

# *SpiralTrac*<sup>TM</sup>

**FIRST  
DEVICE**

**Flush Injection Restricted  
SpiralTrac Technology (FIRST)  
for Packed Applications**



**EnviroSeal**  
Engineering Products Limited

## 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.



# Flush Injection Restricted SpiralTrac Technology

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.**

# FIRST Device Benefits

## **Flush can be reduced by 60% or more in many applications**

Through the use of tangential injection into a centrifugal separation chamber, and the incorporation of spiral grooving, the FIRST Device is able to use flush far more effectively and efficiently in rejecting particulate from the stuffing box.



## **Less Leakage**

The packing above the SpiralTrac 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.

## **Greatly reduced sleeve wear**

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 bushing. The combination has proven to dramatically reduce sleeve wear, and in turn make the sealing system less sensitive to radial movement.

## **Longer Packing Life**

The FIRST Device 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.

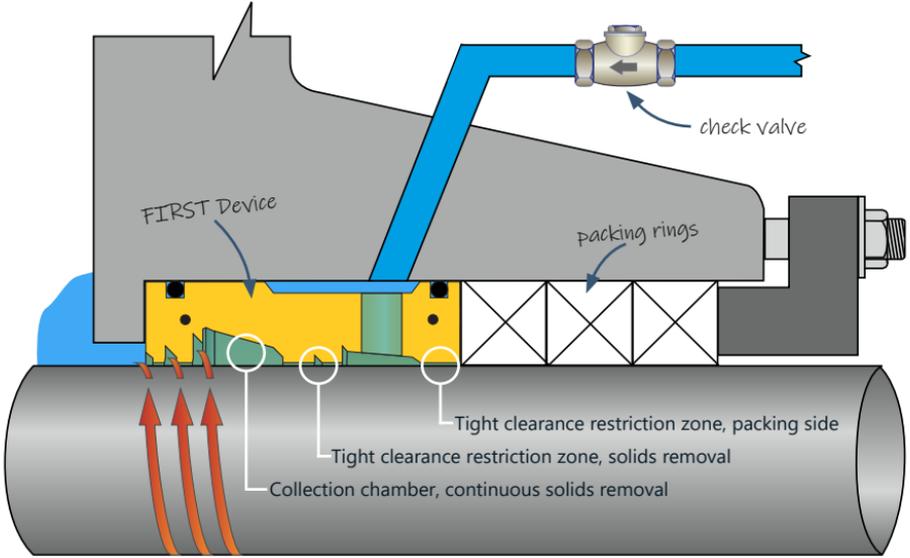
## **Cleaner Leakage**

The leakage from the packing set is not only reduced to drip rate, but the contaminant level within the leakage is astonishingly low. This translates to massive visual and house cleaning benefits to the user.



Can be split for  
easy installation

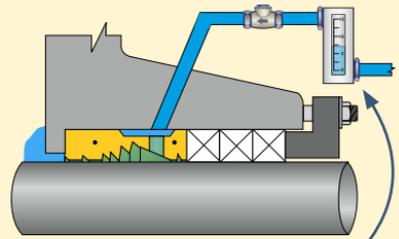
# The Technology



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.

Standard Packing Version SpiralTrac



Flow controller required to reduce flush water amount

## Feature Comparison

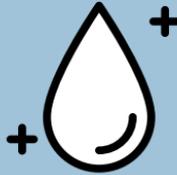
	FIRST Device	Standard Version P
Greatly reduces flush amount required	✓	✓
Improves equipment MTBF	✓	✓
Less and cleaner leakage	✓	✓
Greatly reduced shaft/sleeve wear	✓	✓
Longer packing life	✓	✓
Built-in flush restriction	✓	✗
Shaft support	✓	optional

# Application Considerations

In order to utilize the unique features of the FIRST Device, some application properties have to be considered! For most packed applications, EnviroSeal recommends the standard Packing Version SpiralTrac be installed with flow controls.



The pump sleeve under the device **must be in good condition** in order to maintain flush pressure, and for the automatic flush restriction to work efficiently.



Because of the tight clearance in the FIRST Device restriction zones, the flush water **must be clean** in order to maintain the close clearance required.



In order to incorporate the SpiralTrac technology while giving the maximum flow control and shaft support, the **minimum axial length required** for the FIRST Device is 2" (50 mm).

# Typical Material Options



**MGE**

Fortron PPS Blend  
*Shore D 82-86*

High performance polymer suited for applications where intermittent shaft support is required.



**BGE**

Bearing Grade PEEK  
*Shore D 83-87*

High performance polymer designed for applications that require maximum shaft support.



**BRZ**

660 Bearing Grade Bronze  
*Brinell 65*

Good wear properties. Material is non-sparking and will absorb moderate shaft deflection without damaging the shaft.

## Chesterton SuperSet Total Sealing Solution

The Chesterton SuperSet™ combines the superior sealing capabilities of Chesterton's compression packing products with the patented design of our Packing Version SpiralTrac™ Environmental Controller for packed stuffing boxes.



This total sealing solution set is proven to increase packing and equipment service life while dramatically reducing flush rates.



Combine it with the revolutionary Chesterton DualPac 2212 Packing

# 2,000,000 Gallons of Water Saved with the SpiralTrac FIRST Device

Success Story

## Challenge

This pump was repacked 25 times a year, resulted in excessive downtime, packing cost, and labour cost affiliated with the repacking procedure. The flush water was not controlled and had an estimated flow of 5 GPM, **2,500,000 gallons per year.**

## Solution

To improve packing life and reduce flush water usage, a SpiralTrac FIRST Device was installed with three rings of Chesterton 477-1 Carbon Fiber packing.

## Result

Following up on the application 2 years after initial installation, the pump has been running without repacking and with roughly a 1/2" of adjustment on the packing follower. Water usage was reduced to 500,000 gallons per year, which is a **2,000,000 gallon flush water saving on this pump alone**, and that is without the use of flow controls. Customer was able to save on water, material, labour and housekeeping costs.

SpiralTrac FIRST Device made of Bearing Grade PEEK (BGE) material

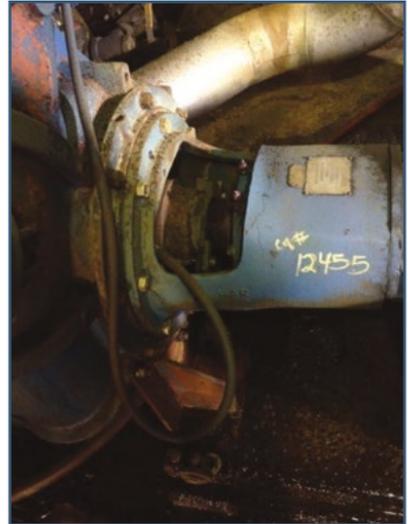
## Application Info

**Equipment:** Wemco 3112 Tank Pump

**Product:** Paper Stock

**Pressure:** 3.8 bar (55 Psi)

**Shaft Size:** 3.937" (100 mm)



Wemco 3112 Tank Pump with  
SpiralTrac FIRST Device Installed





## 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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