

Split Seals for Waterturbines

The Challenge

Waterturbines in hydropower plants requires sealing solutions that are reliable and easy to install. In many cases relatively simple sealing solution are used based on lipseals or compression packing. These conventional technologies tend to leak and need to be supported by expensive external filtrated water supply systems.

A hydropower plant in Sardinia faced sealing system reliability issues and had to repair the seals every 6 months. As the turbine was still under the warranty of the turbine manufacturer, the poor reliability also presented high cost to the manufacturer because of warranty claims.



The 442 Large Size Split Seal

Application Details

Equipment	Zillio Horizontal Francis turbine	Quantity	4
Medium	water		
Pressure	4.2 barg – 11 barg	Temperature	Amb.
Seal	221 270mm SC/SC/FKM		
	442 130mm SC/SC/FKM / SpiralTrac		
	2x 442 155mm SC/SC/FKM		

The Chesterton Solution

Chesterton installed the 221 split seal. This first Chesterton seal that was installed in the 2008 is still working today.

The turbine manufacturer acknowledged that a performing sealing system installed once is less expensive than the costs of warranty for a lower priced sealing system.

As a result of the first success, the turbine manufacturer requested that split seals be installed on 3 more turbines in the plant. These have been installed in between 2010 and 2011 on a vertical Francis turbine and 2 horizontal turbines.



The 442 being installed on the horizontal turbine

All 4 applications are running satisfactorily today.

Why use this Solution?

- No need for expensive filtrated water supply for seal lubrication
- Reliable - Robust design that handles silt and sediment that may be present.
- Easy to Maintain – Fully split, the seal can be repaired without disassembly of the turbine .

Products used in this Solution

[442](#)

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