

# CHEMSPIN

Twin screw pumps

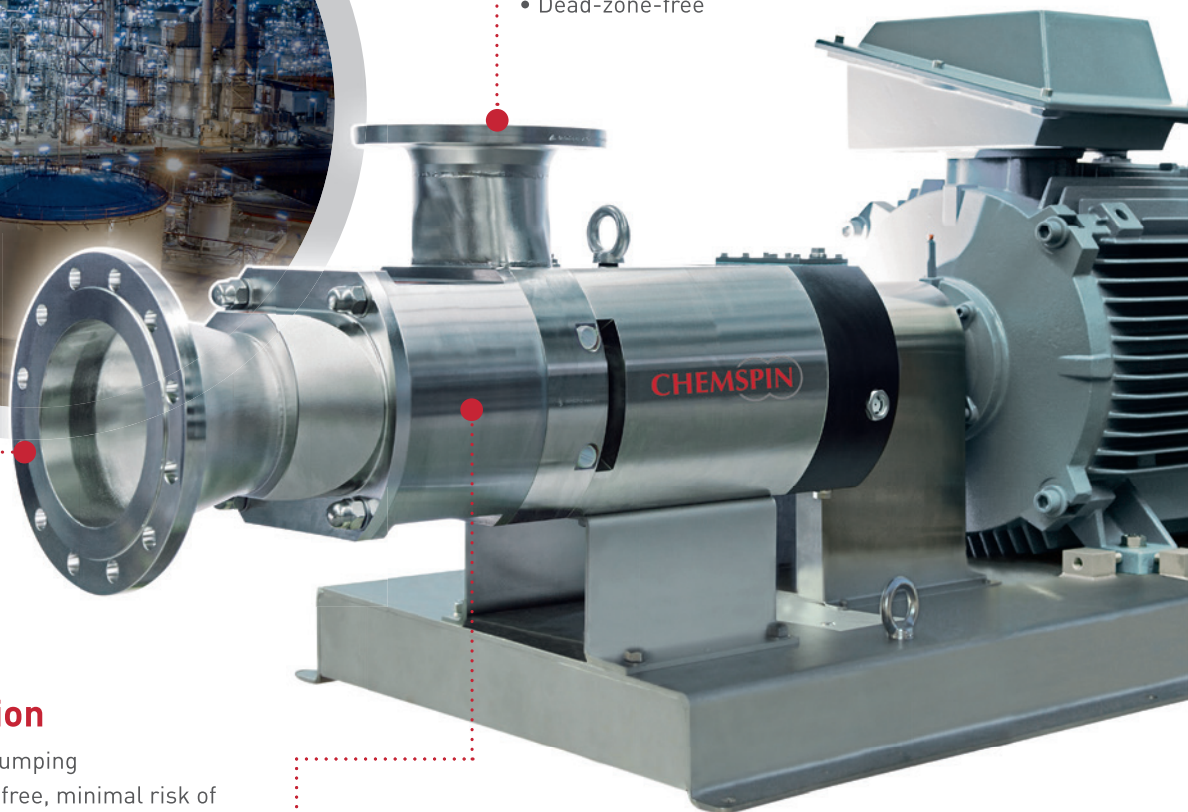
## Universal uses – maximum flexibility:

Safe pumping of different products with only  
one pump!



### Versatility

- Very large flow and viscosity range
- Self-priming, pumping of gas-laden media
- Excellent wear resistance
- Simple batch change
- Dead-zone-free



### Operation

- Smooth pumping
- Abrasion-free, minimal risk of cavitation
- Dry-run-safe with a suitable shaft seal

### Flexible design

- Various connection configurations
- INLINE vertical and horizontal
- Vertical installation



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universal · safe · economical

# CHEMSPIN

## Twin screw pumps

### The universal solution for the most diverse fluids

Whether aqueous, highly viscous, lumpy, fibrous, corrosive, abrasive or gas-laden – the CHEMSPIN range of high-grade stainless steel pumps is suitable for media of virtually any consistency, thereby featuring utmost efficiency.

The particularly service-friendly twin screw pump convinces with a very high suction capacity and gentle handling of all products. Self-priming, and able to handle entrained gas, it ensures fast and safe medium transfer. For non-free flowing media, use of the CHEMSPIN ES is recommended.

An important advantage of all CHEMSPIN pump versions is their versatility. They enable the most varied pumping and rinsing operations to be handled by the same pump. Consequently, the range of different pumps within a plant is greatly reduced. There are no additional investments, and maintenance costs are cut dramatically.

**This combination of features is unique. As a positive displacement pump, the CHEMSPIN is also suitable for high viscosities. Hereby, pump throughput is not pulsating, but almost as smooth as that of a centrifugal pump. Suction capability and the multi-phase ability are comparable with those of a side channel pump – the CHEMSPIN can also pump media with solids content.**

The CHEMSPIN has a modular design and is available in all sizes – with free shaft end in sizes 70, 90 and 125. Delivery pressure is up to 35 bar with single-flow, and up to 50 bar with double-flow pumps.

### CHEMSPIN – one twin screw pump for many applications

CHEMSPIN twin screw pumps are used for the most diverse applications and deliver the best possible results:

- **Adhesives**  
Polymer discharge, low cavitation risk, avoidance of product residue
- **Car underbody protection**  
Sensitive ingredients are not damaged
- **Tank plants**  
Low cavitation risk, fast unloading and transfer processes, excellent flexibility for different products, product change without cross-contamination
- **Paints and lacquers**  
Sensitive pigments are not damaged, residue-free batch change
- **Cleaning agents**  
No product foaming

And in many other industries in which products with different levels of viscosity need to be handled.



### The benefits

- Very high flexibility**  
 A wide variety of products and a broad range of volumes and viscosities can be covered with just one pump. Reverse pumping is possible, significant reduction of variance of pumps within a plant.
- Safe operation**  
 Loaded, abrasive or lumpy media can be pumped, with a suitable shaft-seal dry running safety is given. Very low vibration and noise levels.
- Minimal cavitation risk**  
 The NSPH values of the CHEMSPIN are very low. This applies to the entire operating range, even for operating points against zero flow. Increasing speeds and viscosities only have a minor impact.
- Self-priming, pumping of gas-laden media**  
 Outstandingly suitable for unloading and transfer processes.
- High resistance**  
 CHEMSPIN is manufactured as standard in 1.4404 stainless steel. Hardened pump elements and contact-free operation assures a high wear resistance.
- Low flow speeds**  
 No foaming, no crushing of sensitive components.

- Complete emptying**  
 Its dead-zone-free design ensures ideal suitability for batch changes.
- Top quality, high availability**  
 In-house production "Made in Germany" of all essential components. All media-wetted components have 3.1. certification as standard.

- Pump outlet / pump inlet**
  - Reversible operation is possible
  - Axial connection at the lowest point for complete drainage
  - Different dimensions and standards available

- Product-wetted surfaces**
  - Electropolished for optimum cleaning ( $Ra < 0.8$ )
  - Optional:  $Ra < 0.4$

#### Static seals

- Various elastomers, EPDM, FPM/FKM, HNBR GYLON, FFKM
- Formrings – no dead-zones
- Optional: version with vapour barrier

- Four guide bolts with capped nuts**
  - Fast assembly/dismantling for inspection and/or manual cleaning
  - Guide bolts for damage-free component handling

#### Feed screws

- Rotors fully balanced by geometry, contact-free operation, product lubrication not required
- Speed control from 5 to 130 Hz
- Product handling and rising with a single pump
- Excellent suction characteristics and low NPSHr values
- Axial pumping, gentle on the product
- Pumping of lumpy products
- Pumping of gas-laden media
- Hardened surfaces with high wear resistance

#### Pump outlet / pump inlet

- Reversible operation is possible
- Different dimensions and standards available

#### Bearing support

- Stainless steel design with high-performance bearing
- Very low heat transfer to the pump housing
- Optional: adaptors for temperature or vibration monitoring

#### Timing gears

- Inspection opening with access to the gearbox
- Adjustment of the flank clearance in place without drainage of the gear oil
- Helical toothing for quiet operation

#### Drive shaft

- Bare shaft end or block design directly connected to the drive

#### Gear housing

- Aluminium with a wear- and acid-resistant coating
- Optional: stainless steel

#### Positioning

- Accurate positioning of the components due to precise manufacture

#### Pump housing

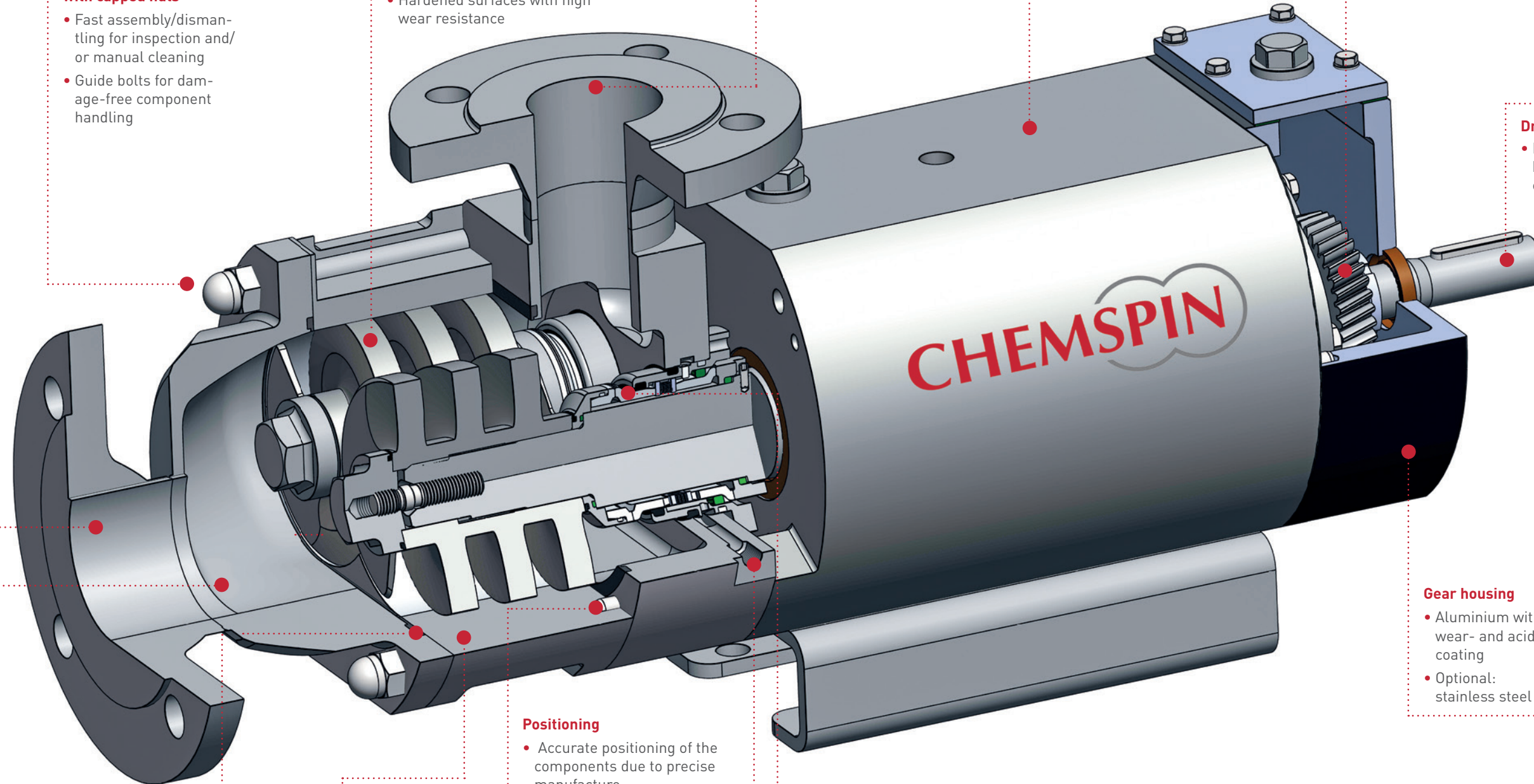
- Optional: hardened surfaces with high wear resistance
- Optional: heating jacket
- Optional: adaptors for temperature or vibration monitoring

#### Connections

- Flushing of the mechanical seal

#### Shaft seal

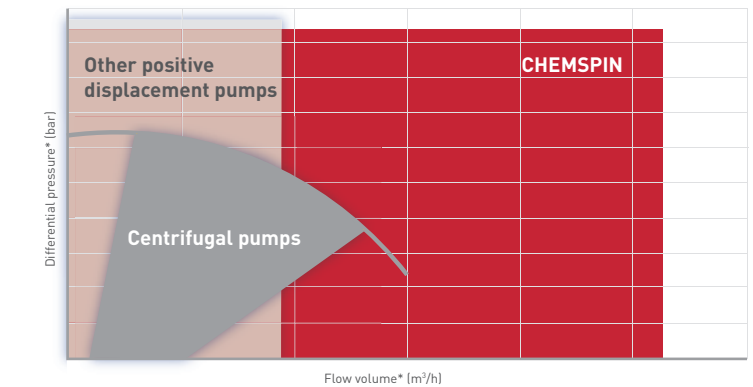
- Identical installation space for:
  - Single-acting mechanical seal
  - Double-acting mechanical seal (safe-to-run dry with flushing)
  - Cartridge-design lip seal (safe-to-run dry without flushing)
- Cartridge design for static parts with integral service-friendly dismantling device
- Fully tight due to double-acting barred mechanical seals



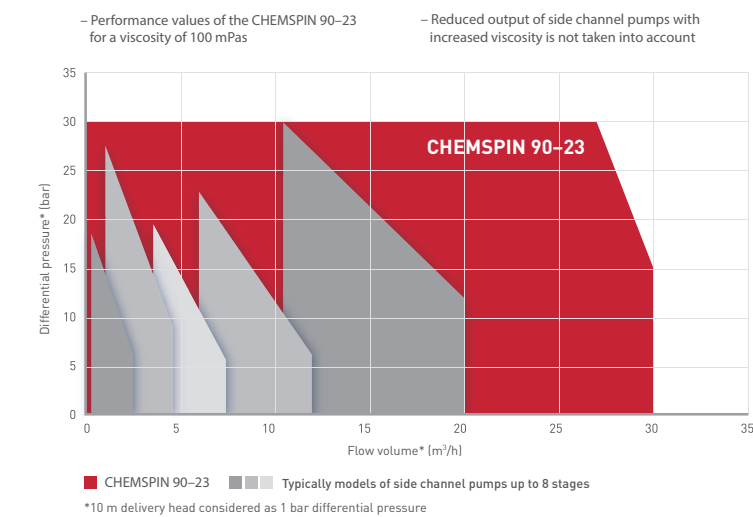
### CHEMSPIN flexibility

Flexibility is the outstanding strength of the CHEMSPIN. It is significantly greater than the one of centrifugal, side channel or other positive displacement pump types. A sole pump can cover the range of an entire series of side channel pumps. Apart from its flow range, its viscosity range is also impressive. The CHEMSPIN is therefore predestined for applications with different system characteristics and complex settings. Advantages also arise in particular for low flow operation. The risk of cavitation does not rise and contact of pumping elements is reliably prevented.

#### Comparison of the CHEMSPIN to other positive displacement and centrifugal pumps



#### Comparison of the CHEMSPIN to side channel pumps

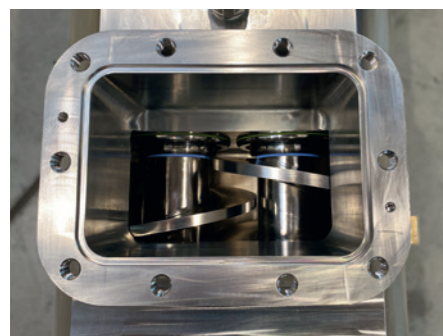


# CHEMSPIN

## Twin screw pumps

### CHEMSPIN ES – the 3-in-1 solution for non-flowable products

The CHEMSPIN ES is a variant of the stainless steel CHEMSPIN pump series. The innovative twin screw pump is able to handle products with a viscosity of up to 5000 Pas with ease. The feed screws are extended towards the inlet, so that they can draw in non-flowable products like an auger feeder. In many cases an external feeder is therefore no longer needed. In addition the product feed is particularly gentle.



The CHEMSPIN ES therefore provides a very attractive 3-in-1 solution: feeding, pumping and rinsing in one component. It is available in sizes 70, 90 and 125.



### 1. Feeding

Extended feed screws assure self-feeding characteristic for non-flowable products, either through an open hopper or through a pipe connection.

### 2. Pumping

Hardened feed screws for gentle axial pumping.

### 3. Rinsing

Its great flexibility ensures that no additional pump is required for rinsing processes.

## Even more benefits

The CHEMSPIN ES provides the general benefits of the CHEMSPIN series plus:

- **Gentle product entry**

Products with sensitive ingredients, such as color pigments, sink gently from above into the pumping chambers. There is no risk of damage from a rotating inlet.

- **Increased safety against cavitation**

The extended feed screws overcome the chamber inflow losses. They act like an inducer on centrifugal pumps. The CHEMSPIN ES is therefore

particularly suitable for critical installations, such as degassers, evaporators or cooking units.

The CHEMSPIN ES can be integrated into systems using pipe connections or with an open hopper.

## CHEMSPIN ATEX



CHEMSPIN twin screw pumps can also be used for ATEX zones 1, 2, 21 and 22. Depending on the pumping temperature, temperature classes T2 to T4 can be achieved. The contact-free pumping principle is advantageous here.

### The ATEX concept consists of the following measures:

- Use of ATEX motors for speed control
- Monitoring of the surface temperatures by sensors on the pump housing and bearing support
- Control of the seal temperatures by a monitored flushing system with double-acting mechanical seals

- Prevention of dry running by monitoring for pumps with single-acting mechanical seals
- Use of ATEX couplings or spark suppression by couplings in the oil bath
- Non-sparking contact protection for base plate units
- Grounding connections for equipotential bonding

With the appropriate shaft seals safe-to-run dry units can be supplied.



## Shaft seals

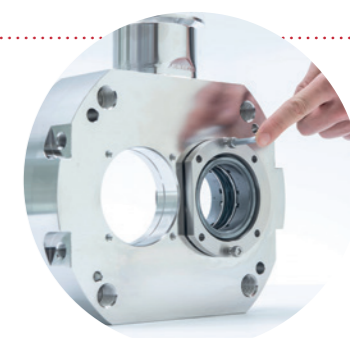
The CHEMSPIN series offers a range of different shaft seals to assure the right choice for your application.

- **Standardised installation space**  
Problem-free conversion of the type of seal\*
- **Cartridge design for the static parts**  
Simple assembly
- **No product contamination**  
Hard/hard combinations on the product side of the mechanical seals – no abrasion into the product

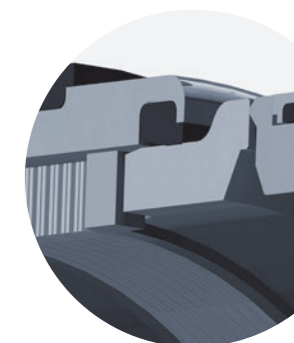
### The following shaft seals type are available, the elastomers are matched to the product.

- **Single-acting unflushed mechanical seals**  
Basic design, no flushing required, no product contamination by the flushing medium

- **Double-acting flushed mechanical seals**  
Excellent operational reliability – due to flushing the pump is safe-to-run dry
- **Double-acting barred mechanical seals**  
Product leak to atmosphere is prevented by pressurisation of the flushing chamber
- **Single-acting unflushed lip seals**  
The safe-to-run dry solution without flushing, particularly suitable for mobile pumps



An integrated pull-off device assures a smooth and safe dismantling of all shaft seals even if there are solidified leakages. Mechanical seals with a knife edge design prevent start up damage from adhesion.



\* Exception: ES design with lip seals



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## Twin screw pumps

### CHEMSPIN INLINE – Connections of your choice

CHEMSPIN twin screw pumps are available with a wide variety of nozzle orientations. INLINE versions with parallel nozzles are available for continuously vertical or horizontal pipelines.

**These versions enable an easy change from rotary lobe pumps or rotary piston pumps to CHEMSPIN twin screw pumps.**

CHEMSPIN twin screw pumps can be installed

- horizontally
- vertically facing upwards or downwards
- laterally on a wall.



#### INLINE horizontal

Connections opposite on one level

#### INLINE vertical

Connections opposite on one level



### Drives

CHEMSPIN twin screw pumps are combined with high-quality drives. The selection is based on the application. The following options are available:

- **Three-phase motors**

The standard version with high flexibility, with forced ventilation or add-on frequency converter if required

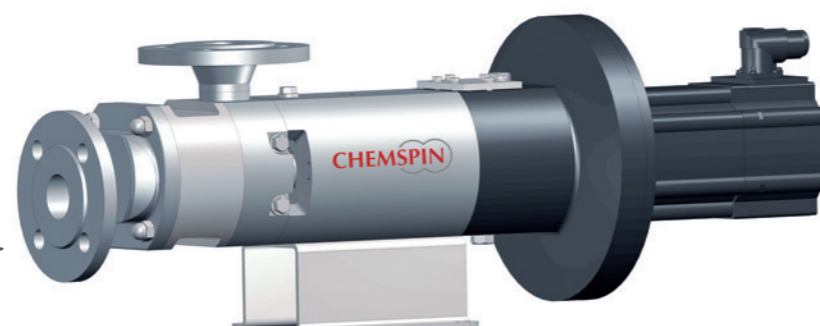
- **Gear motors**

For high torque at low speeds and good controllability

- **Synchronous motors**

Wide speed range and sensitive control with even torque curve, compact and easy to clean

CHEMSPIN with compact synchronous motor



### Technical data

Type	CHEMSPIN 50	CHEMSPIN 70	CHEMSPIN 90	CHEMSPIN 125
Max. pump capacity	20 m <sup>3</sup> /h	40 m <sup>3</sup> /h	100 m <sup>3</sup> /h	300 m <sup>3</sup> /h
Max. pump pressure	20 bar	25 bar	30 bar	35 bar
Max. ø solid material	16 (25) mm	20 (30) mm	28 (45) mm	45 (67) mm
Suction capability	NPSHr > 0.5 m, suction heights of up to 9 m are possible			
Viscosity	0.5–1,000,000 mPas, higher values on request			
Flow temperature	–10 to 180° C, higher values on request			
Rinsing	dead-zone-free design, rinsing can be done in the system			
Heating	by a heating jacket or external ancillary heating systems			
Wetted parts	1.4404, 1.4539 or 1.4462 as an option, other materials on request			
Elastomers	HNBR, FPM, EPDM, FFKM, GYLON, other elastomers on request			
Shaft seals	single- and double-acting mechanical seals, with knife edge for adhesive media to avoid start-up damage, single-acting safe-to-run dry lip seals			
Pump alignment	horizontal, vertical or lateral, INLINE designs are possible			
Connections	different sizes and connection standards on the job			
Designs	compact robust block design for all sizes, with a bare shaft for sizes 70, 90 and 125			
Drives	three-phase, gear or servo motors			

Performance data depending on the pump configuration, temperatures depending on speed, pressure and choice of elastomers

### Accessories / Versions

Numerous options, such as heated pump housings, auger feeders or vibration monitoring systems are available for CHEMSPIN twin screw pumps.

**Many applications have outstanding requirements. They can be provided for by versions of CHEMSPIN twin screw pumps.**

- **Corrosion resistance**

Use of 1.4539, 1.4462 or special materials

- **Mobility**

CHEMSPIN twin screw pumps as mobile units including frequency converter and service switch

- **Tightness requirements**

CHEMSPIN twin screw pumps are technically tight when barrier double-acting mechanical seals are used



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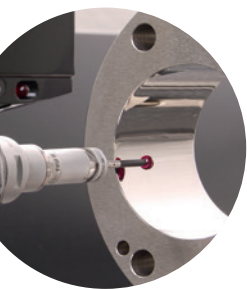


## Jung Process Systems – experience and competence

Jung Process Systems is your specialist for stainless steel twin screw pumps and stands for the highest quality and in-depth expertise in the field of pump technology. The company manufactures twin screw pumps for all requirements and industries, offering comprehensive support worldwide.

All pumps of the CHEMSPIN series are extremely compact, space-saving and maintenance-friendly. They offer high availability with minimal downtimes for maintenance (optimal MTTR ratio).

The proven pumps of the HYGHSPIN series are optimized for hygienic applications. They are based on the principles of hygienic design and thus meet the quality requirements of many industries that work with sensitive raw materials or ingredients. The production facilities offer logistical flexibility with shortened delivery times and a quality management system certified according to ISO 9001:2015.



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