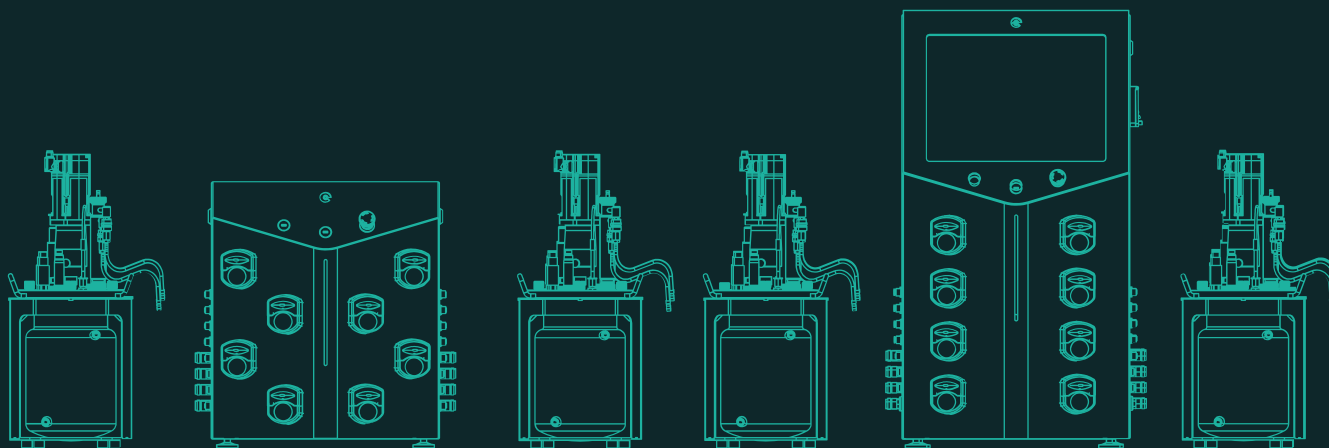


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Unlock the full potential of
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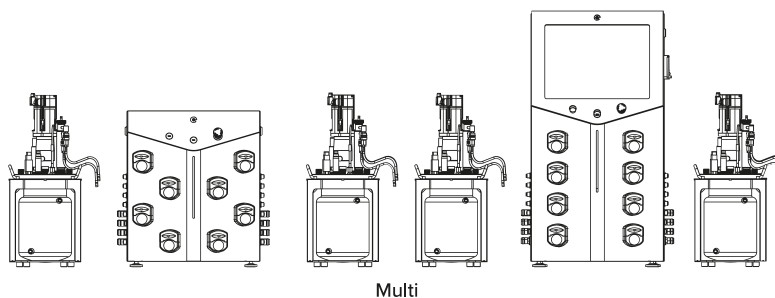
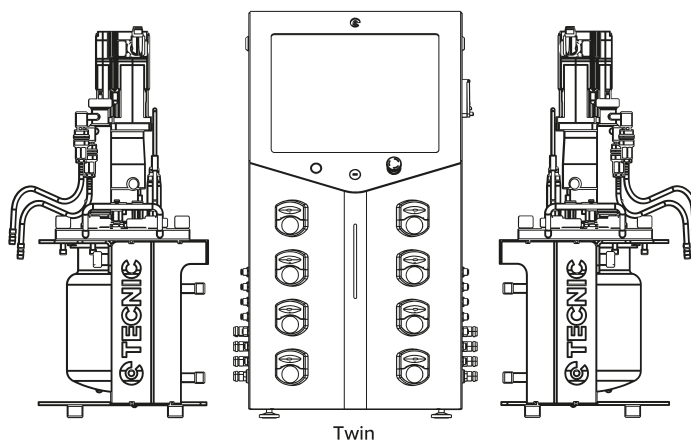
eLAB® Advanced Bioreactor

At our facilities, we have developed the eLAB® Advanced Bioreactor, a groundbreaking solution that will take your biotech research to new heights. Designed with scalability and versatility in mind, our bioreactor empowers scientists and researchers across academia, industry, and research and development to achieve optimal results in their bioprocesses.

When it comes to vessel options, we provide two high-quality materials: borosilicate glass and stainless steel. Both options offer their unique advantages, ensuring compatibility with a wide range of applications. The working volumes of 1L, 2L, or 5L cater to various experimental requirements, allowing you to optimize your microbial and cell culture processes.

We understand that the success of your bioprocesses hinges on precision and control. That is why we have integrated the Servo Motor into our eLAB® Advanced Bioreactor. This technology delivers unparalleled precision and versatility, enabling you to fine-tune your experimental conditions and achieve reproducible results. Have full control over crucial parameters, such as temperature, pH, dissolved oxygen, and agitation speed, ensuring an ideal environment for your valuable cultures. Our eLAB® Advanced Bioreactor is not just about advanced technology—it is also about reliability and efficiency. We know that time is of the essence in the fast-paced world of biotech research.

That is why we have meticulously engineered our solution to provide a reliable and efficient means of controlling your bioprocesses. With our bioreactor, you can focus on your research and experiments with confidence, knowing that our technology is supporting you every step of the way.



Basic configuration - Microbial

Control configuration	
Temperature control	Included
DO control (simple cascade controller)	Included
Stirrer speed control	Included
pH control via addition of acid or base	Included
Foam control	Included
Mass flow controller for air addition	Included
Mass flow controller for O ₂ addition	Included
Advanced gas performance (total gas management)	Included
Integrated peristaltic pumps	4x for acid, base, antifoam and media addition
eR&ID eADVANCED software	Included Included
TECNIC OPC server	Included
Recipes management (included in eSCADA R&ID and Advanced)	Included
Advanced pO ₂ control with addition pumps / N ₂	Optional
Advanced pH control with addition pumps / CO ₂	Optional
PAT (Qubicon and Lucillus)	Optional
Reports	Included
21CFR Part 11 Compliant	Optional
User's management	Included
Culture vessel	
Double wall vessel	Included
Servomotor agitation	Included
Stirrer shaft seal	Included
6-blade rushton impeller	Included
Aeration filters	Included
Ring sparger	Included
4 baffles for mixing performance	Included
Exhaust condenser	Included
4 way addition port	Included
Sampling kit	Included
Sampling pipe with height adjustment	Included
Harvest pipe with height adjustment	Included
pH sensor with cable	Included
DO sensor with cable	Included
Foam sensor with cable	Included
Temperature sensor Pt100	Included
Port adapter 19 - 12 mm	Included
Starting kit of consumables	Optional
Microsparger	Optional
Dip pipe sparger	Optional
Weight measurement bioreactor / External bottle	Optional
Off-gas analysis	Optional
Biomass sensor (optical or permittivity)	Optional
ORP sensor	Optional
N ₂ MFC	Optional
CO ₂ MFC	Optional
External cooling unit	Optional
PAT-BOX	Optional
Stainless steel vessel	Optional

Basic configuration - Cellular

Control Configuration

Temperature control	Included
DO control (simple cascade controller)	Included
Stirrer speed control	Included
pH control via addition of acid or base	Included
Foam control	Included
Mass flow controller for air addition	Included
Mass flow controller for O ₂ addition	Included
Mass flow controller for N ₂ addition	Included
Mass flow controller for CO ₂ addition	Included
Advanced gas performance (total gas management)	Included
Integrated peristaltic pumps	4x for acid, base, antifoam and media addition
eR&ID eADVANCED software	Included Included
TECNIC OPC server	Included
Recipes management (included in eSCADA R&ID and Advanced)	Included
Advanced pO ₂ control with addition pumps / N ₂	Included
Advanced pH control with addition pumps / CO ₂	Included
PAT (Qubicon and Lucullus)	Included
Reports	Included
21CFR Part 11 Compliant	Optional
User's management	Included

Culture vessel

Double wall vessel	Included
Servomotor agitation	Included
Stirrer shaft seal	Included
Pitched blade impeller	Included
Aeration filters	Included
Ring sparger	Included
Exhaust condenser	Included
4 way addition port	Included
Sampling kit	Included
Sampling pipe with height adjustment	Included
Harvest pipe with height adjustment	Included
pH sensor with cable	Included
DO sensor with cable	Included
Foam sensor with cable	Included
Temperature sensor Pt100	Included
Port adapter 19 - 12 mm	Included
Starting kit of consumables	Included
Weight measurement bioreactor / External bottle	Optional
Off-gas analysis	Optional
MFC for overlay gas	Optional
3-way valves for overlay gases (other than air)	Optional
ORP sensor	Optional
External pump for additional feeding	Optional
DCO ₂ sensor	Optional
External cooling unit	Optional
Marine impeller	Optional
Microsparger	Optional
Dip pipe sparger	Optional
Stainless steel vessel	Optional

Control unit

Control unit	Twin	Multi
Dimensions (WxHxD) (mm)	460,3 x 817,4 x 550	460,3 x 817,4 x 550
Weight approx (Kg)	60	37
Power supply	230 VAC, 50 Hz	
Consumption	14A	
Non-product contact material	Stainless steel AISI 304	
Product contact material	Stainless steel AISI 316L	
Controller type	Industrial PLC	
Operation/HMI Interface	Intouch Screen 15" / eSCADA	-
Electrical interfaces	1x ethernet for local connection 1x WLAN connection 2x USB 3x ethernet for external devices 2x analogue output for external pump 10x modbus connections for process sensors 2x digital input for level/foam sensor 2xRTD connector for temperatura sensor	
Advanced software	Compatible with Qubicon and Lucullus	

Utility connections

Gases: air, O2, CO2, N2	Description
	Supply pressure of 1 barg
	Pre-treaded gas: dry and oil-free
	Connection: pneumatic fitting Ø 6 mm
Tap water / Cool water	Description
	Supply pressure: 2 bar
	Return pressure: atm
	Flow rate: 2-20 L/min
	Temp: 5-15°C
	Needed cooling capacity
	Twin: 800 W
	Connections to vessel / Condenser: quick plug non-return connector 1/8

Culture vessel features

Features	1L	2L	5L
Total volume (L)	1,6	3	6,6
Working volume (L)	1	2	5
Minimum working volume (L)	0,4	0,6	0,6
Inner diameter (mm)	110	130	160
Inner height (working volume) (mm)	115	160	255
H/D ratio	1	1,2	1,6
External dimensions (WxHxD) (mm)	228x527x228	230x542x230	260x652x260
Space requirement in autoclave (diameter x height) (mm)	240x440	240x500	270x600
Total weight (Kg)	5	6	11
Maximum stirrer speed (rpm)	2000	2000	2000
Maximum tip speed (m/s)	3,5	4,5	6,2

Motor type	Servomotor	Servomotor	Servomotor
Motor power (W)	400	400	400
Impeller type MB / CC	6-blade rushton turbine / 3-pitched blade		
Number of impellers MB / CC	1-1	2-1	2-1
Impeller diameter (mm) MB / CC	30-35	43-57	60-70
Top ports 19 mm / 12 mm / 11 mm	3-3-5	3-3-5	3-3-5

Gas system - Culture vessel

Culture vessel	1L, 2L, 5L
Number of MFCs	Up to 4 different gases
Air aeration (NL/min) microbial / cellular (*flow limited by the user)	0-20 / 0-20
O2 addition (NL/min) microbial / cellular (*flow limited by the user)	0-19.6 / 0-19.6
N2 addition (NL/min) microbial / cellular (*flow limited by the user)	0-20 / 0-20
CO2 addition (NL/min) microbial / cellular (*flow limited by the user)	0-14.8/0-14.8
Mass flow controller	Factory calibration with air and corrected for each gass
Flow range	From 0 NL/min up to 20 NL/min
Accuracy	± (4% MV +1.25% FS)
Maximum operating presure	2.5 barg
Gas connection to culture vessel	Pneumatic fitting Ø 6 mm

Pumps

Pump type	4 integrated variable speed pumps for vessel
Pump head	For 1.6 mm wall thickness tubing bore: ID 0.8-4.8 mm
Speed	0.1 - 300 rpm
Flow rate (ml/min)	ID 0.8 mm - 10 ml/min ID 1.6 mm - 56 ml/min ID 2.4 mm - 111 ml/min ID 3.1 mm - 191 ml/min ID 4.8 mm - 366 ml/min

Temperature control system

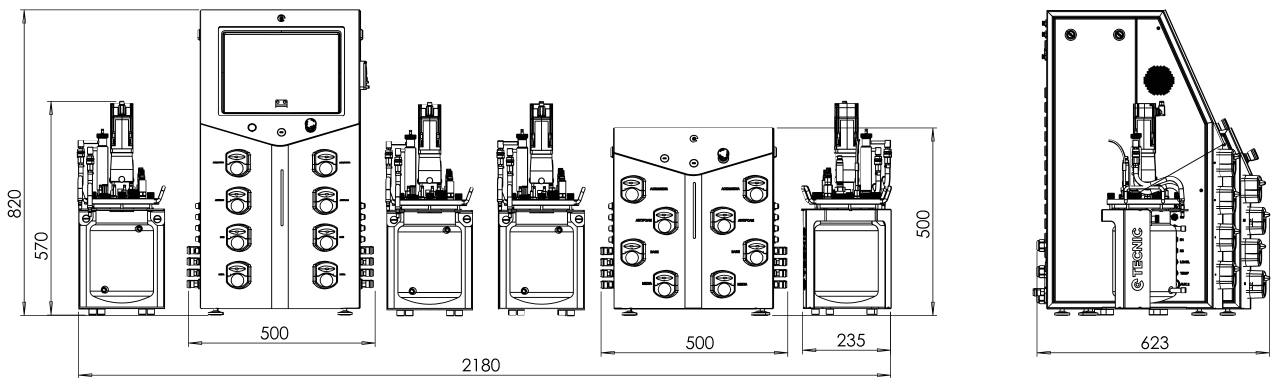
Operation	Open recirculation system
Heating	Heating resistance: 500 W
Cooling	Automatic valve for cooling water
Temperature range	Temperature control between 8°C - 70°C
Connection to jacket system	Quick plug non-return connector 1/8

Sensors

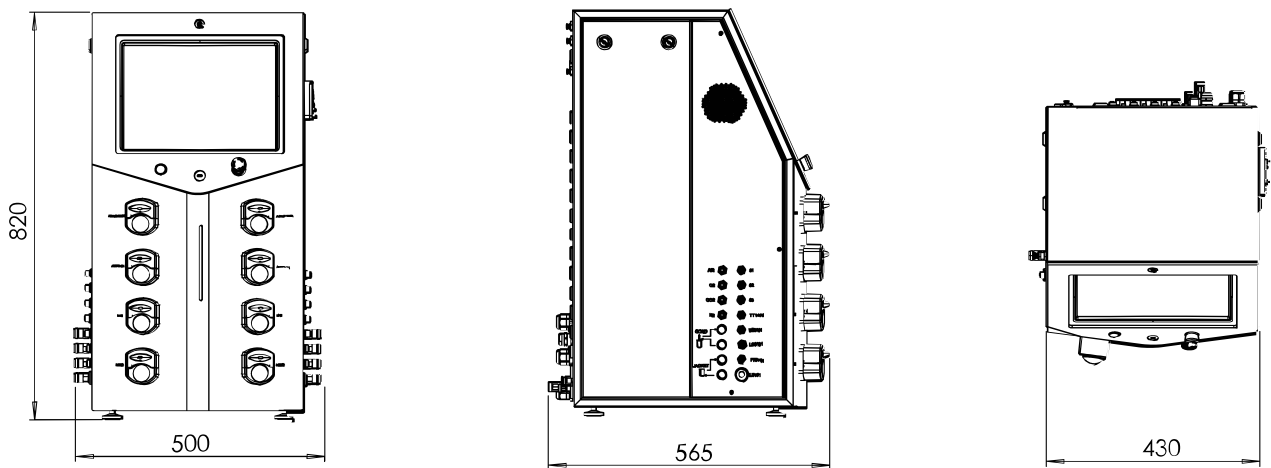
pH	Biocompatible (FDA) electrolyte filled 0 -14 pH
Dissolved O2	Optical DO sensor 0-300%-sat
Temperature sensor	Pt100 0-150°C
Foam / level sensor	Conductive probe - sensitivity regulation, stainless steel ceramic isolated

Total cell density	Abs. 860 nm 0-200 g/l CDW yeast 0-30000 NTU
Viable cell density	Permittivity measurement 0-700 pF/cm equivalent to 5·10 ⁵ to 8·10 ⁹ cells/ml (mammalian)
pCO	Solid-state NDIR measurement 0.5-100% vol 0-1000 mbar 7.5-1500 ppm
ORP (Redox)	ORP potential measured against reference -1500 mV to +1500 mV
Off-gas analyzer	Microbial: * O2: 0.1-25%; * CO2: 0-25%; Cellular: * O2: 0-100% * CO2: 0-25% Accuracy < +0.2% FS* +- 3% value
External balance	Capacity: 0-30 Kg Accuracy: 0.1 g

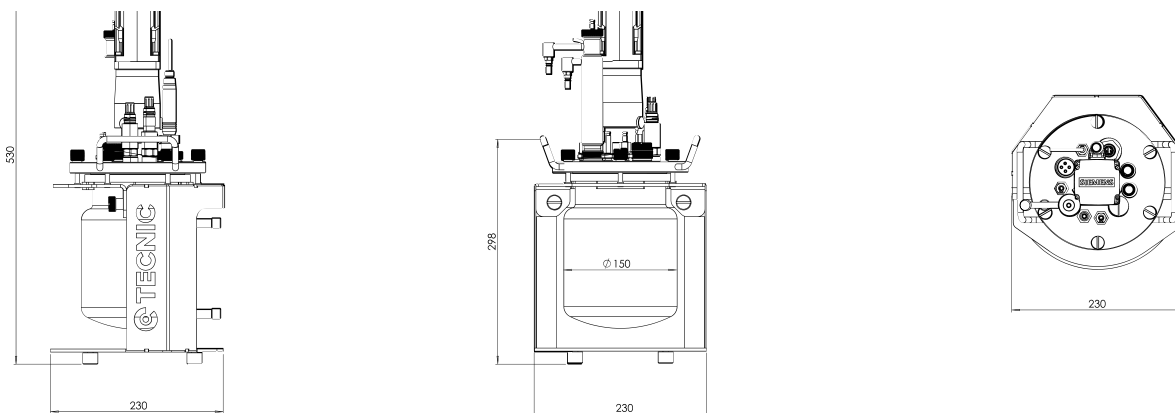
Multi (measurements in mm)



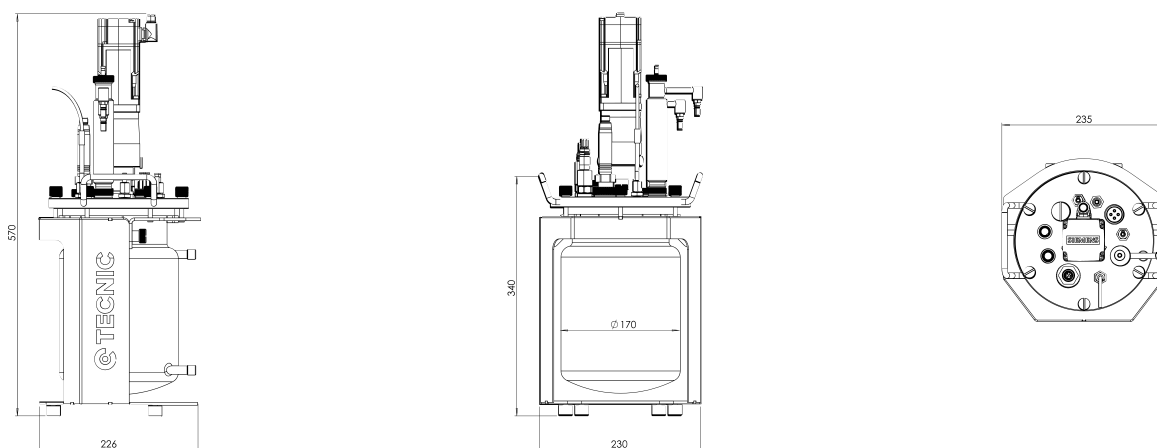
Twin (measurements in mm)



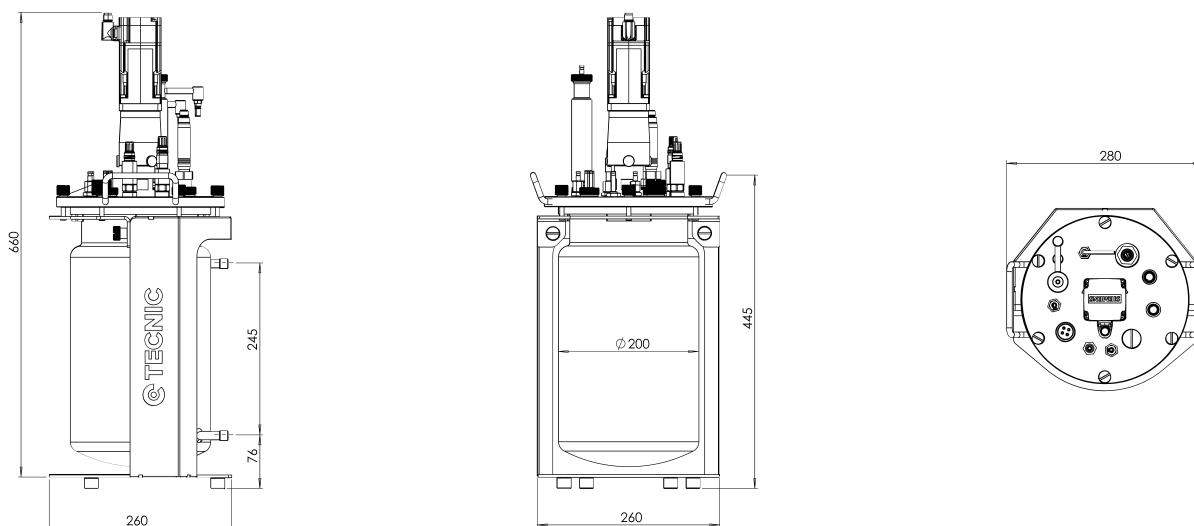
1L Borosilicate glass (measurements in mm)



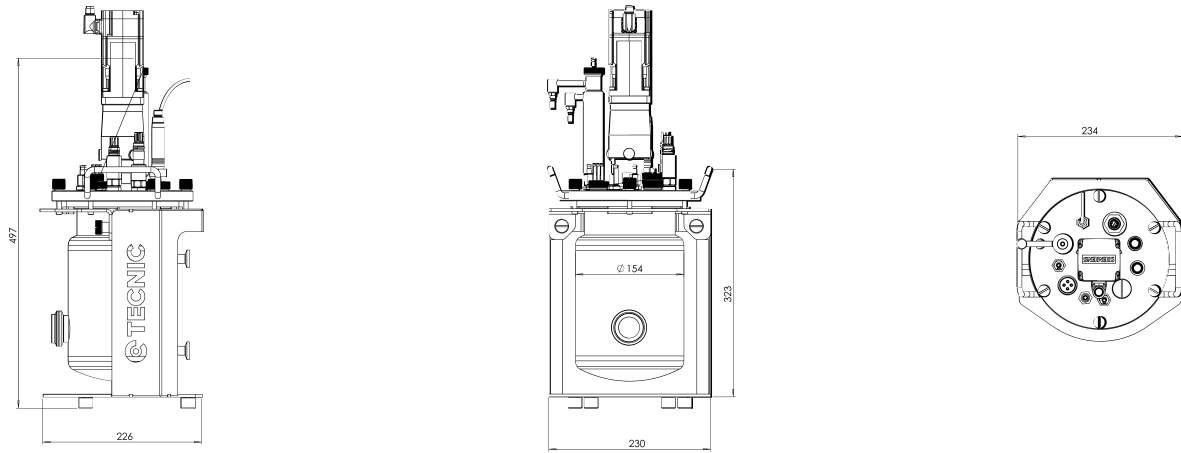
2L Borosilicate glass (measurements in mm)



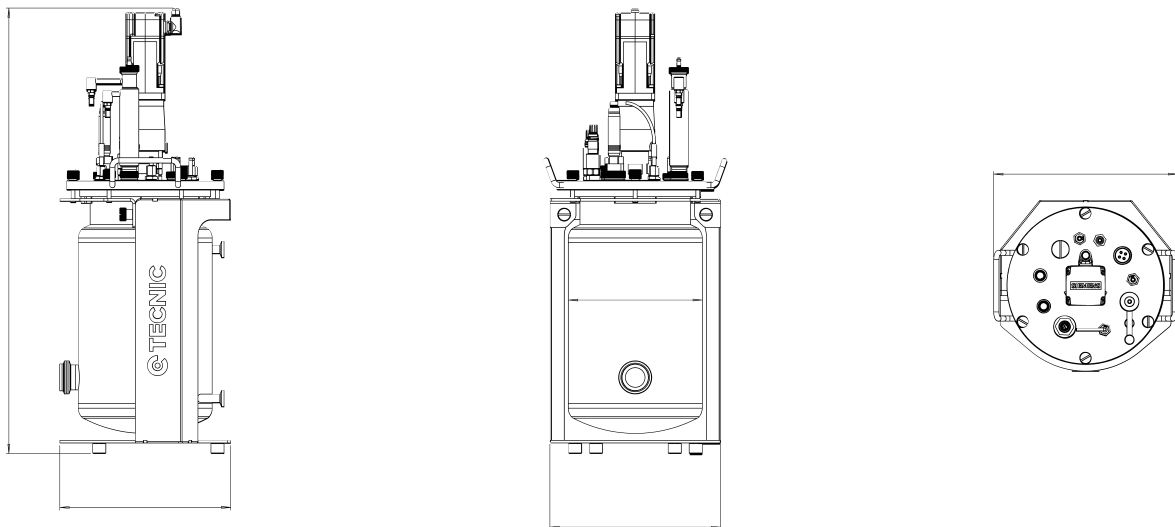
5L Borosilicate glass (measurements in mm)



2L Stainless steel (measurements in mm)



5L Stainless steel (measurements in mm)



Partnerships



Regulation



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