

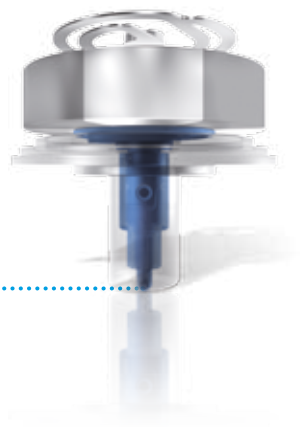
# SMART SIMPLE SUSTAINABLE

The new micro pump technology for advanced drug delivery





- How can I  
dispense  
liquids more  
accurately -





I'm not satisfied with my c

Is this te

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- FOCUS -

What makes Sensile Medical unique

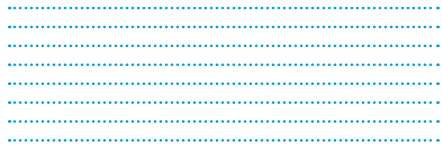
Does this company understand my needs?

Is this company a reliable business partner?

current delivery system. Are there alternatives?

technology safe enough for patients?

How can I differentiate from my competitor's delivery technology?

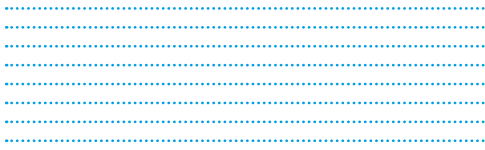


**Sensile Medical** develops and manufactures advanced drug delivery systems with a unique focus on micro-pump technology. Established in 2004, we are privately owned and located in Haegendorf, Switzerland.

We concentrate on developing customized medical devices for pharmaceutical and biotechnology drugs that incorporate our unique micro rotary pump technology, designed to deliver fluids with Swiss accuracy and engineering.



Parameter of a 5 micro liter pump	Value	Unit
Delivery accuracy	+/-5	%
Maximum operating frequency	20	Hz
Flow rate	0.005 to 360	ml/hr
Pressure at Inlet	-0.4 to +0.5	bar
Pressure at Outlet	0 to 1.5	bar
Liquid viscosity	up to 500	mPas



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– PASSION –

What is our mission

How can I divide a single drop  
into 200 parts?

Will my drug remain stable in this device?

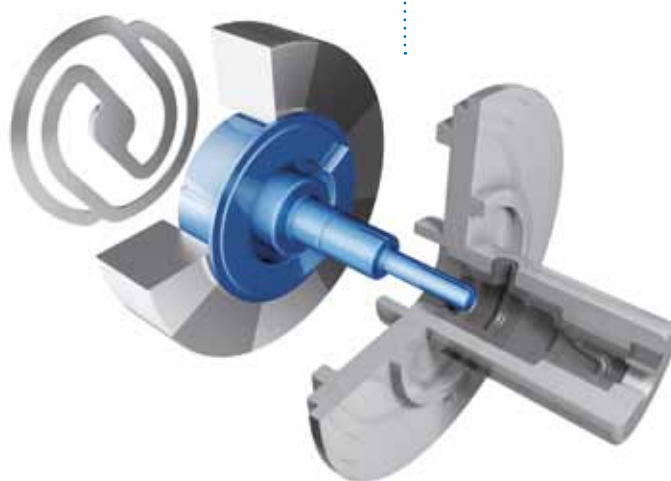
How can I accurately dispense my drug?

What accuracy do I need?

At **Sensile Medical**, we design smart and simple drug delivery solutions that are cost-effective and sustainable. Through our insights, creativity and integrity, we continuously strive to deliver what is best for the patient.

Our research and development activities are dedicated to developing drug delivery solutions that help patients better control their disease and improve their quality of life.

Sensile micro pump





Sensile is able to utilize standard glass cartridges and stoppers as primary container for the drug

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- INSIGHT -

What are the benefits of micro-pump technology



Does small mean more expensive?

Is more always better?

Can high-tech be simple?

How can I utilize our  
R&D budget efficiently?

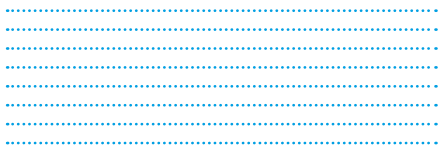
What is my therapeutic window?

What dosing speed do I need?

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- APPLICATIONS -

Where can micro pump technology be applied





Central to our accomplishments is the development of our proprietary pump technology based products that systemically or locally deliver active pharmaceutical ingredients for days to even months within a variety of markets:

**Diabetes care**

**Auto-immune diseases**

- ..... MS
- ..... RA
- ..... Psoriasis
- ..... Crohn's Disease/IBD
- ..... Ankylosing Spondylitis
- ..... Lupus
- ..... Vasculitis

**Infectious diseases**

- ..... Hepatitis C
- ..... AIDS

**Cancer**

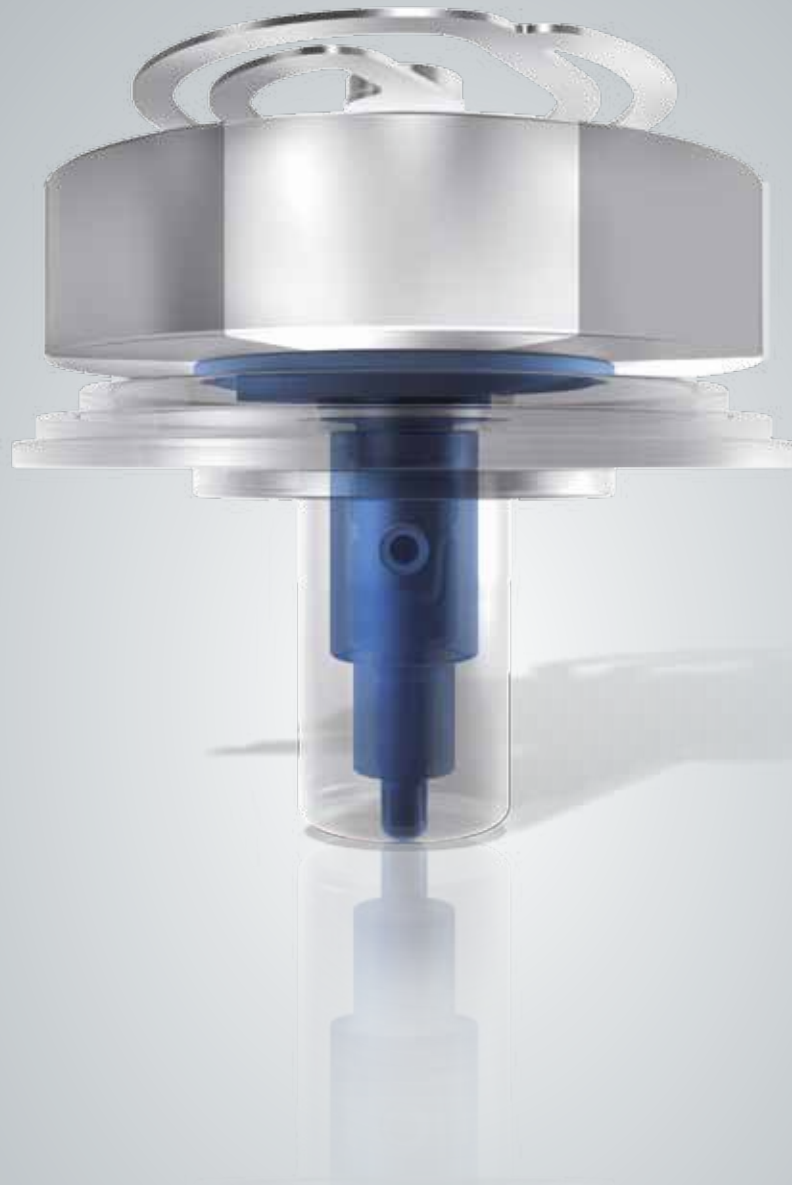
- ..... Anemia

**Other diseases/conditions**

- ..... Growth deficiencies
- ..... Infertility
- ..... Osteoporosis

**And many more...**

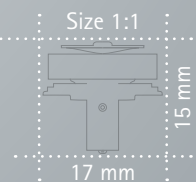




# Smart. Simple. Sustainable.

The next generation of micro pumps.

1  $\mu$ l pump





## – TECHNOLOGY –

How do we offer a sustainable product of the highest quality

Sensile Medical develops and builds micro pumps for liquids, based on our patented technology, which incorporate only a few mass production parts. The intricate plastic components of the pump are manufactured in a controlled environment, resulting in precise delivery at economical costs.

Our electromechanical drive system enables important feedback loops for the patient. Due to its built-in sensor technology, the pump senses occlusion and leakages as well as air bubbles in the fluid path – key factors for patient safety. This results in optimum safety, which helps our customers to reduce costs for additional sensors and control efforts.

1.

### Electromagnetic

The electromagnetic drive concept allows a complete separation of the reusable and disposable part of the pump without the need for mechanical nor electrical contacts.

2.

### Reusable

The concept of the system allows separating the reusable and disposable part of the pump and therefore a cost optimized and environmental friendly system can be realized.

3.

### No Moving Parts

There are no moving components in the reusable part of the system; therefore the reusable is sustainable and durable.

reusable

disposable

4.

### Economical

The smart design of the disposable with only a few parts allows coming up with cost-efficient pump solutions.

5.

### Simple

Our design-to-manufacture approach results in accurate pumping solutions within a zero-defect production – it's easy and obvious to use for patients.

6.

### Disposable

All wear parts are in the disposable part of the system and by replacing the disposable after use, a reliable and safe liquid delivery is ensured.

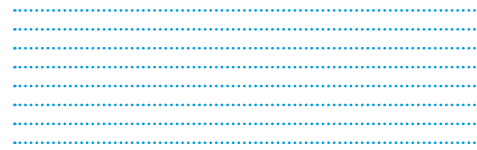


Can this company help me realize my ideas?

Can we increase capacity and reduce costs?

Will this technology give us a competitive edge?

What pump characteristics do I need for my specific application?



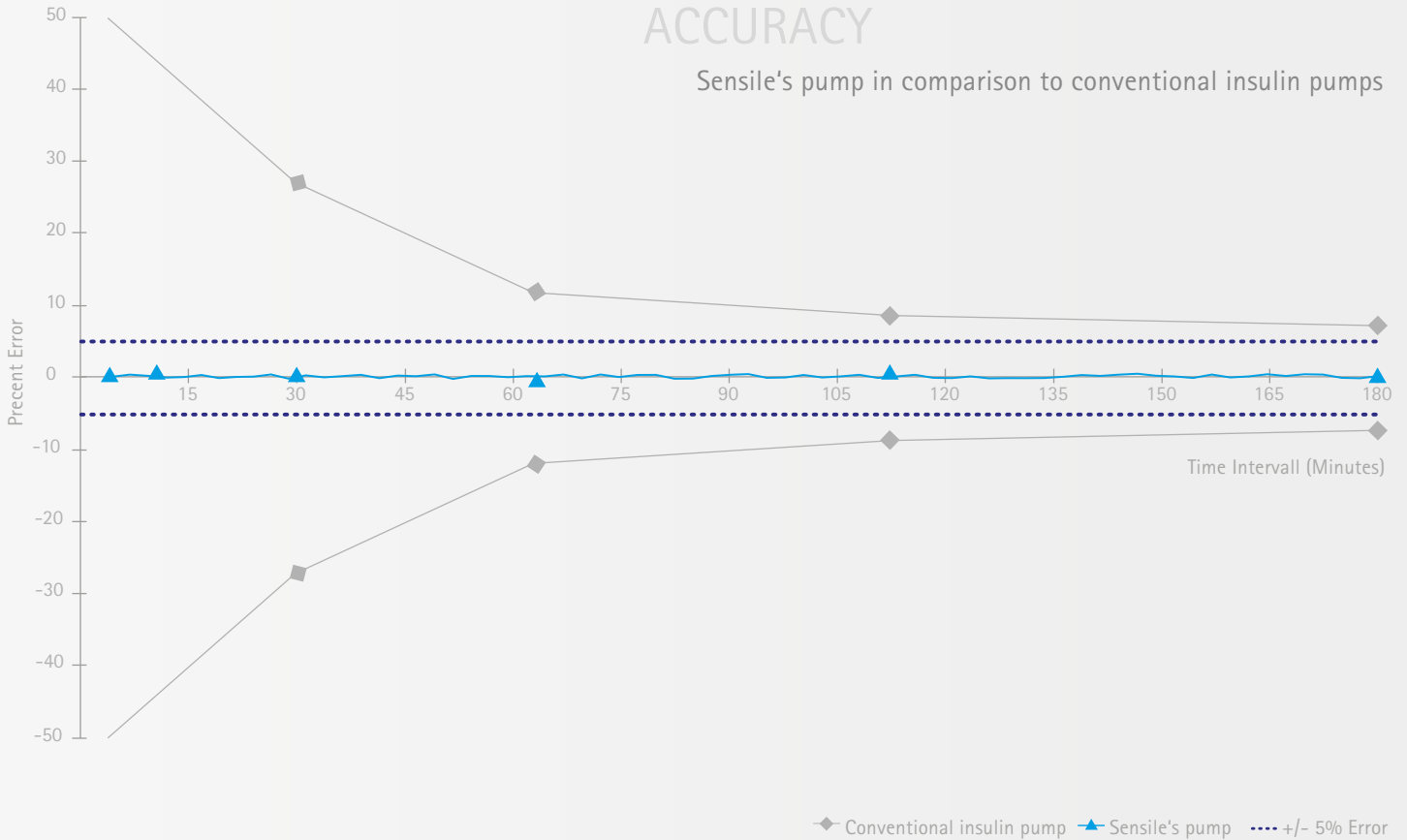
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– CUSTOMIZATION –

How flexible is our platform of smart, simple pump solutions

## ACCURACY

Sensile's pump in comparison to conventional insulin pumps

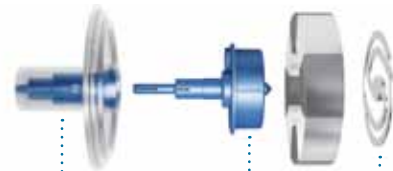


Our staff is specialized in designing customized pumps for specific applications. Our customers benefit in terms of time and experience by contracting our engineers to adjust our pumps' characteristics to their particular needs. This ultimately increases developmental speed.

Sensile Medical's micro pump module enables predetermined quantities of liquids in the range of 250 nl to 100  $\mu$ l per cycle, at up to 2 bar delivery pressure to be pumped with high accuracy. Our pumps are smart, simple, cost-effective, and disposable.

With our unique pump technology we offer the following key benefits:

- ..... Drug delivery accuracy
- ..... Delivery of viscose fluids
- ..... Utilize and empty standard glass cartridges
- ..... High-volume manufacturing production
- ..... Cost efficiency, due to our reusable/disposable concept
- ..... Suggested Art
- ..... Accuracy bell curve



Housing

Shaft

Magnet

Spring



How flexible

What

?

– DEDICATION –

Why is Sensile Medical the ideal partner  
for the development

What expertise does the company have?

Are there alternatives?

Whom can I ask?

Who is the company and the technology?

What does the company stand for?

Who is Sensile?

The customization of the devices is a very important factor for a commercial success in the specific therapeutic area.

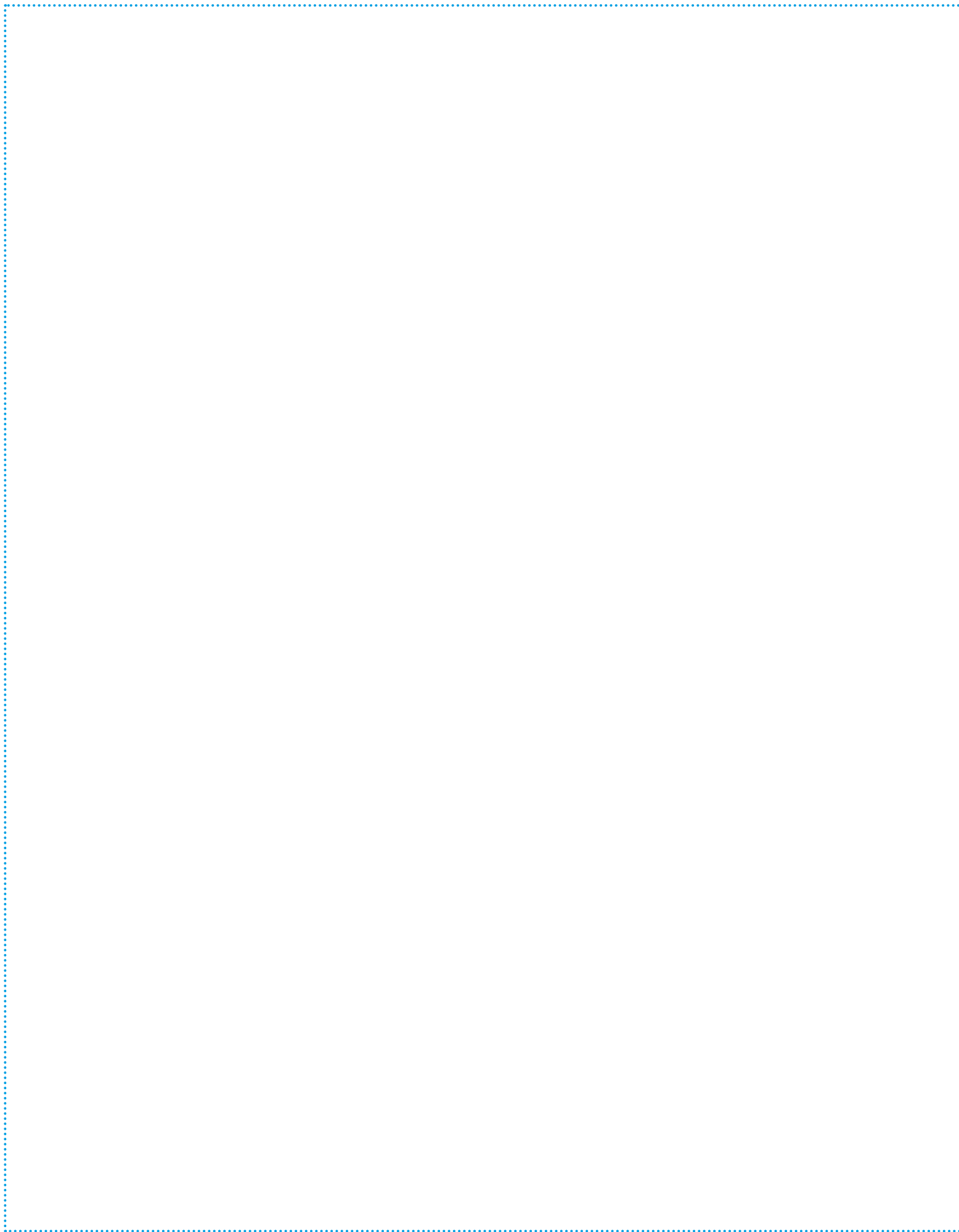
Sensile Medical is highly dedicated to develop smart, simple and sustainable medical devices according to your needs and the needs of the patient population.

The pump technology as a platform is very flexible in regard to the pumping volume and shape. The Sensile Medical team has the internal capacities to develop all system-relevant aspects of a medical device, such as fluidics, mechanics, electronics and Software development. Due to this combined knowledge we are able to work on a holistic approach for a dedicated medical device according to international quality standards.

Pump engine (disposable)

Pump drive (reusable)

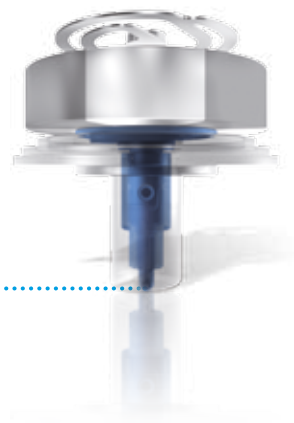




- „This is the best micro pump development I've seen in the past 20 years.“ -

Prof. Dr. Roland Zengerle

Director Department of Microsystems Engineering – IMTEK University of Freiburg





## – COMMITMENT –

How do we define our core competencies  
that lead to success for our customers

We Research

in close partnership with academic partners

We Develop

products that are simple, smart, safe and easy to use

We Care

for the regulatory pathway (ISO 13485 and 21CFR820)

We Produce

innovative highly accurate medical devices for drug delivery that meet the needs of the end-users

We Market

products through collaborations with commercial partners



**Sensile Medical AG**

Fabrikstrasse 10 | CH-4614 Hägendorf | Switzerland

Tel: +41 62 209 71 00 | Fax: +41 62 209 71 01

admin@sensile-medical.com | [www.sensile-medical.com](http://www.sensile-medical.com)



**SENSILE  
MEDICAL**