

Griploc™ mechanical face seals

Griploc™ seals from Flygt make life easier. Their robust design provides consistent performance and long, trouble-free operation. The seal faces' ability to maintain their flatness results in outstanding leakage prevention and the patented Griploc design securely locks the seal to the shaft.

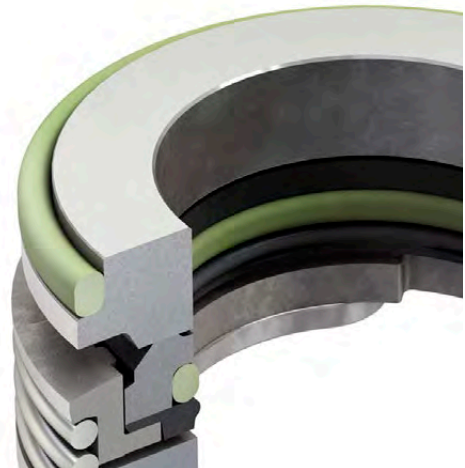
The Griploc seal is used for both inner and outer sealing. Mounted in the inner position it prevents liquid from entering the motor housing and as the outer seal it prevents leakage of the pumped media into the buffer chamber.



Solid seal ring design

Solid seal rings minimize the risk of warped seal faces that causes leakage

Griploc seals have robust seal rings made of corrosion-resistant tungsten carbide (WCCR), aluminum oxide (Al_2O_3) or reaction-bonded silicon carbide (RSiC). The rings are solid with faces formed of the same material as the rest of the ring. This one-material design ensures a high-quality seal over time. The seals will not warp due to temperature changes and there is no risk of bi-metallic effect, causing the seal face to lose shape or separate from the ring. The seal face is also protected from other deformations caused by expansion or shrinkage.



Patented Griploc functionality

Locks the seal securely to the shaft

The patented Griploc locking function is a solution that causes no damage to the shaft. The seal is securely locked to the shaft with the help of a spring - without grub screws and rubber friction. When the seal is assembled, the spring first lies loosely in the housing. Then, when the coned lock screw is tightened, the lock spring grips the shaft. The spring locks the seal in the right position and ensures that it stay there.



Perfect interaction

Below is an overview of how the components in the Griploc seal interact with each other.



- 1) Stationary O-ring
- 2) Stationary seal ring
- 3) Rotating seal ring
The monolithic seal ring is geometrically driven by the spring housing.
- 4) Rotating O-ring
- 5) Sleeve
The sleeve, made out of rubber, works as wear protection for the driver. It also protects the O-ring from contamination of solids.
- 6) Driver
The driver transmits rotation to the seal ring from the spring housing. In addition, it acts as upper support for the coil spring.
- 7) Coil spring
The coil spring makes sure that the rotating seal ring is pressed against the stationary one.
- 8) Spring housing
The spring housing holds the lock spring and the lock screw and works as lower support for the coil spring.
- 9) Lock spring
The lock spring is tightened to the shaft and thereby locks the seal from rotation and axial sliding along the shaft.
- 10) Lock screw
The lock screw tightens the lock spring.

High performance materials

Heat resistant fluorocarbon rubber (Viton) for high temperature performance

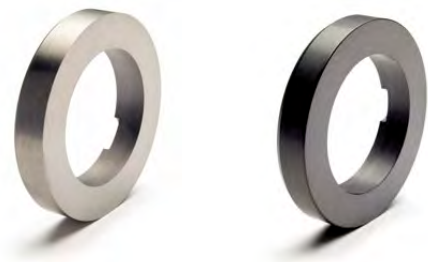
Griploc seals are equipped with O-rings in Viton only. Viton withstands temperatures of up to 250° C and is resistant to most acids and alkalis. Traditional sealing O-rings in nitrile fail at 130° C.

Durable and resistant seal ring materials

The seal rings are made of a unique tungsten carbide composition (WCCR), aluminum oxide (Al_2O_3) or reaction-bonded silicon carbide (RSiC). WCCR is a tungsten carbide grade with good sliding properties, high bending strength and toughness. This grade, exclusively developed for Flygt products, is an extremely durable and wear resistant material that offers high thermal conductivity and low thermal expansion. The seal rings are also available in silicon carbide, with great chemical resistance to low pH and chlorides. Silicon carbide is an excellent seal ring material in most applications and a good complement to WCCR.



O-rings in nitrile (left) and viton after test at 200° C.

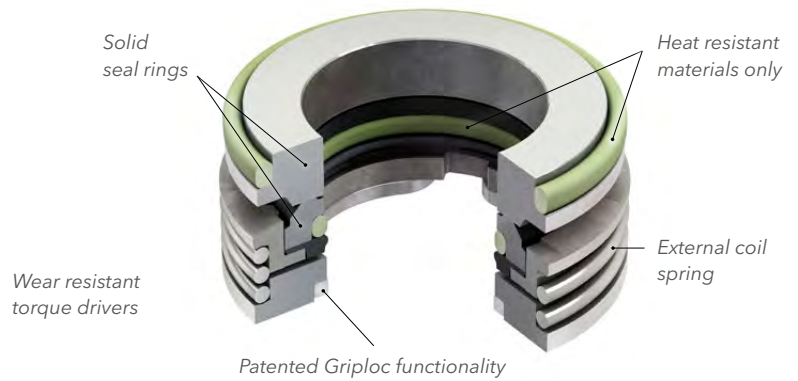


The tungsten carbide composition (WCCR) material (left) and the RSiC (silicon carbide) material.

Clog resistant

Open spring housing

The external coil spring is placed in an open housing which makes the seal resistant to clogging.



Wear resistant torque drivers

Protected torque drivers

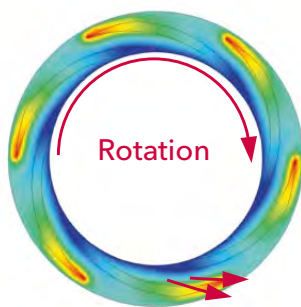
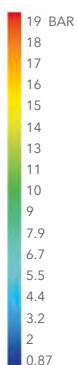
Wear protection of the internal torque drivers makes the seal suitable for abrasive applications. The rubber legs of the sleeve prevent the spring housing and the driver from wearing into each other and thus secure that the spring function does not lock.

Active Seal™

Unique and patented solution

Active Seal™ is a patented and unique solution from Flygt and is included in selected Griploc variants. Extensive field tests prove that Active Seal minimizes the risks for bearing and stator failures. Thanks to this, Active Seal extends service inspection intervals in many applications.

The Active Seal system prevents liquid from entering into the motor housing by acting as a micro pump. Laser cut grooves in the rotating seal face pump liquid from the inner to the outer diameter of the seal ring. In a double face seal system like Griploc, the active seal grooves are applied to the inner seal. Any possible leakage will continuously be pumped back from the stator-housing side of the seal to the wet side.



Buffer fluid side

Drive-unit side



No special service tools required

Quick and secure mounting with the Griploc mounting tool

The Griploc seal is quick and easy to mount in a pump. No special service tools are required; all you need is an ordinary screw driver and the mounting tool that is delivered with each seal.



Uniform seal design

Same installation and service procedures for all Griploc variants

The uniform design facilitates easy and correct mounting of the seal. There is only one way to mount all Griploc seals; the same installation procedure is used for all variants. The Griploc seals are available for a wide range of Flygt pumps and mixers, see the table below. As the seal assortment has been reduced to fewer seal versions your cost for spare part inventory will decrease.

Technical data

The complete range of Griploc seals is currently being introduced as spare parts for the following Flygt products:

Pumped media		Rating	
Sewage, Sludge	Yes	Pressure	16 bar
Slurry	Yes	Temperature	90 °C
Fiber	Yes	Speed	5,000 rpm
		pH	1–14

Shaft dimension	Pump/mixer model																		
Ø20 mm	2037	2060	2066	2075	2076	3041	3050	3057	3060	3065	3067	3068	3075	3076	3080	3085	4351	4352	4400
Ø22 mm	2040	2056	2070	2071	2102														
Ø25 mm	2650	3102	4630	4660	5520														
Ø28 mm	2082	2090	2125	2140															
Ø35 mm	2135	2151	2201	3126	3127	4440	4451												