



# Flowrox – the art of flow control

**From Larox through Larox Flowsys to Flowrox – Over the past 35 years, the change of name has in some way also represented the growth of the company. It has been 10 years since the last cover story in Valve World, so we sat down with Mr. Simon Sims, Director – Mining, Minerals & Metallurgy Industries, and his colleague Mr. Max Lagerstedt, Product Manager – Valve Products, to hear about what has changed over the past decade. Further, we spoke about the current status of the company and what the two think the future will hold for Flowrox.**

*By Christian Borrmann*

"It all started with Larox Special Filters about 35 years ago," begins Mr. Lagerstedt. "We were producing filters and separators for the mineral and mining industries, which meant that these machines had to be suitable for solids, slurries, and abrasive media. At

that time, the valves that were used for these filter systems were mainly ball and butterfly valves but the problem was the wear and tear and the constant repairs and maintenance that was required to keep the valves and thus the machines running."

The company's R&D department tried different ways to come up with a solution to this issue. They tested various valve types until one of them came up with the idea to use a rubber hose and squeeze this hose to cut off the flow. Mr. Lagerstedt smiles: "Obviously, we did not invent the pinch valve but I think it is safe to say that we 're-invented' the valve for these applications. This idea very quickly turned out to be an ideal solution so we manufactured it to a full valve, meaning giving it a tailor-made sleeve, a body around it, and an actuator. Soon after, these pinch valves became a sort of standard in these pressure filter systems." From then on the Larox pinch valve became a success story. The company sold more and more of the valves and in 1993, the decision was made to develop the company into a subsidiary of Larox Flowsys and to concentrate more on the production of pinch valves. Despite



this development, the valves were still produced primarily for the mining industries but soon after industries such as pulp & paper, chemicals, and water & waste water followed. In 2009, they also started to develop knife gate valves for those sectors.

"When in 2011, the decision was made to sell the filter business and with it the name Larox, the new company name became Flowrox, based on an internal competition for the best name for the company," explains Mr. Lagerstedt.

Mr. Sims adds: "This separation from the filter business gave us the opportunity to push our own business development further. With more than 30 years of manufacturing pinch valves for abrasive, corrosive and other demanding applications, our unique peristaltic pumps, a range of slurry knife gate valves, we decided to get much closer to our customers. We invested in subsidiaries which we already had in

North America. After this, subsidiaries were also founded South Africa and Australia and in the very near future we will also have subsidiaries in China and Russia."

Mr. Lagerstedt: "Our knowledge and experience of those products has allowed us to develop new, complementary products within our valve portfolio. Today we have the widest range of pinch valves in the world in terms of size and pressure, and also a wide range of slurry knife gate valves. The two of them together are an unchallenged, very comprehensive range of products for our niche business, which is valves and pumps for abrasive and corrosive and demanding applications"

### Unique valve technology and cases studies

"Our valves are unique because of the experience we have gained over the past years in the demanding applications in the industries we are dealing with now and we developed a valve that would out-perform standard products in the marketplace. We did that through testing in particular applications and with product development and our products themselves are quality products. They are proven in the marketplace, everything from the core of the valve, whether pinch valves or knife gate valves, is of elastomer or rubber components which are key to the performance of the valve, right down to the other elements in our supply chain, and the quality of our build and the fact that we work with our partners –

customers or suppliers – in long term relationships."

Looking at the technology of the pinch valves, one can see that the product has certain advantages over other valve types but it also has its limitations in certain areas. Mr. Lagerstedt: "The reason why the pinch valve works so well with abrasive media and in the earlier mentioned industries is that it provides no basis for tearing like a ball or butterfly valve does." A strong disadvantage of this pinch valve is the rubber. If the valve is used in an application with aggressive media, such as certain types of chemicals or media with high temperatures and high pressures, the valve will not withstand the aggressive media and be quickly destroyed. But Mr. Sims assures "we have built up a lot of experience with this type of valve over the past years and can give exact advice, recommendation, and service to our clients so that they will not use the wrong valve in the wrong place. We can be precise about exactly when a valve will function and when not, and for how long." Mr. Lagerstedt adds: "Given the right application, the valve can last for decades. For example, there is one valve in a control application in a copper mine in the north of Sweden. This pinch valve has been in service for twenty years and almost no maintenance has been necessary. In this case it is a flow control application with little pressure and low temperatures of around 10°C – the ideal place for a pinch valve, and then it can last for twenty years.



*This valve has lasted over 20 years in a flow control application.*

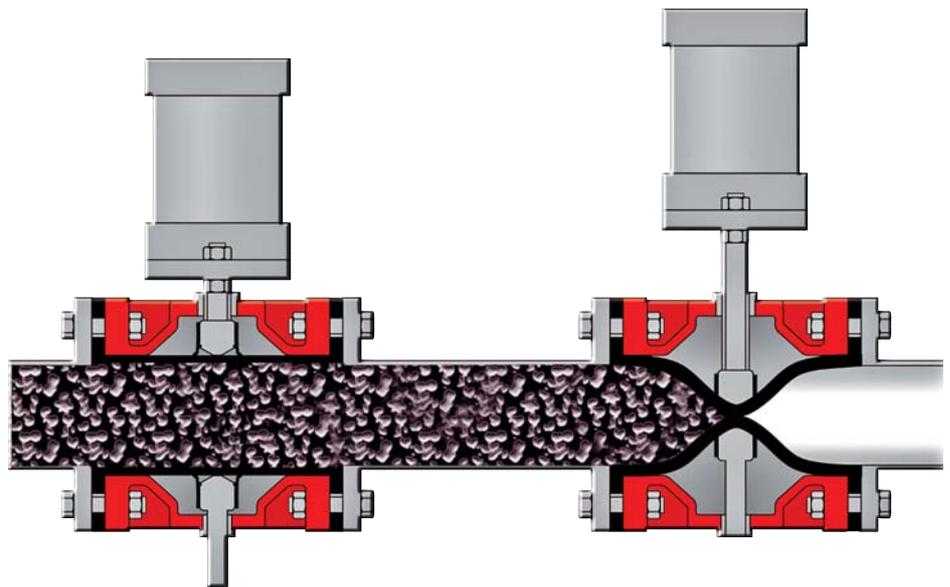
Another example comes from Spain, where a cement plant had isolation and leakage problems with metallic diverter valves in pneumatic conveying cement process into storage silos. The diverter valves needed continuous maintenance and leaking caused quality problems for the cement product. These problems were solved by installing two Flowrox open body pinch valves, which have been in operation for over four years with no leakage problems. The customer has been satisfied with this improvement and continues to change existing old metallic diverter valves into pinch valves."



*The pinch valve in pneumatic conveying.*

And Mr. Sim adds that "one area of the process where our customers cannot permit any downtime is around the thickener/clarifier and like our pumps, our valves can handle up to 80% solids and we have many excellent references globally. For example some years ago an international high-tech minerals group, one of the world's leading producers of upgraded iron ore products for the steel industry chose twenty pneumatically operated Flowrox valves to be connected to a dedicated air supply tank. This arrangement ensured that the valves can be closed even in case of a disturbance in the normal air supply."

When asked about the knife gate valve, Mr. Sim tells us that this is a relatively new product within their portfolio. "It was only in 2009 when we launched our slurry knife gate valves. This is a range of either wafer



*In the open position, the pinch valve is at full bore with no flow restrictions.*

pattern, flanged or high pressure knife gate valves, rated up to 10 bar; and higher pressure valves up to 25 bar, for isolation. Our pinch valves are very good for on/off applications however, the customers' preference, the orientation of a plant, the limitations on face to face may mean that a pinch valve may not be suitable or able to be fitted in a particular position within a process and the option could be a slurry knife gate valve."

### **Flow control is an art**

Flowrox praises itself for being a flow control provider that listens closely to what their customers want and need. The company has a standard portfolio

of products which already provides a manifold of options and possibilities for the customers. However, sometimes this is not enough as Mr. Sims points out. "When our customers face certain difficulties and our standard portfolio is not sufficient, we are more than willing to customise products. Of course, this doesn't help us as a manufacturer due to the extra costs of designing, engineering and production, but we are willing to go this extra mile for our customers if it helps them. Controlling flow is more of an art rather than a science, especially when using slurries. When controlling the flow of standard liquids or gases there are lots of different standard forms that can be used. The



*The core of the pinch valve is its elastic sleeve.*



The Lappeenranta facility in Finland.

challenge for us is to try to control a flow of a slurry which has solids and liquids with different viscosities and temperatures that can create a lot of problems within a normal, traditional type of valve." Working together with the customers is very important at Flowrox. In order to increase the amount of cooperation, the company has developed a sizing programme which is available for the customers to use. In that way the company and the customers can work together from the sizing phase onward



Valves for tough conditions.

to make the valve fit the exact specifications. Mr. Lagerstedt says: "In our experience, not only for valves but for other process equipment too, a lot of product failures are not due to the product itself but to the application of the product. It's being sized incorrectly. If you oversize a pump, it's not normally too much of a problem as you can throttle it back. If you oversize a control valve what happens is the valve ends up being too closed when you try to drop the pressure or control the flow and if the valve is nearly shut you have a very small orifice, high velocity which, with liquid and gas is not too much of a problem, but if you are dealing with a slurry or abrasive or corrosive media then high velocities mean high wear and an oversized valve can cause you bigger problems." "Working with our customers, providing them with the tools to do the calculation or providing them with a service to do the calculation for them, allows us to correctly size the product. A correctly sized product means it has a better chance of performing in the process," adds Mr. Sims.

### Investments and expansions

"Since the transition from Larox Flowsys to Flowrox in 2010, we have set ourselves growth targets. We are achieving those and we have done that very successfully

over the last three years," says Mr. Sims proudly and he continues, "Our long term goal and plan for the next three to five years is to continue on this path. We are expecting 25 to 30% growth for the next 2 or 3 years at least."

This plan has been very carefully mapped out and at the same time as Flowrox is growing they are also getting even closer to their customers as Mr. Lagerstedt points out. "We have various manufacturing facilities in Finland, amongst others a manufacturing and service centre in Kouvola and one at our head office in Lappeenranta. We have a manufacturing facility in Maryland, USA and we have invested in Australia, in a production site in Sydney and a sales office in Perth. Our manufacturing facility just outside Johannesburg is growing so strongly that we had to double the facility last year." "Although we have plans for future facilities in Russia and China, we will also invest in our customer relationship by increasing sales and service staff all around the world.



Flowrox automatic pinch valve.

On top of that, we will keep on developing new products. For example, next on the agenda is a complementary range of pinch valves and continuous development of our knife gate valve range. The expansion of our portfolio of products based on the 30 years' experience in the business of demanding applications is a key element for us in order to successfully continue working with our customers," concludes Mr. Sims.