Inkjet print heads and labs-on-a-chip were the first exponents of microfluidics: involving flow of liquids inside channels with a diameter of micron-size. Microfluidic devices are made by lithographic and other processes that find their origin in integrated circuit manufacturing.

In these devices, liquids behave in a different way compared to flow in 'normal' channels. Due to the small size of the channels, 'fluid-wall' phenomena play a dominating role. Microfluidic devices find their application in fields such as pharmaceutics and biotechnology, reducing the amount of chemicals and experimental time. A French company produces systems for microfluidics applications. Currently, they use thermal mass flow meters in their system. However, they observed that the thermal mass flow measurements in their application were too unstable and could not be reproduced. Bronkhorst suggested an alternative solution, using Coriolis technology.

**Application requirements**

Far less than five mass flow meters are needed to cover the entire measurement range. Furthermore, the accuracy and repeatability of the measurement itself have to be improved, and the measurement should be more stable.

**Important topics**

- Use fewer mass flow meters
- Increase accuracy and repeatability
- Stable measurement
Process solution

Looking at the needs of the customer, Bronkhorst concluded that the ML120 mini CORI-FLOW mass flow meter would be able to cover the entire range needed. They proposed to the customer to test the ML120 flow meter, and to compare the results with the currently used thermal mass flow meters. The customer tested the ML120 instrument during two months to investigate whether or not this would be the right solution to their problems.

After these two months, they concluded that this Coriolis instrument was an improvement with respect to accuracy, stability and repeatability. Moreover, it was indeed possible to replace five thermal mass flow meters by one coriolis-based device, to cover the same range. They trust Bronkhorst as a very professional partner, and they decided to integrate the ML120 mini CORI-FLOW in their product range.

As part of a further cooperation with Bronkhorst, the customer develops a user guide for the (future) users, and a selling guide for the sales engineers. Moreover, some programming work in LabVIEW will be performed to communicate with Bronkhorst devices.
## Recommended Products

### MINI CORI-FLOW™ ML120V00
- Min. flow: 0.05…5 g/h
- Max. flow: 2…200 g/h
- Pressure rating: 200 bar
- Independent of fluid properties
- High accuracy, fast measurement

### MINI CORI-FLOW™ M12
- Min. flow: 0.1…5 g/h
- Max. flow: 2…200 g/h
- Pressure rating: 200 bar
- Independent of fluid properties
- High accuracy, fast response

### μ-FLOW L01
- Min. flow: 5…100 mg/h
- Max. flow: 0.1…2 g/h
- Pressure rating: 400 bar
- Small internal volume
- Analog, RS232 or fieldbus I/O

### EL-FLOW PRESTIGE FG-210CV
- Lowest flow rates, from 0.014…0.7 mln/min up to 0.18…9 mln/min
- Pressure rating: 100 bar
- Multi-Fluid / Multi-Range
- Customized I/O configurations