

Case Study

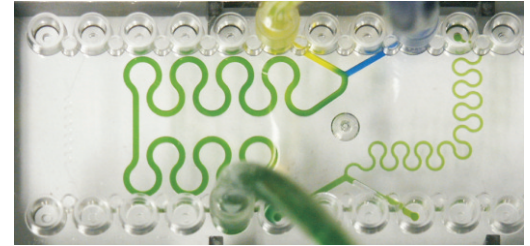
Customization

thinXXS customizes SnakeMix-Slide to customers needs.

SnakeMix-Slides are passive flow-through mixers made of plastic, which intermix tiny liquid volumes within milliseconds. The mixing principle is quite simple: above a critical flow velocity a succession of serpentes causes eddies to form. As a consequence, the two liquid streams interpenetrate and mix after a short distance. Due to its characteristic channel structure, this product was named Snake-Mixer. The Snake-Mixer can easily be customized and produced in large numbers. A total of four mixers with varying channel dimensions are integrated on a microscope slide thus covering a wide range of potentially interesting flow rates or viscosities.

Challenge

An international customer required a device to mix two fluids of different density and viscosity. The mixture should be reproducible over a broad temperature range. The volume flow rate of these two fluids vary extremely in this process. The mixer has to be realized on a customized platform that can be installed in an existing measuring instrument.

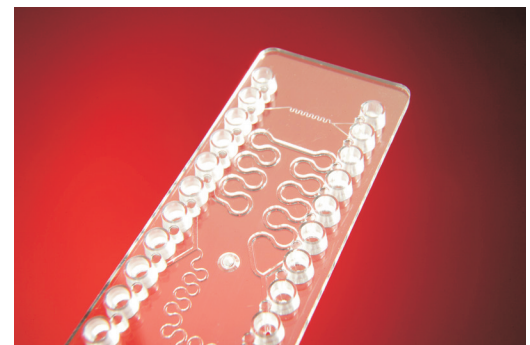


Solution

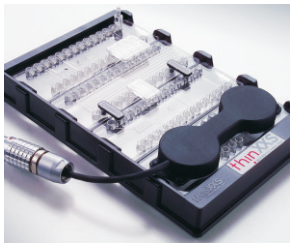
Using CFD simulation (Computational Fluid Dynamics), thinXXS Microtechnology made a new design for the SnakeMix-Slide. Channel width, length and number of mixing serpentes were adapted to the mixing problem. Prototypes were produced by ultra precision milling.

Prospect

The prototypes of the customized SnakeMix-Slide are currently tested by the customer. Next step is the transission into injection molded parts. The design of the devices allows a smooth transfer to series production by injection molding.



thinXXS SnakeMix-Slide: the smallest channels show a diameter of 100 micrometers.



The Construction!Kit includes a platform and several slides that can execute different operations. Available are mixing, splitting and pumping slides.

A variety of connectors allow to flexibly interconnect the modules or to link them to outside equipment.