

TEAM

„Matthias (35) is a process engineer and scientist at the University of Stuttgart and Fraunhofer IGB focused on biotech. During his PhD work he used the system for the first time in biocatalytical processes. He is well-established in the German biotech community and responsible for the business development.“

MATTHIAS STIER (CEO)



STEPHAN SCHERLE (CTO)



„Stephan (47) is an engineer for physics and for many years responsible for embedded system at Fraunhofer IGB and experienced in the development of measurement systems. He is developing the control system and software for foxySPEC.“

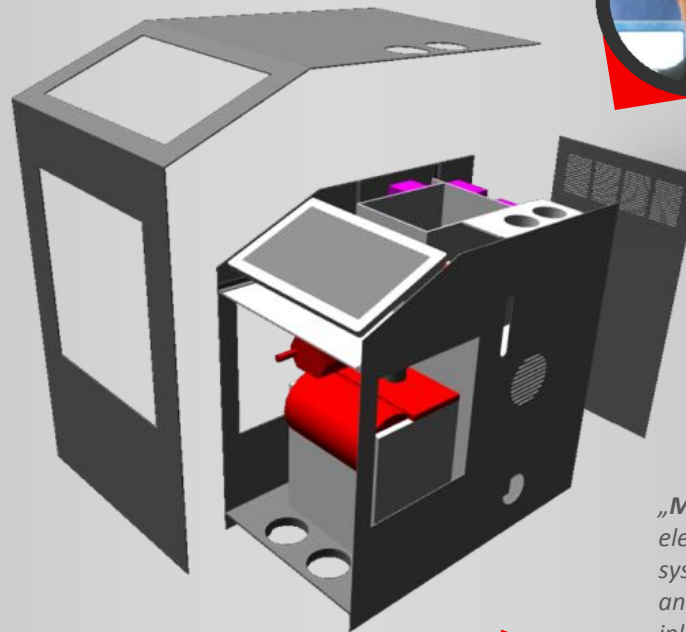
MOTIVATION

To offer a process mass spec for real-time measurement of concentrations from the liquid and gas phase.

We have more than 25 years experience with the device.

Process Mass specs suits very well for the purposes of the modern process industry: real-time measurement, high sensitivity and high amount of available data.

Bringing the mass spectrometry into new applications.



Martin Joos (Expert Mass Spec)



„Martin (52) as chemical engineer in the field of electrochemistry has been working since 1991 with the system. He is a known expert for mass spectrometry and vacuum technology. He has developed the liquid inlet for mass specs and used it for varied substances.“



MARKET

GO-TO-MARKET

In a cooperation with Pfeiffer Vacuum we are developing two different final standard-version for R&D and monitoring approaches. After validation, foxySPEC will be listed in the international product catalog of Pfeiffer.

Custom/OEM-version



foxySPEC could be used in fermentation processes by integrating it in production plants from e.g. Merck Millipore, Sartorius, etc.. Ca. 500 fermenters are sold per year.

During surgeries foxySPEC could be used as an autopilot for anesthesia. The ingredient concentration can be monitored in the respiration and blood. In Germany 4,806 operating rooms are registered.

The quality of food could be monitored, e.g. ethanol, methanol and other unwanted substances. Additionally flavoring substances can be measured.

Spinn off / rollout



Standard-version for R&D



fuel cells



batteries



drinking water



waste water



In R&D and for monitoring there is a need of ca. 700 devices per year.

On the market are process mass specs only for the gaseous phase available, e.g.:

- Omni-/Thermostar (Pfeiffer Vacuum, one gas inlet, price: 40,000 €, ca. 100 devices per year are sold)
- Prima Pro/BT & Sentinal Pro (Thermo Fisher Scientific, multiple gas inlet, price: 90,000 – 145,000, ca. 250 devices per year are sold)
- GAM mass specs (InProcessInstruments, multiple gas inlet, price: 60,000 – 120,000)

| financials | 2018 | 2019 |
|--------------|-----------|-----------|
| Sold devices | 15 | 20 |
| Turnover [€] | 1.500.000 | 2.000.000 |
| EBIT [€] | 342.700 | 380.200 |

Jun'15

Apr'18

2019



foxySPEC

TECHNOLOGY

1

foxySPECs standard-version (TRL 8) has five **flanges** which can be connected with a liquid or **gas inlet**.

5

Foxyspec has an industrial **PC and PLC** for controlling the processes. The concentration of each component are calculated by a mathematical model.

2

A liquid sample is cycled with a hose pump through a **membrane-module**.

3

On the surface of the membrane all volatile components of a liquid are continuously evaporated into a vacuum. A small part of the steam **flows in a high vacuum** where its composition is measured by a **quadrupole mass spec**.

4

No fractionizing of the sample (e.g. gas or liquid chromatography) is needed. Due to this a real-time measurement is enabled. Measuring simultaneously from the gas and liquid with one device is patent-protected.

simple, compact and mobile design,

low maintenance,

Automated routines to maintain sensitivity,

automated calibration of the liquid measurement,

remote maintenance,

different interfaces for communication with e.g. process control systems and

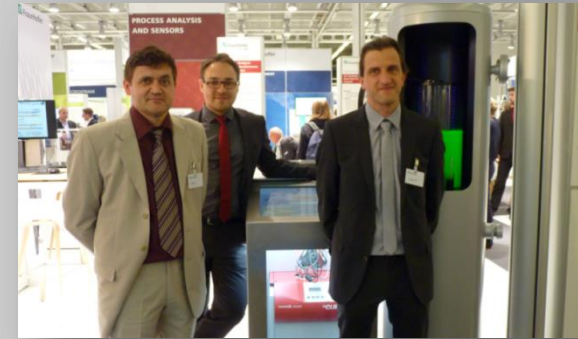
Safety routines that prevent damage from incorrect operation or unexpected events.

UNFAIR ADVANTAGE

OFFER



Innovation price SHORTLIST



WE OFFER

Technical expertise in the fields of mass spectrometry, chemistry, biotechnology and embedded systems
Network to partners in industry and research
Laboratories for development
Equity participation is possible

WE ARE LOOKING FOR

Full founding Team
Economic expertise (Marketing, Finance, Sales etc.)
And/or Business Angel / Venture Capitalist

THE INCENTIVE

Breakthrough device with market potential in different industrial sectors
Shares of a new company
TRL 8 of the device and established go-to-marked strategy

THE EXPECTATIONS

Interested in development of measurement devices
Economic background and/or expertise
Entrepreneurial experience

