

MECHANICAL SEAL SUPPORT SYSTEMS

ASSET OPTIMIZATION FOR INCREASED PRODUCTIVITY



Chesterton Mechanical Seal

Chesterton® Mechanical Seal Support Systems are designed to optimize the seal's operating environment in order to increase its reliability and Mean Time Between Repair (MTBR).

The fluid film on which the seal operates is critical to its life expectancy; slurries, hot liquids, crystallizing solutions, and high viscosity and solidifying media often require adequately specified seal support systems in order for the mechanical seal to function correctly. Selecting the correct support system is crucial. The seal and equipment on which the seal support system is being operated should be evaluated.



Support Systems

Single Seals

Single seals operating in harsh processes are most commonly configured to seal flush systems such as Plan 32, Plan 33, or variants thereof, utilizing plant water supplies as a source of clean, cool flush. The plant water line is often connected directly to the seal or stuffing box chamber without adequate controls. Excessive water consumption and/or accidental loss of flush can result in premature failure. Our Flow Guardian™ provides control and indication of flush supply to ensure the mechanical seal is operating in its optimum environment.

Dual Seals

Water Compatible Processes

Dual seals are selected when there is a need to modify the seal's operating environment and/or contain the process media in the event of a fault condition.

Entry level piping plans increase operating costs

Many dual mechanical seals are configured to Plan 62, simply using plant water to cool and lubricate the seal before discharge to the drain. Fluctuating water pressure, poor water quality, and lack of water flow all contribute to reducing the seal's MTBR. Cost is often a reason for reducing the flow of water as the water consumption can be excessive on a plant-wide scale.

Closed Loop - measurable efficiency

The Plan 53P WSS (Water Saving System) connects directly between the plant water line and the mechanical seal, creating a closed circuit of water to cool and lubricate the seal without discharging to the drain. Savings in water consumption compared to an API or Piping Plan 62 configuration can be measured and are significant.

Other Processes

For dual seals operating in processes not compatible with water, we offer two support systems designed to increase dual mechanical seal MTBR.

The BSS (Buffer Support System) provides non-pressurized isolation and support for processes which cannot tolerate product contamination; these are typically food product and fine chemicals. The PSS (Pressurized Support System) provides pressurized isolation and support for processes where a compatible barrier fluid can be utilized to keep the seal faces clean and free from the process media.

For both the BSS and PSS solutions the selected barrier fluid must be of a suitable viscosity to ensure that circulation takes place. Our range of dual cartridge mechanical seals feature internal pumping rings to aid circulation.

TABLE OF CONTENTS

Seal Tank Systems

| | |
|---------------------------------|---|
| Water Saving System..... | 4 |
| Buffer Support System..... | 6 |
| Pressurized Support System..... | 8 |

Support Systems

| | |
|------------------------------------|----|
| Flow Guardian™..... | 10 |
| Intelli-Flow™ HT..... | 11 |
| SpiralTrac™..... | 12 |
| Environmental Control Plans..... | 14 |
| Seal Tank System Configurator..... | 15 |

“Savings in water consumption are significant... and measurable.”

Seal Support Systems for Piping Plans:

- 32
- 33H
- 33S
- 52
- 53A
- 53P
- 54DM

WSS Water Saving System

Plan 53P Automatic Water Support Tank

Easy to install, complete solution with minimal water consumption for reliable operation of dual mechanical seals.

The Chesterton Water Saving System (WSS) is a complete seal support system designed to maintain water barrier pressure and levels without maintenance. Containing all of the equipment required for connection to a dual mechanical seal, the Water Saving System is easy to install.

Water Saving System Configuration

Featuring a pressure regulator, non-return valve, and vent valve, the Water Saving System isolates the dual mechanical seal from fluctuations in plant water supplies, optimizing the seal's operating environment and increasing seal reliability. A flow indicator provides a visual indication of a fault condition in the dual mechanical seal.

The WSS can be enhanced further with a range of pressure and flow switches to alert operators to a fault condition.

The water is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Mechanical Cartridge Seals.

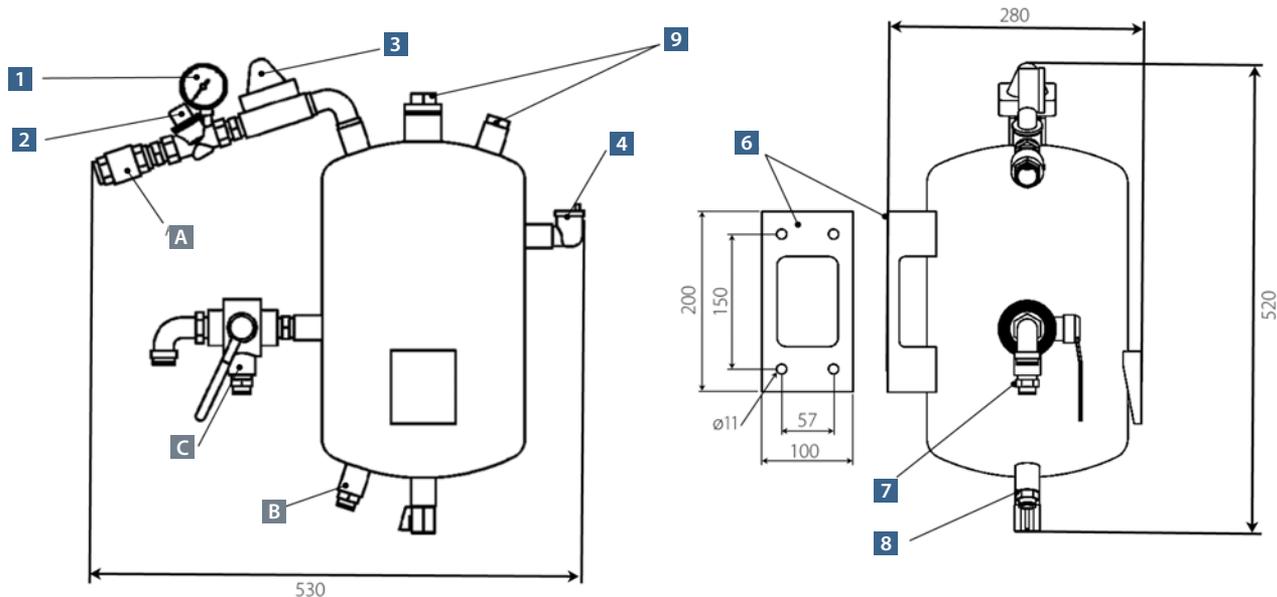
| Technical Data | |
|------------------------------------|---|
| Tank Capacity | 12 l Maximum / 9 l Operating |
| Tank Operating Pressure | 16 bar Maximum |
| Tank Material | 316Ti / 1.4571 |
| Cooling Capacity | 400 W |
| Auxiliary Connection | 1 x R 1" and 1 x R 1/2" |
| Components (Included) | |
| Water Line Connection | Rp 1/2" Female |
| Pressure Gauge | 0-10 bar - Brass |
| Pressure Regulator | 0-10 bar - Brass |
| Flow Indicator | Stainless Steel |
| Drain Valve | R 1/2" - NiCr Plated Brass |
| Hoses | Kit: 1 m and 1.5 m Polyamide 12 mm OD |
| Seal Connections | Kit: 2 x NPT 1/2" S - Straight Push-in Connectors NiCr Plated Brass |
| Applicable Standards and Approvals | PED (97/23/EC) - TÜV |



- Preconfigured system and options, simplified ordering process
- Maintenance-free—automatic level and pressure management
- Minimizes seal support water usage

Recommended Applications

- Chemical industry
- Pharmaceutical industry
- Food and beverage industry
- Pulp and paper industry



All dimensions are in mm

Operating Principle

Water from the plant water line enters the system through the non-return valve.

The pressure of the barrier fluid in the tank can be set via the pressure regulator.

Once at the correct pressure, the plant water line remains connected to automatically top up and maintain the pressure. Water consumption is minimal.

The barrier fluid is circulated to the seal and back to the system by the thermosyphon effect.

Components

- 1 Pressure Gauge
- 2 Pressure Regulator
- 3 Flow Indicator
- 4 Vent Valve
- 6 Mounting Brackets
- 7 3-Way Valve
- 8 Drain Valve
- 9 Auxiliaries Connections

Connections

- A Non-Return Valve (Water Line Connection)
- B To the Mechanical Seal
- C From the Mechanical Seal

| Ordering Codes | | | |
|---------------------|--|------|-------------|
| Type | Description | Code | Item Number |
| Tank | Water Saving System complete with all the Components | WSS | STS-100144 |
| Accessories | | | |
| Filters | In Line Water Filter Assembly complete with Isolation Valves | FA | STS-100096 |
| Tank Stands | Fixed Stand - Stainless Steel | FS | STS-100093 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Carbon Steel | XY | STS-100094 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel | XT | STS-100095 |
| Piping Kits | Stainless Steel Braided Hose Kit 1 x 1 m and 1,2 m with Fittings | BH | STS-100147 |
| | Finned Tube Kit 1 x 1 m with Fittings | FT | STS-100148 |
| Seal Connector Kits | Seal Connector Kit 2 x NPT 1/4" S ⁽¹⁾ - Straight Push-in Connectors NiCr Plated Brass | CSS | STS-100150 |
| | Seal Connector Kit 2 x NPT 3/8" S ⁽¹⁾ - Straight Push-in Connectors NiCr Plated Brass | CMS | STS-100151 |
| | Seal Connector Kit 2 x NPT 1/4" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CSA | STS-100152 |
| | Seal Connector Kit 2 x NPT 3/8" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CMA | STS-100153 |
| Instrumentation | High/Low Pressure Switch for Nonhazardous Area 0-10 bar | PS | STS-100111 |
| | High/Low Pressure Switch EExia, Intrinsically Safe, ATEX Certified | PU | STS-100112 |
| Forced Circulation | Circulation Pump | CP | STS-100091 |

BSS Buffer Support System

Plan 52 Non-Pressurized Tank

Easy to install, complete non-pressurized solution for reliable operation of dual mechanical seals.

The Chesterton Buffer Support System (BSS) for dual mechanical seals is a complete solution for the environmental support of dual mechanical seals where product contamination from support fluid cannot be tolerated.

BSS Configuration

Supplied ready to install the BSS is preconfigured to allow simple connection and non-pressurized support to a dual mechanical seal. A dedicated fill valve allows quick and easy commissioning of the seal and system arrangement.

The BSS can be enhanced further with a complete range of accessories designed for easy configuration and reduced maintenance. ATEX certified instrumentation is also available.

The support fluid is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Mechanical Cartridge Seals.

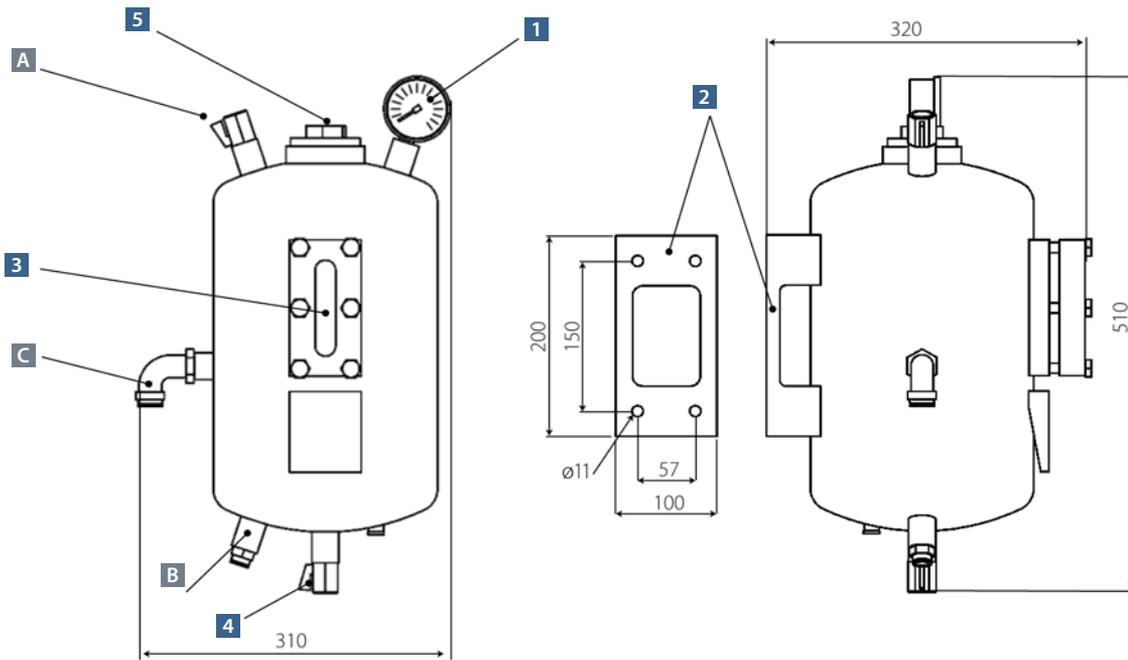
| Technical Data | |
|------------------------------------|--|
| Tank Capacity | 12 l Maximum / 9 l Operating |
| Tank Operating Pressure | 16 bar Maximum |
| Tank Material | 316Ti / 1.4571 |
| Cooling Capacity | 400 W Tank Only 1.5 kW with Cooling Coil 4 kW with Cooling Coil and Circulation Pump |
| Auxiliary Connection | 1 x R 2" and 1 x R 1/8" |
| Components (Included) | |
| Level Gauge | Reflex Sight Glass |
| Fluid Line Connection | Rp 1/2" Female |
| Pressure Gauge | 0-16 bar - Brass |
| Fill Valve | R 1/2" - NiCr Plated Brass |
| Drain Valve | R 1/2" - NiCr Plated Brass |
| Hoses | Kit: 1 m and 1.5 m Polyamide 12 mm OD |
| Seal Connections | Kit: 2 x NPT 1/2" S - Straight Push-in Connectors NiCr Plated Brass |
| Applicable Standards and Approvals | PED (97/23/EC) - TÜV |



- Preconfigured system, simplified ordering
- Simple maintenance of fluid level

Recommended Applications

- Chemical industry
- Pharmaceutical industry
- Food and beverage industry
- Pulp and paper industry



All dimensions are in mm

Operating Principle

Connect the system to the seal and add the support fluid via the fill valve until it is at the required level on the glass.

The support fluid is circulated by thermosyphon effect or the mechanical seal's pumping ring.

Components

- 1** Pressure Gauge
- 2** Mounting Brackets
- 3** Level Gauge
- 4** Drain Valve
- 5** Auxiliary Connections

Connections

- A** Fill/Vent Valve
- B** To the Mechanical Seal
- C** From the Mechanical Seal

| Ordering Codes | | | |
|---------------------|--|------|-------------|
| Type | Description | Code | Item Number |
| Tank | Buffer Support System complete with all the Components | BSS | STS-100142 |
| | Buffer Support System complete with Cooling Coil | BSSC | STS-100143 |
| Accessories | | | |
| Tank Stands | Fixed Stand - Stainless Steel | FS | STS-100093 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Carbon Steel | XY | STS-100094 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel | XT | STS-100095 |
| Piping Kits | Stainless Steel Braided Hose Kit 1 x 1 m and 1,2 m with Fittings | BH | STS-100147 |
| | Finned Tube Kit 1 x 1 m with Fittings | FT | STS-100148 |
| Seal Connector Kits | Seal Connector Kit 2 x NPT 1/4" S ⁽¹⁾ - Straight Push-in Connectors NiCr Plated Brass | CSS | STS-100150 |
| | Seal Connector Kit 2 x NPT 3/8" S ⁽¹⁾ - Straight Push-in Connectors NiCr Plated Brass | CMS | STS-100151 |
| | Seal Connector Kit 2 x NPT 1/4" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CSA | STS-100152 |
| | Seal Connector Kit 2 x NPT 3/8" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CMA | STS-100153 |
| Instrumentation | High/Low Pressure Switch for Nonhazardous Area 0-10 bar | PS | STS-100111 |
| | High/Low Pressure Switch EExia, Intrinsically Safe, ATEX Certified | PU | STS-100112 |
| Forced Circulation | Circulation Pump | CP | STS-100091 |

PSS Pressurized Support System

Plan 53A Standard Tank

Easy to install, complete pressurized solution, for reliable operation of dual mechanical seals.

The Chesterton Pressurized Support System (PSS) for dual mechanical seals is a complete solution for the support of dual mechanical seals where product leakage cannot be tolerated.

Pressurized Support System Configuration

Supplied ready to install, the PSS features a non-return valve, pressure regulator with gauge, and pressure relief valve. A dedicated fill valve allows quick and easy commissioning of the seal and system arrangement.

The PSS can be enhanced further with a complete range of accessories designed for easy configuration and reduced maintenance. ATEX certified level and pressure switches are also available.

The support fluid is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Mechanical Cartridge Seals.

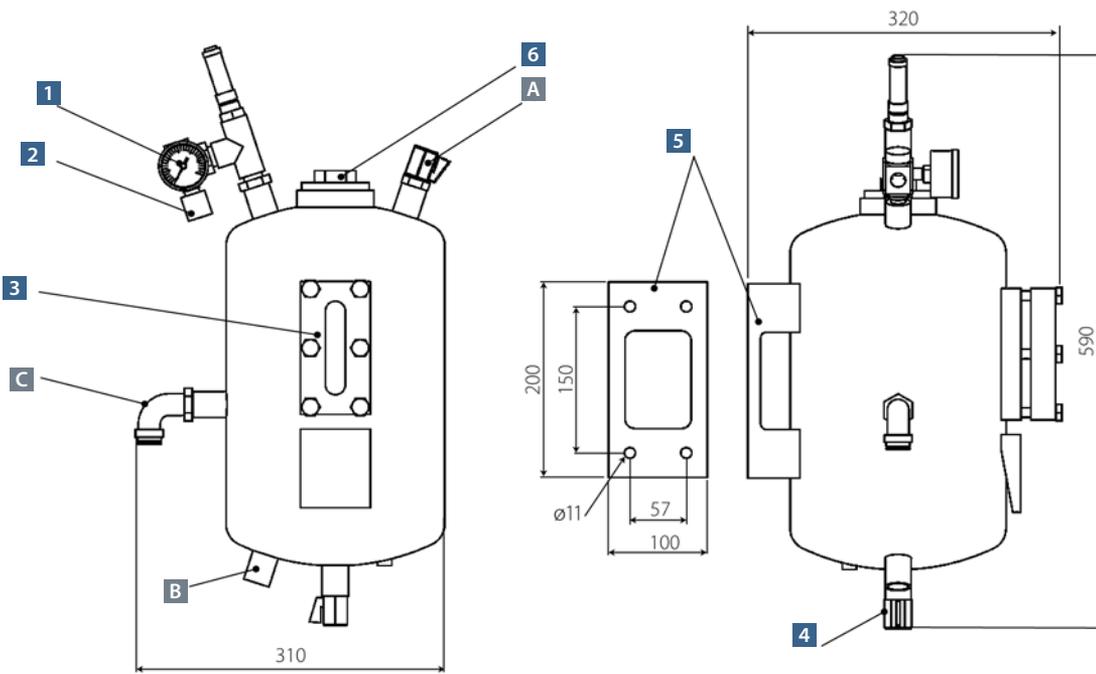
| Technical Data | |
|------------------------------------|--|
| Tank Capacity | 12 l Maximum / 9 l Operating |
| Tank Operating Pressure | 16 bar Maximum |
| Tank Material | 316Ti / 1.4571 |
| Cooling Capacity | 400 W Tank Only 1.5 kW with Cooling Coil 4 kW with Cooling Coil and Circulation Pump |
| Auxiliary Connection | 1 x R 2" and 1 x R 1/8" |
| Components (Included) | |
| Level Gauge | Reflex Sight Glass |
| Fluid Line Connection | Rp 1/2" Female |
| Pressure Regulator | 0-16 bar - Brass |
| Pressure Gauge | 0-16 bar - Brass |
| Fill Valve | R 1/2" - NiCr Plated Brass |
| Drain Valve | R 1/2" - NiCr Plated Brass |
| Hoses | Kit: 1 m and 1.5 m Polyamide 12 mm OD |
| Seal Connections | Kit: 2 x NPT 1/2" S - Straight Push-in Connectors NiCr Plated Brass |
| Applicable Standards and Approvals | PED (97/23/EC) - TÜV |



- Preconfigured system, simplified ordering process
- Simple maintenance of fluid level
- Standard Plan 53A tank

Recommended Applications

- Chemical industry
- Pharmaceutical industry
- Food and beverage industry
- Pulp and paper industry



All dimensions are in mm

Operating Principle

Connect the system to the seal and add the support fluid via the fill valve until it is at the required level on the glass.

Close the fill valve and connect the air or nitrogen supply and adjust the regulator to the required pressure.

The barrier fluid is circulated by thermosyphon effect or the mechanical seal's pumping ring.

Components

- 1 Pressure Gauge
- 2 Pressure Regulator
- 3 Level Gauge
- 4 Drain Valve
- 5 Mounting Brackets
- 6 Auxiliary Connections

Connections

- A Fill/Vent Valve
- B To the Mechanical Seal
- C From the Mechanical Seal

Ordering Codes

| Type | Description | Code | Item Number |
|---------------------|--|------|-------------|
| Tank | Pressurized Support System complete with the Components | PSS | STS-100140 |
| | Pressurized Support System complete with Cooling Coil | PSSC | STS-100141 |
| Accessories | | | |
| Tank Stands | Fixed Stand - Stainless Steel | FS | STS-100093 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Carbon Steel | XY | STS-100094 |
| | Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel | XT | STS-100095 |
| Piping Kits | Stainless Steel Braided Hose Kit 1 x 1 m and 1,2 m with Fittings | BH | STS-100147 |
| | Finned Tube Kit 1 x 1 m with Fittings | FT | STS-100148 |
| Seal Connector Kits | Seal Connector Kit 2 x NPT 1/4" S - Straight Push-in Connectors NiCr Plated Brass | CSS | STS-100150 |
| | Seal Connector Kit 2 x NPT 3/8" S - Straight Push-in Connectors NiCr Plated Brass | CMS | STS-100151 |
| | Seal Connector Kit 2 x NPT 1/4" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CSA | STS-100152 |
| | Seal Connector Kit 2 x NPT 3/8" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | CMA | STS-100153 |
| Instrumentation | Low Level Switch for Nonhazardous Area | LS | STS-100107 |
| | High/Low Level Switch for Nonhazardous Area | LT | STS-100108 |
| | High/Low Level Switch EExia, Intrinsically Safe, ATEX Certified | LW | STS-100109 |
| | Single High/Low Pressure Switch for Nonhazardous Area 0-10 bar | PS | STS-100111 |
| | Single High/Low Pressure Switch EExia, Intrinsically Safe, ATEX Certified | PU | STS-100112 |
| Refill Pumps | Hand Pump Assembly for Oil-Based Fluid | HO | STS-100113 |
| | Hand Pump Assembly for Water-Based Fluid | HW | STS-100013 |
| Forced Circulation | Circulation Pump | CP | STS-100091 |

Flow Guardian™

Plan 32/33S/54DM

Specifically designed to supply uninterrupted, regulated seal flush water and deliver operational efficiency to the pump population.

Managing flow rates while regulating important pressure differentials is possible. Costly seal failures are reduced while assisting in-plant water conservation initiatives.

Flow Guardian Selection

There is a Flow Guardian for every application. The DP50 Dual Flow Guardian is designed to measure flow entering and exiting a dual seal installation. This capability allows for early detection of leakage into the process stream as a result of inboard seal failure.

The SP50 Single Flow Guardian can also regulate flow and pressure and is ideal for single seal installation or when inboard seal failure detection is of less importance.

| Technical Data | |
|----------------------------|---|
| Operating Parameters | |
| Flow Rate | 0,1 - 3 l/min / 2 - 50 US gph |
| Pressure Limit | 10 bar g / 145 psig* |
| Temperature Limit | 100°C / 212°F |
| Materials of Construction | |
| Flowmeter Tube | Polysulfone (PSU) |
| Body of Unit | Polyoxymethylene (POM) |
| O-Rings | Fluorocarbon (FKM) |
| Pressure Gauge | Oil-filled with 316SS Stainless Steel Case and Wetted |
| Pressure Regulating Valve | 316 Stainless Steel / EN 1.4401 |
| Flow Rate Regulating Valve | 316 Stainless Steel / EN 1.4401 |
| Clean-out Plugs | 320 - 3/8" Tube Fittings (for Compression Connections) 316 Optional Barb Fittings |
| Mounting Bracket | 316 Stainless Steel / EN 1.4401 |

*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed, and seal face combinations.

For operation outside the limits and additional materials consult Chesterton Mechanical Seal Engineering.



- Extends seal performance by delivering uninterrupted regulated seal flush water
- Built-in pressure regulator
- Innovative plunger cleaner
- Oil-filled pressure gauge
- Tamper-proof locking system
- Alarm sensor-ready
- Standard Plan 54DM (DP50)
- Standard Plan 32 and 33S (SP50)

Recommended Applications

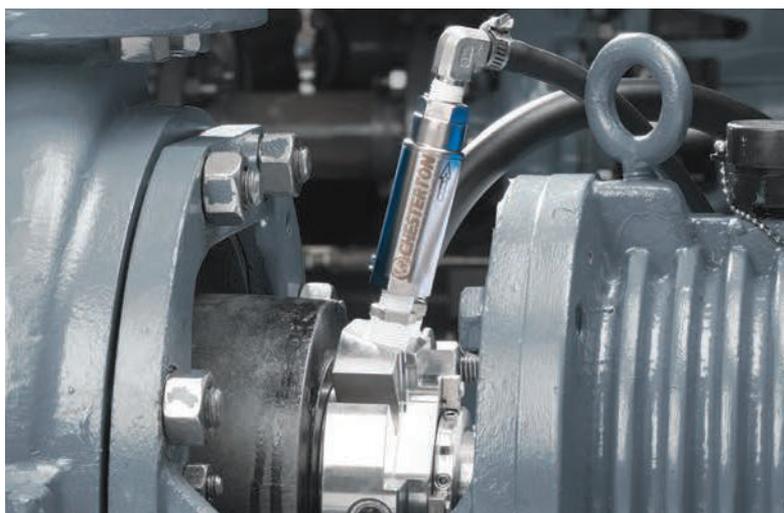
- Chemical industry
- Pharmaceutical industry
- Food and beverage industry
- Pulp and paper industry

| Ordering Codes | | |
|--|---|-------------|
| Type | Description | Item Number |
| SP50 with Compression Fitting Connectors | Single Tube with Pressure Valve | 199802 |
| SP50 with Hose Barb Connector | Single Tube with Pressure Valve and Plunger Cleaner | 199805 |
| DP50 with Compression Fitting Connectors | Dual Tube with Pressure Valve | 199803 |
| DP50 with Hose Barb Connector | Dual Tube with Pressure Valve and Plunger Cleaner | 199806 |

Intelli-Flow™ HT

Water Saver

Features a thermally activated valve that automatically drains hot barrier fluid (only when necessary) to keep dual seals running cool and reliable. Valve opening temperature preset to work with S20 Seals.



- Clean in place
- Maintenance-free
- Easy to install
- 95% water savings compared to open barrier fluid supply

Recommended Applications

- Chemical industry
- Pulp and paper industry

| Technical Data | |
|---------------------------|---------------------------------|
| Operating Parameters | |
| Pressure Limit | 20.7 bar g / 300 psig* |
| Temperature Limit | 125°C / 257°F |
| Temperature Set Point | 80°C / 176°F |
| Connections | 1/4" NPT |
| Materials of Construction | |
| Body | 303 Stainless Steel / EN 1.4305 |
| Bushing | 316 Stainless Steel / EN 1.4401 |
| Hose Barb Fitting | 316 Stainless Steel / EN 1.4401 |

*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed, and seal face combinations.

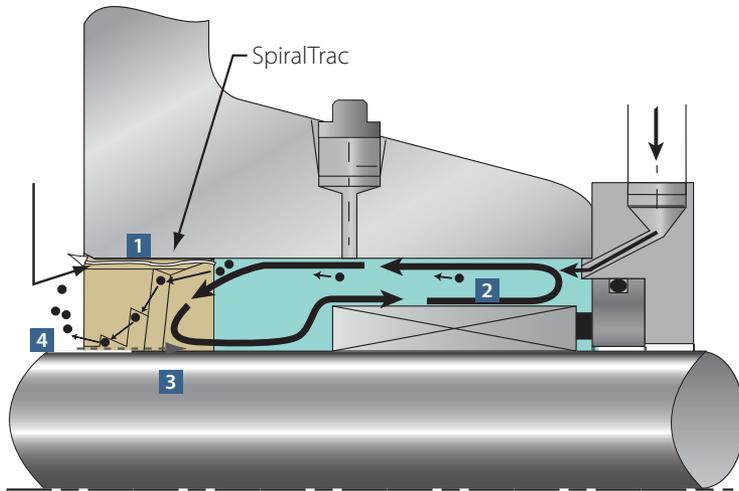
For operation outside the limits and additional materials consult Chesterton Mechanical Seal Engineering.

| Ordering Codes | | |
|-----------------|--|-------------|
| Type | Description | Item Number |
| Intelli-Flow HT | Water Saver Assembly with Integrated Flush Housing | 319831 |

SpiralTrac™

Standard Plan 33H/33S

When used with Chesterton mechanical seals, SpiralTrac Environmental Controllers greatly enhance seal reliability by effective removal of solids and improved cooling of the stuffing box.



- 1 Air:** Vented from cavity when pump is stationary (eliminates crystallization, coking overheating due to air)
- 2 Circulation:** Driven around seal (excellent face cooling)
- 3 Exchange:** In and out of cavity (heat removed from cavity)
- 4 Particulate:** Immediately removed from cavity through the exit groove, flush or no flush

Technical Data

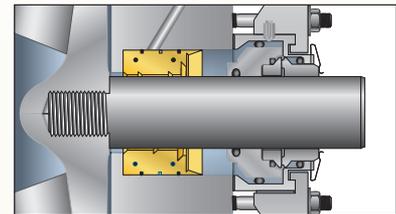
| Operating Parameters | |
|---------------------------|--|
| Version F (Split) | Greatly Reduce Flush |
| Version N | Reduced/No Flush in Non-Fibrous Fluids |
| Version D | Reduced/No Flush in Fibrous Fluids |
| Version P | Use Packing Only |
| Arrangements | |
| Type A | Counter Bore Fit |
| Type B | Bore Fit |
| Type S | Axial Split |
| Type I | Impeller Side Installation |
| Type E | Externally Keyed |
| Materials of Construction | |
| On Demand | 316 Stainless Steel / EN 1.4401 |
| Type A, B, S, and E | 316 Stainless Steel |
| Type A, B, S, and E | PTFE - Glass-Filled |
| Type A, B, S, and E | PTFE - Carbon Graphite-Filled |
| Type A, B, S, I, and E | Bronze |
| Type A, B, S, and E | AWC800—Red Polymer |
| On Demand | Monel K400/EN 2.4360 |

For operation outside the limits and additional materials consult Chesterton Mechanical Seal Engineering.

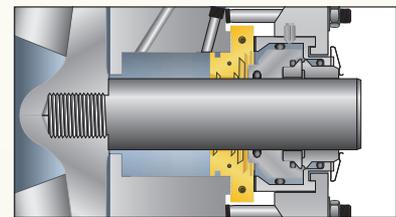


- Extends seal reliability in most rotating equipment applications
- Reduces cost of flushing in abrasive applications
- Fits all rotating equipment
- Plan 33H SpiralTrac™ Version D Type I
- Plan 32/33S SpiralTrac™ Version F Type S

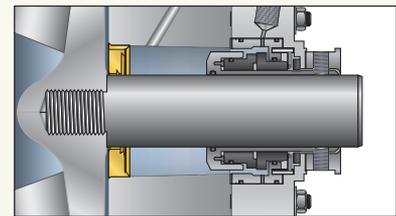
Configuration Options



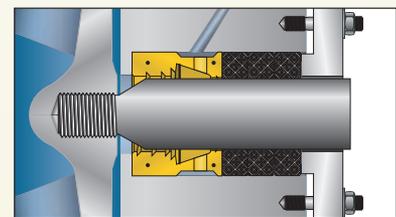
Split



Adapter

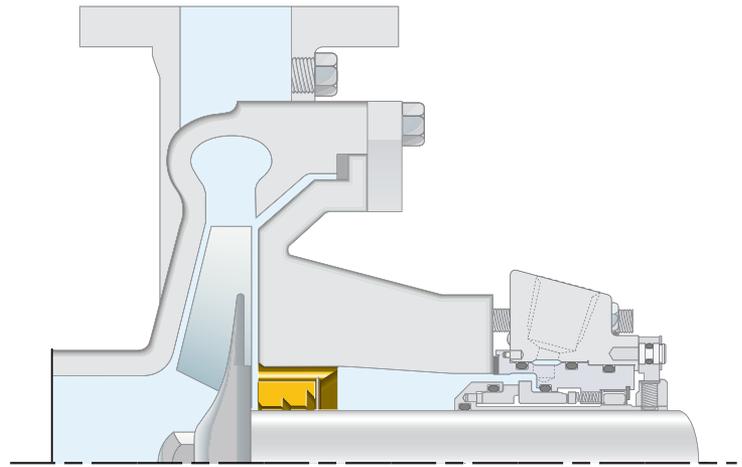


Version N

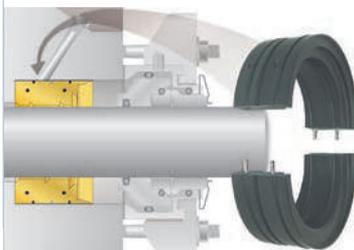


Packing

SpiralTrac™ Configuration Options

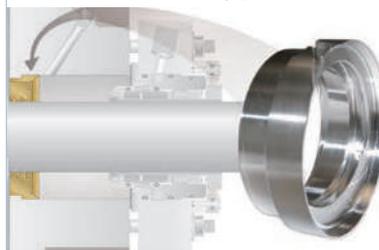


Version F Type S



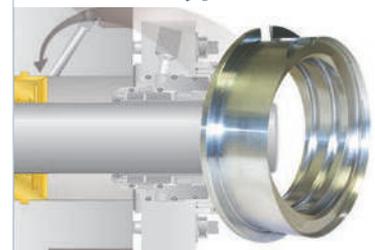
- Requires minimal flush
- Split for easy installation
- Ideal for use with split mechanical seals
- No modifications required to pump or seal cavity

Version N / D Type A



- Requires minimal or no flush
- Replaces removable throat bushings
- Some machining modifications may be required to pump or seal cavity, depending on application

Version N Type E



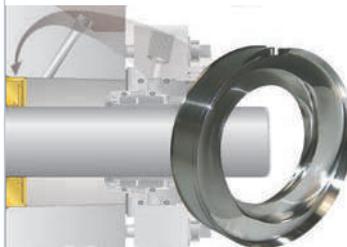
- Requires minimal or no flush
- Enables venting of air from the seal cavity
- Designed to replace keyed throat bushings in split case pumps
- No modifications required to pump or seal cavity

Version N Type B



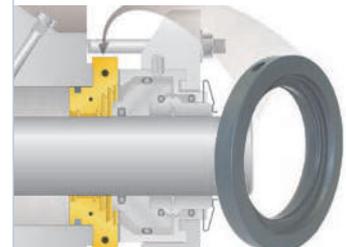
- Requires minimal flush
- Enables venting of air from the seal cavity
- Installs from the seal side of the seal cavity
- Greatly reduced flush in non-fibrous applications

Version N / D / C Type I



- Requires minimal or no flush
- Installs from the impeller side of the seal cavity
- Enables venting of air from the seal cavity
- Some machining modifications required to pump or seal cavity

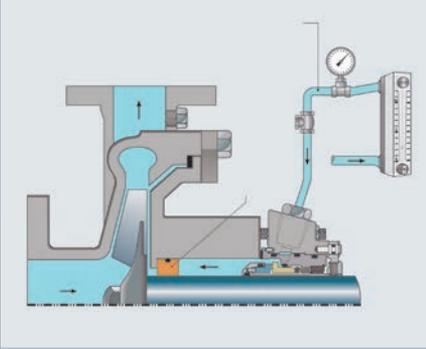
Adapter



- Requires minimal flush
- Split for easy installation
- Ideal for use with split mechanical seals
- No modifications required to pump or seal cavity
- Installs between the seal cavity and the mechanical seal

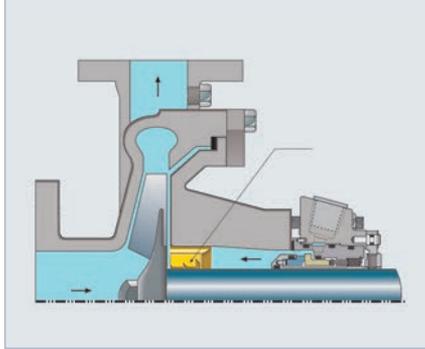
Environmental Control Plans

Plan 32



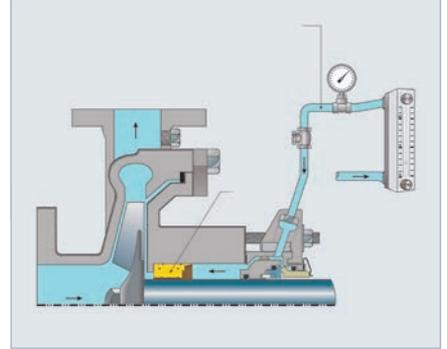
Clean flush with Flow Guardian™ SP50

Plan 33H



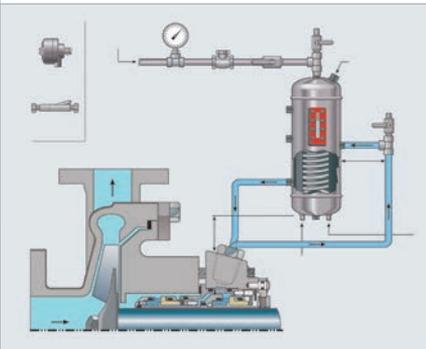
SpiralTrac™ Version D Type I

Plan 33S



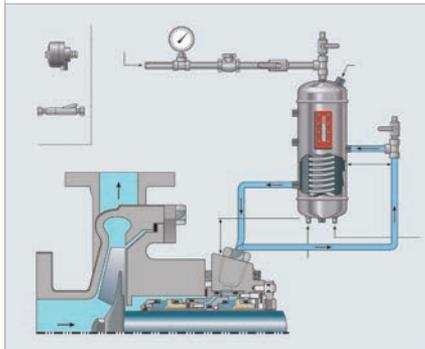
SpiralTrac™ Version F Type S
and Flow Guardian™ SP50

Plan 52



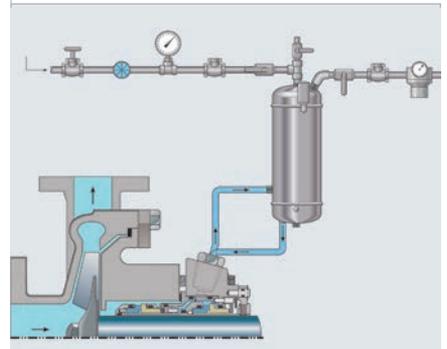
Clean Flush with Flow Guardian™ SP50

Plan 53A



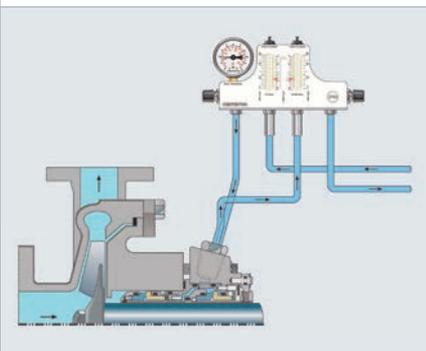
Circulation with External Buffer
Fluid Tank

Plan 53P



Circulation with Pressurized
External Barrier Fluid Tank

Plan 54DM



Circulation with Pressurized
External Barrier Fluid Source and
Flow Guardian™ DP50

Seal Tank System Configurator

Type Code – Example

PSS – **XX** – **XY** – **BH** – **CMS** – **HW** – **LS - PS**

Type Code – Explanation

| PSS | Tank Type | - | XX | Tank Option | - | XY | Tank Stand Option | - |
|-------------|-------------------------------|---|-----------|------------------------|--|-----------|--|---|
| WSS | Water Saving System | | | FA ¹ | In Line Water Filter Assembly c/w Isolation Valves | | FS | Fixed Stand - Stainless Steel |
| BSS | Buffer Support System | | | | | XY | Telescopic Vertically and Horizontally Adjustable Stand - Carbon Steel | |
| BSSC | Buffer Support System CC | | | CC ² | Internal Cooling Coil | | XT | Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel |
| PSS | Pressurized Support System | | | XX | No Option Required | | XX | No Option Required |
| PSSC | Pressurized Support System CC | | | | | | | |

| BH | Piping Kit Option | - | CMS | Seal Connector Kit Option | - | HW | Refill Pump Option | - |
|-----------|--|---|------------|---------------------------|--|-----------|------------------------|--|
| BH | Stainless Steel Braided Hose Kit 1 x 1 m and 1,2 m with Fittings | | | CSS | Seal Connector Kit 2 x NPT 1/4" S - Straight Push-in Connectors NiCr Plated Brass | | HO ² | Hand Pump Assembly for Oil-Based Fluid |
| FT | Finned Tube Kit 1 x 1 m with Fittings | | | CSA | Seal Connector Kit 2 x NPT 1/4" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | | HW ² | Hand Pump Assembly for Water-Based Fluid |
| XX | No Option Required | | | CMS | Seal Connector Kit 2 x NPT 3/8" S - Straight Push-in Connectors NiCr Plated Brass | | XX | No Option Required |
| | | | | CMA | Seal Connector Kit 2 x NPT 3/8" A - Angled Swivel Joint Push-in Connectors NiCr Plated Brass | | | |
| | | | | XX | No Option Required | | | |

| LS - PS | Instrumentation Option (Maximum 2 Selectable) |
|------------------------|--|
| LS ² | Low Level Switch for Nonhazardous Area |
| LT ² | High/Low Level Switch for Nonhazardous Area |
| LV ² | Low Level Switch EExd, Flameproof, Zone 1 Div. 1, ATEX Certified |
| LW ² | High/Low Level Switch EExia, Intrinsically Safe, ATEX Certified |
| PS | High/Low Pressure Switch for Nonhazardous Area 0-10 bar |
| PU | High/Low Pressure Switch EExia, Intrinsically Safe, ATEX Certified |
| XX | No Option Required |

¹Only Compatible with WSS

²Only Compatible with BSS/C and PSS/C



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