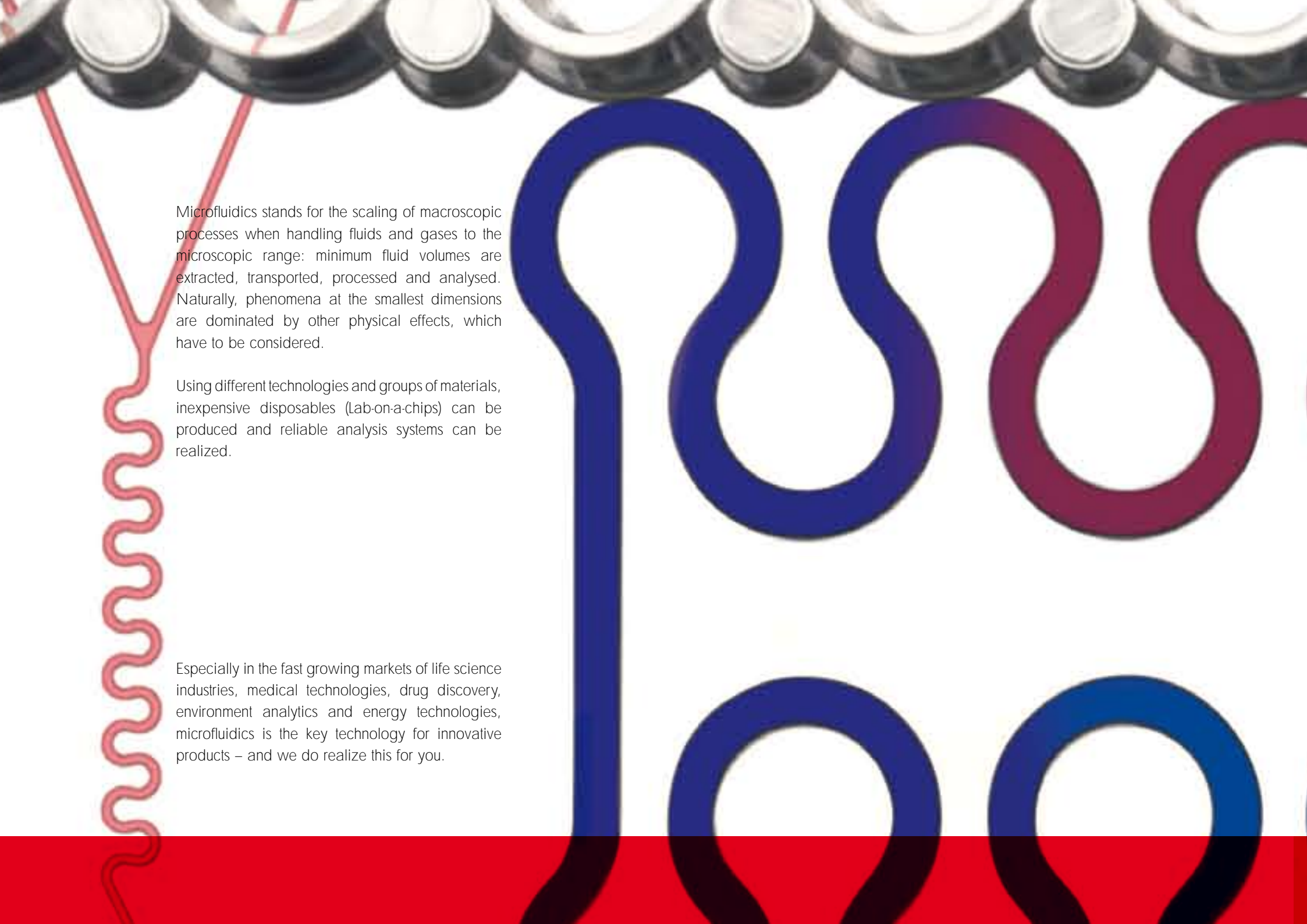




Perfection in Plastics

High-precision, microstructured systems and components made of plastics.

„...it is the greatness of
the secrets hidden behind...” Leonardo da Vinci

The image features a top row of several circular microfluidic components, likely valves or chambers, with a red line connecting them. Below this, a red line flows down and then splits into two paths: one that continues down as a wavy line and another that flows into a large, blue, figure-eight shaped channel. To the right of this channel are two more blue figure-eight channels, and further right is a maroon figure-eight channel. At the bottom, there are two more blue figure-eight channels. The background is white, and a red horizontal bar is at the very bottom.

Microfluidics stands for the scaling of macroscopic processes when handling fluids and gases to the microscopic range: minimum fluid volumes are extracted, transported, processed and analysed. Naturally, phenomena at the smallest dimensions are dominated by other physical effects, which have to be considered.

Using different technologies and groups of materials, inexpensive disposables (Lab-on-a-chips) can be produced and reliable analysis systems can be realized.

Especially in the fast growing markets of life science industries, medical technologies, drug discovery, environment analytics and energy technologies, microfluidics is the key technology for innovative products – and we do realize this for you.

The logo for thinXXS Microtechnology, featuring the word "thin" in red, "XXS" in grey, and "MICROTECHNOLOGY" in smaller grey letters below, separated by a red dot.

thinXXS
MICROTECHNOLOGY

Micro – we start
where others quit!





The idea of progress

Visions need masterminds

As a competent and established partner we understand your complex specifications and meet your quality demands in microfluidic systems. We take the responsibility for the highest quality with all our products.

Our service is based upon know-how and long-time experience in the fields of microsystem technology. Our team of highly trained scientists, engineers and designers work closely with you to develop – with the aid of state-of-the-art developing tools and a high precision manufacturing technology – customized solutions on the basis of integrated quality management.

**That's what our
customers trust in.**

Dr. Lutz Weber

Management board
member for Production and Technology

Dieter Cronauer

Management board
member for Sales & Marketing and Finance

From macro to micro

The physical and chemical characteristics of fluids in the micro scale requires completely new methods of resolution – to realize this, that is our excellence.

thinXXS Microtechnology AG develops, produces and distributes micro-structured components and systems made of plastics. We see ourselves as a certified OEM supplier for companies in the fields of medical technology, life sciences and the commercial industry.

Service offering:

Consulting, engineering and production of customized

- microfluidic systems (e.g. lab-on-a-chip),
- micropumps and other active microfluidic elements.



Leonardo da Vinci
anatomy of the neck, circa 1515

top – microfluidic systems:

Miniatimize your diagnostic and analytic applications in the fields of life sciences, medical technology, HTS and environmental analytics.

bottom – micropumps:

Handling and dosing of tiny quantities of fluids and gases with our micropump made entirely of plastic

Advanced technology

Development, series production and supply chain management of your products will be professionally managed at thinXXS and in doing so we take sole responsibility.

Our services range from design, prototyping, manufacturing of components, finishing and functionalisation to assembly – thereby all processes conform to our high quality standards.

Until readiness for marketing of a product, our customers have only one partner: thinXXS Micro-technology AG. This guarantees a smooth and transparent project handling from tendering to transfer into series production – with a guaranteed cost-effective solution.

Quality Management/Project Management

Consulting

- ▶ planning
- ▶ conception

Engineering

- ▶ design
- ▶ developing
- ▶ prototyping
- ▶ testing

Production

- ▶ toolroom
- ▶ precision and micro molding
- ▶ integration of sensors
- ▶ bonding technology
- ▶ micro assembling
- ▶ surface modification
- ▶ supply chain management

Excellence – tailor made

Individual over general

Technology leadership

Microstructured devices made of plastics and their finishing are the basis of our developments. Therefore we put our focus primarily on the extreme precision of the devices.

For example, an ordinary human hair measures about 100 micrometers in diameter. The injection-molded functional structures and channels, put into practice by thinXXS, can achieve extremely small dimensions up to 1/1000 of this hair diameter. We manage to precisely mold objects with structures of a few micrometers to a few hundred nanometers. Coating and bonding is realized with the exclusive know-how of thinXXS.

*Leonardo da Vinci
size comparison of the head,
circa 1488–1489*



Engineering

Design, development, prototyping and testing

You demand a high standard for your products – we work closely with you to realize your individual design accurately in terms of manufacturing.

In this process, modern 3D-CAD and simulation tools for mechanical, thermal and fluidic detailing are used.

To verify the design we provide cost-saving and standardized prototyping modules to our customers. The prototyping itself is carried out using the same method as series production.



Production of components

Toolmaking and molding

We make the molding tools ourselves. The equipment we use for making micro molding tools belongs to some of the most precise machines worldwide. Three-dimensional architecture with dimensions of a few hundred nanometers up to a few millimeters is our standard.

The injection molding technology specially developed by thinXXS allows us to transfer the precision of the tools in an economic way to large quantities of plastic devices and products. For this, the integration of toolmaking, materials science, metrology and assembling is essential.



Production of systems

Integration of sensors, bonding technology, micro assembling and surface modification

thinXXS is specialized in hybrid systems, which normally combine several components made of different materials to accommodate complex requirements of multifunctional, microfluidic products.

Here we use technologies to condition and functionalize surfaces with wet-chemical and plasma methods, laser-, welding- and bonding-processes as well as intelligent concepts to integrate sensors and actuators.

Microfluidic systems

Your microlab made of plastics

thinXXS realizes customized microfluidic systems, e.g. Lab-on-a-Chips.

Using these systems, the complete functionality of conventional laboratories – like dosing, filling, mixing, splitting, dispensing, analysing and many more – is integrated on a small and microstructured disposable made of plastics.

Miniaturization is optimal for automated standard processes and affords time and cost efficiency and a high assay throughput. At the same time, this allows one to decentralize the analytical and diagnostic processes to point of care.

*Leonardo da Vinci
hand study, circa
1484–1486*



left – microfluidic interface to HTS automat



right – QPlate produced by thinXXS – the heart of Sophion's QPatch HT system. This hybrid microfluidic chip combines micromolding, silicon sensors and printed circuit board technology.



The thinXXS Construction!Kit

With our microfluidic construction!kit you will significantly accelerate the development of your own Lab-on-a-Chip products. The modular concept and the basic platform technology allow

- economical access to the fields of microfluidics,
- to test fluidic single functions and parameter studies,
- to generate complete protocols and
- to develop and verify your product specifications.

*Leonardo da Vinci
Studies of circulating water, circa 1508–1509*

Micropumps

Small, powerful, light, precise: micro diaphragm pumps made of plastics

Piezo-driven micropumps have many advantages and spend little energy. The economic manufacturing using injection molding allows for application as a disposable device. thinXXS produces piezo-actuated micro diaphragm pumps with passive check valves. They can handle tiny volumes of fluid or gas. The flow rate of the pumps is controlled by the frequency of the piezo actuator.

We produce exactly the micropump you need! The modular set-up of our micropumps allows easy customization.

Our customers use the micropumps in the fields of life sciences, medical technology, environmental analytics and fuel cells technology – for stationary or mobile applications.

Advantages at a glance

- pump is made of a single kind of plastic
- modular set-up
- small size and light weight
(diameter: 23 mm; height: 3 mm; weight: 3 g)
- low power consumption
- optimized valve technology (3rd generation)
- high bubble tolerance
- high flow rates against high backpressures
- self priming
- pumps gases, liquids and oils of different viscosity



thinXXS Pump!Kits

The Pump!Kit includes – depending on your requirements – different micropumps with different flow rates as well as the electronic control and a set of connectors.

With these Pump!Kits we put you in the position to conduct experiments and to individually realize your requirements.

Production optimization



All process steps are optimized for large scale production. That enables our customers to forecast the volume, time and costs of a production.

thinXXS Library

www.thinxxs.com

To our customers we offer thorough documentation about our business activities to download.

product information

company information

data sheets

case studies

success stories



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The visionary Leonardo da Vinci achieved extraordinary greatness: even 400 years after his death his inventions have an importance to mankind. Leonardo recognized fundamental laws of nature and knew how to apply the resulting forces.

thinXXS started with a vision.

