

Time to rethink what your packing is capable of

*SpiralTrac*TM

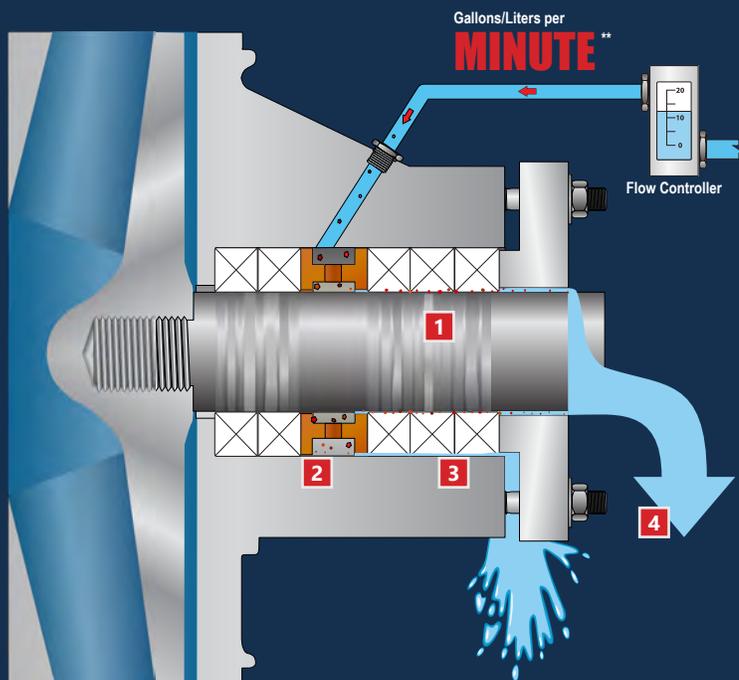
PACKING VERSION



WHAT IS SPIRALTRAC™?

The SpiralTrac Environmental Controller is a **unique, patented, active throat bushing**, specifically engineered to transform and control the internal stuffing box environment in rotating process equipment.

TYPICAL PACKED PUMP PROBLEMS



- 1 Shaft/Sleeve erosion
- 2 Trapped particulate
- 3 Premature packing failure
- 4 Excessive effluent water

Flush costs

Effluent treatment, re-heating costs

Maintenance and repair costs

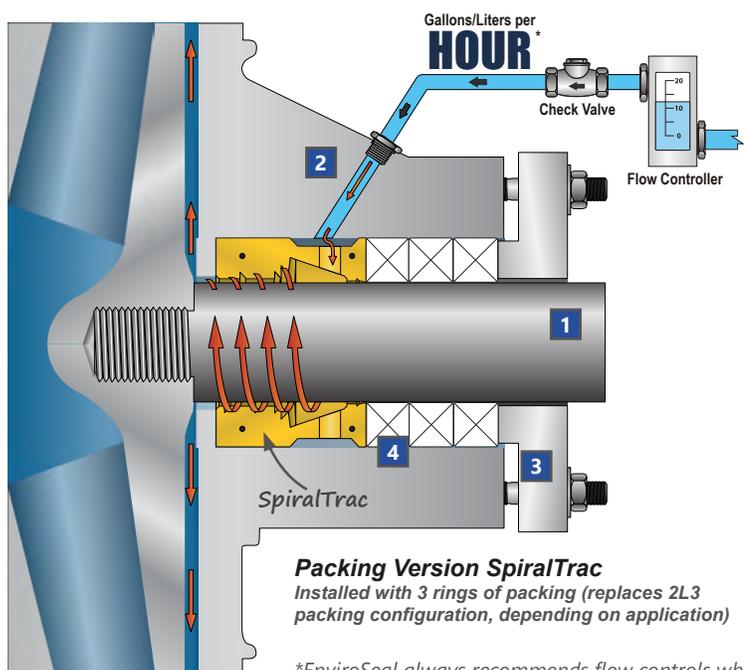
Frequent shaft, sleeve and packing replacement
Labor intensive - time consuming
Housekeeping issues - process leakage

Many equipment types

Different processes - different problems

*standard 2L3 packing setup
** depending on application

THE SPIRALTRAC SOLUTION



Packing Version SpiralTrac
Installed with 3 rings of packing (replaces 2L3 packing configuration, depending on application)

*EnviroSeal always recommends flow controls when installing a Packing Version SpiralTrac.



- 1 Improves equipment MTBF
- 2 Reduces the amount of flush needed by **60% or more** with the use of a flow controller*
- 3 Reduces leakage to clean drip rate or better
- 4 Improves packing performance & extends packing life

Packing Version SpiralTrac

Benefits

Flush can be reduced by 60% or more in many applications with the use of a flow controller

Through the use of tangential injection into a centrifugal separation chamber, and the incorporation of spiral grooving, Packing Version SpiralTrac is able to use flush far more effectively and efficiently in rejecting particulate from the pumpage.

Less leakage

The packing used with the Packing Version SpiralTrac must be of a high quality that will enable control of leakage to a drip rate. This results in a far cleaner working environment, longer bearing service life, and reduced housekeeping costs. EnviroSeal recommends high quality Chesterton packing.

The packing set is less sensitive to dirt in the flush water

The dirt is injected with the flush and forced under one or both sets of packing, contaminating the inner surface and scoring the shaft in the process. Packing Version SpiralTrac collects this dirt and channels it from the chamber through a dedicated exit groove.

Greatly reduced sleeve wear

Dirt from flush is rejected instead of embedding in the packing. As well, most of the dirt attempting to enter the packing set from process is captured in the spiral grooving system and rejected with the flush before it can embed under the packing rings above the SpiralTrac. The combination has proven to dramatically reduce sleeve wear, and in turn, make the sealing system less sensitive to axial and radial movement.

Longer packing life

Packing Version SpiralTrac finally enables the economic use of high-grade packing, enabling users to gain the advantages of their inherent ability to operate longer, with less leakage, and less sleeve wear.

Cleaner leakage

One of the most frequent reports from the field after installation is that the leakage from the packing set is not only reduced to drip rate, but the contaminant level within the leakage is astonishingly low. This again translates to massive visual and house cleaning benefits to the user.

The proven solution to packing large rotating equipment

Packing Version SpiralTrac has provided a long-awaited answer to the problems associated with packing and maintenance of not only pumps and mixers, but for large rotating equipment where the benefits have been even more evident. This equipment has included agitators, refiners, hydro pulpers, and thick stock pumps.



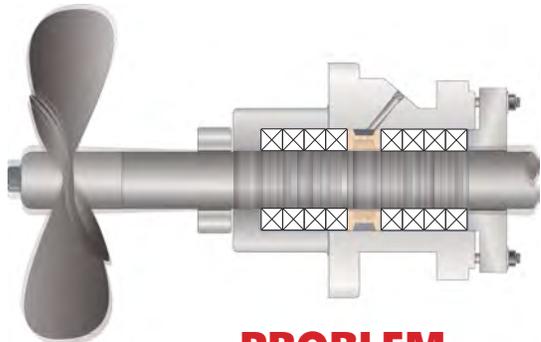
Split for easy installation
(Version P Type S)



SpiralTrac installation for a hydro turbine application in Quebec, Canada

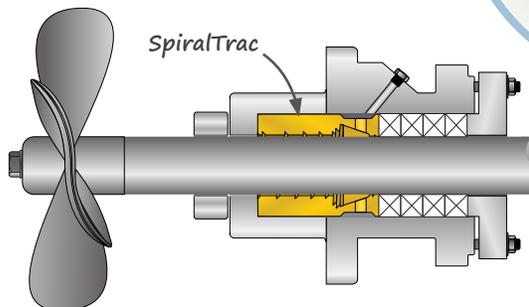
SpiralTrac with Shaft Support

Aside from the normal effects that the fluids have in decreasing packing and seal life, there may also be problems associated with *shaft movement or deflection*. SpiralTrac can be designed with tight clearance over the shaft to solve these problems.



PROBLEM

Shaft movement, deflection, vibration



SOLUTION

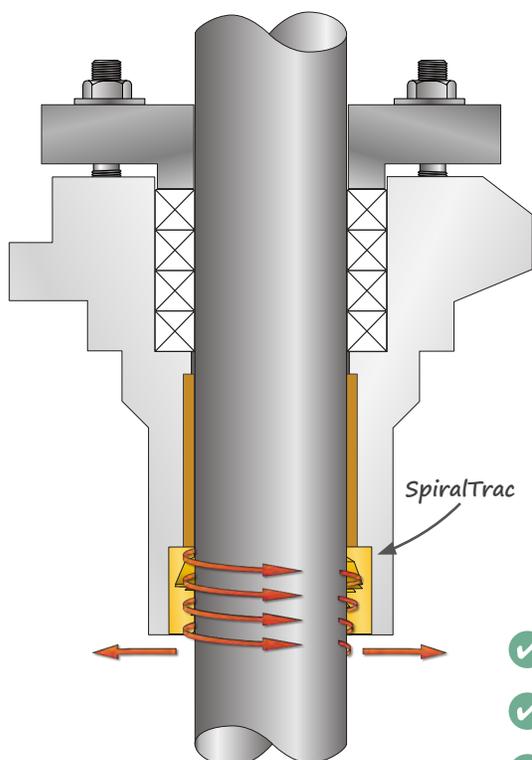
Shaft Support

- ✓ Tight clearance for added shaft support resulting in extended packing life.
- ✓ Faster, easier, more effective packing maintenance.
- ✓ Dramatically reduces direct and indirect costs associated with the operation of rotating process equipment.



Split SpiralTrac with added Shaft Support, made of BGE material

Vertical Turbine SpiralTrac



Unlike the standard Packing Version SpiralTrac that is installed in the stuffing box area, the Vertical Turbine SpiralTrac is installed (press fit) into the bottom of the column. This helps to keep the stuffing box clean by **preventing solids from migrating up alongside the shaft.**

The spiral geometry expels particulates back before they could reach the stuffing box, allowing the packing/mechanical seal to operate in a clean environment. Typically manufactured from metal with a minimum axial length of 1.000" (25.4 mm).

Vertical Turbine SpiralTrac can be used for both packed or sealed applications.

- ✓ Preventing solids from entering the stuffing box.
- ✓ Longer packing life resulting in less packing maintenance.
- ✓ Reduced and cleaner leakage, lowered housekeeping costs.

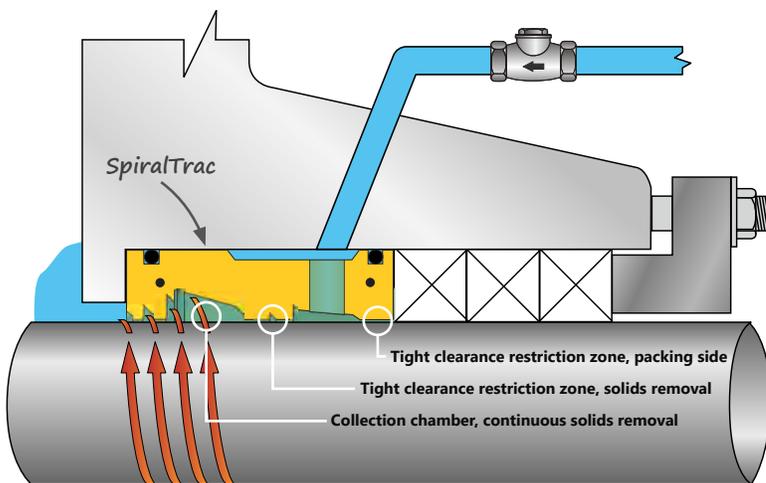


FIRST Device

The Flush Injection Restricted SpiralTrac Technology (FIRST) Device is a **modified Packing Version SpiralTrac** for applications, in which the use of flow controls (dole valve, flow meter, etc...) are not permitted or available. Gain the benefits of the patented and well proven SpiralTrac technology, and **greatly reduce your flush water usage!**



The Technology



The SpiralTrac FIRST Device uses the rotating flow in the collection chamber to create an axial flow component drawn from the outer radius of the tapered cavity. The tight clearance restriction zones restrict the flow coming from the flush line, entering the device through the tangential holes.

Particulate entering from behind the impeller is centrifuged by the rotating shaft and fluid, into the exit grooves which guide them back towards the impeller. The flush flowing through the exit groove expels the particulate under the cast in throat.

Benefits

- ✓ No pump modification required.
- ✓ Low cost enhanced sealing solution for equipment that is already packed.
- ✓ Available in high performance polymer suited for applications where intermittent shaft support is required.

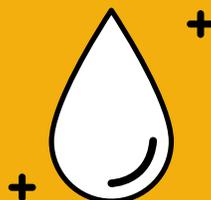


Split FIRST Device
made of BGE material

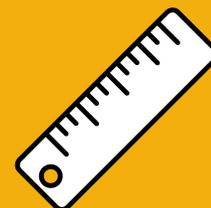
Installation Consideration



Sleeve must be in good condition to maintain pressure.



Flush must be clean to maintain the close clearance required.



Minimum axial length required for the FIRST Device is 2" (50 mm).

Material Options

SpiralTrac™ is manufactured in a variety of materials, aimed at your particular needs and process specifications. Systematic selection of the best material for a given application begins with the material properties. Mechanical, thermal, chemical and other properties.

Material	ENV ID	Max Temp	Application Information	Common use in Industry
Carbon Graphite PTFE <i>Shore D 63-66</i>	ESC	250 F / 121 °C	Engineered polymer used in a wide variety of applications.	Chemical, General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
Fortron PPS <i>Shore D 82-86</i>	MGE	500 F / 260 °C	High performance polymer suited for applications where intermittent shaft support is required.	Chemical, General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
Bearing Grade PEEK <i>Shore D 83-87</i>	BGE	500 F / 260 °C	High performance polymer designed for applications that require maximum shaft support.	Chemical, General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
Glass Filled PTFE <i>Shore D 59-63</i>	GLF	250 F / 121 °C	Engineered "white" polymer typically used in applications where process fluid is white.	Pulp and Paper
Poly-Urethane <i>Shore D 46-50</i>	STR	185 F / 85 °C	Excellent wear properties for slurry services.	Mining, Power, Steel, Wastewater
660 Bearing Grade Bronze <i>Brinell 65</i>	BRZ	n/a	Good wear properties. Material is non-sparking and absorbs moderate shaft deflection without damaging the shaft.	General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
316 Stainless Steel <i>Rockwell B 95</i>	316	n/a	Used in corrosive services.	Chemical, General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
416 Stainless Steel <i>Rockwell C 26.6</i>	416	n/a	Ideal for erosive services where chemical compatibility is not an issue.	Chemical, General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater
17-4PH* Stainless Steel <i>Rockwell C 36</i>	174	n/a	Ultimate wear resistance for tough slurry services.	General Manufacturing, Mining, Power, Pulp & Paper, Steel, Wastewater

*can be heat treated (HT) to Rockwell C 38-45. Additional charges may apply. During the heat treating process, material discoloration occurs.

Many times, it comes down to the customer's choice as to what is required for material for the SpiralTrac. Product compatibility, cost, pump construction, and installation type are all to be considered when choosing what material is to be used. The above list is only a guideline for material selection and industry applicability.

Exotic materials are available upon request. Please email support@enviroseal.ca for any application that does not fall within the above guidelines, or if you have any other questions.



ESC



MGE



GLF



STR



BRZ



316



17-4PH HT

Frequently Asked Questions

General

Does the SpiralTrac rotate?

No, the SpiralTrac does not rotate. SpiralTrac's patented design creates new and unique flow patterns from existing flows caused by shaft and sealing element rotation.

Our equipment's shaft moves axially. Will this affect SpiralTrac's operation?

No, since SpiralTrac does not contact the shaft/sleeve.

What type of rotating equipment can I use SpiralTrac in?

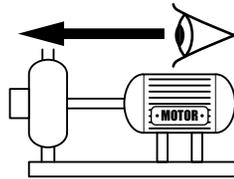
Any equipment that has a stuffing box/seal chamber. Horizontally or vertically mounted centrifugal pumps, agitators, vertical turbines, refiners, hydro turbines, etc.

Where should the SpiralTrac not be used?

SpiralTrac should not be used in any application where the process is at or near vapor margin. In this situation, any increase in temperature or decrease in pressure could cause flashing. Depending on the process, SpiralTrac may slightly change this condition, and we don't recommend taking the risk. SpiralTrac should also not be used with dry powder or any latex compound.

How do I determine the rotation of the SpiralTracs required in my pump?

Direction of rotation is determined from the motor end looking towards the impeller.



How can I get a quote for SpiralTrac?

In order to get a quote, fill out as much information as you can on one of our *SpiralTrac Quote Forms* (available at enviroseal.ca) and email it to support@enviroseal.ca

How do I order SpiralTrac?

We offer SpiralTrac through A. W. Chesterton's Worldwide distribution network. Find your country in our *Distributor Locator* or email us with your location (address and zip code) and we'll put you in touch with your local authorized distributor.

What tools do I need to install SpiralTrac?

Some are designed to be easily installed on site without the use of any tool, some designed with a press fit and requires the equipment to be disassembled. Refer product installation instruction for details.



enviroseal.ca



info@enviroseal.ca

Please explore our website (enviroseal.ca) for additional SpiralTrac resources, downloadable digital assets (including this brochure), application success stories, more FAQs and other SpiralTrac information. Get in touch with us by emailing to info@enviroseal.ca

Packing Version

Does SpiralTrac reduce flush rate automatically?

No, our standard Packing Version SpiralTrac reduces the amount of flush needed to run the application successfully. To achieve flush reduction EnviroSeal recommends the use of flow controller and check valve.

How much flush reduction can I expect after installing a Packing Version SpiralTrac?

Highly dependent on application, but typically you can expect a reduction of 60%-80% flush rate needed for successful operation. Please note, SpiralTrac does not reduce flush on its own, it allows the application to run successfully with a reduced flush rate! EnviroSeal always recommends the use of flow controller and check valve when installing SpiralTrac.

How much flush pressure is required for Packing Version SpiralTrac?

The required flush pressure is dependent on the stuffing box pressure. Normal flush pressure should be above box pressure by a minimum of 1 Bar / 14.5 PSI, enabling the flush to push any contaminants under the existing throat.

My lantern ring is at the bottom of the stuffing box. Can I still use SpiralTrac?

Yes. SpiralTrac is designed to replace any packing-lantern ring configurations.

Do I need the same number of packing rings after installing SpiralTrac?

Typically, no, you will need less rings of packing after installing SpiralTrac. For example, in the commonly used 2L3 setup SpiralTrac replaces the bottom 2 rings of packing and the lantern ring so instead of 5, you will only need 3 rings of packing.

Are packing adjustments necessary?

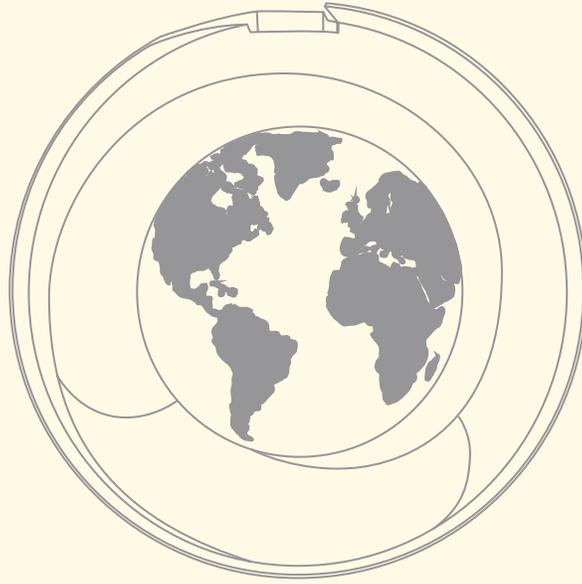
Yes. As this is still a packed application, the gland follower would be tightened just beyond finger tight. Adjustments are still going to be necessary however they should be less and fewer in between. We often come across applications where 6 or more months go by in between adjustments.

How do I remove a Packing Version SpiralTrac?

The Packing Version SpiralTrac typically has puller holes on the gland side of the device to facilitate the starting of a packing extractor. For more information please refer to the installation instruction.

Will Packing Version SpiralTrac work with no flush?

No. All Packing Version SpiralTracs require flush to force the contaminants under the existing throat.



Home of SpiralTrac™

EnviroSeal Engineering Products Ltd. is a pioneering leader in seal and packing protection technology, offering several patented product families that enhance operating conditions and dramatically increase the service life of mechanical seals and packing in the pulp & paper, mining, API, CPI, municipal, pharmaceutical, marine, food processing and other general heavy industries worldwide.

Mission Statement

Our mission is to research, design and produce creative and leading-edge seal protection technology for distribution and use worldwide in any process industry. Our hallmark will be excellence of service, ingenuity in design and quality of product, thereby resulting in the greatest possible benefits and savings for our customers.

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