

Archimedes® One

Dynamic adherent bioreactor for automated, scalable cell manufacturing

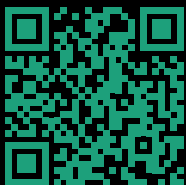
Keep adherent biology.
Leave complexity behind.

- Developed for cell and gene therapy production
- Automated and standardized harvesting
- Full process control of key parameters with any standard biocontroller
- No conditioning vessels or complex subsystems
- Pre-assembled, single-use setup



Prototype shown, commercial product may vary from image





How it works

Easy start with pre-assembled single-use setup

1

Single-use CellScrew® pre-assembled with connectors and integrated sensor loop.

2

Bioreactor run with controlled temperature and gas environment in a rotational dynamic.

3

Liquid handling through biocontroller integration for medium exchanges and culture monitoring.

4

Automated harvest through vibrational motor for standardized yields.

Based on CellScrew® 10K technology

A compact, 3D-printed cultivation vessel based on the Archimedes screw principle. Its concentric cylinder geometry stacks 10,000 cm² of growth surface into the footprint of a single bottle — delivering more than 133 T-75 flask equivalents per run, without changing how your cells grow.

10,000 cm²

growth surface per
CellScrew® 10K

133x T-75

equivalents in
just one vessel

92% smaller

footprint vs.
roller bottles

up to 50%

less associated
medium cost
for cell culture

Homogeneous culture conditions

The rotational dynamic ensures constant low-shear mixing, uniform nutrient and gas distribution across the full growth surface.

Reduced open handling events

Up to 33% shorter handling times vs. comparable multi-vessel setups, reducing contamination risk and operator variability.

Scalable without redesign

Same vessel geometry from R&D through clinical production. Process parameters transfer directly — no re-optimization required.

More reproducible outcomes

Standardized automated harvesting and controlled process conditions reduce batch-to-batch variability.



What this means for your facility

Automation
does the
repetition.
Your team
does the
science.

Rather than increasing the bottle size, the CellScrew® expands what matters inside. The geometry places multiple cultivation layers inside one bottle, **maximizing the output of the available space.** With Archimedes® One, this compact surface becomes production-ready: real-time monitoring and automated harvest turn a research-scale format into **a reproducible manufacturing process.**



Validated cell types in CellScrew®

MSCs	iPSCs	Macrophages
Vero	HEK-293	CHO-K1

Controlled process parameters

pH, DO, Temperature integrated sensors, online monitoring	Media flow* batch, fed-batch and perfusion modes	Gas* N ₂ , CO ₂ , O ₂ exchange	Harvest intensity automated harvesting
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*controlled via external biocontroller

What's included

Archimedes® One comes with a pre-assembled CellScrew® and ready to use: plug in, place CellScrew® inside and connect tubing. Now you're ready to run.

Vessel configuration	Comes as CellScrew® 10K with a surface area of 10,000 cm² in a closed-system format
Biocontroller compatibility	Generally compatible with all standard biocontrollers
Software	21 CFR Part II compliant
Support	Get support from our team for setup and first runs

About

Green Elephant Biotech was founded in 2021 with a single focus: making adherent cell manufacturing simpler, more scalable, and more sustainable.

Archimedes® One is our dynamic adherent bioreactor built around our CellScrew® cultivation vessel. It brings perfusion-like performance to adherent workflows without the complexity of traditional bioreactor setups.

We operate from Gießen and Berlin with a growing interdisciplinary team and manufacture our products in Germany. We are ISO 9001:2015 certified and provide GMP-supportive documentation for customers in clinical development.



Now open for pre-order

Submit a request and our team will share pricing for Archimedes® One and lead times for your site.

[Get pricing information](#)



Archimedes® One was developed in partnership with **Bürkert Fluid Control Systems**, integrating proven fluidic automation.



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