surface finish
  - Suitable for Cleaning In Place (CIP)
  - Wetted parts are made of SS 316L.

Max. flow	100 m³/h
Max. pressure	20 bar



### PACKO ZLC SERIES

- Pharmaceutical lobe pump
- Fully drainable design
  - Different Rotor types available
  - FDA and USP certified seals

Max. flow	100 m³/h
Max. pressure	20 bar



### PACKO ZW SERIES

- Rotary lobe wine pump
- Heli-lobe rotors are standard, optionally bi-lobe
  - Standard stainless steel gear box
  - Specially designed triple lip seal

Max. flow	68 m³/h
Max. pressure	15 bar



### PACKO ZP

- Circumferential piston pump
- In piping during seal replacement
  - Rotors can be changed without timing.
  - Heating jackets for casing and front cover

Max. flow	42.5 m³/h
Max. pressure	15 bar

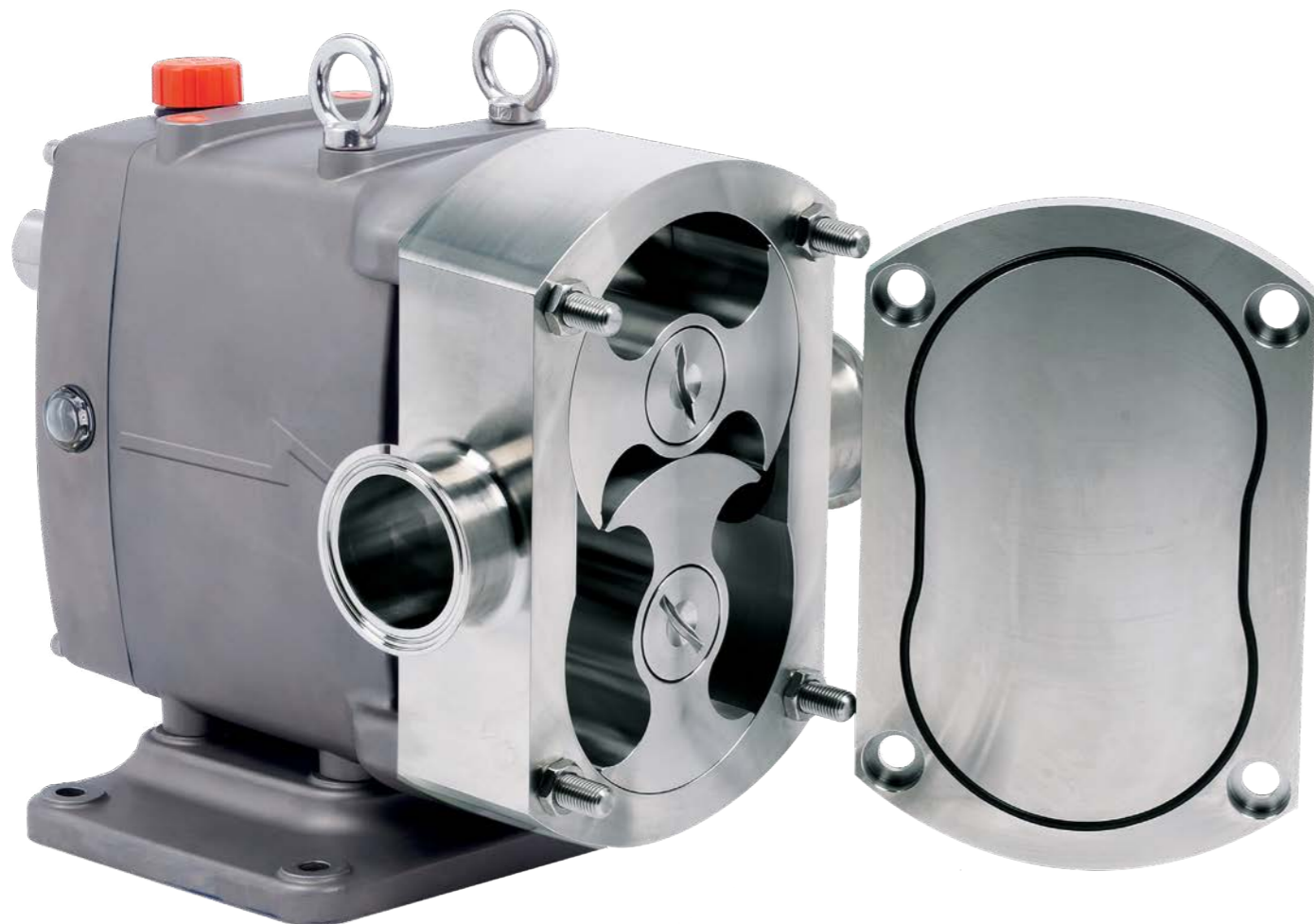


# PACKO ROTARY LOBE PUMPS

State of the art



PACKO's range of rotary lobe pumps includes a variety of types, each representing the state of the art in its specific application. The pumps are available in various configurations to suit your specific applications.



# PACKO ROTARY LOBE PUMPS

All the advantages at a glance

## Unique sealing concept

Front-accessible seals allow for faster maintenance, easier cleaning and shorter downtime. All sealing options, such as O-ring seals, PTFE lip seals, flushed seals, are designed for quick and easy conversion

## Optimised cleaning

Short flushing paths enable perfect CIP results.

## Range of rotors & connections

The wide range of rotor types and connections makes it possible to achieve a perfect fit for the application.

## Stainless steel gear housing

As an option, the gear housing can be made from precision-cast stainless steel, providing a paint-free, rust-free surface with long durability and thus increasing quality and service life.

## Helical spur gearing

The high-precision helical gearing drives the rotors smoothly, even at high speeds and pressures, thus reducing vibrations and increasing both efficiency and seal service life.

## Standard: 0,6 µm Ra & Stainless steel 316L

All parts in contact with fluids are made of 316L stainless steel and have a surface quality of Ra <0.6 µm or better. This meets the requirements of EHEDG, GMP and 3A.

## Pharma design available

Developed especially for applications in the pharmaceutical industry. Parts in contact with fluids are made of 316L stainless steel (optionally 1.4435), have a surface roughness of Ra <0.4 µm and are electropolished. Certificates (e.g. FDA, USP class VI, etc) are available.

# PACKO ZL SERIES

## Rotary lobe pump



The ZL series has been developed for a wide range of applications such as dairy products, food, beverages, pharmaceuticals, cosmetics, pasta products, detergent, alcohols, the chemical industry and semiconductor manufacturing, etc. It is especially suitable for pumping liquids in the low to high-viscosity range as well as maintaining smooth flow rates.

### The features and benefits of the ZL series

- With a high-quality 0.6 µm surface finish and a unique seal and housing design, the ZL series is suitable for CIP and offers exceptional levels of hygiene.
- Parts in contact with fluids are made of 316L stainless steel.
- A variety of sealing options, such as mechanical seals, O-ring seals and lip seals, enable perfect adaptation to your applications.
- Optimal CIP results are ensured by the O-ring positioning, which minimises the dead space between the housing cover and pump housing.
- The wide selection of PACKO rotors (single-wing, bi-wing, tri-lobe, multilobe, heli-lobe and gear) makes it possible to attain the highest level of economic operating efficiency.
- A variety of connection options are available, including SMS, RJT, DIN, ISO, tri-clamp and flanges.

### Technical details

Max. displacement	3.34 l/rev
Max. pressure	20 bar
Max. connection	125
Max. speed	1000 rpm



### Pumps with heat jacket

Designed for products that require temperature control, such as sugar solutions, chocolate, syrup and brewer's yeast. Available for pump head cover and housing.



### Rectangular inlet

An extended rectangular inlet makes it possible to pump highly viscous fluids such as semi-solid pastes or mixtures with semi-solid particles.



### Relief valve

The relief valve protects the system against pressure spikes by opening a connection from the pressure side to the inlet side.





# PACKO ZW SERIES

Rotary lobe wine pump



✓ Great flexibility thanks to many tube options

✓ Industrialized versions for demanding applications

✓ Quick and easy tube changeovers

✓ Multiple heads pump options

The ZW series is especially designed for winemaking, intended to provide the winemaker with the best wine quality and maximum efficiency.

#### Technical details

Max. displacement	1,44 l/rev
Max. pressure	6 bar
Max. connection	100 mm
Max. speed	1000 rpm

#### The features and benefits of the ZW series

- The pump's EPDM rotors prevent it from being blocked by grape skins, pips or stems.
- Screw-shaped rotors are standard.
- The optional precision-cast stainless-steel gear housing offers a paint-free, rust-free surface with lengthy service life.
- Specially designed triple-lip seals enable faster maintenance, reliable sealing and increased seal service life.
- The ZW series is equipped with front-accessible seals certified to 3A standards.
- A variety of connection options are available, including SMS, RJT, DIN, ISO, Tri-Clamp and flanges.



# PACKO ZLC SERIES

Rotary lobe pharmaceutical pump



The new ZLC series has been especially designed for applications in the pharmaceutical industry.

#### Technical details

Max. displacement	3,34 l/rev
Max. pressure	20 bar
Max. connection	125 mm
Max. speed	1000 rpm

#### The features and benefits of the ZLC series

- All parts in contact with fluids are made of 316L stainless steel (optionally 1.4435), have surface roughness of Ra <math><0.4 \mu\text{m}</math> and are electropolished to meet the stringent requirements of the industry.
- The specially adapted pump head, in combination with its vertical alignment, facilitates complete re-sidual drainage.
- All current certificates applicable to the pharmaceutical industry are obtainable (e.g. FDA, USP class VI, material certificate 3.1, etc.).
- The wide range of rotor types and connections makes it possible to achieve the perfect fit for the application.

✓ All certificates applicable

✓ Special adapted pump head

✓ Wide range of rotor types



# PACKO ZP SERIES

Circumferential piston pump



PACKO's new ZP series has been developed on the basis of PACKO's proven experience and accumulated knowledge in the field of hygienic pumps. The front-accessible sealing system makes the ZP series CIP-capable and compliant with the strictest hygiene standards.

#### Technical details

Max. displacement	3,34 l/rev
Max. pressure	20 bar
Max. connection	125 mm
Max. speed	1000 rpm

#### The features and benefits of the ZP series

- The ZP series is hydraulically and dimensionally comparable to the Waukesha U2 series.
- The compact sealing system results in a shorter shaft overhang compared to other well-known circumferential piston pump manufacturers. It is a key feature that enables quiet operation, even at high pressure.
- A variety of sealing options allow for rapid adaptation to changing operating conditions, including mechanical seals, lip seals and O-ring seals.
- Two keys on each rotor enable smooth operation at high output pressure or external vibration.
- The oil-bath lubrication is more efficient than grease lubrication.
- A variety of connection options are available, including SMS, RJT, DIN, ISO, Tri-Clamp and flanges.
- A heating jacket is available for the front housing cover and pump housing.



# WHAT MAKES THE ZP SPECIAL

All the advantages at a glance

#### Non-Galling stainless steel rotor

Rotors are made from nickel-based 'non-corrosive' non-galling stainless steel. The narrow gap dimensions together with the rotor geometry ensure a long sealing distance between the pump inlet and outlet. This results in low slip (optional: stainless steel rotors).

#### Optimised cleaning

The front-accessible seals allow for better cleanability. In addition, they can also be replaced without having to dismantle the housing, thus reducing downtime.

#### Easy adjustment

Compared to other major circumferential piston pump manufacturers, the dimensioning of the piston clearance, which is adjusted by means of stainless steel discs between the gear and housing, can be carried out effortlessly.

#### Stainless steel gear housing

As an option, the gear housing can be made from precision-cast stainless providing a paint-free, rust-free surface with long durability and thereby increasing quality and service life.

#### Helical spur gearing

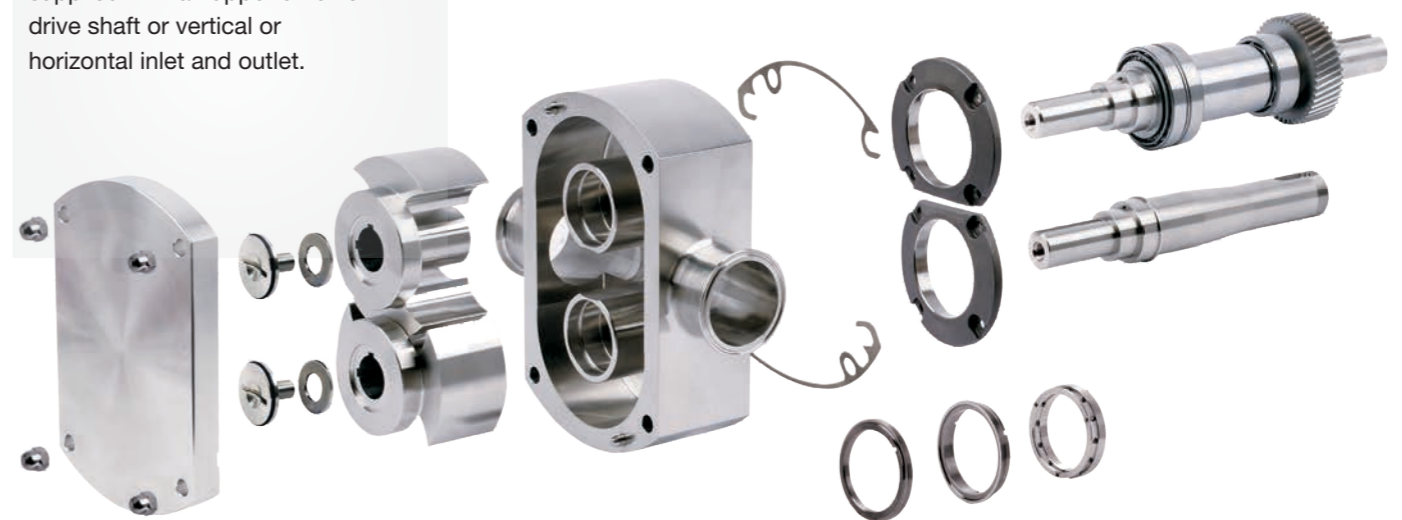
The high-precision gearing with helical spurs drives rotors smoothly even at high speeds and pressures, thus reducing vibrations and increasing both pump efficiency and seal service life.

#### 0,6 µm Ra & SS 316L Standard

All parts in contact with fluids are made of 316 L stainless steel and possess a surface quality of Ra <0.6 µm or better, thus complying with the requirements of EHEDG, GMP and 3A.

#### Versatile mounting options

For maximum flexibility during installation, the pump can be supplied with an upper or lower drive shaft or vertical or horizontal inlet and outlet.





# PACKO ZS SERIES

Twin screw pumps



- ✓ Optimised housing
- ✓ Quick and easy maintenance
- ✓ High energy efficiency
- ✓ Integrated gear adapter
- ✓ 2-in-1 and careful operation
- ✓ Perfect for CIP and SIP

PACKO's ZS twin screw pumps are the result of years of experience with hygienic processes as well as the lobe and centrifugal pumps used in them. For this reason, these pumps have a unique design that offers a number of advantages over conventional twin screw pumps. PACKO has combined its lengthy experience in rotary lobe and centrifugal pumps to develop a range of twin screw pumps, which combine the benefits of both products.

#### Technical details

Max. displacement	0,83 l/rev
Max. pressure	12 bar
Max. connection	76x63 mm / 100x76 mm
Max. speed	3000 rpm

#### The features and benefits of the ZS series

- The ZS series pumps are designed for a wide variety of hygienic pumping applications in the food, dairy, beverage, cosmetics, pharmaceutical and chemical industries.
- 2-in-1 operation: watery and high-viscosity fluids (up to 1,000,000 mPas), up to 3000 rpm (e.g. for CIP), up to 16 bar max. differential pressure
- The unique design (housing with large radii) prevents dead spaces on the pressure side, thus ensuring smoother flow rates and better cleanability.
- More compact than conventional pumps due to the special shaft sealing system which ensures quick and easy maintenance.
- Reduced heat development at high speeds thanks to double angular ball bearings.
- Fully certified to 3A standards; excellent CIP/SIP characteristics.
- The screw is diffusion hardened as standard for better wear resistance and an increased service life.



# UNIQUE, SMART, INNOVATIVE!

All the advantages at a glance

#### Optimised housing

The housing has large radii, which means that there are no dead spaces at the pump outlet. This greatly benefits both operation (smoother flow rates) and cleaning.

#### Quick and easy maintenance

The sealing system allows seals to be changed from the front without having to remove the pump from the system. The design enables faster and easier maintenance.

#### High energy efficiency

The ZS gear assembly contains double angular ball bearings, which allow high speeds with lower heat development. This design is already used successfully in our rotary lobe pumps.

#### Integrated gear adapter

We offer an optional version consisting of an integrated gear adapter, which is directly coupled to a 4-pole IEC motor, type B5. The size and higher efficiency of the 4-pole motor offer an extremely compact and cost-effective solution.

#### 2-in-1 and careful operation

The wide speed range of these pumps provides a high degree of flexibility, allowing process tasks and CIP tasks to be realised with the same pump. Pulsation free pumping ensures gentle operation.

#### Perfect for CIP and SIP

The ZS series is fully certified to 3A standards and has excellent CIP and SIP characteristics.












# ROTOR OPTIONS

Which one should you choose?

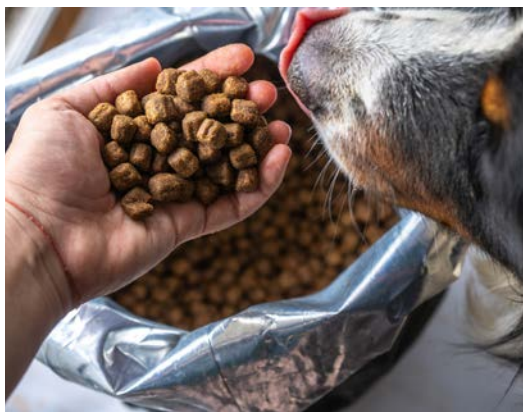
The large selection of rotor types makes it possible to find the perfect fit for your application.

	Low pulsation	NPSH	Solids	CIP pump	Low noise	Pressure
<b>Bi-Wing/Single-Wing</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Tri Lobe</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Multi Lobe</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Heli Lobe</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Rubber Heli-Lobe</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Bi-Wing Piston</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
<b>Twin Screw</b> 	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■

■ ■ ■ ■ Excellent 
 ■ ■ ■ ■ Very good 
 ■ ■ ■ ■ Good 
 ■ ■ ■ ■ Satisfactory







VERDER LIQUIDS

# The leading pump manufacturer

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passion for pumps

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