



## Cover Story

# Chesterton: fulfilling the vision

By Andrew Peers

The Englishman Arthur W. Chesterton came to the US on a steamboat and saw that there was business to be done with steamboats. He promptly launched a packing company (gaskets and compression packing was the old fashioned way of sealing pumps) under the name of A. W. Chesterton Company on the Boston waterfront in 1884, providing packing products to the ships that passed through the harbor.

A.W. Chesterton Company offered packing and gaskets for pumps, initially for ships, but later on for the whole process industry. “The attention to product excellence and customer support has been the focus of the Chesterton Company ever since”, said Marco Hanzon, Marketing Manager Europe and Middle-East. “We still make packing products, and they are still an important part of our portfolio, but in the 1950’s and 60’s we developed mechanical seals as well, and that has become the largest part of our business in total. Within the mechanical seal business, split technology is something that Chesterton does very well and remains at the forefront of development. Split seal technology is in our DNA, not just for mechanical seals but also in our other product lines, for example seals for hydraulic equipment.”

### Missing link

Split seals are valued by end users, people that operate pumps in plants, who have to deal with pumps on a day-to-day basis. Modern sealing technology can bring them alternatives that seal as a mechanical seal, but without the disadvantages of traditional mechanical seals, where the equipment has to be taken apart in order to service it. It also avoids the disadvantages of traditional packing, where the pump is not taken apart but remains prone to leakage causing collateral equipment damage and pump base degradation. “If you get a rusty pump base, at some point you will need to take it out, which is very maintenance intensive, all the more difficult these days as there are less people in the plant available to service the pumps”, says Marco. “Much expertise is being lost with the passing of the older generation



and it is not being replaced. A lot of activities are out-sourced these days, which has a good and a bad side. If pump repair is out-sourced, you miss the link with the application on site and the pump repair itself. The pump has to be made suitable and fit for that application, so you need knowledge about the application. How do you pipe it up, how do you start it... and that is a missing link. The pump repair company just gives his repaired pump back to the plant and that's it. Then it's up to the people in the plant to operate it." Marco observes how on-site maintenance personnel of end users in former times knew how to repair a pump, but that they also knew the application, as they worked with the pump all the time. More knowledge about the pump could be provided, what should be done and what should be avoided. But this type of knowledge is disappearing.

"Exchanging seals on large vertical pumps requires significant resources to disassemble the pump and so it is often not considered. In some cases the roof needs to be lifted in order to repair a pump, and a crane hired in for days of work. Typically there is only one of these large pumps in a plant, so time is an important factor: when the pump isn't running, it affects production."

### Split seals

Split seals are not weaker because they are split. Capable of handling pressures up to 31 bar, they are similar to any other type of mechanical seal. "We are moving away from just water applications to e.g., chemical plants where rotary dyers dry the product under very high vacuum. The more vacuum you can create the faster the production. Hydro power turbines are often sealed with rubber hydraulic seals, but a traditional mechanical seal is not often used." Marco explained how seals in hydro-turbines typically leak a lot and that is just accepted as part of the deal when using them, Auxilliary pumps are used to pump this excessive leakage. But Chesterton can offer a viable alternative: seals without any filtration systems to provide clean water and without leakage. Customers in this industry are generally very conservative and for a good reason. Depending on the size of the turbine, a single installation can easily cost over 100,000 euros. It is expensive. Marco feels that a change of mindset is needed: "split seal technology has advanced over time and we can offer new solutions in this and all kinds of other sectors. This is definitely one of Chesterton's strengths. We have the largest installed base worldwide and therefore an extensive knowledge-base in split sealing. In short, the technology in our split seals is leading in its class, which shows in pressure capabilities, size range, ease of installation and reliability."

### Key difference

Chesterton is capable of working closely with end users. "We know their processes and can provide a better solution to fix their sealing problems. The knowledge we bring to the table is, I believe, a key differentiator. Many suppliers have good products; the difference comes when you apply the product. This is where Chesterton has always brought more value. In many cases, Chesterton's expertise is used when others can't offer a viable solution. We don't believe the products as such make the difference in this day and age. The seal market is mature and there are many reputable suppliers to choose from. There are no really bad products. The key is the right application of the product with consideration of how the pump is operated and what environmental controls can be used to improve the environment for the seal to operate in. A better understanding of these parameters should make Chesterton the preferred choice." Marco goes on to describe how seal failure in large pumps incurs great expensive as the pumps need to be disassembled. This often involves hoisting equipment and special logistics to get the parts to the workshop. About 80% of pumps come into a workshop due to seal or bearing failures. Operators of large pumps





*Big is no problem. A 24 inch split seal being installed on a turbine for hydroelectric power generation.*

are therefore very reluctant to put in seals and run the extra risk of failure and downtime. As a result, many large pumps are still packed but this causes issues with base degradation (leakage) and /or frequent sleeve replacements. "Split seals can provide operators of large pumps an upgrade to mechanical seal performance (no leakage, lower power consumption, maintenance free) from packed pumps without the risk of having to disassemble a pump in case of seal failure. Seals can be repaired on site and fast."

### **Focus shift**

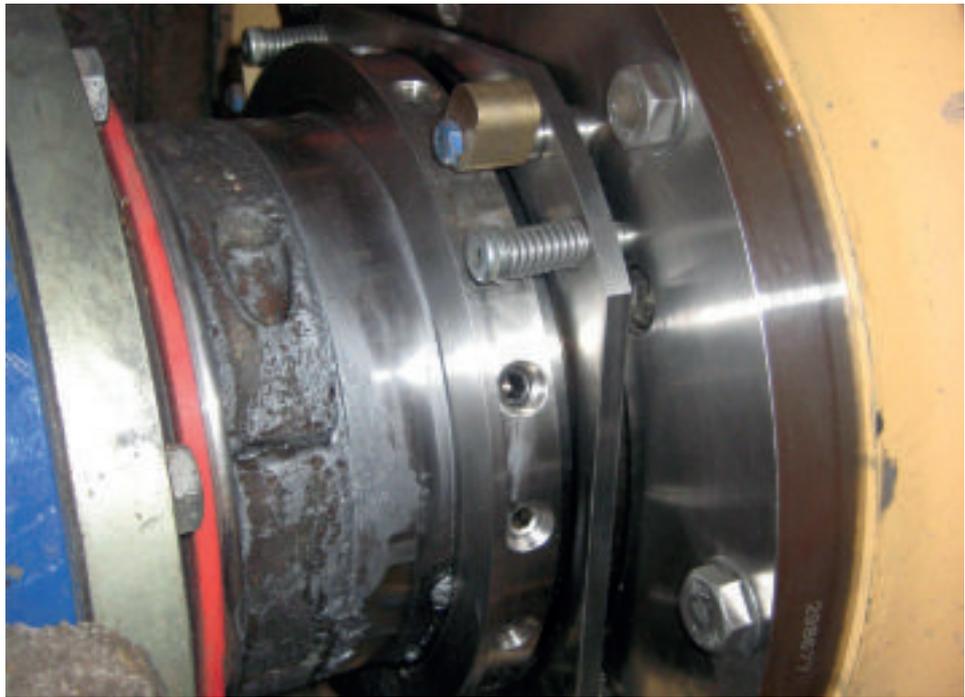
While the sealing industry is quite a matured market place with fewer large global players, commoditization is also clearly increasing for more basic applications. Marco sees a shift in focus whereby companies like Chesterton will focus on the more demanding

applications, working closely with end users and OEM's to develop products that last longer. This will help the process industries in developed countries to better compete with low cost countries as well. The seal industry can help by providing products that last longer, minimizing the impact on the environment with solutions that are energy efficient. Chesterton also adapts to this change: the sealing end of their business is selling more and more as solutions, as part of a service (e.g. pump repair, engineered seals). "I would like to make it clear that we are investing in local support structures that are designed to meet the demands of OEM customers", comments Marco. "We compete on technology, but foremost through local service in our target markets." Chesterton has plants in the US, Mexico, Brazil and China, with the head office based in Groveland (Boston), USA. "We sell through a very dense



*Kaplan turbine sealing. A maintenance-free sealing system in which split seals provide operators of small hydro power plants peace of mind with reliable and maintenance friendly sealing.*

*Specialty slurry pumps deliver no flush sealing performance helping plants to conserve water usage.*



network of sales offices and distributors that provide the services to the local markets. Delivery performance is therefore managed by local stocks and an assembly-to-order strategy in our plants that allows products to be shipped globally.

### **Innovation drives efficiency**

A key focus for Chesterton will be going forward on markets where slurry sealing is important. “The future is not in making more products”, says Marco, “the future lies in making products that are tailored to the needs to the customer. This means fewer new products but more innovation in designs for fit. Marco has been 17 years with the company and spends much of his time in the field with customers or sales offices/distributors. A large part of his task is to meet and understand customers so he can take that information and translate it into new solutions or products.

“I am proud to work in an industry and a company where we can positively impact the world we all live in by providing better more efficient products that contribute to a cleaner environment. You cannot sense that all the time, but the days where you do feel you contribute, are the best days.”

### **Fulfilling the vision**

In addition to mechanical seals, Chesterton designs and manufactures packing and gaskets, hydraulic seals, protective coating products, maintenance chemicals and lubricants. “As Chesterton makes five product lines, sometimes our customers do not realize our core competence is mechanical seals. So I would like to reinforce this message to end users but also to pump manufacturers. And we are particularly good when it comes to very large pumps where you need split seals. Most other companies do not have the technology of splitting and getting material back together without leakage. Although split seal is a technology that has

been in the market since 1986, for a lot of users it is still a relatively new concept. As we speak, one of the largest split seal in the world is being installed in Calgary, Canada, a 685 mm split seal for a Kaplan turbine. This technology is helping a lot of customers to seal things properly without having to take huge machinery apart, which would be an enormous amount of work”, commented Marco. Since its beginnings on the Boston waterfront in 1884, Chesterton has grown a leading international manufacturer of industrial fluid sealing systems, high performance protective coatings, cleaners, lubricants and industrial maintenance products. With sales and service locations in more than 100 countries, the company seeks to increase their customers’ reliability and productivity, to enhance their business performance and competitive advantage. As the company moves forward through its second century, Chesterton continues to be the company its founder envisioned.

## **Split seal specialists**

Sectors where split seals can be found:

Fossil power plants	- cooling water, river water, water intake
Boiler Feed waste water	- influent pumps, pump stations, storm water pumps,
Hydropower plants	- Kaplan and Francis turbines
Pulp & paper	- feeders, plug screws, agitators
Chemical industry	- agitators and reactors
Desalination sector	- water intake, distillation pumps

