MECHANICAL SEAL SUPPORT SYSTEMS

ASSET OPTIMIZATION FOR INCREASED PRODUCTIVITY

CHESTERTON®
Global Solutions, Local Service.

Chesterton Mechanical Seal Support Systems

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.

Savings in water consumption are significant…and measurable.

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, which utilize 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 seal failure. Our Flow Guardian™ provides control and indication of flush supply so that the mechanical seal can operate in an optimal 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
Plan 53P, the Chesterton 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.

Seal Support Systems for Piping Plans:

- 32
- 33H
- 33S
- 52
- 53A
- 53P
- 54
- 54DM
- 55

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 Chesterton BSS (Buffer Support System) provides non-pressurized isolation and support for processes which cannot tolerate product contamination; these are typically food products and fine chemicals. The Chesterton 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 seals features internal pumping rings to aid circulation.

CHESTERTON
Global Solutions, Local Service.

TABLE OF CONTENTS

WSS Water Saving System

Plan 53P Automatic Water Support Tank

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

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

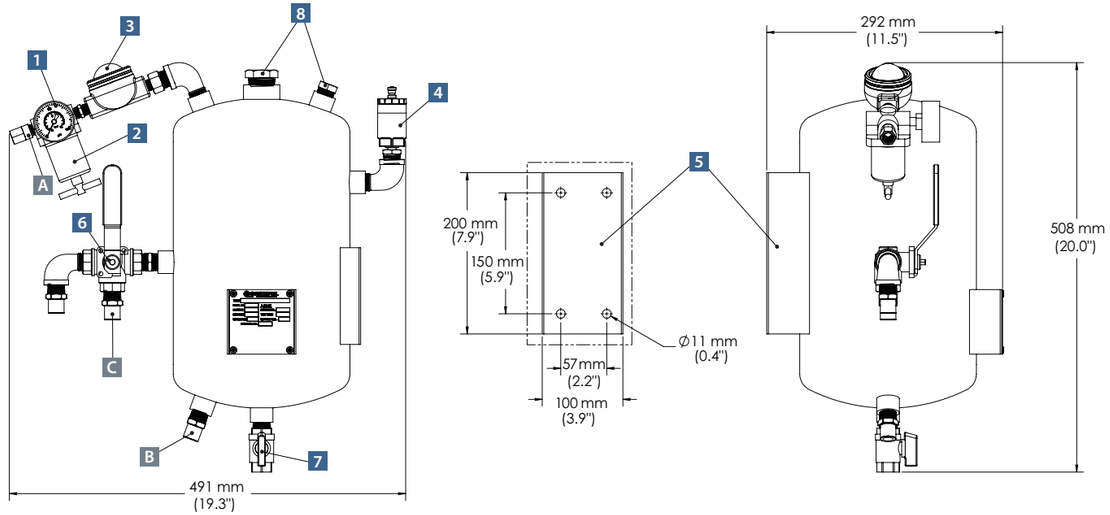
The water is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Seals.

Technical Data	
Tank Capacity	12 liters (3.2 gallons) Maximum 9 liters (2.4 gallons) Operating
Tank Operating Pressure	17.2 bar Maximum (250 psi)
Tank Material	304L/1.4307
Cooling Capacity	400 W
Auxiliary Connection	1 x 1" NPT and 1 x 1/2" NPT
Components (Included)	
Water Line Connection	1/4" NPT Female
Pressure Gauge	0-11 bar g (0-160 psi) 304 Stainless Steel Case, Al Bronze Wetted
Pressure Regulator	0-9 bar g (0-125 psi) Brass
Flow Indicator	Brass
Drain Valve	1/2" NPT Brass
Hoses	Kit: 1 x 42" and 1 x 48" Nylon 1/2" OD
Seal Connections	Kit: 2 x 1/2" NPT - Straight Push-in Connectors Brass
Applicable Standards and Approvals	ASME U Stamp

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

Recommended Industry Applications

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



All dimensions are in mm (inches) and are approximate.

Operating Principle for WSS

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
5. Mounting Bracket
6. 3-Way Valve
7. Drain Valve
8. 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	381770
Accessories			
Filters	In-Line Water Filter Assembly complete with Isolation Valves - Brass Fittings	FA	383492
Tank Stands	Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel	XT	377273
Tank Piping Kits	Stainless Steel Braided Hose Kit 1 x 42" and 1 x 48" with Fittings	BH	364969
	Finned Tube Kit 1 x 24" with Fittings	FT	382054
Seal Connector Kits	Seal Connector Kit: 2 x 1/4" NPT Straight 1/2" Push In Tube - Brass	CSS	382007
	Seal Connector Kit: 2 x 3/8" NPT Straight 1/2" Push In Tube - Brass	CMS	382009
	Seal Connector Kit: 2 x 1/2" NPT Straight 1/2" Push In Tube - Brass	CLS	382011
	Seal Connector Kit: 2 x 1/4" NPT Swivel Elbow 1/2" Push In Tube - Brass	CSA	382013
	Seal Connector Kit: 2 x 3/8" NPT Swivel Elbow 1/2" Push In Tube - Brass	CMA	382045
	Seal Connector Kit: 2 x 1/2" NPT Swivel Elbow 1/2" Push In Tube - Brass	CLA	382047
Instrumentation	High/Low Pressure Switch for Nonhazardous Area 1-20 bar (15-300 psi) Kit	PS	382654
	High/Low Pressure Switch, Intrinsically Safe 1-20 bar (15-300 psi) Kit	PU	382655
Forced Circulation	Circulation Pump	CP	382055

BSS Buffer Support System

Plan 52 Non-Pressurized Tank

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

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

Buffer Support System Configuration

Supplied ready to install the BSS is preconfigured to allow simple connection and non-pressurized support to a dual 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. Intrinsically safe instrumentation is also available.

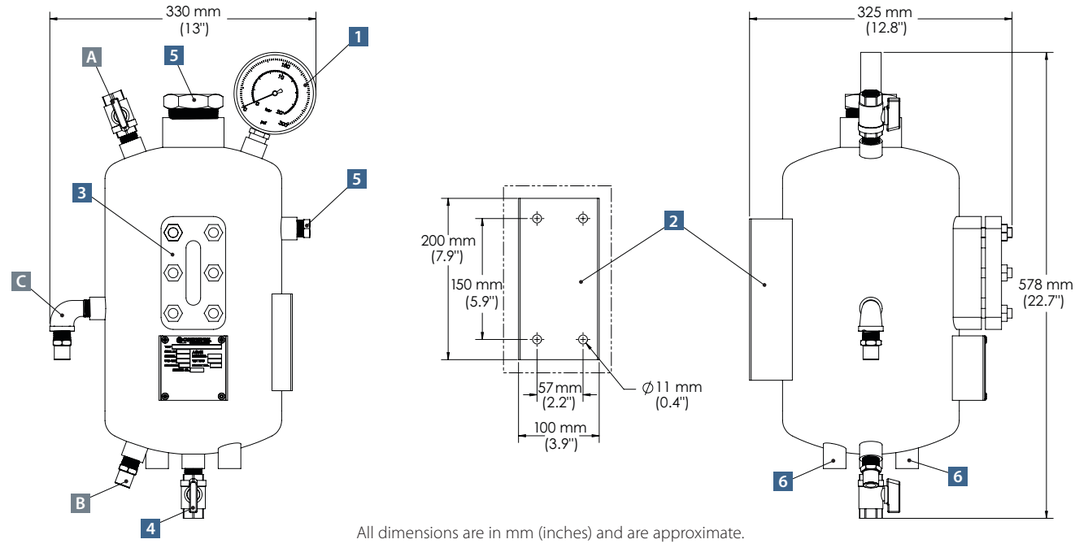
The support fluid is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Seals.

Technical Data	
Tank Capacity	12 liters (3.2 gallons) Maximum 9 liters (2.4 gallons) Operating
Tank Operating Pressure	17.2 bar Maximum (250 psi)
Tank Material	304L/1.4307
Cooling Capacity	400 W Tank Only 1.5 kW with Cooling Coil 4 kW with Cooling Coil and Circulation Pump
Auxiliary Connection	1 x 2" NPT and 1 x 1/2" NPT
Components (Included)	
Level Gauge	Sight Glass
Fluid Line Connection	1/2" NPT Female
Pressure Gauge	0-20 bar (0-300 psi) 304 Stainless Steel Case, Al Bronze Wetted
Fill Valve	1/2" NPT Brass
Drain Valve	1/2" NPT Brass
Hoses	Kit: 1 x 42" and 1 x 48" Nylon 1/2" OD
Seal Connections	Kit: 2 x 1/2" NPT - Straight Push-in Connectors Brass
Applicable Standards and Approvals	ASME U Stamp

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

Recommended Industry Applications

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



All dimensions are in mm (inches) and are approximate.

Operating Principle for BSS

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 Bracket
3. Level Gauge
4. Drain Valve
5. Auxiliary Connections
6. Cooling Coil Inlet/ Outlet (optional)

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	381764
	Buffer Support System complete with Cooling Coil	BSSC	381762
Accessories			
Tank Stands	Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel	XT	377273
Tank Piping Kits	Stainless Steel Braided Hose Kit 1 x 42" and 1 x 48" with Fittings	BH	364969
	Finned Tube Kit 1 x 24" with Fittings	FT	382054
Seal Connector Kits	Seal Connector Kit: 2 x 1/4" NPT Straight 1/2" Push In Tube - Brass	CSS	382007
	Seal Connector Kit: 2 x 3/8" NPT Straight 1/2" Push In Tube - Brass	CMS	382009
	Seal Connector Kit: 2 x 1/2" NPT Straight 1/2" Push In Tube - Brass	CLS	382011
	Seal Connector Kit: 2 x 1/4" NPT Swivel Elbow 1/2" Push In Tube - Brass	CSA	382013
	Seal Connector Kit: 2 x 3/8" NPT Swivel Elbow 1/2" Push In Tube - Brass	CMA	382045
	Seal Connector Kit: 2 x 1/2" NPT Swivel Elbow 1/2" Push In Tube - Brass	CLA	382047
Instrumentation	High/Low Level Switch for Nonhazardous Area	LT	382057
	High/Low Level Switch, Intrinsically Safe	LW	381011
	High/Low Pressure Switch for Nonhazardous Area 1-20 bar (15-300 psi) Kit	PS	382654
	High/Low Pressure Switch, Intrinsically Safe 1-20 bar (15-300 psi) Kit	PU	382655
Forced Circulation	Circulation Pump	CP	382055

PSS Pressurized Support System

Plan 53A Standard Tank

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

The Chesterton Pressurized Support System (PSS) is a complete solution for the support of dual 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. Intrinsically safe level and pressure switches are also available.

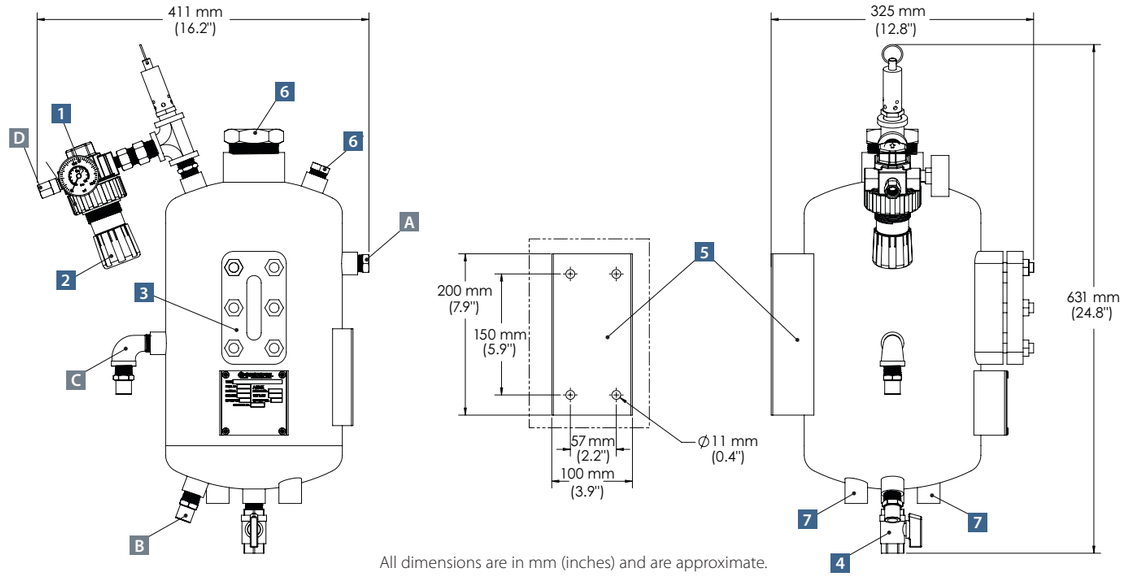
The support fluid is circulated to and from the seal by the thermosyphon effect and the mechanical seal's internal pumping ring, a standard feature of Chesterton Dual Mechanical Cartridge Seals.

Technical Data	
Tank Capacity	12 liters (3.2 gallons) Maximum 9 liters (2.4 gallons) Operating
Tank Operating Pressure	17.2 bar Maximum (250 psi)
Tank Material	304L/1.4307
Cooling Capacity	400 W Tank Only 1.5 kW with Cooling Coil 4 kW with Cooling Coil and Circulation Pump
Auxiliary Connection	1 x 2" NPT and 1 x 1/2" NPT
Components (Included)	
Level Gauge	Sight Glass
Fluid Line Connection	1/2" NPT Female
Pressure Regulator	0-17 bar (0-250 psi) Brass
Pressure Gauge	0-20 bar (0-300 psi) 304 Stainless Steel Case, Al Bronze Wetted
Fill Port	1/4" NPT Brass
Drain Valve	1/2" NPT Brass
Hoses	Kit: 1 x 42" and 1 x 48" Nylon 1/2" OD
Seal Connections	Kit: 2 x 1/2" NPT - Straight Push-in Connectors Brass
Applicable Standards and Approvals	ASME U Stamp

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

Recommended Industry Applications

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



All dimensions are in mm (inches) and are approximate.

Operating Principle for PSS

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 Bracket
6. Auxiliary Connections
7. Cooling Coil Inlet/ Outlet (optional)

Connections

- A Fill/Vent Port
- B To the Mechanical Seal
- C From the Mechanical Seal
- D Air/Nitrogen Supply

Ordering Codes			
Type	**Description**	**Code**	**Item Number**
Tank	Pressurized Support System complete with the Components	PSS	381768
	Pressurized Support System complete with Cooling Coil	PSSC	381766
Accessories			
Tank Stands	Telescopic Vertically and Horizontally Adjustable Stand - Stainless Steel	XT	377273
Tank Piping Kits	Stainless Steel Braided Hose Kit 1 x 42" and 1 x 48" with Fittings	BH	364969
	Finned Tube Kit 1 x 24" with Fittings	FT	382054
Seal Connector Kits	Seal Connector Kit: 2 x 1/4" NPT Straight 1/2" Push In Tube - Brass	CSS	382007
	Seal Connector Kit: 2 x 3/8" NPT Straight 1/2" Push In Tube - Brass	CMS	382009
	Seal Connector Kit: 2 x 1/2" NPT Straight 1/2" Push In Tube - Brass	CLS	382011
	Seal Connector Kit: 2 x 1/4" NPT Swivel Elbow 1/2" Push In Tube - Brass	CSA	382013
	Seal Connector Kit: 2 x 3/8" NPT Swivel Elbow 1/2" Push In Tube - Brass	CMA	382045
	Seal Connector Kit: 2 x 1/2" NPT Swivel Elbow 1/2" Push In Tube - Brass	CLA	382047
Instrumentation	High/Low Level Switch for Nonhazardous Area	LT	382057
	High/Low Level Switch, Intrinsically Safe	LW	381011
	High/Low Pressure Switch for Nonhazardous Area 1-20 bar (15-300 psi) Kit	PS	382654
	High/Low Pressure Switch, Intrinsically Safe 1-20 bar (15-300 psi) Kit	PU	382655
Refill Pump	Hand Pump Assembly - Stainless Steel	HU	383494
Forced Circulation	Circulation Pump	CP	382055

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

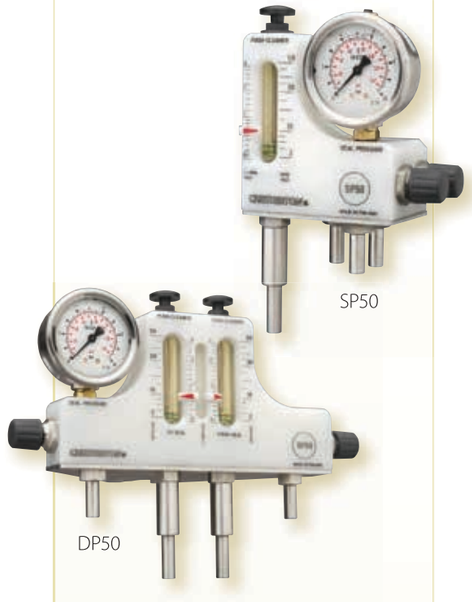
There is a Flow Guardian for every application. The DP50 Dual Flow Guardian is designed to measure flow entering and exiting a dual seal installation. This capability allows for early detection of leakage into the process stream as a result of inboard seal failure.

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 316 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 Industry Applications

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

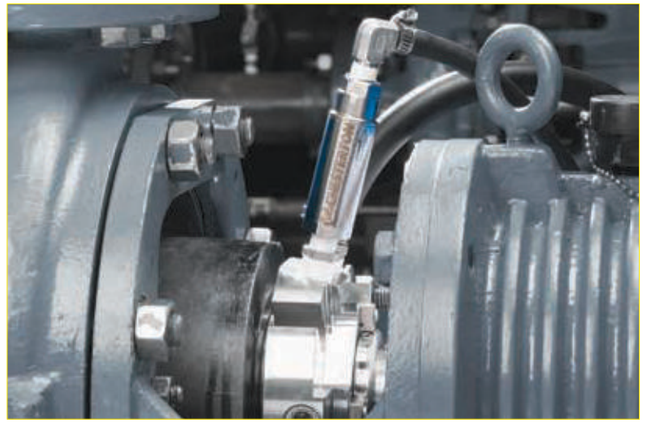
Ordering Codes		
Type	**Description**	**Item Number**
SP50 with Compression Fitting Connectors	Single Tube with Pressure Valve	199802
SP50 with Hose Barb Connector	Single Tube with Pressure Valve and Plunger Cleaner	199805
DP50 with Compression Fitting Connectors	Dual Tube with Pressure Valve	199803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

CHESTERTON Global Solutions, Local Service.

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.



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.

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

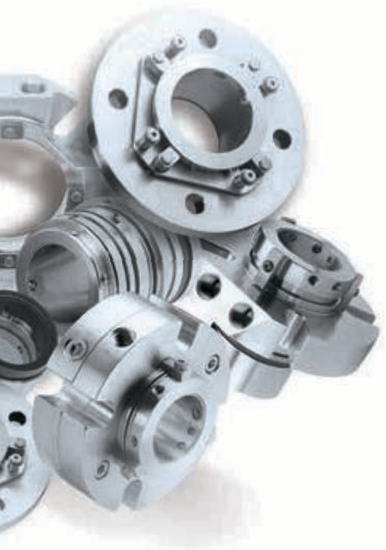
Recommended Industry Applications

- Chemical
- Pulp and paper

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

CHESTERTON Global Solutions, Local Service.

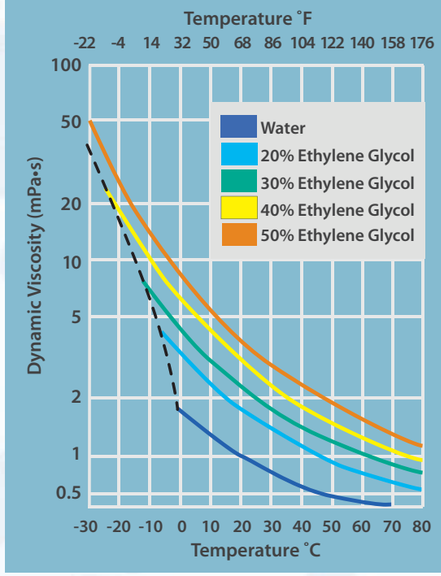
Buffer and Barrier Fluid Selection Guide



The use of dual seals in all industries is on the rise due to the apparent and demonstrated benefits and increased off-the-shelf availability. Increased focus on reliability, safety, and environmental impacts are the key drivers during the selection process.

As we have the ability to introduce a fluid between the inboard and outboard faces of a dual seal, this offers us the opportunity to modify the operating environment of the seal and extend its useful life. Buffer and barrier fluids can be used to provide lubrication, remove process and frictional heat, and combat issues associated with cavitation and dry running. Barrier fluids can prevent process media from causing damage to the inboard mechanical seal faces by being pressurized 1 to 2 bar g (14 to 28 psig) above the sealing chamber pressure.

Dynamic Viscosity of Water-Ethylene Glycol Mixtures



It is important to select the correct fluid to be used as a buffer or barrier fluid. The most suitable fluids will have the following properties:

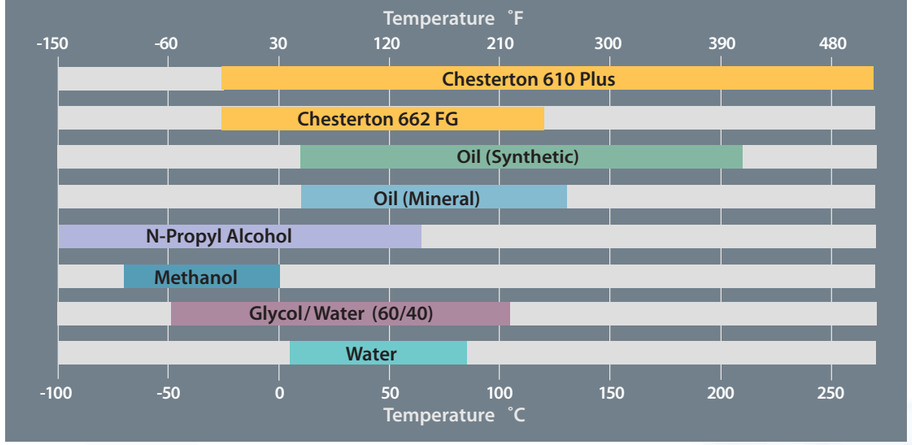
- Compatible with the process media
- Non-flammable
- Safe to store, handle, and use
- Stable at ambient temperature
- Compatible with the seal and storage tank materials
- Does not contain hazardous, harmful, or regulated pollutants
- Good rates of flow at the required operating temperatures
- Non-foaming or gas absorbing
- Excellent lubricity for the selected seal face materials
- Good rates of heat transfer

Buffer and Barrier Fluid Classification

The liquids typically used as barrier and buffer fluids can be summarized as:

- Water and Water Glycol Solutions
- Mineral-based hydraulic and lubricating oils
- Synthetic-based hydraulic and lubricating oils
- Heat transfer fluids

Recommended Operating Ranges for Common Barrier Fluids



Water

There are several benefits associated with using water as a barrier or buffer fluid. Water's thermal conductivity is around three times greater than that of oils and it has double the specific heat. This makes water a great fluid for transporting heat away from mechanical seals.

There are little or no material compatibility issues with fresh water: it is easy to store, handle and is relatively inexpensive. With a viscosity of 1 centistoke, water flows well in systems which have mechanical seals not equipped with pumping rings.

Temperature management is important when using water as a barrier fluid as its viscosity reduces at elevated temperatures, limiting its usefulness as a lubricant. Care must also be taken to prevent freezing in cold conditions. This is the primary reason to prepare a water glycol solutions.

Oils

Oils offer greater thermal stability at elevated temperatures compared to water and are not susceptible to freezing. Oils also provide exceptional lubrication to the mechanical seal faces and offer the user increased mechanical seal life.

There are few material compatibility issues with using oils, however the use of oils with carbon seal faces is not generally recommended. Some users of traditional automotive and transmission oils have experienced mixed results when utilizing them as a barrier fluid, the primary reason for this is because of the complex mix of additives and modifiers included in them to increase performance in their intended applications. Good performance can only be achieved from paraffinic based oils with a viscosity below 32 centistokes measured at 40˚C (100˚F). Oils of a higher viscosity resist flow and can damage mechanical seal faces.

Chesterton produces oil-based buffer and barrier fluids specifically designed for use with mechanical seals.

Specialty Barrier Fluids

Chesterton's unique family of seal barrier fluids are designed to cool, lubricate, and clean seal components. Ultra-clean and low, thin film function reduces seal face wear and extends seal life.

662 FG and 610 Plus have excellent thermal stability to inhibit residue formation in the seal and barrier fluid tank, tubing and piping. 662 FG and 610 Plus can be used in pressured and non-pressurized barrier fluid systems per Plan 52, 53A, 53B, 53C or 54.

662 FG

Barrier Fluid 22

662 FG provides very stable seal performance over an extremely wide temperature range, satisfying most seal service requirements. 662 FG is extremely clean and has excellent low temperature fluidity and heat transfer properties.

Product Characteristics

- Viscosity @ 100˚C, 4.3 cSt
- Extremely low particle count designed to minimize face wear and extend seal life
- ISO 4406 particle count 12/11/9
- NSF H1 registered, incidental food contact
- FDA: Conforms to FDA 21 CFR 178.3620 a & b, 178.3570
- Good thermal stability
- Compatible with most fluids (mineral oil, PAO, and diester: not miscible with glycols or silicones)

Typical Physical Properties	
Viscosity Grade	ISO VG 22
Temperature Range	-25˚C to 120˚C (-15˚F to 250˚F)
Flash Point (ASTM D 92)	171˚C (340˚F)
Thermal Conductivity 10˚C to 260˚C (W/M-k) 50˚F to 500˚F (BTU/ft-hr-F)	 0.126 to 0.102 0.073 to 0.059

Recommended Applications

- Mechanical seal barrier fluid
- For high temperatures above 120˚C (250˚F) use 610 Plus Synthetic Fluid

Container Size	Item Number
662 FG	
20 Liter	081088
208 Liter	081089

610 Plus

Synthetic Lubricating Fluid

610 Plus is recommended for use at elevated temperatures where nitrogen purge is not an option and when FDA purity is not required.

610 Plus is a pure, synthetic ester that provides superior lubrication and cooling for double and tandem mechanical seals.

610 Plus provides very stable seal performance over an extremely wide temperature range, satisfying most seal service requirements. 610 Plus is extremely clean and has excellent low temperature fluidity and heat transfer properties.

Product Characteristics

- Viscosity @100˚C, 12 cSt
@ 150˚C, 5 cSt
- Good flowability for low temperature applications to -25˚C (-15˚F)
- Non-carbonizing
- Low evaporation rate
- Great thermal stability
- Self cleaning, removes residues
- Corrosion protection

Typical Physical Properties	
Viscosity Grade	ISO VG 68
Temperature Range	-25˚C to 270˚C (-15˚F to 520˚F)
Flash Point, C.O.C. (ASTM D 92, ISO 2592)	310˚C (590˚F)
Thermal Conductivity 10˚C to 260˚C (W/M-k) 50˚F to 500˚F (BTU/ft-hr-F)	 0.135 to 0.116 0.078 to 0.067

Recommended Applications

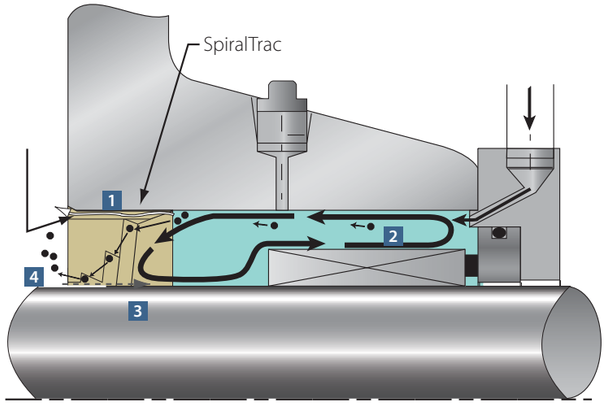
- Barrier fluid operating to 240˚C
- Mist oil lubrication for pump and equipment bearings.
- Bearing housing lubricant for ANSI, API, CPI pumps and equipment

Container Size	Item Number
610 Plus	
1 Gallon/ 3.8 Liter	084296
20 Liter	084297
208 Liter	084295

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.



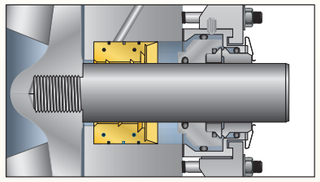
1. **Air:** Vented from cavity when pump is stationary (eliminates crystallization, coking overheating due to air)
2. **Circulation:** Driven around seal (excellent face cooling)
3. **Exchange:** In and out of cavity (heat removed from cavity)
4. **Particulate:** Immediately removed from cavity through 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
Version C	Reduced/No Flush With Bottom Drain
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

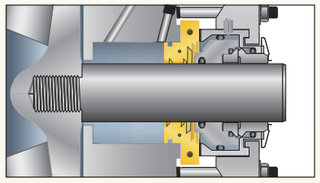
For operation outside the limits and additional materials consult Chesterton Mechanical Seal Engineering.

- 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

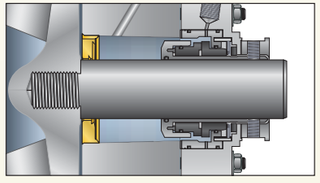
Configuration Options



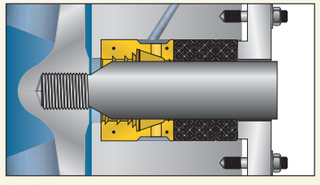
Split



Adapter



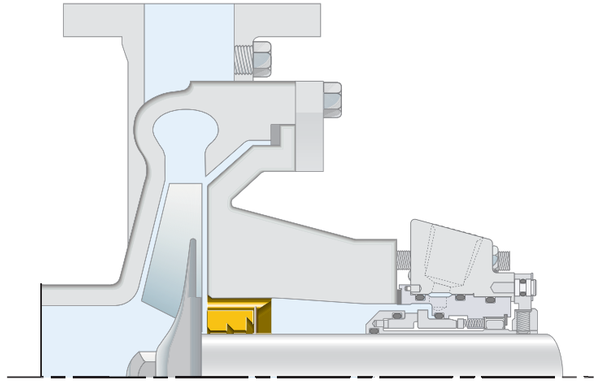
Version N



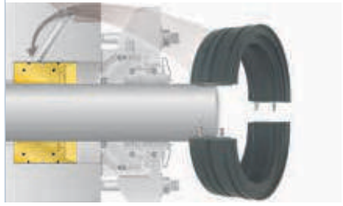
Packing

CHESTERTON Global Solutions, Local Service.

SpiralTrac™ Configuration Options



Version F Type S

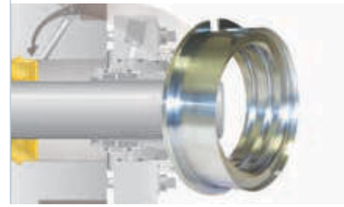


- Requires minimal flush
- Split for easy installation
- Ideal for use with split mechanical seals
- No modifications required to pump or seal cavity

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

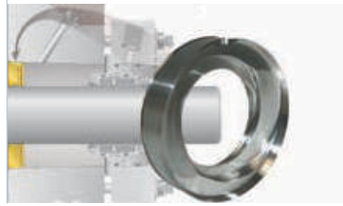


- Requires minimal or no flush
- Enables venting of air from the seal cavity
- Designed to replace keyed throat bushings in split case pumps
- No modifications required to pump or seal cavity

Version N Type B

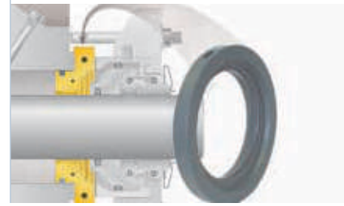
- Requires minimal flush
- Enables venting of air from the seal cavity
- Installs from the seal side of the seal cavity
- Greatly reduced flush in non-fibrous applications

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

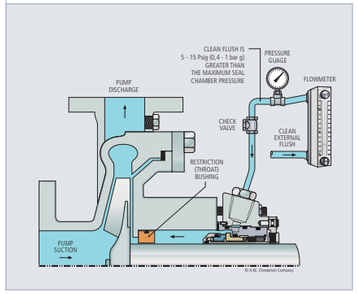


- Requires minimal flush
- Split for easy installation
- Ideal for use with split mechanical seals
- No modifications required to pump or seal cavity
- Installs between the seal cavity and the mechanical seal

CHESTERTON Global Solutions, Local Service.

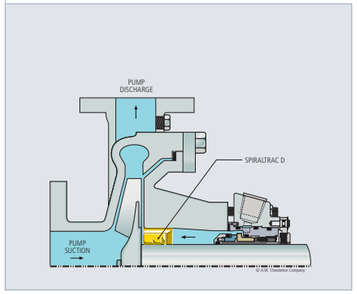
Environmental Control Plans

Plan 32



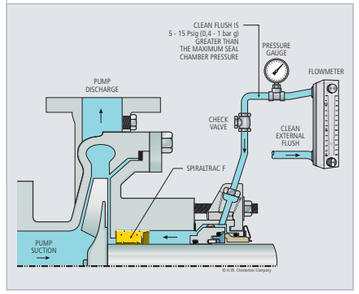
Clean flush with Flow Guardian™ SP50

Plan 33H



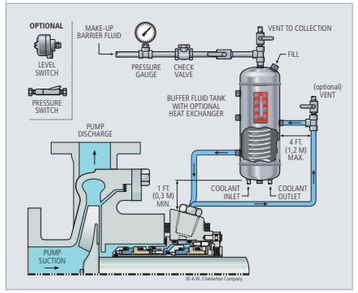
SpiralTrac™ Version D Type I

Plan 33S



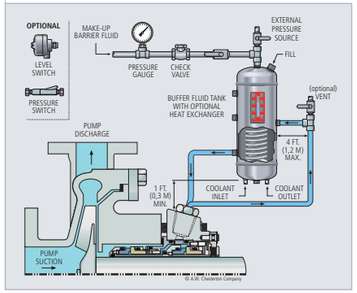
SpiralTrac™ Version F Type S and Flow Guardian™ SP50

Plan 52



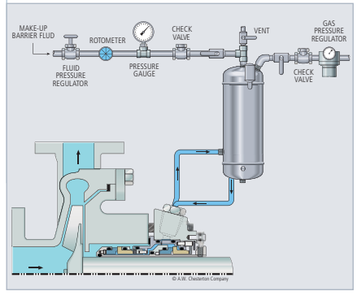
Circulation with External Buffer Fluid Tank

Plan 53A



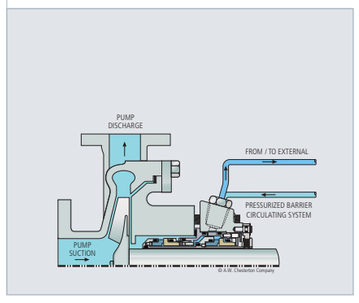
Circulation with Pressurized External Barrier Fluid Tank

Plan 53P



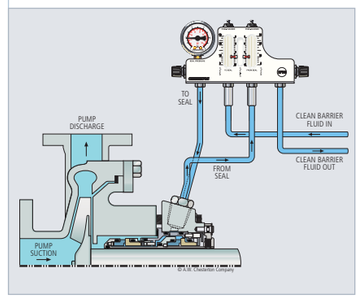
Circulation with Pressurized External Barrier Fluid Tank - Automatic Water Fill

Plan 54



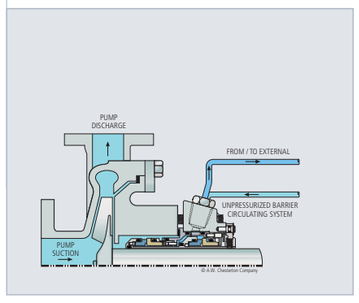
Circulation with Pressurized External System

Plan 54DM



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

Plan 55



Circulation with Unpressurized External System

CHESTERTON Global Solutions, Local Service.

Seal Tank System Configurator

Type Code – Example

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

Type Code – Explanation

PSS Tank Type

- **WSS** Water Saving System
- **BSS** Buffer Support System
- **BSSC** Buffer Support System with Cooling Coil
- **PSS** Pressurized Support System
- **PSSC** Pressurized Support System with Cooling Coil

XX Tank Option

- **FA**[1] In-Line Water Filter Assembly c/w Isolation Valves
- **XX** No Option Required

XY Tank Stand Option

- **XY** Telescopic Vertically and Horizontally Adjustable Stand - Carbon Steel
- **XX** No Option Required

BH Piping Kit Option

- **BH** Stainless Steel Braided Hose Kit 1 x 42" and 1 x 48" with Fittings
- **FT** Finned Tube Kit 1 x 24" with Fittings
- **XX** No Option Required

CMS Seal Connector Kit Option

- **CSS** Seal Connector Kit 2 x NPT 1/4" S - Straight Push-in Connectors - Brass
- **CSA** Seal Connector Kit 2 x NPT 1/4" A - Angled Swivel Joint Push-in Connectors - Brass
- **CMS** Seal Connector Kit 2 x NPT 3/8" S - Straight Push-in Connectors - Brass
- **CMA** Seal Connector Kit 2 x NPT 3/8" A - Angled Swivel Joint Push-in Connectors - Brass
- **XX** No Option Required

HW Refill Pump Option

- **HO**[2] Hand Pump Assembly for Oil-Based Fluid
- **HW**[2] Hand Pump Assembly for Water-Based Fluid
- **XX** No Option Required

LT - PS Instrumentation Option (Maximum 2 Selectable)

- **LT**[2] High/Low Level Switch for Nonhazardous Area
- **LW**[2] High/Low Level Switch, Intrinsically Safe
- **PS** High/Low Pressure Switch for Nonhazardous Area 1-20 bar (15-300 psi)
- **PU** High/Low Pressure Switch, Intrinsically Safe
- **XX** No Option Required

[1] Only Compatible with WSS

[2] Only Compatible with BSS/C and PSS/C

Global Solutions, Local Service

Since its founding in 1884, the A.W. Chesterton Company has successfully met the critical needs of its diverse customer base. Today, as always, customers count on Chesterton solutions to increase equipment reliability, optimize energy consumption, and provide local technical support and service wherever they are in the world.

Chesterton's global capabilities include:

- Servicing plants in over 100 countries
- Global manufacturing operations
- More than 500 Service Centers and Sales Offices worldwide
- Over 1200 trained local Service Specialists and Technicians

Visit our website at www.chesterton.com

KEEPING THE PLANET CLEAN
CHESTERTON

Chesterton ISO certificates available on
www.chesterton.com/corporate/iso

Distributed by:

CHESTERTON®
Global Solutions, Local Service.

A.W. Chesterton Company
860 Salem Street
Groveland, MA 01834 USA

Telephone: 781-438-7000
Fax: 978-469-6528
www.chesterton.com

Form No. EN24198
Mechanical Seal Support Systems – English
06/17