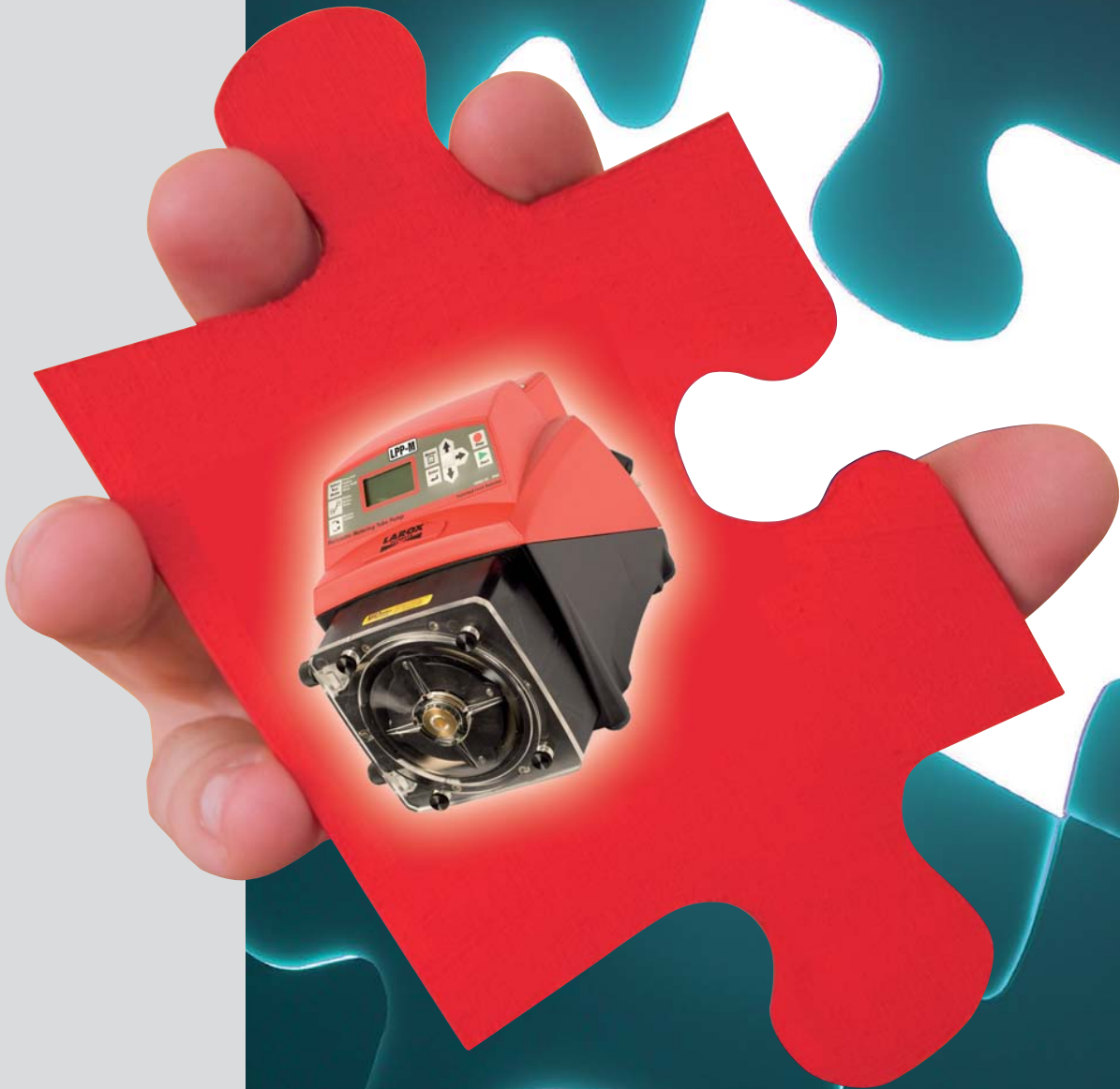


**LAROX**  
FLOWSYS



**LPP-M  
PUMP**

**THE SOLUTION YOU'VE BEEN LOOKING FOR**

## LAROX PERISTALTIC PUMPS FOR METERING

*The innovative Larox Peristaltic Pumps for Metering (LPP-M) set a new industry standard for peristaltic pump technology. Designed and manufactured for the industrial marketplace, they are ideal for pumping diverse slurries and metering a wide range of media.*

### EXCELLENT CHEMICAL RESISTANCE

Proven tube from thermoplastic materials designed for chemical industry gives secure operating conditions for both environment and operators. Durable pump head and rotor material selections with optimized number of parts are ideal for corrosive operating environments. Rigid one piece rotor assembly enables one minute maintenance and easy cleaning of the pump head.

### SUPERIOR ACCURACY FOR YOUR PROCESSES

Accuracy of metering in any application is the most vital property of a metering pump. Flow rate of LPP-M metering pump is not affected by variation of the discharge pressure condition. Positive displacement of the tube bore with zero slip provides same output volume on every cycle. The compression point of the tube acts as self-cleaning check valve without clogging risk providing clear flow path with no possibility for vapour lock.



The pump head is durable and easy to clean.

### OPERATING PRINCIPLE

The operating principle of the LPP-M pump is based on peristaltic properties. There are two types of rollers in the rotor: occluding rollers and guide rollers. The occluding rollers push medium forward through the tube and guide rollers center the tube for correct alignment. As the occluding roller rotates along the tube, the process medium gets pushed forward through the tube. At the same time, the tube behind the compression point reverts to its original circular shape creating a suction effect at the pump inlet port. As a result, the tube bore gets filled with the medium. No backward flow can occur as the tube is always occluded tight by the roller.



**LPP-M  
PUMP**

LPP-M pump is ideal for accurate metering.

## TRAILBLAZING TECHNOLOGY

**LPP-M pumps use durable elastomeric tubing making them perfect for pumping and metering a wide range of media. They provide substantial savings through improved process performance with efficiency, long service intervals, and low maintenance costs.**

Equipped with the standard technical features of a typical peristaltic pump such as dry run capability and self priming, the LPP-M pumps provide exact flow per cycle. Seal less pumps will not get damaged even if they run dry for longer periods of time. The LPP-M pumps are compact in design and their robust construction is specifically designed for industrial use. LPP-M pumps have also the highest maximum working pressure on the market. Voltage is automatically detected and adjusted by power supply and input power range is 96VAC to 264VAC 50/60 Hz.

### STANDARD TECHNICAL FEATURES FOR PERISTALTIC PUMPS INCLUDE:

- Only the tube element is in contact with the medium
- Self-priming, 90% of full vacuum
- Will never vapour lock or lose prime
- No valves – no clogging
- Dry run capability
- Exact flow per revolution irrespective of the pipeline pressure
- Minimum amount of wearing parts

### PATENTED TUBE FAILURE DETECTION (TFD)

LPP-M is equipped with a unique Tube Failure Detection, which is designed to stop the pump and provide a contact closure output (1 amp), 10 amp relay, or both if pump tube is ruptured and chemical enters the pump head. This patented system is capable of detecting the presence of a large number of chemicals including sodium hypochlorite, hydrochloric acid, sodium hydroxide, and many others. The system will not alarm by silicone oil from the roller or tubing lubricant. It is also not affected by condensation, rain or other normal environmental elements.



LPP-M pump has a patented tube failure detection, remote start/stop feature and NEMA 4X/IP66 enclosure rating.

### A MULTITUDE OF PROGRAMS

LPP-M pumps have wider programmability and controllability than any other comparable pumps. They offer excellent connectivity to all possible customer environments. Inputs can include for example:

- Manual adjustment
- 4 to 20 mA
- 0 to 10 volts DC
- Frequency input (Hz)
- Remote start / Stop contact closure
- Flow verification system (FVS) input
- Contact closure input

Control modes make a diversity of dosing functions possible including

- Pulse batch
- Manual cycle adjust
- Dispensing
- Manual dosing
- Proportional dosing

Available display languages are English, German, Spanish and French.

### NEMA 4X/IP66 ENCLOSURE RATING

International protection rating of NEMA 4X/IP66 guarantees a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water; and that will be undamaged by external formation of ice on the enclosure.

### OPTIONAL FLOW VERIFICATION SYSTEM (FVS)

LPP-M is compatible with a Flow Verification System. FVS sensor is designed to stop the pump and provides a contact closure output (up to 1 amp) or a 10 amp relay output in the event the sensor does not detect medium during pump operation. This could indicate a clogged injection fitting, empty chemical solution tank, worn pump tube, loose tubing connection, etc. To allow pump to clear any gases that may have accumulated during stopped operation, an alarm delay time value from 1-255 second can be programmed.



## OPTIMAL TUBE FOR EACH MEDIA

*With decades of experience in developing innovative flow control solutions and elastomer technology, Larox Flowsys has a wide selection of superior elastomers for diverse media and process conditions. The correct mechanical design and material selection are essential for optimal tube life time and factory assembled PVDF adapter fittings allow easy tube changes without error possibility. LPP-M tube material selection includes two types of tube elements: Norprene® and Tygothane®.*

### Norprene®

Norprene® tubing has excellent alkali resistance and is compatible with numerous oxidizing agents such as hydrogen peroxide, sodium hypochlorite and ozone. Norprene® tubing fully complies with FDA, 3A Sanitary Standards, and NSF Standards, which are applicable to many food contact applications.

Norprene® tubing exhibits excellent resistance to ozone and UV light, with little or no signs of deterioration in laboratory testing equivalent to 10 years of outdoor exposure. Norprene® tubing provides long service life time when exposed to heat, abrasion and pressure.

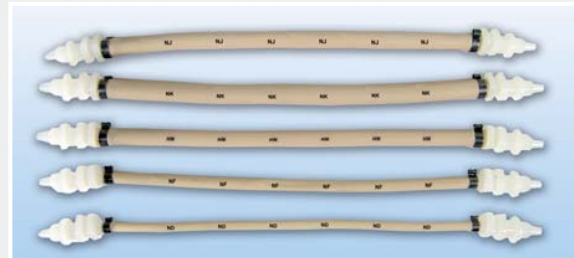
- Medium: chemicals
- Pump tube size and identifier:
  - N075=0.075" (1,9 mm), ND
  - N155=0.155" (3,9 mm), NF
  - N220=0.220" (5,6 mm), NH
  - N312=0.312" (7,9 mm), NJ
  - N375=0.375" (9,5 mm), NK
- Easy assembly adapter fittings: PVDF

### Tygothane®

Made of a tough, ester-based polyurethane, Tygothane® tubing's clarity, high tear strength and excellent abrasion resistance makes it ideal for many applications, including fuel and lubricant lines and abrasive product transfer. It also offers exceptional resistance to oils, greases, fuels and many chemicals.

Able to withstand rugged daily use, Tygothane® tubing resists weathering. It meets FDA criteria for food and beverage use.

- Medium: oils and fats
- Pump tube size and identifier:
  - G125=0.125" (3,2 mm), GE
  - G187=0.187" (4,7 mm), GG
  - G250=0.250" (6,4 mm), GH
- Easy assembly adapter fittings: PVDF



**LPP-M tube material selection includes two types of tubes: Norprene® and Tygothane®.**

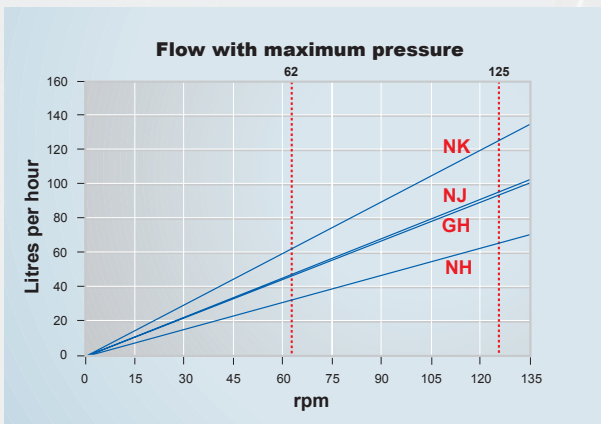
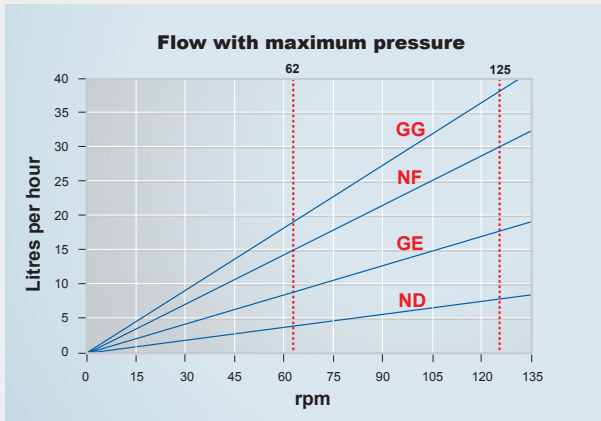
### TUBE SAVER MOTOR REVERSE

There are two reasons for reversing current rotor rotation; to purge chemical from tubing and to extend tube life time. Single piece rotor design enables pump to handle same maximum pressure in any direction. Typically tubing fails on the outlet side or pressure side of the tube assembly in the pump head. Reversing rotation moves the outlet to the opposite side of the tube assembly and greatly increases tube life time.



**PVDF adapter fittings allow easy tube changes.**

## FLOW RANGES



## MATERIALS OF CONSTRUCTION

### Primary pump wetted components:

Pump tube elements: Norprene® (for chemicals) or Tygothane® (for oils and fats)  
Adapter fittings: PVDF

### Accessories wetted components:

Suction tubing: Clear PVC  
Suction strainer: Natural polypropylene  
Discharge tubing: Natural polyethylene (LLDPE)  
Injection fitting w/Check valve: Body & insert, PVDF

### Non-wetted components:

Pump head: Thermoplastic  
Housing: Powder coated aluminium  
Pump head cover: Clear acrylic, annealed  
Cover screws: 300 SS, polypropylene caps  
Roller assembly  
Rotor: Valox®(PBT)  
Rollers: Nylon  
Roller bearings: enclosed stainless steel ball bearing  
Motor shaft: Chrome plated steel  
Leak detector pins: Hastelloy C-276

## TECHNICAL DATA

<b>Weight / Shipping weight</b>	12.4 kg/13.5 kg	<b>Output adjustment range</b>	1-100% in 0.1% increments
<b>Maximum flow</b>	126 l/h	<b>Accuracy</b>	+/- 0.5%
<b>Maximum working pressure</b>	8.6 bar	<b>Repeatability</b>	+/- 0.5%
<b>Maximum suction lift</b>	9 m water, 0.1 bar (Abs)	<b>Maximum fluid temperature</b>	54°C
<b>Maximum viscosity</b>	5000 centipoise	<b>Maximum ambient temperature</b>	-10°C – 46°C
<b>Remote adjustment</b>	4-20 mA, 0-10 VDC or pulse	<b>Enclosure</b>	NEMA 4X (IP66)
<b>Feedbacks</b>	4-20 mA, pulse and 4 alarm contacts	<b>Plug type</b>	250V AC, CEE 7/VII (Europe)
<b>Voltage (max amp)</b>	Automatic identification: 96-264VAC 50/60 Hz (2 amp)		