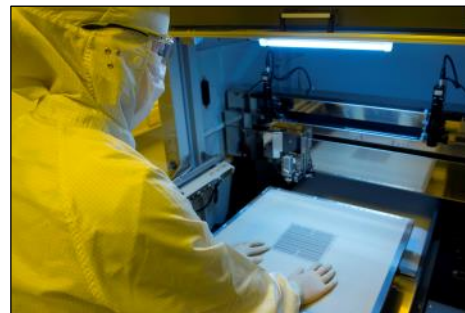


Scale-up facility for microfluidic systems

The University of Twente, Saxion University of Applied Sciences and four high tech companies are combining forces to increase the production capacity for microfluidic systems. As part of this pilot line project (“proeftuin”), they are improving access for SMEs to their facilities, including the MESA+ NanoLab and High tech Factory. Moreover, four concrete demonstrators to suit a range of applications will be developed, including a micropipette and micro needle.



The University of Twente and Saxion are both equipped with a high-quality micro and nano technology infrastructure. For example, the MESA+ NanoLab has as focus on development, prototyping and small-scale production, to be used by various high tech companies. The facilities at High Tech Factory (HTF) on the UT campus are typically equipped for so-called back-end activities, such as testing wafers and testing/sorting chips.

Many innovative high tech companies are forced to scale up their production activities within a few years. They often require an environment that will allow them to have access to equipment and support staff and services (maintenance, management, etc.), to enable stable and cost-efficient production. A pilot line facility allows them to take the next step towards the industrial production of microfluidic chips or devices.

The six partners will be working together closely to help meet this demand and reinforce the existing infrastructure for the production of microfluidic devices. A smart scale-up facility will be developed. This initiative meets the demand of 4 partners: Micronit Microtechnologies, U-Needle, SmartTip (currently located at High Tech Factory) and Bronkhorst High-Tech (which already uses the NanoLab). The coordination and development of production capacity will increase the possibilities for capacity sharing of production technology and processes. This allows companies to produce on a larger scale, realise client-specific demonstrators faster, and exchange knowledge.

The continued development of High Tech Factory is part of the project ‘proeftuin’ Microfluidic Systems. Moreover, the four above-mentioned companies are working together to develop application possibilities for innovative microfluidic technology. They are developing concrete demonstrators, which will serve to illustrate both the added value and the scalability of the technology.

The companies and applications involved are as follows:

- U-Needle: innovative micro needle for intradermal administration of insulin;
- Micronit Microtechnologies: a sharp micropipette to replace the current glass-based capillaries, intended for single cell handling, DNA research and IVF;
- SmartTip: a nano-pipette (Fluid FM probe) for applications such as 3D metal printing on micrometre scale and electroporation for the transportation of substances within cells;
- **Bronkhorst High-Tech: a microfluidic sensor system for measuring the calorific value of natural gas, LNG, biogas and compounds thereof.**

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