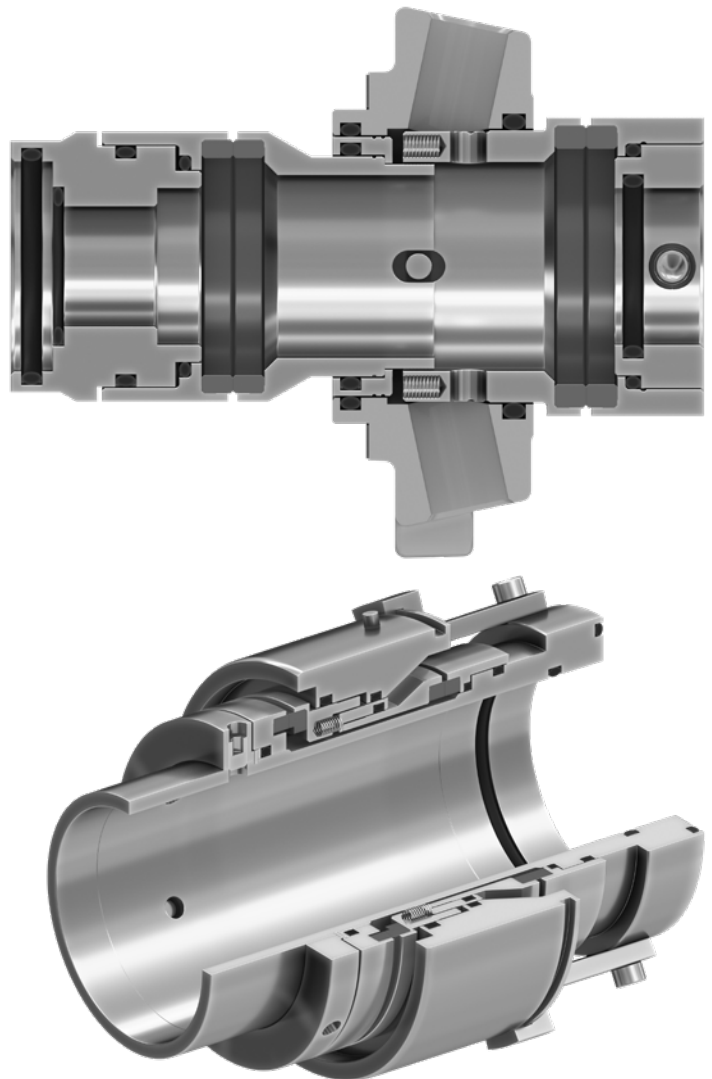


High-performance
seals, sealing water
systems, and dedicated
maintenance services



Did you know your pump seals may be due for replacement?

Maximize performance, minimize downtime

Up to 65% of process pump failures are related to seal issues. To help you avoid unplanned downtime and inefficiencies, Sulzer's robust and cost-effective seals are engineered to perform and endure.

As a trusted manufacturer of high-quality seals and pumps, we understand what matters most to our customers: reliability. That's why we offer an unmatched, all-in-one solution that no other company in the market can provide – combining advanced pump systems, high-performance seals, sealing water systems, and dedicated maintenance services.

With a legacy dating back to the 1830s, when the Sulzer Brothers invented the first gland packaging seals, and over 60 years of expertise in seals for process industry pumps, we bring unrivaled knowledge to every solution we provide.

We excel at creating sealing solutions for our own equipment, ensuring you have availability and performance wherever you need it. Sulzer is your one-stop shop when you want everything to work seamlessly.



Smart sealing solutions for water savings and reduced maintenance

Engineered

to perform and endure.

All-in-one

solution that no other company in the market can provide.

60+

years of sealing expertise, delivering optimal performance and reliability.

Optimal seal solutions for every application

Selecting the correct seal or sealing system is essential for optimal performance. Seals are tailored to specific equipment types, applications, and environmental conditions, including temperature, pressure, and fluid properties. They are crucial for ensuring the efficiency, reliability, and safety of various systems, from pumps to agitators.

Mechanical seals

Mechanical seals prevent the pumped or mixed liquid from entering the atmosphere by utilizing the rotating and stationary components of a seal. These components have sealing faces that slide against each other, forming a thin lubricating film that withstands the pressures and movements of the equipment.

Single mechanical seal

- Features a single pair of seal faces lubricated by the process fluid.
- Suitable for non-aggressive, non-hazardous applications.

Flush single mechanical seal

- Includes a flush connection on the product side to enhance performance.
- The product side of the seal chamber is flushed either with the pumped or clean liquid.
- Removes contaminants, maintains lubrication, and regulates seal temperatures.
- Offers significant cost savings, particularly in harsh or demanding environments.
- Enhances equipment reliability, efficiency, and cost-effectiveness.

Quench single mechanical seal

- Features an external fluid on the atmospheric side to cool seal faces and flush away contaminants, improving performance.
- With the quench feature, the single mechanical seal can be used for more demanding applications, such as handling caustic, crystallizing, or oxidizing fluids.

Double mechanical seal

- Comprises two pairs of seal faces constantly lubricated by an external fluid.
- Ideal for demanding applications where the product cannot lubricate seal faces.
- Often used with a seal system to create a circulation loop for cooling and lubrication, preventing dry running, extending seal life, and saving on sealing fluid consumption.

Gland packing

-
- A sealing technique used in pumps and agitators to prevent leakage by packing flexible, braided material around the shaft and compressing it with a gland.
 - Low initial costs and easy installation without disassembling the pump.
-

Dynamic seals

Dynamic seals are contactless solutions where a traditional seal is replaced by a rotating expeller. This expeller creates a centrifugal force to prevent leakage while rotating, and when stationary, a flexible disc blocks leakage. These seals experience minimal wear due to friction but have higher power consumption compared to traditional seals.

- Suitable for pumping water, clean liquids containing a moderate quantity of solid particles, and stock at standard pumping consistencies.
- Ideal for applications where leakage is unacceptable, and flushing or sealing water cannot contaminate the process.
- Prevents wear on the shaft or shaft sleeve, offering a long lifespan – making it an excellent choice for systems where continuous service is not feasible.

The right seal or sealing system ensures optimal pump performance.

Sealing water systems

By managing the amount and pressure of external sealing water for gland packings, mechanical seals, and flush seals, sealing water systems extend equipment life, reduce maintenance, and improve efficiency by preventing leaks and minimizing wear.

Seals remain lubricated, cool, and free from contaminants.

Thermosiphon SP8 seal pot system

The Thermosiphon SP8, designed for double mechanical seals with a pumping feature, forms a closed-loop system that keeps the seal lubricated and cool, prevents dry runs, and extends seal life.

Compared to external flush setups, Sulzer's SP8 offers substantial savings in sealing liquid and minimizes operating costs.



Seal types engineered for reliability

Single mechanical seals

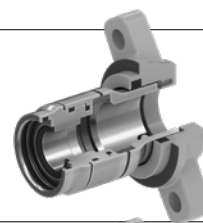
TB seals

Ready-fitted mechanical seal for the seal chamber of a standard gland packing casing cover and for the standard shaft without extra shaft sleeve. Suitable for various pumps such as AHLSTAR process pump types A, APP, NPP, and WPP.

Seals are tailored to specific equipment type and applications.

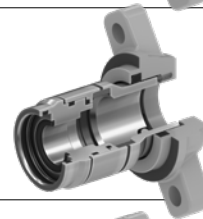
TB1

Single ready-fitted mechanical seal.



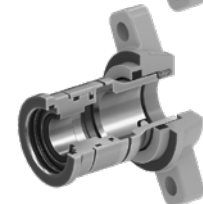
TB1G

Single ready-fitted mechanical seal with a grease option.



TB1F

Single ready-fitted mechanical seal with a flushing feature for higher operating temperatures.

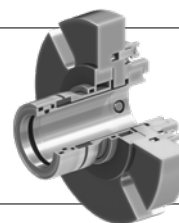


TS seals

Universal cartridge seals for the seal chamber of the standard gland packing casing cover and for the standard shaft sleeve of the gland packing. Once installed, maintains its position and requires no measurements. Locks to the shaft with grub screws while the slide rings rotate with the shaft.

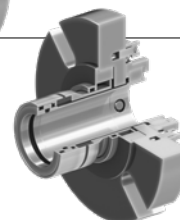
TS1

Cartridge-type general single mechanical seal.



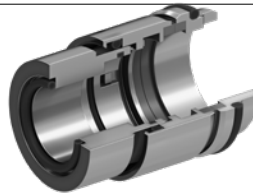
TS1 with flushing

Cartridge-type general single mechanical seal with flushing.



ES seal

Ready-fitted single mechanical element seal for the seal chamber of a standard gland packing casing cover. Suitable for AHLSTAR A, APP, NPP, and WPP pumps used in clean liquid applications in the water, heat generation, paper, pulp, food, and chemical industries.



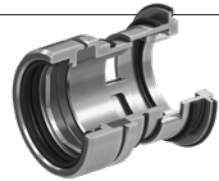
Eliminate leaks, reduce downtime, and optimize performance with Sulzer seals

SNS seals

Fully integrated single seals for the SNS pump. Withstand large pressure fluctuations and pressure shocks.

SNS1

Integrated single mechanical seal for the SNS pump.



SNS1G

Integrated single mechanical seal with grease option for the SNS pump.



SNS1F

Integrated single mechanical seal with a flushing feature for higher operating temperatures.



SAC1 seal

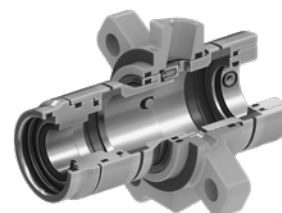
Cartridge-type integrated mechanical seal for SSF agitators. Also suitable for SLN agitators with an additional throttle bushing. Once installed, maintains its position and requires no measurements. The seal body along with its counter rings is fastened to the agitator body by set screws.



Double mechanical seals

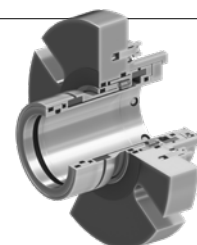
TB2P

Ready-fitted double mechanical seal designed for the seal chamber of a standard gland packing casing cover and for the standard shaft without extra shaft sleeve. Suitable for various pumps such as AHLSTAR process pump types A, APP, NPP, and WPP.



TS2/TS2P

Cartridge-type general double seal. All parts are installed on the stuffing box gland. Once installed, maintains its position and requires no measurements. Locks to the shaft with grub screws while the slide rings rotate with the shaft.



SNS2P

Integrated double mechanical seal with pumping feature for the SNS pump.



SAC2

Cartridge-type integrated mechanical seal for SSF agitators. Also suitable for SLN agitators with an additional throttle bushing. Once installed, maintains its position and requires no measurements. The seal body along with its counter rings is fastened to the agitator body by set screws.



SAC2G

Grease-lubricated cartridge-type integrated mechanical seal for SSF agitators. Also suitable for SLN agitators with an additional throttle bushing. Once installed, maintains its position and requires no measurements. The seal body along with its counter rings is fastened to the agitator body by set screws.



SCC2

Cartridge-type double mechanical seal for the CAHR pump. The seal is suitable for pumps used for environmentally hazardous and abrasive liquids, where the operating limits of single seals are exceeded.



Seal pot systems

The Sulzer Thermosiphon SP8 seal pot system for pressurized and unpressurized double mechanical seal arrangements.

Creates a closed sealing liquid circulation loop with the seal and keeps it lubricated and cooled, prevents dry run and extends the lifetime of the seal. Includes a wide variety of optional features. Suitable for water, glycol-water mixture, and white oil. Similar to API 52 and 53 plans and ANSI 7352 and 7353 plans.



Find the right seal for your equipment

Single mechanical seals

Features and benefits	TB1	TB1G	TB1F	TS1	TS1 with flushing	ES1	SNS	SNS1G	SNS1F	SAC1
Balanced design – undisturbed operation even with sudden pressure shocks.	●	●	●	●	●	●	●	●	●	●
Spring located in the stationary body of the seal – shaft misalignment does not pump up the spring or wear out the O-ring.	●	●	●	●	●		●	●	●	●
SiC/Carbon is a standard option for seal faces. It performs well at the high speeds found in condensate pumps and other high-temperature pumps.	●	●	●	●	●		●	●	●	
Installation against the shaft shoulder – easy installation reduces risk of human error. No measurements required for installation.	●	●	●			●				
Cartridge type seal. Once installed, maintains its position and requires no measurements.				●	●					●
Integrated seal. Once installed, maintains its position and requires no measurements.							●	●	●	
Low maintenance requirements and high reliability.	●	●	●	●	●	●	●	●	●	●
Warranty and after-sales support, including in-house repair services.	●	●	●	●	●	●	●	●	●	●
Technical specifications	TB1	TB1G	TB1F	TS1	TS1 with flushing	ES1	SNS	SNS1G	SNS1F	SAC1
Type	Ready-fitted	Ready-fitted	Ready-fitted	Cartridge	Cartridge	Ready-fitted	Integrated	Integrated	Integrated	Cartridge
Temperature max.	125°C / 257°F	125°C / 257°F	140°C / 284°F	125°C / 257°F	140°C / 284°F	125°C / 257°F	"125°C / 257°F (with flushing 140°C / 284°F)"	125°C / 257°F	125°C / 257°F	140°C / 284°F
Stuffing box pressure max.	25 bar / 362 psi	25 bar / 362 psi	25 bar / 362 psi	25 bar / 362 psi	25 bar / 362 psi	16 bar / 232 psi	16 bar / 232 psi	16 bar / 232 psi	16 bar / 232 psi	16 bar / 232 psi
Speed max.	25 m/s / 82 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s	10 m/s / 33 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s	25 m/s / 82 ft/s
Materials	TB1	TB1G	TB1F	TS1	TS1 with flushing	ES1	SNS	SNS1G	SNS1F	SAC1
Seal faces	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC or SiC/C	SiC/SiC
O-rings	EPDM, FKM	FKM	EPDM, FKM	EPDM, FKM	EPDM, FKM	EPDM, FKM	EPDM, FKM	FKM	EPDM, FKM	EPDM, FKM

Metals	TB1	TB1G	TB1F	TS1	TS1F	ES1	SNS1	SNS1G	SNS1F	SAC1
Austenitic SS	●	●	●	●	●	●				
Duplex Steel	●	●	●	●	●	●	●	●	●	●
Super Duplex Steel	●	●	●	●	●		●	●	●	●
Suitable for	TB1	TB1G	TB1F	TS1	TS1F	ES1	SNS1	SNS1G	SNS1F	SAC1
Clean	●	●	●	●	●	●	●	●	●	●
Slightly contaminated liquids	●	●	●	●	●	●	●	●	●	●
Fibrous slurries (%)	2	2	8	2	8	2	●	●	●	2
Viscous liquids up to (cst)			4'000		4'000					
Non-fibrous slurries up to (%)			70		70				70	
Impeller balancing holes required?	●	●		●		●	●	●		
Compatible with	TB1	TB1G	TB1F	TS1	TS1 with flushing	ES1	SNS	SNS1G	SNS1F	SAC1
AHLSTAR A and APP process pumps	●	●	●			●				
AHLSTAR NPP non-clogging process pump	●	●	●			●				
AHLSTAR WPP wear-resistant process pump	●	●	●			●				
SNS process pump							●	●	●	
Scanpump BE and NB pumps				●	●					
CPE and CPT ANSI process pumps				●	●					
MBN high-pressure pump				●	●					
SSA side-mounted agitator				●	●					
SSF side-mounted agitator										●
SLN side-mounted agitator										●
SSF and SLN side-mounted agitators										●

Double mechanical seals

Features and benefits	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
Balanced design - Undisturbed operation even with sudden pressure shocks.	●	●	●	●	●	
Spring located in the stationary body of the seal - Shaft misalignment does not pump up the spring or wear out the O-ring.	●	●	●	●	●	
Installation against the shaft shoulder - Easy installation reduces risk of human error. No measurements required for installation.	●					
Cartridge type seal. Once installed, maintains its position and requires no measurements.		●		●	●	●
Integrated seal. Once installed, maintains its position and requires no measurements.			●			
Low maintenance requirements and reliable.	●	●	●	●	●	●
Warranty and after sales support.	●	●	●	●	●	●
Technical specifications	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
Temperature max.	180°C / 355°F	180°C / 355°F	180°C / 355°F	180°C / 355°F	70°C / 158°F	180°C / 355°F
Stuffing box pressure max.	25 bar / 362 psi	25 bar / 362 psi	16 bar / 232 psi	16 bar / 232 psi	16 bar / 232 psi	10 bar / 145 psi
Barrier fluid pressure	25 bar / 362 psi	25 bar / 362 psi	16 bar / 232 psi	16 bar / 232 psi	16 bar / 232 psi	10 bar / 145 psi
Speed max.	25 m/s / 82 ft./s	25 m/s / 82 ft./s	25 m/s / 82 ft./s	25 m/s / 82 ft./s	25 m/s / 82 ft./s	25 m/s / 82 ft./s
Materials	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
Seal faces	SiC/SiC- SiC/ SiC SiC/SiC-C/ SiC	SiC/SiC- SiC/ SiC SiC/SiC-C/ SiC	SiC/SiC- SiC/ SiC	SiC/SiC-C/ SiC	SiC/SiC-C/ SiC	TC/TC-C/ SiC, SiC/ SiC-C/SiC
O-rings	EPDM, FKM	EPDM, FKM	EPDM, FKM	EPDM, FKM	FKM	EPDM, FKM, FFKM

Metals	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
Austenitic SS	●	●				●
Duplex Steel	●	●	●	●	●	●
Super Duplex Steel	●	●	●	●	●	●
Suitable for	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
Clean	●	●	●	●	●	●
Slightly contaminated	●	●	●	●	●	●
Fibrous slurries (%)	designed for all consistencies and concentrations of fibrous slurries					
Viscous liquids up to (cst)	4'000	4'000	4'000	4'000	4'000	4'000
Non-fibrous slurries up to (%)	70	70	70	70	70	70
Impeller balancing holes required?				N/A	N/A	
Liquids containing large solids	●	●	●	●	●	●
Compatible with	TB2P	TS2/ TS2P	SNS2P	SAC2	SAC2G	SCC2
AHLSTAR A and APP process pumps	●					
AHLSTAR NPP non-clogging process pump	●					
AHLSTAR WPP wear-resistant process pump	●					
SNS process pump			●			
Scanpump BE and NB pumps		●				
CPE and CPT ANSI process pumps		●				
MBN high-pressure pump		●				
SSA side-mounted agitator		●				
SSF and SLN side-mounted agitators				●	●	
CAHR pump						●

Seal pot systems

Features and benefits

- Suitable for water, glycol-water mixture, and white oil
- Competitive price
- Full stainless steel construction
- No separate stand
- More cooling surface than in competitors' equipment
- Stand of the pot also works as a tank
- Easy and compact installation
- Complete sealing solution with Sulzer seal and Sulzer pot

Technical specifications

Pressure max.	10 bar / 145 psi
Process temperature max.	100°C / 210°F
Sealing liquid temperature max.	70°C / 158°F
Nominal volume	7.5 l / 2 gal

Materials

AISI 304 Stainless steel (EN 1.4301)	●
--------------------------------------	---

Compatible with

Any double mechanical seal with pumping feature	●
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- > Substantial sealing water savings >
- > less drainage lines and pumps >
- > less effluent to be treated >
- energy savings

Keep your seals running smoothly

Mechanical seal service and support

Repairing mechanical seals can be a cost-effective alternative to replacement. At Sulzer, we provide expert maintenance services for all seal brands – not just our own – restoring them to like-new condition. Our high-quality service and quick turnaround times help reduce maintenance costs while ensuring reliable sealing solutions.

We cater to seal sizes ranging from 10 mm to 250 mm.

Service kits

Our convenient service kits simplify maintenance for SNS and TB mechanical seals, allowing you to extend seal life and upgrade parts without replacing the entire seal. Each kit is packaged together for easy access during maintenance.

- SNS Service Kits: Include essential wear parts like O-rings, springs, and retaining rings.
- TB Service Kits: Available in two types – wear parts kit (O-rings, gaskets, springs, set screws) and seal face kit (seal faces with carriers).



Repairing seals
often costs less than
replacing them.



Scan to learn more
about our seal services!

Unlock the full potential of your equipment

With 190 years of engineering expertise and operations in over 160 countries, we stand as your services partner. Sulzer is with you every step of the way from workshop repairs, field services, customer service agreements, and original spare parts to digital services ensuring the continuous quality you initially invested in.

We are your long-term partner in performance.

➤ **Contact us today:**
go.sulzer.com/flow-solution-services



Proper maintenance at your reach

When it comes to process equipment, performance is everything. Pumps need to be in working order at all times. Obtaining optimum working life from your equipment requires regular and efficient servicing. With Sulzer as your partner, you can always get the best out of your process. Our globally available Customer Support Services teams deliver fast, reliable, and innovative solutions during the whole life cycle of your equipment.



Repairs

With our modern equipment and highly skilled personnel at our service centers, we can repair and refurbish even the most demanding equipment back to its original performance. We also offer modernizations that enhance the performance of your equipment or increase its lifetime.



Field services

Our field services cover installation, start-up service, regular inspections, troubleshooting, performance measurements, condition monitoring, and more.



Energy efficiency and decarbonization solutions

With Sulzer at your doorstep, you can improve your competitive advantage and ensure safe operation. Our partnership program offers you customized solutions for your process improvements and future applications.



Original spare parts

Sulzer has a worldwide network of spare part delivery centers to quickly deliver original spare parts from stock or manufacture them promptly based on your order.



Retrofits and reliability upgrades

We offer full service for your process equipment together with spare parts availability for daily maintenance and repairs, process optimization, and know-how as well as complete energy audits.



Customer service agreements

When you need to free your own resources to other valuable tasks or when you want to save money by not keeping spare parts in your own stock, Sulzer offers various service contract options for you.

The Sulzer Flow division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.

The Flow division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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