

# Hiflow

## Peristaltic pump



This pump was developed as the result of twenty years of laboratory experience and involved the systematic elimination of the imperfections found in other pumps on the market. The result is a practical, precise and reliable pump, which is the most compact in its class.

- flow rates from 0.1 to 3000 ml/hr
- digital set point extending over three powers of magnitude
- extensive remote controls
- greatly extended tubing life and decreased pulsation
- low voltage plug-in power supply for maximum safety
- new motor technology
- flow rate programming (up to 99 steps)
- access to reaction kinetics by using "INTEGRATOR"
- very economic in use while using low cost tubing without stoppers
- by programming zero flow rates the pump can be switched on and off without using a timer

## Construction advantages and properties of the HiFLOW Pump

The successful design and well-proved mechanics of the PRECIFLOW pump have now been extended to include flow rate programming. Up to 99 steps of time and flow rate can be easily programmed allowing the creation of any flow rate profile. The maximum flow rate has been increased to 3000 ml/hr. To achieve such a high flow rate in such a small instrument new technology has been used.

**Flow rate:** 0.1 to 3000 ml/h using tubing (internal diameter 0.5 to 4 mm, wall thickness ca. 1 mm)

**Program:** up to 99 steps of time and flow rate can be programmed

### Interesting construction features:

- Instead of small rollers, which are used by most pump producers, we use bearings of a larger diameter with glass beads. This reduces pulsations, friction and mechanical strain on the tubing leading to better pump performance. The bearings glide over the tubing so gently, that unlike other pumps, it is unnecessary to prevent movement of the tubing by means of a special fixation. In this way the lifetime of the tubing is considerably increased.
- The pressure on the tubing is delivered individually through an off-centre lever and spring made of stainless steel. This ensures that minimal pressure is applied to the tubing, which still guarantees the reliability of the pump without unnecessary deformation of the tubing.
- The spring also reduces the liquid pressure to approx. 1 bar. This is useful when for any reason the line is blocked.
- The asymmetric pump head reduces pulsation.
- A high quality stepping motor together with an integrated microprocessor electronics ensure a high precision of flow rate with no inertia while turning the pump on and off.
- The pump head is made from hard, chemically stable epoxide.
- The pump dimensions have been minimized. Therefore the HiFLOW pump is considerably smaller than other products of similar performance. The pump is easy to use and saves space in the laboratory.
- Remote control and the option of flow integration increase the scope of use of the pump in automatically controlled systems (e.g. fermentation, chemical synthesis, fraction collection, etc.)

**Economical:** high quality/price ratio, low user-costs, easy handling

### Remote control:

Remote control of the speed by external voltage 0 – 10 V (0 – 20 or 4 – 20 mA); ON/OFF control by external contact or 3 – 12 V voltage; compatible with other LAMBDA instruments (Pump-flow integrator and Omnicoll fraction collector); RS 485 as option

### Pump-Flow Integrator:

The HiFLOW pump is the only pump on the market, which allows the simple but precise integration of the amount of liquid, which has been transported, by the pump. The electrical impulses, which move the stepping motor, are registered and transformed into a direct current. The voltage can be measured or recorded by common recorders or voltmeters. In processes where the pump is controlled e.g. by a pH-stat during a fermentation to keep the pH of the medium constant, it is frequently important to know when and how much acid or base has been added. This data yields important information about the process, its kinetics and time of completion. The INTEGRATOR can also be used for measuring enzyme activity (e.g. esterases, amidases, lactamases and other enzymes). The PUMP-FLOW INTEGRATOR can be placed under the HiFLOW pump.

**Guarantee:** 2 years

### Specifications:

Power source: 12 V DC using plug-in power supply 230 V / AC 50 – 60 Hz, consumption approx. 12 W  
Weight: 1.2 kg  
Safety class: CE, satisfies IEC Norm 1010/1  
Dimensions: 10.5 (W) x 9.5 (H) x 10.5 (D) cm