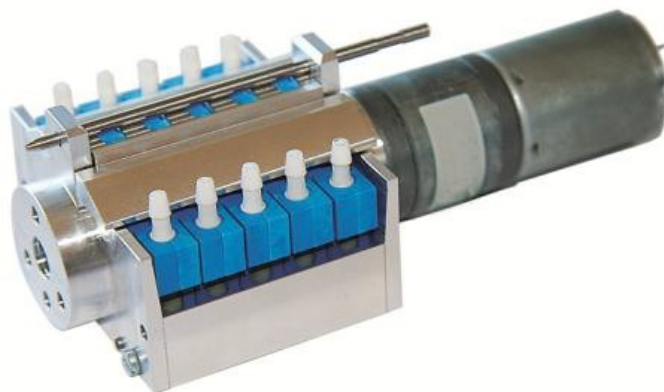


Modular Microliter Pump

Peristaltic concept
2 to 10 parallel channels
Exchangeable pump heads



The micro pump system has been developed specifically for use in medical applications. A typical area is the transfer of nutrients for growing cell-cultures. The pump system can handle up to 10 channels in parallel to convey as many different nutrient solutions.

The micro pump is a modular unit. In applications that require stringent hygienic controls, pump heads can be disposed after use. The pump motor and gearbox can be re-used after easy exchange of the pump heads. Another advantage of the modular construction makes it possible to define a wider selection of motors to fit the application.

The pump motor turns the pump rotor which in turn moves the medium contained in the tubes. The transport can pump in 2 directions. Tube diameter can be tailored to deliver required volumes. Pump concept allows homogeneous and bubble free delivery of mediums.

Application areas

- Medical technology
- Pharmaceuticals
 - Diagnostics
- Biotechnology
 - Analytic

Different industrial applications are also possible.

About us

2E is a company working in the interdisciplinary field of mechatronics and produces components and systems for the following sectors:

- Automotive
- Industrial electronics
- Medical technology
- Automation

Our core competence includes MID-technology, mass production of precision injection molded housings with inserts, and electrical connectors as well as systems for sensor and micro fluid technology.

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Advantages of the 2E microliter pump

To transfer gasses or fluids in diagnostics applications, the typical pump selection is a membrane pump. These pumps are compact, inexpensive and have a relatively long lifetime.

However, this pump concept has a number of weaknesses that can prevent use in various applications. The pump action is not bi-directional and has a low suction or back-pressure characteristic. Moreover, the back-pressure valves are fragile, give rise to dead-volume and generate pulsating flows.

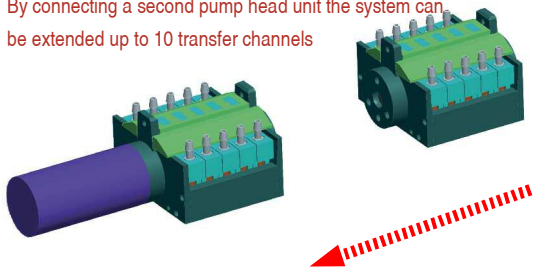
In such cases, a better alternative is the peristaltic concept which provides a well defined pump volume. Suction and back-pressures are higher and flow is homogeneous. Although prices are higher in comparison to membrane pumps. The 2E pump provides a system combining the performance of a peristaltic pump for the cost of a membrane pump.

- The pump consists of 2 separate modules: A motor unit and a low cost disposable pump head.
- The pump head does not require a valve. Its characteristics prevent free flow in cases of back-pressure.
- The disposable pump head can handle many fluids or gasses. In case of fluids, handling is bubble free.
- The pump characteristics allow 2-directional pumping.
- The drive assembly can be fitted with a low-cost motor or with a stepper motor in case of more challenging specifications.
- The pump head is easily locked or unlocked into the drive assembly. Exchanging disposable pump heads is done in seconds
- Multichannel pump heads allow a maximum of 5 tubes of different diameters. The system can be extended to 10 tubes.
- The complete pump system is compact.
- The system provides a sustainable solution by separating the drive assembly from the disposable pump head.

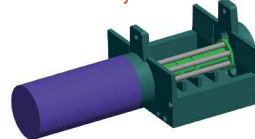
The micropump concept is applicable to customer specific requirements and can be tailored to fit many different environments.

Modular:

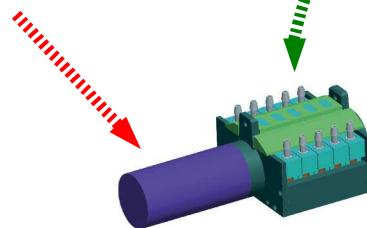
By connecting a second pump head unit the system can be extended up to 10 transfer channels



Drive assembly with motor



Pump head (Disposable)



Total system with motor

Technical data

Medium: Various fluids, e.g. air, gas, water, nutrients
 Min. transfer rate: 5µl/min
 Max. transfer rate: 3ml/min
 Tube dia: min. 0,25 mm, max. 1,85 mm inner dia.
 Medium temperature: 5 – 95°C

Max. suction height: 0,3 bar
 Max. back pressure: 3,8 bar
 Power consumption: < 200 mW (motor dependent)
 Dimension Total system (without motor): 60x55x38 mm
 Pumphead dimension: 49x52x27mm

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