
BioThrust
We thrust your process
Enabling a new level of bioprocesses
eXIST
Existenzgründungen aus der Wissenschaft
Innovation Award
Science 4 Life
HIGH-TECH .NRW
BioRiver
Life Science im Rheinland e.V.
UNIVERSITY INNOVATION CHALLENGE

Executive Summary

BioThrust offers two innovative product lines for the aeration of bioreactors

BioThrust Membrane Module

Bubble-free aeration for increasing process yield by up to 200%

BioThrust UniThruster

Easy-to-install bubble-sparger for increasing gas transfer by 10-200%

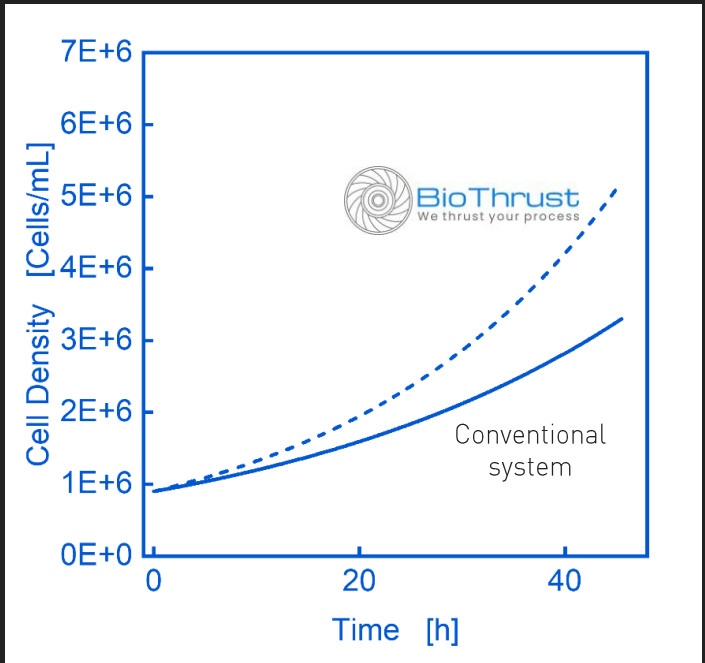
Membrane Module – Overview

The BioThrust Membrane Module enables the world's first effective bubble-free aeration of bioreactors

- Up to +200% increased space-time yield
- No foam formation; no need for antifoam
- Gentle, stress-free aeration and circulation of organisms (no cell destruction)
- Available for 1L to 50L reactors – scale-up and -down ongoing to cover 250ml-1,000L
- Easy to install as retrofit for your existing bioreactor systems

Membrane Module – Application Notes

In recent pilot trials, the Membrane Module more than doubled the yield of the respective processes while demonstrably reducing cell stress and enabling new processes.



INSECT CELLS
(Pharma Partner)

+200% Yield,
Less Stress

THERAPEUTIC PROTEIN PRODUCTION
(CHO-CELLS, CDMO)

State-of-the-art Cell Density (>20M Cells/mL), Viability >98%, Less Stress

MSC/iPSC ORGANOID CULTIVATION
(University Hospital)

Enabler of first direct scale-up to 2L

Membrane Module – Applications

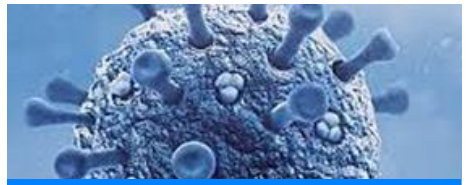
The Module can be used in a broad range of applications and already attracted strong interest from renowned partners


Cell & Gene Therapy


Mammalian Cells (CHO)


Lab Meat / Proteins / Enzymes


Bacteria


Viral Vectors

"This technology appears to be indispensable for the realization of personalized cell therapy."

Top-3 Pharma Company

"We are very impressed with your capability [...]; your technology is of great interest to us."

Top-5 Bioreactor Manufacturer

"We need this technology to significantly improve our process efficiency."

Top-5 Cultured Meat Company

"A very interesting technology! It's only a matter of time until the „big" ones come knocking."

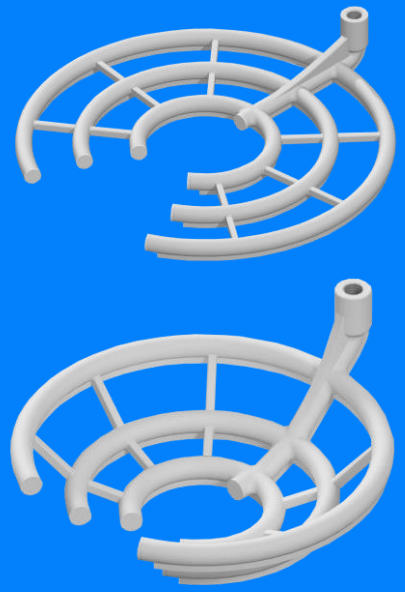
Top-5 Veterinary Health Company

Pilots & Contacts

SARTORIUS
Lonza
MINARIS REGENERATIVE MEDICINE
Ceva
Johnson & Johnson
Roche
Rentschler Biopharma
Mosa Meat
DTU Danmarks Tekniske Universitet
SANOFI
iAMB Institut für Angewandte Mikrobiologie
RWTH AACHEN UNIVERSITY

The UniThruster

Our 3D printed UniThruster

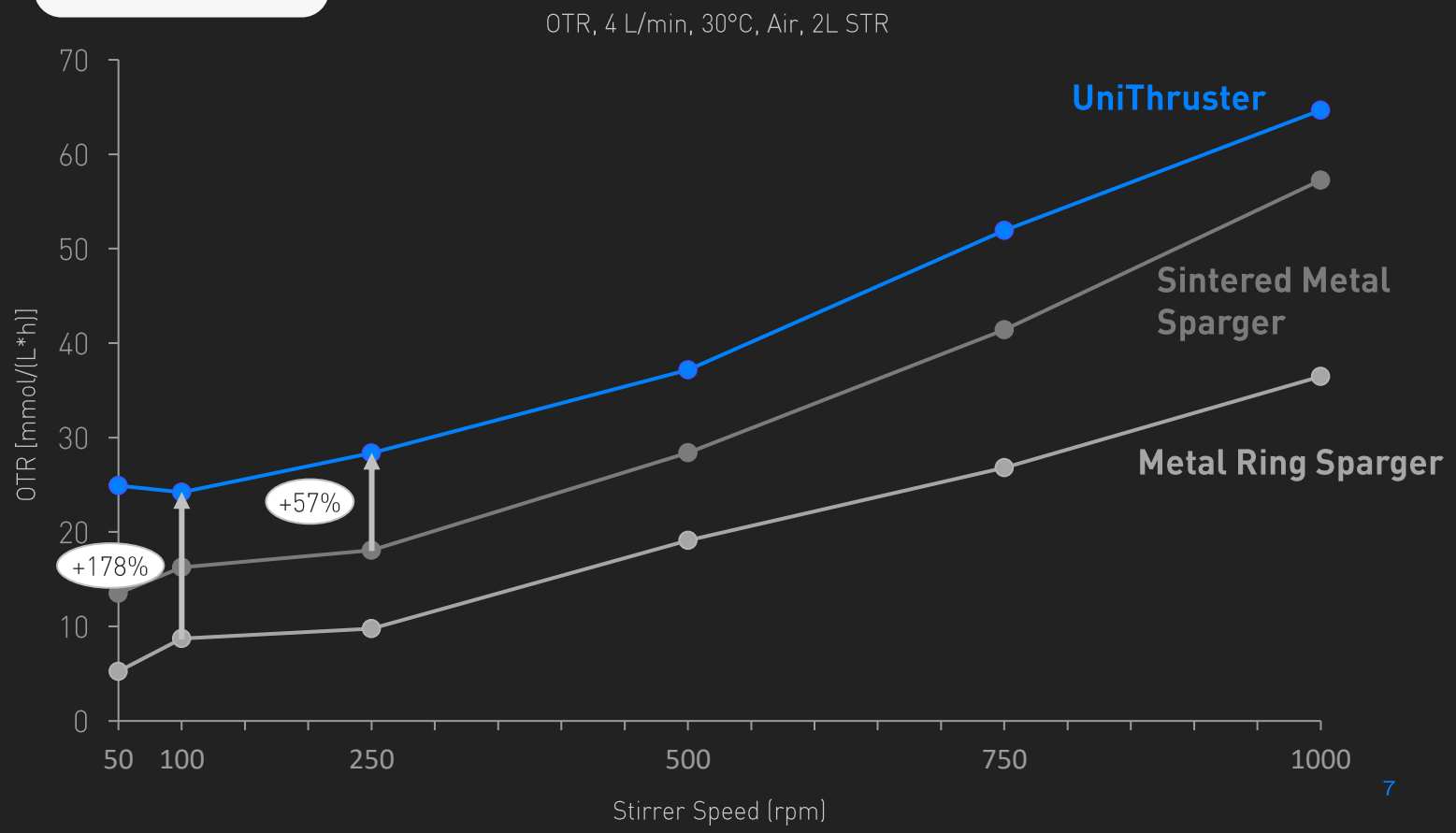


Creation of fine-pearly bubbles over a large area

- Up to 200% gas transfer compared to other spargers
- Aeration across entire reactor area due to design flexibility
- Versatile across different reactor types and processes
- Sterilizable (autoclavable), non-cytotoxic and reusable
- Even pore size distribution
- Lower stirrer speed needed for gas distribution

Compared to conventional spargers, the UniThruster increases the **gas transfer** (particularly at low stirrer speeds) by up to **200%**. It is thus ideally suited for **oxygen-demanding** processes.

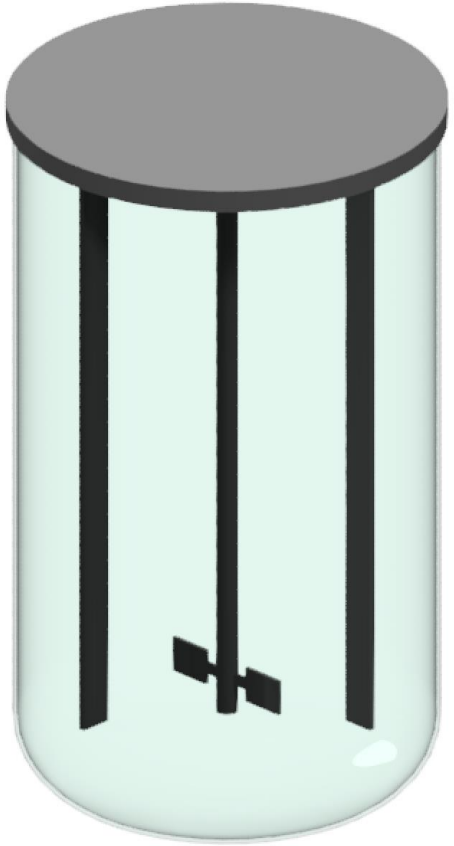
GAS TRANSFER



BioThrust
We thrust your process

UniThruster – Installation

We design the UniThruster such that you can install it as a plug-and-play device into your existing bioreactor systems



Creation of a digital twin of your system

Customization of our UniThruster to your system considering all internal parts and sensor configurations

Perfect aeration for your process

Interested in testing our technology?

Contact us for discussing the optimal aeration system for your processes in a joint meeting!

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