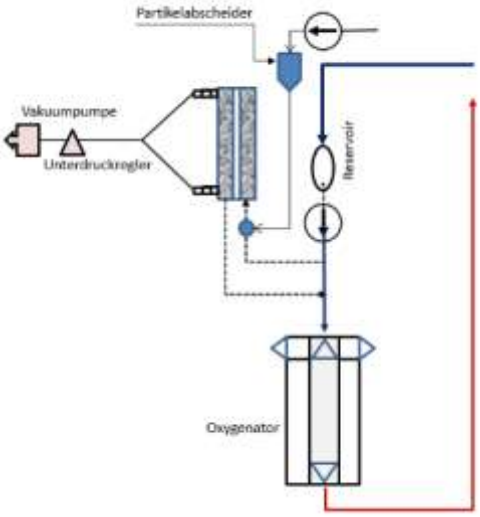
# Bubble–EX

## Novel cardiotomy reservoir on microporous hollow fibers

### Invention

This invention describes a novel cardiotomy reservoir based on the degassing technology of liquids. It consists of three components: a container as a blood volume depot in which a hollow fiber module is arranged, with the blood flowing through the container along the outside of the hollow fibers and the hollow fiber module having a gas inlet and a gas outlet. Gas inlet and outlet can be connected to a vacuum pump in order to degas the blood and thus avoid air bubbles in the blood. If the gas inlet is supplied with oxygen, the blood can be enriched with oxygen at the same time as being vented if an appropriate oxygen flow is selected.




Experimental set-up in vitro circuit

### Commercial Opportunities

Both gas bubbles and dissolved toxic gases pose a life-threatening risk. They frequently occur during the extracorporeal treatment of blood during surgery. The invention Bubble-EX can be used in the operating theater as well as in mobile applications. The construction is similar to that of an oxygenator and also uses porous hollow fibers and membranes. The use of negative pressure allows gas bubbles and dissolved gases to be removed from the blood very effectively. If oxygen is also added, Bubble-EX can also partially take over the function of an oxygenator.

### Current Status

A German patent application has been filed, international applications are still possible. The procedure has been verified experimentally. On behalf of the RWTH Aachen we offer interested companies the opportunity to acquire licenses for the invention and further development of the technology.

An invention of the RWTH Aachen University Hospital.

### Competitive Advantages

- Simple construction
- Low cost
- High efficiency in removing gas bubbles
- Allows simultaneous oxygenation of the blood

### Technology Readiness Level

1 2 3 4 **5** 6 7 8 9

Technology validated in relevant environment

### Industries

- Healthcare sector
- Cardiac surgery
- Mobile emergency services

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