Located about 30 km from the Russian border on the shore of Lake Saimaa in South-Eastern Finland, the city of Lappeenranta seems a remote home for a company of pump manufacturers. But the Flowrox Group has grown quickly since its beginning in 1977 and now has more than 100,000 installed products worldwide. Changing its name from Larox Flowsys Oy to Flowrox in 2011, the company was the first pinch valve manufacturer in the world to get awarded the ISO9001:2000 Quality Certificate. This certification covers all operations including product design, research and development, manufacturing of valves and pumps, process application, sales and marketing, customer service, customer’s application support and after-sales services. Such broad diversity was to be crowned with distinction: the new LPP - T100 pump, the largest industrial hose pump in the world, to be revealed this year at ACHEMA.

The Flowrox Group is a Finnish family company which has enjoyed continuous success since its beginning in 1977, when the first Larox pinch valve was manufactured. “We were under the umbrella of Larox at the time, actually a division of Larox filters. In 1993 Larox Flowsys was established. This was the original name of the company”, says Markus Rossi, Product Manager of Peristaltic Pump Technology for Flowrox. The company has made some significant steps forward in recent years. In 2003 the first LPP Peristaltic Pump was introduced and in 2008, the company expanded its business to cover industrial services by acquiring a service company. From this came more professionalism in the service and spare part production for progressive cavity and centrifugal pumps. The range and variety of products has since organically developed into an impressive range of pump types covering diverse industrial applications. With business expanding, the company has gone on to develop and refine their pumps to address different kinds industries and working conditions.

**Progressive cavity pumps**

Generally speaking, the progressive cavity pumps could be considered as suitable for the most demanding industrial slurry and paste pumping applications. Flowrox PC pumps series C and E are best used for pulp and paper, mining and minerals and in the chemical industries. Flowrox has provided solutions for high-wear and aggressive processes already in almost 50,000 installations in mining, metallurgy and minerals applications around the world. “Our valves and pumps have proven their superior quality, reliability, excellent wear resistance and anti-jamming properties in these applications”, says Markus, adding that in mining and minerals processing, Flowrox valves and pumps are ideal for various duties including grinding and screening, hydrocyclone and magnetic separation, flotiation, thickening, filtration or tailings. For homogenic paste, bitumen or waste-water a cavity pump is better than a hose pump. The Flowrox PC series EL provides a very compact solution for environmental applications such as waste water treatment. Nowadays Flowrox is a major provider in particularly difficult applications such as lime slurry handling, river water intake and gypsum handling. The Series D pump is used for dosing applications. “We have good references for these pumps in paste pumping applications such as with UPM-Kymmene, a Finnish pulp, paper and timber manufacturer. Another pump has been working well in the extremely wearing municipal...
waste process in Biovakka, Finland. One very satisfied customer is in the graphite slurry handling line in Bahrain. These pumps are ideal for very tough duties, when conventional pump types are in trouble”, says Markus.

Hose pumps
Flowrox pride themselves on the specificity and variety of their pump selection. There is a possibility that what is being pumped will stop at the pump, running dry which will cause the rotor on a cavity pump to start burning immediately. So they also manufacture an extensive peristaltic hose pump range to cover for the limitations of the cavity pump. A cavity pump cannot run dry, but hose pumps do not have this problem. They can run dry but will start sucking again when media starts coming through the pump again. Therefore if there is a danger of having pockets in the pipeline, the hose pump is the best option.

“We have three different series: Transfer, Dosing and Metering pumps. Transfer pumps incorporate advanced rolling design which eliminates friction and lowers energy consumption. The roller is mounted on a crankshaft creating eccentric rotation during the 360 degree operating cycle. With the LPP-D dosing pumps there is a high turndown ratio making them ideal for dosing and flow control. They provide accurate dosing in all process conditions as the pump discharge flow does not depend on the pipeline pressure. Metering pumps set a new industry standard for peristaltic pump technology. Designed and manufactured for the industrial marketplace, they are ideal for pumping and metering a wide range of media”, comments Markus.
**Customer service**
The continuous improvement and development of solutions for customers’ benefit makes for a company which provides total cost-effective solutions instead of single products. Flowrox has chosen ‘proven performance’ as its slogan indicating that cooperation with customers comes first. They take into account the total cost of ownership. “Customers are now using pumps for 24 hours a day to pump their slurries - what we call grey water. Comparing Flowrox LPP pump technology with other alternatives, it is straightforward to explain that they can increase the solids in the media being pumped, and they see that our pump is more cost-effective in the long run. The applications of the Flowrox LPP pumps are much wider too. Thickening paste is going through filters in the mining industry and LPP hose pumps are a good combination with filters. The peristaltic action of hose pumps can handle very aggressive slurries or media. With Flowrox LPP hose pumps there can be a very high acid concentration or great heat in the media, with stone or other particles in the slurry. All these things are very harmful for centrifugal pumps.

Flowrox has a long history with several different customers. LKAB in Kiruna Sweden is one of their biggest end users. They have over 2000 Flowrox products installed. The long-term partnership with LKAB has lasted over 20 years now. Flowrox pumps are in use for example at the open-pit mine in Talviivaara, Finland and are well suited for the viscous, crystallizing, corrosive or abrasive media there. Such companies are long-term customers of Flowrox. “We also have many big OEM customers”, continues Markus. “Our products add value and enhance process efficiency in solid-liquid separation, classification and concentration.” The same applies to bulk handling systems and flue gas treatment. As far as the customer support side of things is concerned, working through the service company bought in 2008, they have managed to secure contracts in half of the Finnish paper mills for cavity pump service. “I think we have agreements for 50% of Finnish cavity pumps. We also maintain a good in-service stock for important parts, so when a paper plant calls us to say that their pump is broken, we can minimize down time by delivering and installing new parts as soon as possible, typically within 24 hours.”

**The world’s largest pump**
“The LPP - T100 pump will be launched in June at the internal sales conference for our representatives worldwide”, continues Markus. This pump is well suited for transferring large amounts of slurries. “Conventional hose pumps apply two sliding shoes but we use a rolling rotor, so we can run it faster. To use the metaphor of a car being pulled whilst putting the brakes on. The tyres are not rolling and will start to warm up because of the friction. If you release the brake, they will start to roll again and there is neither excessive friction nor warming up. So the biggest problem with the conventional design was that they warmed up even when they were just pumping water. They cannot run those pumps at the maximum flow rate and the maximum pressure continuously but our pumps can do that and even with slurry or chemical temperatures of 95 degrees”, explains Markus Rossi, Product Manager Peristaltic Pump Technology for Flowrox.

Markus Rossi, Product Manager Peristaltic Pump Technology for Flowrox
Markus. The sheer size of these hose pumps puts them at the cutting edge of rolling technology. “We can run our pumps faster than conventional hose pumps at the maximum pressure, maximum flow rate without it heating up. We already had an 80 mm pump producing 40 cubic meters per hour but we used to get a lot of inquiries for a pump able to cope with 60 or 80 cubic meters.” Flowrox engineers thought about this for a few years, did the calculations, and the result is this new 100 mm pump with a capacity of 100 cubic meters per hour with the maximum pressure. “We sent questionnaires to our reps to give to end users, asking the end users if there was a place on the market for this kind of hose pump with such a big flow rate. All the big mining companies said yes, so we started the calculations and design. There have been exciting new techniques and innovations which have come out of our work on this pump”, says Markus.

What makes Flowrox special
Markus thinks that it is the high quality of Flowrox products that sets the company apart. “The use of new rolling technology plus our ‘green’ way of thinking make us very attractive. We are not just selling components, we are selling the green idea and the total cost of pumping for the customer. We are always trying to find out how the customer can save money with our products.” The rolling technology in the peristaltic pump offers customers as much as 40% less energy consumption. The hose on this pump is made of rubber, with maybe several different reinforcement layers of different rubber materials. “To return to the metaphor of a car again, obviously it is easier to pull it if you release the brakes. The sliding shoe system requires about 40% more electricity than rolling technology. Due to the reduced heat build up of the rolling technology it needs ca. 50% less glycerin lubricant, which also cuts overheads considerably. Customers are very happy when they know that they will be using less energy and less lubricant and have a substantially increased hose life on their pump.”

Looking ahead
When asked about how he sees the company developing, Markus was quietly confident but not giving too much away. “Since 2002 we have had a plant in Linthicum (Maryland USA), and things are accelerating for us. Today we have 120 employees and the number is growing. In 2010 we established a subsidiary in Sydney (Australia) and in 2011 one in Johannesburg (South Africa). In 2012 an office was opened in Shanghai. We are expecting the turnover to multiply in the next few years and new products will grow organically out of our present range.” So the future seems bright for Flowrox and the development of the world’s largest hose pump has certainly helped. Although it will not officially be launched until the sales conference in the second week in June in Finland, one order has already been received from Sweden. There will also be one at the ACHEMA show in Frankfurt, Germany, where it will be shown to the world. “Our customers can increase the minerals in the slurry pump and pump porridge if they want to. Centrifugal pumps cannot handle light concentration concrete, for example, but Flowrox hose pumps can.” Growing out of thirty years’ experience manufacturing an increasingly wide variety of pumps, the unique distinction of the world’s largest hose pump is flying the Flowrox flag high for all to see.

The world’s largest hose pump Flowrox LPP-T100 with maximum flow of 100 m3/h will be shown at ACHEMA exhibition in June, at Hall 8, stand L48.

Flowrox at ACHEMA
Please do not forget to visit us at Hall 8, stand L48.