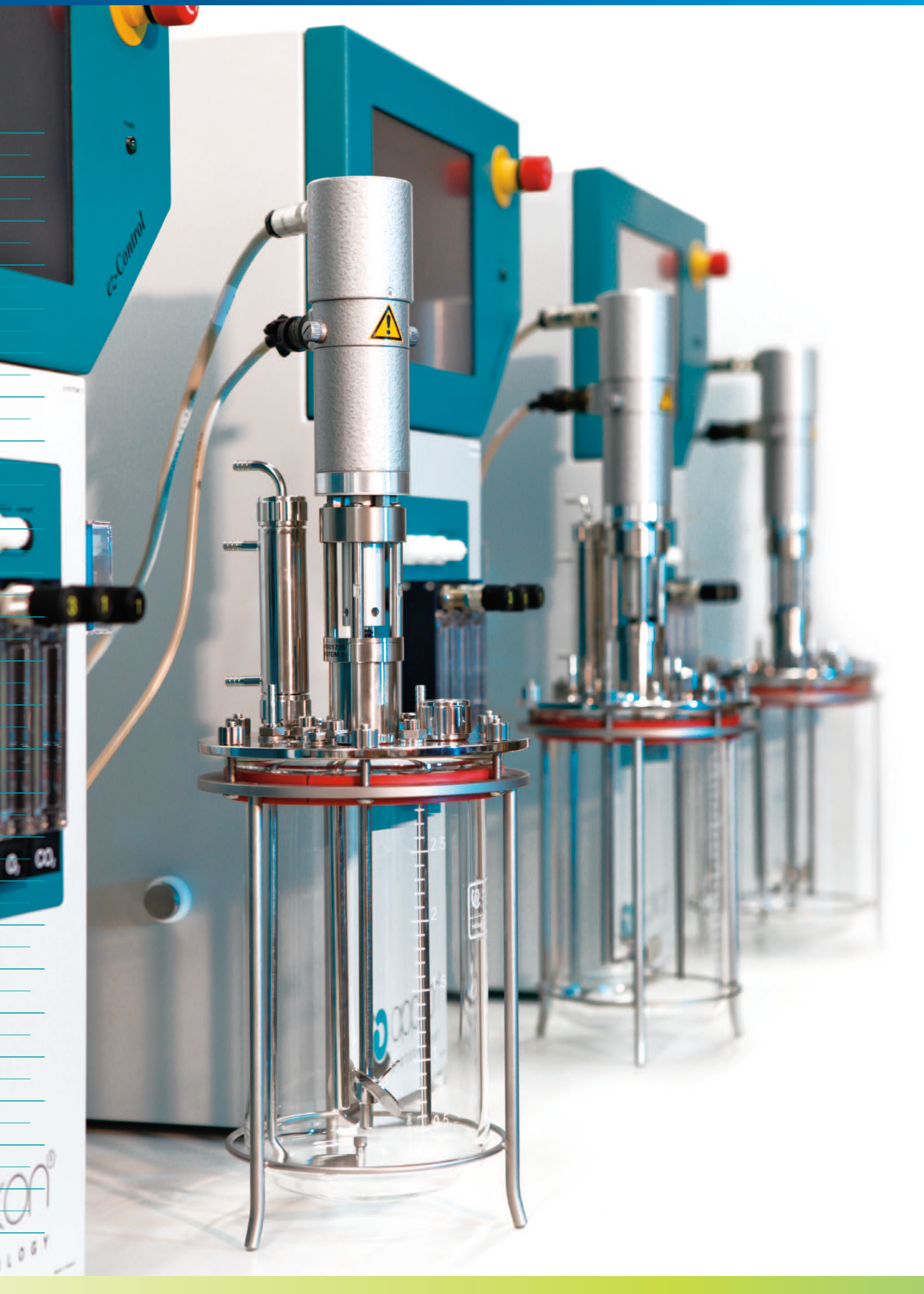
ez-Control

# Glass autoclavable bioreactors, the world wide standard

In the laboratory bioreactor and fermentor range Applikon is worldwide market leader because of its dependable and easy to use systems. The bioreactors and fermentors excel in quality and modularity. An Applikon laboratory system is easy to upgrade if a change in research activities occurs. Applikon offers glass autoclavable bioreactors for cell culture applications and glass autoclavable fermentors for microbial culture applications. The systems are built according to the specific demands of a process using an extensive array of standard components. Because of the modularity and flexibility, the user can always adapt the systems to changed process demands. This results in low initial investment and low running costs. The stirred tank reactor (STR) is the most widely used bioreactor type. Glass autoclavable bioreactors and fermentors are available in 1 - 2 - 3 - 5 - 7 - 15 and 20 liter total volume.

## Features

- Wide range of volumes with interchangeable modules
- Wide range of modules to tailor the systems to the research demands
- No welded parts in the bioreactor topplate
- Simple set-up and easy to handle
- Optional high torque magnetically coupled agitator
- All metal parts are constructed of stainless steel 316L
- External mirror polished finish
- Electropolished finish of product contact stainless steel parts ease cleanability
- Glass dished bottom vessels are made of borosilicate glass to guarantee:
  - resistance to thermal shock
  - excellent corrosion resistance
  - smooth, non porous surface for easy cleaning
  - optimal transparency for visual inspection of the culture
- Glass bioreactor vessels can be used up to 0.5 barg (7.5 psig) of overpressure.

## Applications

- Microbial cultures
- Cell cultures
- Batch,
- Fed-Batch,
- Perfusion and
- Continuous cultivation

# Specifications

| | Total volume (L) | Working volume (L) | Minimum working volume (L) | Aspect ratio total volume (L) | Aspect ratio working volume (L) |
|---|---|---|---|---|---|
| **1 liter** | 1.25 | 0.9 | 0.3 | 2.1 | 1.5 |
| **2 liter single wall** | 2.2 | 1.7 | 0.5 | 2.2 | 1.9 |
| **2 liter jacketed** | 2.2 | 1.7 | 0.5 | 2.2 | 1.9 |
| **3 liter single wall** | 3.1 | 2.7 | 0.5 | 1.9 | 1.5 |
| **3 liter jacketed** | 3.1 | 2.7 | 0.5 | 1.9 | 1.5 |
| **5 liter single wall** | 4.8 | 3.4 | 0.9 | 1.6 | 1.1 |
| **5 liter jacketed** | 4.8 | 3.4 | 0.9 | 1.6 | 1.1 |
| **7 liter single wall** | 6.8 | 5.4 | 1.5 | 2.2 | 1.8 |
| **7 liter jacketed** | 6.8 | 5.4 | 1.5 | 2.2 | 1.8 |
| **15 liter single wall** | 16.5 | 12 | 3.0 | 1.7 | 1.5 |
| **15 liter jacketed** | 18.2 | 12 | 3.0 | 1.5 | 1.2 |
| **20 liter single wall** | 23.4 | 16 | 3.0 | 2.4 | 2.0 |

| | Internal Diameter (mm) | Internal Height (mm) | Autoclave dimensions (WxH mm) |
|---|---|---|---|
| **1 liter** | 95 | 200 | ø172 x 393 |
| **2 liter single wall** | 105 | 240 | ø190 x 436 |
| **2 liter jacketed** | 105 | 240 | ø219 x 486 |
| **3 liter single wall** | 130 | 240 | ø190 x 436 |
| **3 liter jacketed** | 130 | 240 | ø235 x 436 |
| **5 liter single wall** | 160 | 250 | ø260 x 436 |
| **5 liter jacketed** | 160 | 250 | ø260 x 480 |
| **7 liter single wall** | 160 | 350 | ø260 x 600 |
| **7 liter jacketed** | 160 | 350 | ø264 x 645 |
| **15 liter single wall** | 222 | 440 | ø381 x 710 |
| **15 liter jacketed** | 240 | 440 | ø391 x 740 |
| **20 liter single wall** | 222 | 620 | ø381 x 900 |

| | |
|---|---|
| **Drive system** | Direct drive, lipsealed or magnetically coupled |
| **Maximum stirrer speed (rpm)** | Standard range is 50 - 1250.<br>1, 2 and 3 liter systems can be supplied with 2000 rpm motor |
| **Impellers** | Rushton and marine with outside diameters 45mm, 60 mm 75 mm or 85 mm |
| **Gas sparger** | Porous sparger or L-type sparger |
| **Gas overlay** | Yes |
| **Exhaust gas** | Water cooled exhaust gas condenser |
| **Sampling** | Fixed height or height adjustable sample pipe with optional sampling system<br>Sample pipe internal diameters choices are: 1.7 mm, 4 mm, 6 mm or 10 mm |
| **Draining** | Drain pipe |
| **Additions** | Triple or single inlet ports and optional micro liquid injectors |
| **pH** | Measurement: 12 mm classic pH sensor |
| | Control: via acid pump or $CO_2$ gas (rotameter or MFC) in combination with alkali pump |
| **$DO_2$** | Measurement: 12 mm classic polarographic $DO_2$ sensor<br>Control: via a combination of $N_2$, Air, $O_2$ (Rotameter or MFC) and agitation or nutrient addition pump |
| **Temperature** | Measurement: Pt-100 sensor in thermowell in topplate<br>Control: cooling and/or heating jacket via bioreactor wall or via internal heat exchanger |
| **Foam** | Measurement: Height adjustable conductivity based foam sensor<br>Control: Anti foam addition pump |
| **Level** | Measurement: Height adjustable conductivity based level sensor<br>Control: pump for liquid addition or removal |
| **Optional inlets** | Septum, chemostat tube, liquid entry system |