SARTORIUS

Product Datasheet

Univessel® SU 10 L

A scalable single-use bioreactor for research or manufacturing applications

Product Information

The Univessel® SU 10 L is a single-use benchtop bioreactor vessel for mammalian cell culture applications during research and manufacturing. Dedicated vessel designs support specific process applications, including advanced operating modes (e.g., perfusion-based intensification) and new modalities (e.g., cell and gene therapies).

The vessels are inherently scalable due to geometric consistency across the Sartorius bioreactor portfolio, spanning from Ambr® and Univessel® to Biostat STR®. GMP-compliant options are also available, enabling efficient process translation from research-use to manufacturing, using the same bioreactor technology.

Features and Benefits

- Enhanced productivity: Single-use vessels reduce setup time
- Suitable for diverse processes: Application-specific designs (Essential, Perfusion, and Cell Therapy)
- End-to-end scalability: Consistent geometry across Sartorius bioreactor technologies
- GMP-ready: Available in GMP-compliant configurations

Introduction

Relevant applications
- Batch and fed-batch mammalian cell culture applications
- Perfusion cultures: N-X intensification, continuous perfusion, dynamic perfusion, and continuous fed-batch
- Cell and gene therapy production
- GMP manufacturing

Relevant process steps
- Commercial manufacturing and seed expansion
- Conventional process development for cell cultivation
- Process characterization
- Material generation for downstream processing and early clinical trials
- Satellite runs for process troubleshooting and optimization

Description

The Univessel® SU 10 L is designed to support the full range of mammalian cell culture applications at the bench scale while offering seamless scale-up from process development to commercial manufacturing.

Enhanced productivity

The single-use vessels arrive irradiated and ready-to-use, shortening setup and bioreactor turnaround times while minimizing contamination risk. The vessel accommodates working volumes from 2.5 to 10 L, supporting flexible operation.

Optimized scalability

Univessel® SU 10 L vessels have geometric designs and scale-up ratios consistent with Ambr® and Biostat STR® systems. This ensures standardized scaling, accelerating process development activities and mitigating risk during technology transfer.

Specialized designs

The vessel is available in three application-specific designs to support different process requirements.
- **Univessel® SU 10 L Essential:** A stirred-tank reactor for standard mammalian cell culture, featuring optimized mixing and gas exchange
- **Univessel® SU 10 L Perfusion:** A perfusion-ready vessel equipped with a dedicated port and micro-sparger for intensified processing)
- **Univessel® SU 10 L Cell Therapy:** A vessel equipped with an elephant-ear impeller designed to deliver efficient mixing even at low power input, making it well suited for cell therapy applications

Manufacturing readiness

Manufacturing-compliant options enable low-volume clinical and commercial manufacturing. GMP-environment vessels are supported by a high level of quality documentation, including extractables and leachables data and validation guides.

Technical Specifications

Feature	Essential	Perfusion	Cell Therapy
Impeller	2 × 3-blade, segment impellers	2 × 3-blade, segment impellers	1 × 3-blade, elephant ear impeller
Sparger	Ring sparger	Combi (ring and micro) sparger	Combi (ring and micro) sparger
Dip tube	2 × dip tubes (10 and 20% volume remaining)	3 × dip tubes (10, 20, and 84% volume remaining)	3 × dip tubes (10, 20, and 84% volume remaining)
Bottom port configuration	1 × harvest, 1 × sampling	1 × harvest, 2 × sampling, 1 × perfusion	1 × harvest, 2 × sampling, 1 × perfusion
Exhaust filter	No backup filter line	Backup exhaust filter line can be connected	Backup exhaust filter line can be connected
Tubing materials	TPE tubing	TPE tubing	TPE and PVC tubing

Ordering Information

Vessel Design		Essential	Perfusion	Cell Therapy
Research use	Description	Univessel® SU 10 L Essential	Univessel® SU 10 L Perfusion	Univessel® SU 10 L Cell Therapy
	Part Number	USU10CCES-RU-01	USU10CCPF-RU-01	USU10CCCT-RU-01
Manufacturing use (GMP environment)	Description	Univessel® SU 10 L Essential CM	Univessel® SU 10 L Perfusion CM	Univessel® SU 10 L Cell Therapy CM
	Part Number	USU10CCES-QC-01	USU10CCPF-QC-01	USU10CCCT-QC-01

Product Disclaimer

Univessel® SU 10 L is a single-use benchtop-scale stirred-tank bioreactor available in three vessel designs: Essential, Perfusion, and Cell Therapy. The names assigned to each vessel design are intended to help identify the configuration best suited for the end application.

Univessel® SU 10 L bioreactors are intended to be used for aqueous solutions containing mammalian cell cultures, enzymatic processes, and certain chemical reactions (dependent on chemical compatibility—see the dedicated section in the Validation Guide).

The Univessel® SU 10 L is not intended for use as a final drug product container nor for direct administration into humans or animals. The Univessel® SU 10 L is not registered as a medical device. The Univessel® SU 10 L must not be used for clinical, therapeutic, or diagnostic purposes.

Related accessories

Product name	Description	Order number
Holder basic	The vessel holder provides bioreactor stability during operation	DZ-------VHB
Holder Sensolux	The Sensolux holder can measure the pH & DO optical sensor spots on the base of the vessel	DZ-------VHC
Motor adapter*	The Univessel SU® 10 L impeller is driven by a motor via a magnetic coupling	ZB-SU-MI-0001
Heating blanket	The heating blanket is used to provide (heating) temperature control to the bioreactor	ZB-SU-TC-0002
Heating | cooling jacket	The heating / cooling jacket is used to provide temperature control to the bioreactor	ZB-SU-TC-0006
Exhaust filter heater*	The exhaust filter heater warms the exhaust filter & helps to reduce filter blocking during operation	ZB-SU-EL-0002
Safety valve station*	The safety valve station houses a mechanical safety valve that activates to release pressure if the maximum limit is surpassed (300 mbar ± 30 mbar)	ZB-SU-OT-0002
Burst disk*	The burst disc provides an additional safety measure in case of vessel over-pressurisation (500 mbar)	ZB-SU-OT-0004
Pressure interlock*	The Pressure Safety Interlock is a software function which can be enabled to replace use of the burst disc	Available on RFQ system request
Temperature sensor	The temperature sensor is installed in a port at the headplate to measure culture vessel temperature	ZB-SU-SE-0001
Exhaust cooler	The exhaust cooler is placed on top of the exhaust channel on the top of the vessel	ZB-SU-EL-0004
Accessory holder	The Accessory Holder is intended to support user-friendly operation of the vessel & to safely store all multi-use accessories when the system is not in use	ZB-SU-OT-0001

*Mandatory

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