Pumping Solutions

Peristaltic Hose Pumps
Progressive-Cavity Pumps
Smart Features
Spares & Services
Complementary Products
Pump solutions

We exist to make your life easier

We deliver advanced pumping solutions for the most demanding process conditions. Our story has started over 40 years ago making us industry experts on flow control. Our unique pump design saves energy and water increasing your process availability and reducing total cost of ownership.

1977: Company Larox is established
1993: Company Larox Flowsys Oy is established
2002: Product portfolio expanded to pumps: Peristaltic Hose Pumps
2008: Acquisition of pump services business
2008: Launch: Metering pumps part of portfolio
2011: Launch: PC pumps part of portfolio
2016: Launch: Smart Solutions™
2017: Launch: Packaged Pumping Systems™

WE PROVIDE THE OPTIMAL SOLUTION:

Flowrox LPP-T pump compared to a centrifugal slurry pump, when 65 tons of solids per hour are pumped continuously.

YOUR BENEFITS

Low Total Cost of Ownership
Improved process performance
Low operating costs
Long service intervals
Minimized downtime
Flowrox Pump Product Portfolio

Peristaltic Hose Pumps

LPP-T for Transferring
- Volume: 2-100 m³/h
- Pressure up to 10 bar
- Solids up to 80%
- Temperature up to 95 °C
- Particle size 25 % from DN size
- Suction head range 0-8m

LPP-D for Dosing
- Volume: 0,6 -2 m³/h
- Pressure up 16 bar
- Solids up to 80%
- Temperature up to 95 °C
- Particle size 25 % from DN size
- Suction head range 0-8m

LPP-M for Metering
- Volume: 0-0,6 m³/h
- Pressure up 8,6 bar
- For clear liquids
- Temperature up to 80 °C
- Not for viscotic medias
- Suction head range 0-2m

Progressive Cavity Pumps

E-Series
- Volume: 0-250 m³/h
- Pressure up 10 bar
- Temperature up to 70 °C
- For homogenious medias
- For flooded suction duties

EL-Series
- Volume: 0-330 m³/h
- Pressure up 6 bar
- Temperature up to 70 °C
- For homogenious medias
- For flooded suction duties

D-Series
- Volume: 0-0,75 m³/h
- Pressure up 12 bar
- Temperature up to 70 °C
- For chemical dosing
- For flooded suction duties

Smart Solutions™

Smart LPP Pumps for Optimal Slurry Transfer
- Process data collection through various sensors
- Can also be retrofitted to any pump type or brand
- Enables advanced reporting and data analytics, making your process more reliable and transparent
- Increased productivity through optimization & online predictability

Pump Services

Comprehensive Pump Installation, Maintenance and Spare Parts Services
- Site survey services
- Spare parts and component services
- Replacement products and components for original & compatible products
- Installation, commissioning, maintenance and repairing services
- Product update and retrofit service
- Analysis services / commissioning / trainings
Pumping Rock Solids

Customer: LKAB, Sweden
Products: Hose Pumps LPP-T100
Application: Thickener underflow

New project for tailings treatment brings Flowrox to site

Flowrox hose pumps were chosen for the project based on previous experience. “We first learned about Flowrox hose pumps at a paste conference in South Africa and were interested in this pumping technology,” says Thord Wennberg, Technical Process Development, LKAB.

For the new plant LKAB chose LPP-T100 transfer hose pumps that are able to pump up to 80% solids. “The fact that the hose pumps are suitable for paste and high-density slurries is important to us. However, at the moment we are pumping 66% - 70% solids.

The pumps’ capability to actually perform and pump solids effectively is very crucial for us in the water treatment facilities. The slurry is dense enough to enable us to save water and keep up the solids flow,” states Åsa Partapuoli, Senior Process Engineer, LKAB.

Reliability is what we look for in a pump

“We have now been working with the three Flowrox pumps in the thickener plant for one year now and they have been operating well. Most important things for us in pump performance are reliability, and how they function. The other benefits come after, if the pump is not reliable there is nothing else to benefit from either,” states Ronny Martinson, Maintenance and Operation, LKAB.

“The initial life-cycle cost (LCC) calculation for the hose was estimated as three months. If we increase the pressure and the density, then of course the hose wearing increases, which then affects the LCC, explains Björn Gardelin, Minrox, the Flowrox Representative in Sweden.

“We have experienced that the hose pumps handle solids in the slurry better than other pumps and that’s very good, as we occasionally have to deal with large particles,” Martinson tells. “The Flowrox hose pumps have an advanced rolling design. The pump can run dry and be operated continuously 24/7 without any heating problems. The design has low friction, maximizes hose life and lowers energy consumption. In addition Flowrox pumps are able to handle up to 80% solids,” Gardelin reveals.

“We are now on a 3-month hose change cycle according to the LCC calculation. And we are looking into expanding the lifetime to 6 months,” Martinson adds.

LKAB’s ambition is to increase their production by five (5) percent a year, until 2021. This means increasing capacity and efficiency also in the treatment of waste and tailings. LKAB has placed an order for the 5th pump in the project. “Yes, we have been satisfied and will recommend the Flowrox pumps for other paste pumping applications as well,” states Björn Henriksson, Project Manager at LKAB.

OUR CUSTOMER: LKAB

LKAB Svappavaara is one of the oldest pelletizing plants in Sweden and LKAB being the second largest producer of iron pellets in the world. With annual production of iron ore products amounting to 26.9 million tonnes in 2016, the annual tonnage of tailings disposal is also considerable. For decades LKAB used a dam as disposal method for tailings, but in 2012 the company decided to deposit the tailings in Svappavaara at a high solids content and introduced a project to build a tailings thickening facility.
Flowrox Pump References

**Customer:** Terrafame, Finland  
**Products:** Flowrox LPP-T65 Hose Pumps  
**Application:** Washing liquid circulation pumps  
**Benefits:**  
- Large capacity  
- Moving process water with high solids content  
- Savings in energy

**Customer:** Deer Island Waste Water Treatment Plant, USA  
**Products:** Flowrox PC Pump, EL Series  
**Application:** Waste water slurry pumping  
**Benefits:**  
- Increased pumping efficiency  
- Savings in maintenance costs

**Customer:** Surfactor, Finland  
**Products:** Flowrox LPP-D pumps  
**Application:** Glue feed, color dosing  
**Benefits:**  
- Accurate dosing  
- Long maintenance intervals  
- Low maintenance cost
Peristaltic Hose Pumps

Flowrox heavy duty hose pumps are designed for the toughest industrial applications. They are ideal for demanding processes involving abrasive, corrosive, viscous or crystallizable media with a high content of solids.

Advanced Rolling Design

The operating principle of the Flowrox hose pumps is based on the peristaltic effect. As the cylindrical rotor rotates along the hose, the process medium gets pushed forward through the hose. At the same time, the hose behind the compression point reverts to its original circular shape creating a suction effect at the pump inlet port. As a result, the hose bore gets filled with the medium. No backward flow can occur as the hose is squeezed tight by the roller.

Due to their technical features, Flowrox hose pumps provide exact flow per revolution. They also incorporate an advanced rolling design, which eliminates friction, maximizes hose life and lowers energy consumption. Energy efficiency, long hose life and low maintenance generates substantial savings during the life cycle of peristaltic pumps. Lifetime of Flowrox pumps is typically more than 4 times longer than that of conventional pumps.

Technical Features

- Only the hose is in contact with the medium
- Positive displacement with no backflow
- Single roller design that enables minimized friction
- Low lubrication need, only 20% that of conventional hose peristaltic pumps
- No overheating at high continuous flow rate
- Dry run capability
- Selfpriming up to full vacuum

Trailblazing Pump Technology: This Is How We Roll!

Flowrox LPP-T pumps are equipped with a patented, reliable hose flange and in-line pipe connections, as well as a hose leak detection unit and a patented adjustment mechanism that senses hose wear when compression is readjusted. This helps to maximize hose lifetime and minimize the risk of over-compression. There is no need for shimming.

The LPP-T is one of the world’s largest hose pumps, with a maximum continuous flow of 100m³/h.

Scan the code to watch pump animation.
All stages of the LPP-T and LPP-D and their hose design and manufacturing are covered by ISO 9001:2008. They are also ATEX approved.
Our Pump Offering

For Transferring, Dosing and Metering

The innovative Flowrox peristaltic hose pumps set the industry standard for peristaltic pump technology. Designed for heavy industrial duties, they are ideal for pumping diverse slurries and dosing a wide range of abrasive, corrosive, viscous or crystallizing media. LPP-T pumps provide substantial savings through improved process performance and efficiency, long service intervals and low maintenance costs. They are manufactured using durable elastomers and advanced materials, making them perfect for pumping a wide range of media.

From Features to Benefits

Comparison of Flowrox technology

Flowrox rolling technology is capable of operating in continuous duty with its maximum pressure and maximum flow in the same point, where the conventional pump has limitation in continuous duty for pressure or flow.

The pump performs even with 95 °C degrees media temperature.

Image: Flowrox hose pump technology vs. conventional technology.
# Technical Data of Flowrox LPP Pumps

<table>
<thead>
<tr>
<th>Technical data</th>
<th>LPP-T25</th>
<th>LPP-T32</th>
<th>LPP-T40</th>
<th>LPP-T50</th>
<th>LPP-T65</th>
<th>LPP-T80</th>
<th>LPP-T100</th>
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<tr>
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<td>-300 kg</td>
<td>-360 kg</td>
<td>-650 kg</td>
<td>-960 kg</td>
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<td>Flow/revolution</td>
<td>0,28 l</td>
<td>0,65 l</td>
<td>1,25 l</td>
<td>2,75 l</td>
<td>5,4 l</td>
<td>11,6 l</td>
<td>31,6 l</td>
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<tr>
<td>Maximum flow</td>
<td>2,2 m³/h</td>
<td>3,9 m³/h</td>
<td>8 m³/h</td>
<td>11,5 m³/h</td>
<td>20 m³/h</td>
<td>40 m³/h</td>
<td>100 m³/h</td>
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<tr>
<td>Maximum pressure</td>
<td>10 bar</td>
<td>10 bar</td>
<td>10 bar</td>
<td>10 bar</td>
<td>10 bar</td>
<td>7,5 bar</td>
<td>10 bar</td>
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<tr>
<td>Lubricant volume</td>
<td>0,8 l</td>
<td>0,8 l</td>
<td>1 l</td>
<td>2,5 l</td>
<td>4 l</td>
<td>8 l</td>
<td>25 l</td>
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<tr>
<td>Hose bore and flange connection</td>
<td>25 mm</td>
<td>32 mm</td>
<td>40 mm</td>
<td>50 mm</td>
<td>65 mm</td>
<td>80 mm</td>
<td>100 mm</td>
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<td>Motor power</td>
<td>0,75-2,2 kW</td>
<td>0,75-4 kW</td>
<td>1,1-5,5 kW</td>
<td>1,5-9,2 kW</td>
<td>3-11,0 kW</td>
<td>9,2-22,0 kW</td>
<td>37-75 kW</td>
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</table>

<table>
<thead>
<tr>
<th>Technical data</th>
<th>LPP-D15</th>
<th>LPP-D20</th>
<th>LPP-D25</th>
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<tbody>
<tr>
<td>Weight</td>
<td>47 kg</td>
<td>47 kg</td>
<td>60 kg</td>
</tr>
<tr>
<td>Flow/revolution</td>
<td>0,1 l</td>
<td>0,18 l</td>
<td>0,3 l</td>
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<tr>
<td>Maximum flow</td>
<td>0,6 m³/h</td>
<td>1,2 m³/h</td>
<td>2,0 m³/h</td>
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<tr>
<td>Maximum pressure</td>
<td>7,5/16 bar</td>
<td>7,5/16 bar</td>
<td>7,5/16 bar</td>
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<tr>
<td>Lubricant volume</td>
<td>0,4/1 l</td>
<td>0,4/1 l</td>
<td>0,4/1 l</td>
</tr>
<tr>
<td>Hose bore and flange connection</td>
<td>15 mm</td>
<td>20 mm</td>
<td>25 mm</td>
</tr>
<tr>
<td>Motor power</td>
<td>0,55-1,1 kW</td>
<td>0,55-1,1 kW</td>
<td>0,75-1,5 kW</td>
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<th>LPP-M</th>
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<td>Weight/ Shipping weight</td>
<td>LPP-M2: 13,9/15 kg</td>
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<tr>
<td>Maximum flow</td>
<td>LPP-M2: 126 l/h</td>
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<tr>
<td>Maximum working pressure</td>
<td>8,6 bar</td>
</tr>
<tr>
<td>Maximum fluid temperature</td>
<td>55 °C</td>
</tr>
<tr>
<td>Enclosure</td>
<td>Nema4x/IP66</td>
</tr>
<tr>
<td>Plug type (operating voltage requirement 96VAC to 264VAC)</td>
<td>250V, AC, CEE 7/VII (Europe) 115V, NEMA 5/15 (US) 230V, NEMA 6/15 (US) 230V, BS 1363 (UK) 240V, AS 3112 (Australia, NZ)</td>
</tr>
</tbody>
</table>

The Flowrox pumps are suitable for large-scale project deliveries with a selection of Flowrox valves.
Progressive Cavity Pumps

Flowrox progressive cavity (PC) pumps are ideal for demanding industrial slurry and paste pumping applications, especially with high viscous or shear sensitive liquids and sludges.

Advanced spiral technology

In PC pumps, the pumped medium continuously shifts spaces (progressing cavities) between the rotor and the stator, enabling nearly pulsation-free pumping. With Flowrox technology it is possible to deliver up to 10 bar of pressure per single stage. This is possible with our evenwall stator technology that forms the heart of the whole pump.

Flowrox PC pumps utilize a patented shaft seal assembly, allowing the seal to be replaced quickly without dismantling or moving the entire pump. Combined with a long service interval, this enables the highest run time possible.

- Over 30% higher pumping capacity compared to a conventional PC pump with same rpms
- Save energy up to 15% compared to a conventional model
- Minimized maintenance time

From features to benefits

Through advanced technology and precise design, Flowrox PC Pump offers you significant savings by reducing pumping costs.
## Technical data

<table>
<thead>
<tr>
<th>Technical data</th>
<th>EL50/6</th>
<th>EL100/6</th>
<th>EL200/6</th>
<th>EL330/6</th>
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<tbody>
<tr>
<td>Weight kg</td>
<td>136</td>
<td>543</td>
<td>1121</td>
<td>1913</td>
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<tr>
<td>Maximum flow m³/h</td>
<td>2</td>
<td>85,2</td>
<td>181,6</td>
<td>268,8</td>
</tr>
<tr>
<td>Max. pressure bar</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Flange connection DN</td>
<td>50</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td>Motor power kW</td>
<td>1,5</td>
<td>15</td>
<td>37</td>
<td>75</td>
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<table>
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<tr>
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<th>D004/12</th>
<th>D010/12</th>
<th>D025/12</th>
<th>D075/12</th>
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<tbody>
<tr>
<td>Weight kg</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Maximum flow m³/h</td>
<td>0,04</td>
<td>0,1</td>
<td>0,25</td>
<td>0,75</td>
</tr>
<tr>
<td>Max. pressure bar</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Flange connection DN</td>
<td>RI&quot;</td>
<td>RI&quot;</td>
<td>RI&quot;</td>
<td>RI&quot;</td>
</tr>
<tr>
<td>Motor power kW</td>
<td>0,37</td>
<td>0,37</td>
<td>0,55</td>
<td>1,1</td>
</tr>
</tbody>
</table>

## Comparison of Flowrox technology

When the Flowrox PC pump performance is compared with conventional PC pump, Flowrox 2/3 geometry pumping elements need less RPM than conventional 1/2 geometry pumping elements to achieve the same flow rate.

*Image:* Flowrox spiral technology vs. conventional technology. Two times less RPM needed at the same flowrate.
Smart Features

Enhance your performance with our Smart Solutions™. Flowrox Smart Features can be included into any old or new delivery. The Smart pumps are next generation solutions delivering data and information in order to provide reliable and cost-efficient production. Real time information from site results in optimized production with maximized output and minimized unplanned shutdowns.

Smart Solutions™

The SLPP Series provides online information about the pumping process, pumping performance and condition of the pump set.

The Smart Pump set is equipped with instrumentation and intelligent motor diagnostics for continuous monitoring of the pumping performance.

The Flowrox Smart Pump combined with the Malibu™ IIoT (Industrial Internet of Things) user interface enables advanced reporting and data analytics, making your process more reliable and transparent. Malibu™ is accessible on any device with an Internet browser.

Technical Features

- Real time data available in Malibu™
- Pressure measurement at the pump inlet/outlet
- Medium temperature measurement
- Various vibration & temperature sensors
- Hose with leak sensor
- Pre-fail indications
- Connectivity with 4G/3G, WIFI or LAN

From Features to Benefits

- Online pump performance monitoring
  ➔ Detect issues before they become a problem
- Automatic pre-fail indications
  ➔ Savings in maintenance & unexpected shutdown costs
- New pumping data available
  ➔ Enables production optimization
- Analytics tools
  ➔ Compare and analyse data
- Advanced reporting tools
  ➔ Access to detailed pumping data to assess long-term pump performance
- Easy accessibility via the Internet
  ➔ Access wherever you are

Malibu™ IIoT user interface is simple and easy to use.
Flowrox Smart LPP-T pumps:
The SLPP series pumps provide online information about the pumping process, pumping performance and condition of the pump set.

The Flowrox Smart Pump combined with Malibu™ enables advanced reporting and data analytics, making your process more reliable and transparent.
Complementary Products

We provide complementary equipment that are designed to support the optimal flow. Enhance your process with Pulsation Dampener Flowrox Expulse™.

Expulse™

It is common for pumps to produce pulsation. The Flowrox Expulse™ is a flexible inline pulsation dampener, which quiets noise while settling pressure peaks and uneven flows. The design is based on a double hose structure with an resilient inner hose, reinforced outer hose and compressed air between the hoses.

- Absorbs up to 90% of the pulsation
- Saves pumping energy up to 10%
- Reduces hammering of the pipeline and makes pump bearings and gearbox last longer
- All in one; flexible pipeline connection and dampener

- Flowrox Expulse™ can be installed on any pulsating pump from any brand in the market
- There are no breaking diaphragms or bladders
- Flowrox Expulse™ is self-cleaning
  does not collect sediment or particles.

From features to benefits

- Reduces noise
  Quiets the annoying noise of the pulsating pump in the pipelines

- Saves energy
  Absorbs up to 90% of pulsations and saves up to 10% of energy by temporarily storing it in the flexible inner hose and filler gas

- Easy, independent and reliable
  Easy to install on any pulsating pump type

- Protects pump bearings and gearbox
  Reduces hammering of the pipeline and pump

- Simple and flexible
  Easy and fast to maintain

Flowrox LPP-T pump with 80 mm Expulse™ stabilizing the flow in a filter feed application.

Technical data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>DN32-DN100/1 ¼”-4”</td>
</tr>
<tr>
<td>Hose Material</td>
<td>NR Standard</td>
</tr>
<tr>
<td>Wetted parts</td>
<td>AISI316 &amp; NR</td>
</tr>
<tr>
<td>Maximum pressure</td>
<td>10 bar</td>
</tr>
<tr>
<td>Maximum temperature</td>
<td>+ 75°C</td>
</tr>
<tr>
<td>Filling media</td>
<td>Oil free compressed air</td>
</tr>
<tr>
<td>Standard features</td>
<td>Threaded ends</td>
</tr>
<tr>
<td>Auxillaries</td>
<td>Flanges</td>
</tr>
</tbody>
</table>


Spares & Services

With decades of experience in developing innovative flow control solutions and elastomer technology, Flowrox offers a wide selection of superior elastomers for diverse media and process conditions. The correct mechanical hose design and material selection are essential for optimizing hose lifetime.

Optimal Pump Hoses and Tubes for Each Media

Our high-grade hose materials include chemical resistant ethylene propylene (EPDM), oil and fat resistant nitrile rubber (NBR), which is available also for food grade mediums (NBRF), and extremely abrasive natural rubber (NR), which is ideal for heavy wearing applications. To guarantee the best possible mechanical characteristics, the hose cover is always made of natural rubber.

LPP-M tube material options are Norprene®, Norprene Chemical®, Flexaprene®, and Tygothane®.

Auxiliaries

The Revolution detector

The revolution sensor calculates the cycles of the pump, based on which the hose lifetime can be estimated and maintenance planned.

The hose leak detector

The hose leak detector indicates hose leakage into pump housing. It automatically stops the rotation of the pump for safety.

Services

We offer prompt support, spare parts and services in order to maximize your pump performance.

We manufacture and deliver original spare parts and components for all Flowrox products (hose pumps, PC pumps, valves) as well as original and compatible replacement components for other brands’ products.

We have the capability to deliver and manufacture stators, rotors, drive shafts, coupling rods, joint assemblies, bearings sets and sealings for most commonly known PC pumps, such as Allweiler, Seepex, Netzsch, Mono, PCM and Bornemann with 20 years experience.

- On-time trouble-free delivery of spares and services
- Cost savings through optimized service cycles and reduced downtime of equipment
- Longer life cycles for equipment
This is how we roll!

Check out Flowrox Peristaltic Hose Pumps in action by scanning this QR code.

Progressive pumping!

Check out Flowrox Progressive Cavity Pumps in action by scanning this QR code.

Get Smarter!

Check out Flowrox Smart Solutions™ by scanning this QR code.

THIS IS US:

We are known to be a reliable industrial solutions provider for demanding process conditions. Our 40 years of experience in flow control and elastomer technology are obvious benefits we can offer. Formerly known as Larox and Larox Flowsys, our heritage forms the foundation of what we are today; the benchmark for heavy duty valves, pumps and systems. We know that all processes are different, all customers unique and process conditions vary, but we are happy to adapt.

We operate on 6 continents and support our customers through a network of over 200 representatives.