Scenic®

■ STANDARD DIN/ANSI SINGLE CARTRIDGE SLURRY SEALS

PATENTED

CARLIFE®99SSQ™/SSQD™

QUENCH AND DRAIN PORTS STRUCTURE HIGH IMPURITIES & CRYSTALLIZATION CHALLENGES

Product Description

CarLife®99SSQ™ and CarLife®99SSQD™ are specially engineered mechanical seals designed for slurry pumps. Their sturdy construction allows them to endure erosion, corrosion, and abrasion caused by solid particles, fibers, or impurities, while maintaining consistent sealing performance.

The "Q" and "D" designations represent Quench and Drain respectively, allowing for the supply of steam, hot water, cooling water, coolant, or grease. Incorporating an Automatic Lubrication Device (ALD) facilitates significant savings on cooling water. This setup enables operation even during dry running conditions.

Scenic offers diamond-coating seal faces as optional materials for both rotary and stationary rings. With diamond-like wear resistance, thermal conductivity, and low friction properties, CarLife®99SSQ™ and CarLife®99SSQD™ are adept at addressing various challenges posed by impure fluid flows.

CarLife® 99SS™

CarLife® 99SSQ™

CarLife® 99SSQD™

Operating Capabilities

Temp. 99SSQ	-20 ~ 180℃ (-4 ~ 356 ˚F)
Temp. 99SSQD	-20 ~ 135℃ (-4 ~ 275 ˚F)
Pressure	Up to 256 psig (18 kg/cm^{2}G)
Surface Speed	Up to 4530 fpm (23 m/s)
Max. Solids by Weight	25 ~ 30%

Recommended Piping Plans

Process Side	01/02/03

Design Standards

- Designed in accordance with international standards, including ANSI B73.1M, EN12756 and DIN 24960, with compatible and exchangeable dimensions.
- Compliant with DIN/ANSI standards for enlarged bore sealing chambers.
- Custom designs are available to meet the specific needs of customers.

Auxiliaries and Components (Options)

· Throat bushing (process side)

More Information for You

Applications

- Conformed to DIN & ANSI, applicable to all rotary equipments with big bore (taper bore) dimensions.
- Extensively suitable by industries like: mining; oil-refining;pulp and paper; food and beverage, pharmaceutical, power plant; steel plant; electronic, semiconductor, bioengineering, waste & water treatment plant.

CarLife®99SSQ™

- Low-temperature or freezing environments
- Constant temperature applications
- Crystallization-prone processes

CarLife®99SSQD™

- High-contaminant, fiber, and erosion processes
- Dual mechanical seal capability
- Suitable for dry running environments

Specific Features

CarLife®99SSQ™

The CarLife 99SSQ™ is quite similar to the CarLife 99SS™, with the addition of a Quench port and an internal bushing, which will increase the overall length of the seal slightly. This is the result of a unique concept of integrating the constant temperature features with the gland to promote maintenance convenience, because the constant temperature feature might not need to be disassemble during re-conditioning.

The main function is the injection of hot steam into the seal via the Quench port, it cans help maintain the internal temperature of the seal, self cleaning and act as a barrier keeping possible contaminants intruded into seal face from the atmosphere side, and blowing off the crystallization or particles of educts on the seal rings surface from process side, that enables to increase the stability of mating face. The addition of the Quench port feature is especially beneficial for the application, which requires constant temperature control to prevent crystallization.

CarLife®99SSQ™ is applicable to the following situations:

· Freezing condition application:

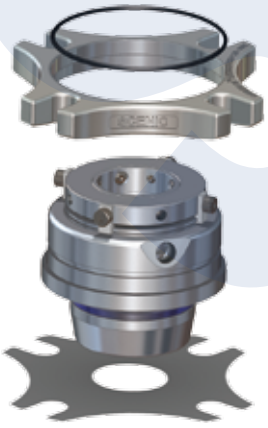
In low temperature operation, liquid in the seal might be frozen; steam brings the seal up to operation temperature and isolates the atmosphere side, which maintains superior seal performance.

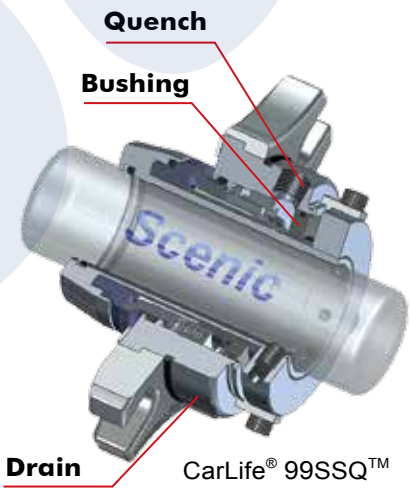
· Constant temperature application:

Certain process fluid must stay within a specific temperature range to maintain its property; at this application, steam is an ideal barrier fluid to constant temperature without environment pollution.

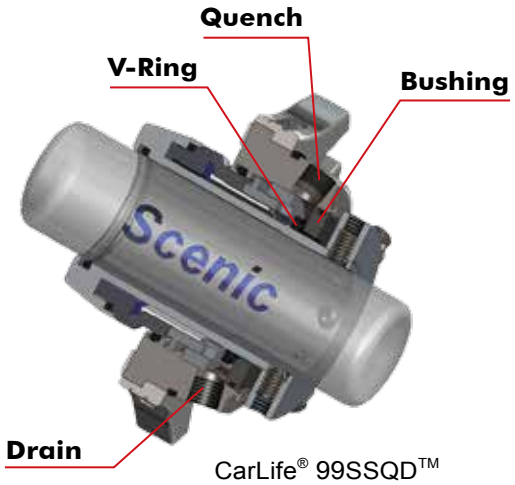
· Crystallizing process application:

For some special processes that might become solidify or crystallize should the operation temperature does not stay within a specifi crange, it will also affect the stability of the seal. Injection of steam via the Quench port to maintain the temperature of the seal higher than process side, that enables to avoid crystallization situation.





CarLife® 99SSQ™



CarLife® 99SSQD™

Specific Features

CarLife®99SSQD™

The most common causes of premature mechanical seal failure are equipment cavitation, starved suction, improper venting or air ingestion, which lead to dry run and damage seal faces, these situations can be greatly minimized with our cartridge seal CarLife 99SSQD™ which lubricated by synthetic lubricant or water of compatible fl uid, then quenching and cooling on the atmospheric side of the seal.

CarLife 99SSQD™ is quite similar to the CarLife 99SSQ™, with the addition of a Drain port, a Quench port and a "V" shape rubber ring or other forms of rubberize sealing feature. This is result of a unique concept of integrating the circulation device with the gland to promote ease of maintenance, because the cartridge's main structure does not require disassemble during re-conditioning. The structure of the cartridge seal has provided constant temperature, cooling, and lubrication functions. Depending on individual requirement, injection of cooling water, hot water, or synthetic lubricant into the seal via the Quench port would achieve the foregoing functions.

CarLife®99SSQD™ is applicable to the following situations:

· Heavy Duty Process

When the process fluid contains a heavy concentration of contaminants, crystallization might form on the seal faces. This can cause the seal's mechanism interference or excessive face wear, leading to premature seal failure. The cartridge seal, along with the circulation device, will help lubricate and flush the seal face to overcome any problems associated with slurry applications.

· High Temperature Application with Cooling Accessory / May Operate as Dual Seal

The cartridge seal's outboard section is mounted with a set of V-ring and bushing designed for a cooling system. It can serve as a secondary sealing mechanism with a maximum pressure capacity of 0.8 kg/cm^2 (11.4 psi). Circulation of cooling compatible fluid (water or oil lubricant) from the Quench port and Drain port can be used to dissipate heat generated by the seal faces. This approach prevents dry running and significantly extends the life of the seal. The system is proven to perform perfectly in vertical pump systems.

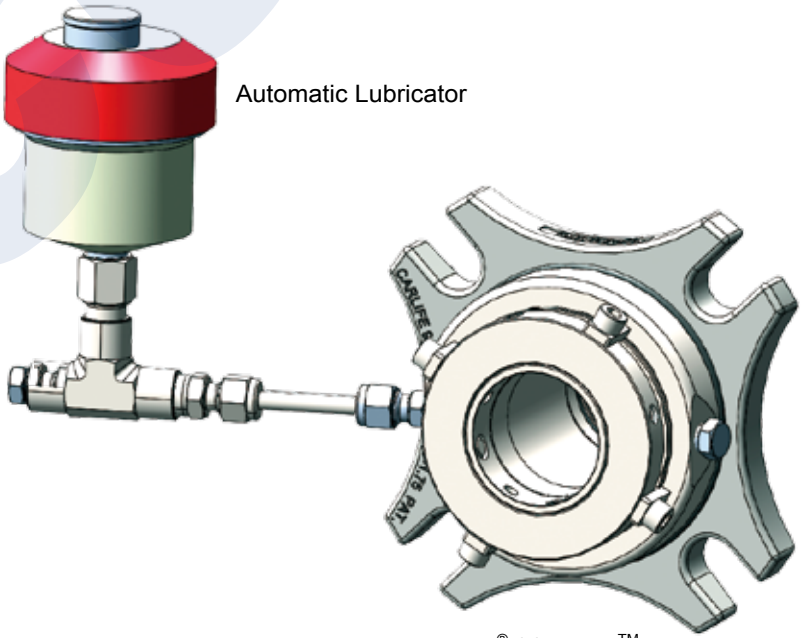
· Dry Running Application

For dry running applications, connect an Automatic Lubrication Device (sold separately) of lubrication oil to the Quench port. The Automatic Lubrication Device will automatically feed a steady supply of synthetic oil into the seal, enabling the coating of a lubrication film on mating faces. This prevents seal faces from drying up, improving the MTBPM (Mean Time Between Planned Maintenance). This application is ideal for vertical pumps, mixers, and agitators.

Automatic Lubricator Device

Functions as a single-point lubrication device, in conjunction with cartridge seals equipped with a QD ™ device. Effectively prevents seals from experiencing dry running and is suitable for processes involving impurities and easy crystallization.

Unlike traditional oil cups prone to issues of insufficient or over-lubrication, the automatic lubricator offers a reliable solution for various applications requiring continuous lubrication, all without the need for setting up control circuit devices.



Automatic Lubricator

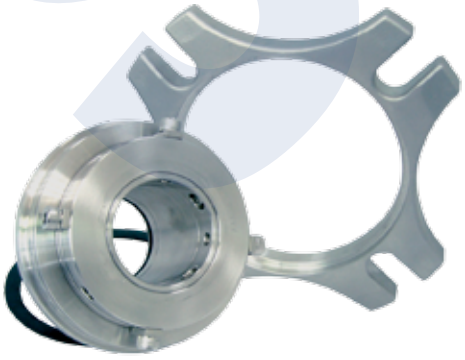
CarLife® 99SSQD™

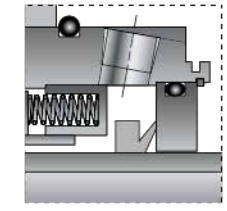
Specific Features

- **Single Cartridge Seal Design**
  Conformed to DIN/ANSI specification and size customizable.
- **Non-Flushing Requirement**
  Seal faces with large expose area none sealing surface to full benefit of its self cooling effect, eliminating the need of flush liquid.
- **Simplefied Structure**
  Easy installation, maintenance, trasport, stock & inventory
- **Integral Drive Structure**
  Drop-proof springs are pre-installed on the drive structure for quicker repairs, disassembly, and assembly.
- **Unwetted Spring Design**
  less stress, no corrosion or hang-up condition.
- **Balance Design**
  Computed ultimate area ratio to ensure faces remain closed at any condition; Reduces seal face pressure & saves energy consumption.
- **Self-alignment Capability**
  Tolerates shaft's greater run-out.
- **Mighty T-drive Structure**
  Robust driver, ensures stablility & durability of seal faces during start up & torque.
- **Monolithic Faces**
  NO distortion or deformation, provide superior wear & corrosion resistance.
- **Throw Away Design Concept Cartridge Seal**
  This design unraveling the gland into two sections (inner gland and outer gland), called separable gland. The inner gland contains all the seal components as a cartridge, which can be repaired or replaced easily.
- **Separable Gland**
  While the inner gland is built and conformed to specification, the outer gland does not come in contact with the process, hence it can be manufactured with less costly material, drastically decreases the material cost.
- **Diamond Coating Seal Rings (Optional)**
  Extremely wear-resistant and low friction coefficient, enhances the lifespan.

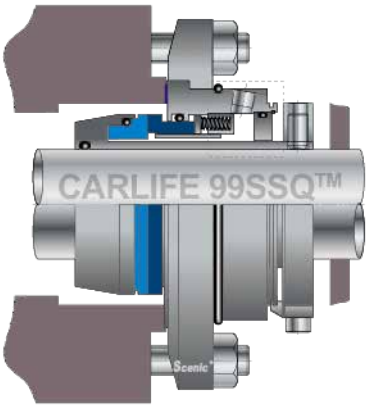
Material Selection

Stationary Ring	Carbon Graphite | Silicon Carbide | Tungsten Carbide Diamond Coating Silicon Carbide
Rotary Ring	Silicon Carbide | Tungsten Carbide | Diamond Coating Silicon Carbide
Metal Parts / Material with contact liquid	SUS304 | SUS316 | SUS316L | Hastelloy C (C-276) | Titanium (Ti) Duplex | Other
Elastomeric O-rings	FFKM : Chemraz® | Kalrez® | SceniRAZ® ; Viton | NBR | Aflas(HTCR) | EPDM | PFT | Other
Gland Gasket	Glass-Filled PTFE | Non- Asbestos | Spiral-Wound
Spring	SUS316 | Hastelloy C (C-276) | Inconel

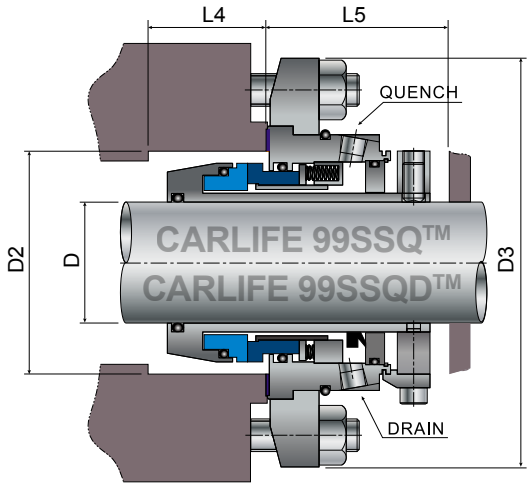


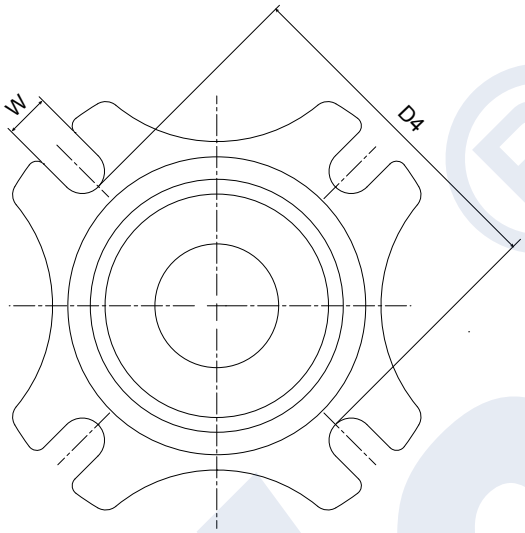


CARLIFE 99SSQD™



Assembly Dimensions





※Listed are frequently used sizes. For custom sizes, please contact Scenic for details.

CarLife® 99SSQ™ / 99SSQD™ - Imperial enlarged bore / tapered bore sizes in inches

Seal Code	Shaft D	D2		L4	L5	D4	W
		MIN.	MAX.	MIN.	MIN.		
99SSQ/SSQD-1125	1.125	2.625	2.750	1.520	2.500	Custon Design	
99SSQ/SSQD-1375	1.375	2.875	3.000	1.520	2.500		
99SSQ/SSQD-1750	1.750	3.500	3.625	1.520	2.500		
99SSQ/SSQD-1875	1.875	3.625	3.750	1.520	2.500		
99SSQ/SSQD-2000	2.000	3.500	3.750	1.520	2.500		
99SSQ/SSQD-2125	2.125	3.625	3.875	1.520	2.500		
99SSQ/SSQD-2250	2.250	3.750	3.875	1.520	2.500		
99SSQ/SSQD-2375	2.375	3.875	4.125	1.520	2.500		
99SSQ/SSQD-2500	2.500	3.875	4.125	1.520	2.500		
99SSQ/SSQD-2625	2.625	4.125	4.375	1.520	2.750		
99SSQ/SSQD-2750	2.750	4.250	4.625	1.520	2.750		
99SSQ/SSQD-3125	3.125	4.625	5.000	1.520	2.750		

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