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International Forum 2008

# Technical Paper

## Chemical and process industry

### Session 10-1

## Novel centrifugal pump concept solves a major problem in micro process engineering

#### Author:

**Dipl.-Ing. Axel Binder**  
**Manager, Competence Center Micro Process Engineering**  
**KSB AG**  
**67227 Frankenthal, Germany**



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## Summary

The described centrifugal pump answers the need of the chemical industry, and the field of micro process engineering in particular, for a pulsation-free, adjustable flow rate.

The Microchem is a combination of a new technical approach and a number of innovative details. The product is based on using the significant technical advantages of the centrifugal pump principle for transporting smallest quantities. First of all, choosing the centrifugal pump type the need of a non-pulsating pump was tackled. Realising the requirements of the industry concerning the flow parameters, novel for centrifugal pumps, was achieved by designing a miniature impeller and significantly increasing the rotational speed. Contrary to other new pump developments, designing the hydraulic section of this pump did not aim at achieving the optimum duty point, but as broad a performance range as possible.

The unit comprising a centrifugal pump and a control unit is capable of handling flow rates from 1 ml/min to 5,000 ml/min at up to 25 bar discharge pressure. It comes in one size only for the entire performance range. This means the same pump can be used in the lab during process development, for trial operation in the pilot plant, and subsequently for every-day production. It also means that the results obtained in the lab will be exactly the same in the production process. This does away with the uncertainty normally experienced when the process is scaled up.