You have questions. We have answers!

# SpiralTrac™

## FREQUENTLY ASKED QUESTIONS

EnviroSeal
Engineering Products Limited

**SpiralTrac™ is a revolutionary environmental controller for seal and packing chambers, and has established new standards worldwide for exploiting the maximum performance potential of rotating process equipment in various industries.**

Use SpiralTrac in process pumps from the following manufacturers

**Ahlstrom • Allis-Chalmers • ASH Pumps • Andritz • Beloit Canada • Denver • Durco • Goulds • GIW Hazelton • Ingersoll Impco • Jones Rand • Morris • Ramparts • Warman Sunds Valmet • Worthington ...and many others!**

## SpiralTrac™ sample applications in various industries

| Application | Equipment | SpiralTrac Version |
|---|---|---|
| Black Liquor | Durco Mk II Group II | Packing Version |
| Black Liquor | Allis-Chalmers PWO Frame 4 | Packing Version |
| Black Liquor | Bingham CFO K | Packing Version |
| Bleach/Chlorine | Allis-Chalmers | Version F (seal) |
| Bleached Stock | Goulds 3415 | Packing Version |
| Green Liquor | Babcock & Wilcox SRJO | Packing Version |
| Lime Slurry | Canada 6DSH | Packing Version |
| Paper Stock | Ahlstrom Head Box Feed Pump | Version F (seal) |
| Paper Stock | Goulds 3175L | Version F (seal) |
| Paper Stock | Fiber Prep 25-4-0100 | Packing Version |
| Paper Stock (de-inked) | Goulds (various) | Packing Version |
| Paper Stock (recycled) | Allis-Chalmers Frame 3 Size 3 | Packing Version |
| Paper Stock (ClO2) | Allis-Chalmers PWOF9C1 | Packing Version |
| Pulp | Gauld Screen | Version N (seal) |
| Thick Stock | Clove Rotor 1200 | Packing Version |
| Pulp | Byron Jackson Model 480 | Packing Version |
| Sludge | Mission 3x4-R11 Clarifier Underflow | Version D (seal) |
| Water (dirty) | Goulds 3405S | Packing Version |
| White Water | Goulds 3196MT/LTX | Version D (seal) |
| Wood Chips | Beloit 3512 | Packing Version |
| Acid | Ramparts Acid Pump | Packing Version |
| Aluminum Hydrate | Warman 12/10 GGAH | Packing Version |
| Bauxite | Worthington (various) | Version N (seal) |
| Caustic Soda (30%) | Durco Mk II Group II | Version N (seal) |
| Coal Slurry | Warman 4/3 EHH | Version N (seal) |

**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.

**I am interested in SpiralTrac but not sure it would work for my application. How can I find that out?**
Email us at support@enviroseal.ca, our technical support team can help you figure out whether SpiralTrac would be beneficial to your application.

**Can SpiralTrac be used with latex or paint?**
Typically, no. SpiralTrac cannot be used for most latex compounds or latex based paint because the exit groove would be filled by the material, and the functionality of the SpiralTrac would be degraded as a result.

**Can SpiralTrac be used with dry powder?**
No, SpiralTrac is designed to operate in fluid only.

**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.

**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 do I determine the rotation of the SpiralTracs required in my double-ended pump?**
There should be one left-hand rotation (CCW) device and one right-hand rotation (CW) device (either packing or seal versions) utilized in a double-ended pump.

**What is the largest-sized contaminant that SpiralTrac can handle?**
The radial clearance between the shaft and inside diameter of the SpiralTrac is 0.020"-0.040". Upon flooding of the pump, contaminants larger than this size cannot enter the seal cavity. Contaminants this size or smaller that do enter the seal cavity are easily removed by SpiralTrac. Should a larger piece of contaminant enter a seal cavity through the flush port, the SpiralTrac will attempt to remove it. If there is a throat at the end of the seal cavity the largest contaminant is dictated by the throat clearance.

**What materials are SpiralTrac available in?**

EnviroSeal offers SpiralTrac in a number of standard materials. For details on these materials please visit our website at enviroseal.ca/spiraltrac/material. However, we can manufacture SpiralTrac from any machinable material, let us know your specific needs and we'll do our best to accommodate your request.

**How do I know which material to specify when ordering SpiralTrac?**

Material selection depends on the application and many other factors. Based on the application information provided to us we will always make sure you use the appropriate material.

**What is the maximum process temperature ESC/GLF SpiralTrac can handle?**

The maximum process temperature we recommend is 250ºF/120ºC. If your process temperature is higher than this, you should consider using a metal SpiralTrac. For additional material details visit enviroseal.ca/spiraltrac/material.

**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 and email it to us.

**How do I order SpiralTrac?**

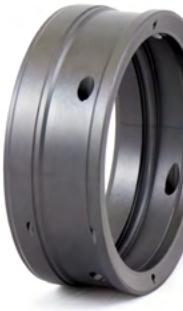
We offer SpiralTrac through A. W. Chesterton's Worldwide distribution network. Find your country in our Distributor Locator or email us with your location (address and zip code) and we'll put you in touch with your local authorized distributor.

**What tools do I need to install SpiralTrac?**

Some SpiralTracs 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.

**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 dependant 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.



**What's the minimum length of Packing Version SpiralTrac?**
The minimum axial length of Packing Version SpiralTrac is 1"/25.4 mm

**How much room do I need to install a Packing Version SpiralTrac?**
This room is dependant on the distance of your first obstruction. If this distance is shorter than the SpiralTrac needed we may be able to manufacture SpiralTrac in multiple axial pieces.

**Is Packing Version SpiralTrac available in metal?**
Yes, both split and non-split Packing Version SpiralTracs are available in metal.

**What are the material recommendations when intermittent shaft support is needed?**
MGE (PPS blend thermoplastic), BGE (PEEK blend thermoplastic) and 660 Bronze.

**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.

**Can I use any grade of packing with the Packing Version SpiralTrac?**
Yes. We recommend choosing your packing based on operating conditions. All packing should be broken in according to manufacturer specifications.

# VERSION

**How many rings of packing are used with the Packing Version SpiralTrac?**

Typically, we recommend a minimum of 3 rings of packing above the SpiralTrac. However many times, mostly in low pressure applications, we have successfully used SpiralTrac with only 2 rings of packing.

**Why are there no air vents in the Packing Version SpiralTrac?**

These devices are designed to be easily installed in the field where the required upgrades associated with the air vent cannot be done. The use of flush also takes care of the air trapped in the stuffing box.

**Do I have to replace a worn sleeve before installing SpiralTrac?**

Depends on where the sleeve is worn. SpiralTrac can function properly over a worn sleeve. It is very important that the sleeve area under the packing outboard of the SpiralTrac is in good condition.

**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.

**How can I tell if my Packing Version SpiralTrac is installed correctly?**

- There is an installation label indicating the impeller side of the device (which should be removed prior to installation).
- Rotation direction is engraved on the lantern ring section.
- The part number is engraved on the impeller end of the SpiralTrac.
- The tangential hole will inject the flush in the direction of shaft rotation.
- The puller holes that facilitate the removal of the device should be facing the gland.

**Does the Packing Version SpiralTrac have to be changed when the packing is replaced?**

No. However, if you are changing the packing and time is available, you can remove, inspect, clean and reinsert the SpiralTrac before replacing the packing. When inspecting the device make sure there is no obstruction in the spiral and the flush holes.

**Is the Packing Version SpiralTrac press fitted?**

Typically, No. The SpiralTrac is designed to inserted from the gland side of the stuffing box with a locational clearance fit. The rings of packing and the gland follower keeps the device in place.

**What materials are recommended for the FIRST device?**

MGE (PPS blend thermoplastic), BGE (PEEK blend thermoplastic) and 660 Bronze.

**Will Seal Version SpiralTrac work with packing?**

No, these SpiralTracs are not designed to work with packing.

**How do I tell if Seal Version SpiralTrac is installed correctly?**

- The spiral groove always faces the seal and should spiral in the direction of the shaft as viewed from the seal end looking towards the impeller.
- The part number is engraved on the impeller end of the SpiralTrac.
- There is an installation label indicating the direction of rotation (which should be removed prior to installation).
- If an air vent exists, it must be in the 12 o'clock position.
- Double-ended pumps: There should be one left-hand rotation device and one right-hand rotation device. Direction of rotation is determined from the motor end looking towards the impeller.

**Should I be using hard faces or soft faces on my mechanical seal when I have a SpiralTrac installed?**

Typically, hard face seal combinations are used when erosive solids are present in the seal cavity. With SpiralTrac, however, solids are no longer present in the cavity. Since the seal is now operating in a cleaner environment, soft face seal combinations can be used at substantially reduced costs. Soft face seal combinations will also run cooler, further extending the mechanical seal's life. Contact your seal manufacturer for recommendation.

**How much clearance is between the SpiralTrac ID and the OD of the shaft?**

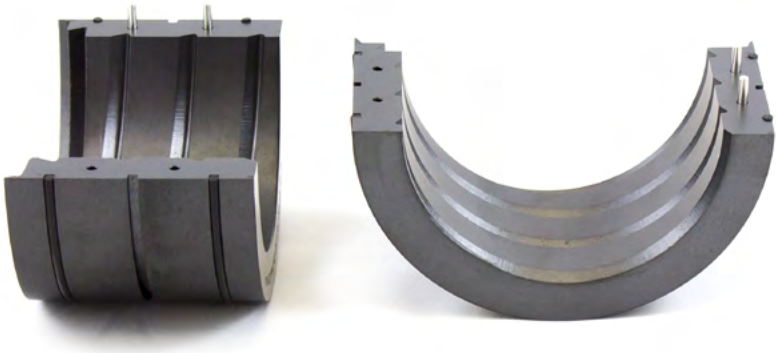
The typical clearance between the SpiralTrac and the OD of the shaft is 0.018" / 0.46mm radial, but this can vary depending on the size of the device and the material it is made from.

**Can SpiralTrac be used with all mechanical seals?**

Yes! SpiralTrac can be designed to work with all mechanical seals.

**Can SpiralTrac be used with double mechanical seals?**

Typically, yes, providing there is enough room in the seal cavity for both the seal and SpiralTrac. In fact, SpiralTrac is an excellent and economical way of protecting your high cost double mechanical seals.



**How much room do I need to install a SpiralTrac Version F?**

Standard axial length of SpiralTrac Version F is 1.850”/47 mm. If a different length is required please contact us.

**How much flush pressure is required for a SpiralTrac Version F?**

The required flush pressure is dependent on the seal cavity 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.

**What is the difference between Version N, D, C?**

They differ in the length of the devices and the applications that they are used in:

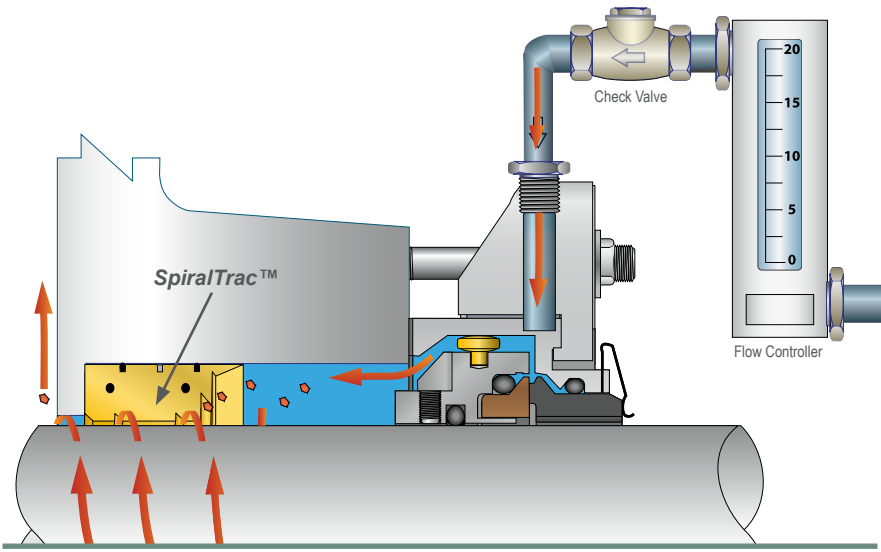
- Version N typically used in non-fibrous applications (silt, sand)
- Version D typically used in fibrous applications (pulp, corn mash, wastewater)
- Version C typically used in intermittent services (product crystallizes, hardened when cooled)

**Why is there no air vent in the Version F SpiralTrac devices?**

These devices are split and designed to be easily installed in the field where the required upgrades associated with the air vent cannot be done. The use of flush also takes care of the air trapped in the seal cavity.

**I would like to run my application flush free. Can the Seal Version SpiralTrac make this happen?**

Yes. There are many installations where we are able to run flush free under the right conditions. After application details have been submitted and looked at, we can help you determine whether your application can run flush free with SpiralTrac.



# SPIRALTRAC ADAPTOR

**Why would I choose a SpiralTrac Adaptor over a regular SpiralTrac?**

SpiralTrac Adaptor can be your answer when:

- Box bore too big/small (for gasket of seal)
- Bolt pattern too big/small (for seal mounting)
- Shaft wear (moving seal closer to clean part of shaft, closer to bearings)

**What will the SpiralTrac Adaptor do to the turbulence in the stuffing box versus having the SpiralTrac fill up all the space in the box?**

The turbulence in the seal cavity will not be changed with the standard Adaptor. What is important is to protect the environment around the seal itself, and that is achieved with this design. An option, should you wish to control the turbulence in the seal cavity, is to order the Adaptor with a nose piece that will fill the entire void of the seal cavity. It is important to note that this option can be used only when there is enough first obstruction space available.

**What seals the halves of the split SpiralTrac Adaptor from leaking?**

The two halves are machined to a smooth finish to ensure total face contact when tightened together with the socket-head cap screws that are supplied with each device. Split metal Adaptors are supplied with a gasket sealant which should be applied for each half. Refer to installation instruction for details.

**What are the pressure limitations of the split SpiralTrac Adaptor?**

The split device made of ESC material has been pressure tested to 100 PSI / 6.9 Bar. The typical applications for the Adaptor are well within this limit. Should you have a higher-pressure application and still require a split device, contact EnviroSeal.

**What seals the face of the stuffing box area when using a SpiralTrac Adaptor?**

Composite Adaptors have a built-in gasket. For metal Adaptors customer must supply their own gasketing material.

**What materials are split SpiralTrac Adaptor available in?**

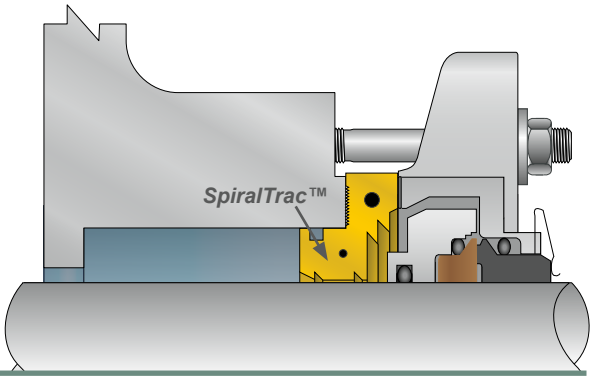
Split SpiralTrac Adaptors are available in ESC and metal.

**Will SpiralTrac Adaptor work with no flush?**

No. We recommend to use flush with all SpiralTrac Adaptors.

**Is SpiralTrac Adaptor available for Packing? When would I use it?**

Yes. Packing SpiralTrac Adaptors are typically used to help large equipment keep running until the worn shaft/ sleeve can be replaced.



# SPIRALTRAC FOR VERTICAL TURBINE

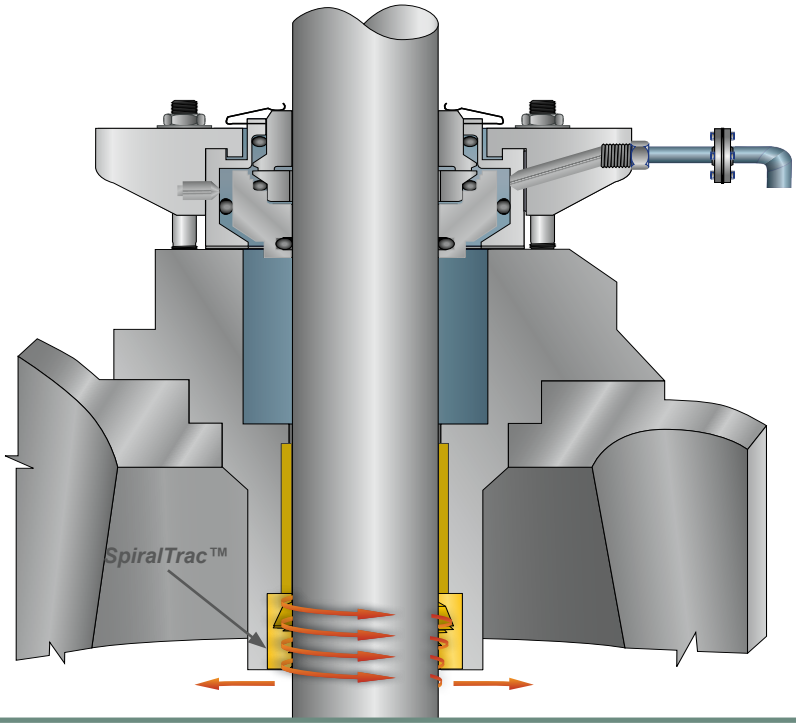
**How do I know that my equipment is a vertical turbine?**
Vertical turbine is a specialized centrifugal pump designed to move water from a well or reservoir that is deep underground. We observed over the years that most vertical turbines are left hand rotation (CCW) with relatively small shaft size (1"-2").

**Do I have to modify my equipment to install Vertical Turbine SpiralTrac?**
Yes. Machine upgrades to the equipment have to be completed.

**Can the Vertical Turbine SpiralTrac be used with both packing and mechanical seals?**
Yes. The SpiralTrac is not installed in the conventional box so it can be used in both packed and sealed applications.

**What materials are Vertical Turbine SpiralTrac available in?**
Vertical Turbine SpiralTracs can be manufactured in both metal and composite materials, metal being the typical material.

**What is the shortest axial length available?**
1.000" is the minimum axial length.



## 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.

Proudly Distributed WorldWide by:

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MADE IN CANADA
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