KOSDAQ LISTED COMPANY

CE

ISO 9001:2015

ISO 13485 JAS-ANZ


# CEL BIC®

## Single Use Bioreactor

µ2 microdigital

# Introducing CELBIC

CELBIC is a Single Use Bioreactor with a unique mixing algorithm and a real-time, in-situ monitor for biomedical material production: a great system for antibody and protein/cell treatment production.

CELBIC is applicable for various bio-process researches as well as industrial biomedical material production.

CELBIC monitors and analyzes various matters during bioprocessing and adjusts its conditions for optimum proliferation.


**CELBIC 25 & CELBIC 100**

CELBIC 1000 Orbital Rocker & Controller

## Advantages of SUB vs. STR

+ **Reduced Contamination Risks**
  Conventional Systems at 5-20%

+ **Lowered Initial Investment Costs**
  Up to 74% Cost Savings,
  Reduced Time, Facility and Services.

+ **Minimized Operating Costs**
  Up to 90% Water Reduction,
  Up to 45% Faster Change-over,
  and Up to 40% Energy Reduction.

+ **Business Advantages**
  Faster Speed to market,
  Easy Capacity Expansion,
  and Faster Project Change-over Speed.

+ **Sustainability**
  Reduced Environmental Stress,
  and Up to 50% Reduced Labors.

# Advantages of CELBIC

+ **Mixing and Movement**
  Capable of Free Rocking and Movement in all directions: Left, Right, Up, Down and Diagonal.

+ **Easy expansion of culture capacity**
  Multiple versions to match different needs: CELBIC 25, CELBIC 50, CELBIC 100, CELBIC 200 and CELBIC 1000 for 10L, 25L, 50L, 100L and 500L working volumes respectively.

+ **High Torque**
  Faster Mixing and Reduced Mixing Time.

+ **Designed for Low Shear**
  Rocking motion for mixing with low shear.


Orbital Motion of CELBIC


CELBIC 25/50 Controller

# Advantages of CELBIC

+ **All-in-One Controller**
  All the necessary MFC Gas Modules, Peristaltic Pumps, and Temperature Control Modules for the Cultivation Process are installed and controlled within the CELBIC Control Tower for optimum efficiency as well as space saving.

+ **Intuitive User Interface**
  CELBIC includes an intuitive and simple UI that can easily perform all the functions required for the Cultivation Process with an option for Ethernet Connection.

# Advantages of CELBIC

+ **3-D Culture Bags**

3-D bags with smaller footprint
and less stress to the mixing mechanism
which leads to longer life-cycles.

3-layered film for durability and for the safety
of the cell culture encased within.

Each 3-D Culture Bag is equipped
with single use optical sensors
and filters required for cell cultures.

The 3-D Culture Bags can be customized
to suit the needs of the user.

To reduce contamination risk of the batch,
each bag is decontaminated via gamma rays
before being shipped.

**CELBIC 100**
**3-D Culture Bag**

**CELBIC 25**
**3-D Culture Bag**

# Components of CELBIC

**Lid**

**Disposable Bag Position**

**Bag Housing**

Holds the 3-D Culture Bags in place during rocking or orbital mixing.

Orbital Rocker


Controller

**12” Touch Screen**

**Peristaltic Pumps**

CELBIC comes with 2 peristaltic pumps by default, and up to 2 more can be added as an option for a total of 4 peristaltic pumps.

# Components of CELBIC


Controller UI

**Monitor**

Menu for monitoring all the necessary factors such as pH, DO saturation, temperature or mixing RPM for cell cultivation.

**Setting**

Menu for inputting the parameter settings of the measurement and calibration of optical sensors

**Control**

Menu for manual control of the sensors, MFC and pumps

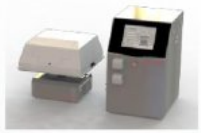
**Report**

Real-time line graph can be seen on this menu for temperature, pH and DO.

**Rocker**

Menu for setting the RPM, angle and mode of mixing (Orbital or Rocking)

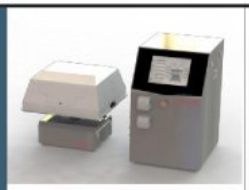
## System Dimension and Weight

| Model | Dimension (W x D x H) | Weight | Material |
|---|---|---|---|
| **CELBIC 25** (Including Lid)  | 556 x 556 x 550 mm | 32.5 kg | Stainless Steel, ABS, Aluminum |
| **CELBIC 50** (Including Lid)  | 686 x 686 x 595.5 mm | 38 kg | Stainless Steel, ABS, Aluminum |
| **CELBIC 100**  | 785 x 758 x 1,124 mm | 280 kg | Stainless Steel, ABS, Aluminum |
| **CELBIC 200**  | 972 x 1,014 x 1,346 mm | 380 kg (approx.) | AISI 304 Stainless Steel & ABS |
| **CELBIC 1000**  | 1,688 x 1,640 x 1,801 mm | 950 kg (approx.) | AISI 304 Stainless Steel & ABS |

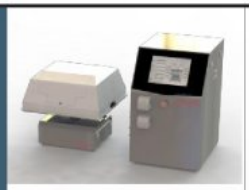
## System Dimension and Weight

| Model | Dimension (W x D x H) | Weight | Material |
|---|---|---|---|
| **CELBIC 25/50/100 Controller** (Including MFC Box)  | 450 x 560 x 798 mm | 55 kg | Stainless Steel, ABS |
| **CELBIC 200/1000 Controller** (Including MFC Box)  | 600 x 830 x 1,245 mm | 110 kg (approx.) | AISI 304 Stainless Steel |
| **Electric Transformer** (For CELBIC 200 and 1000) | 500 x 452 x 685mm | 147 kg | |

# Facility & Utility Requirements

| Model | |  CELBIC 25 |  CELBIC 50 |  CELBIC 100 |  CELBIC 200 |  CELBIC 1000 |
|---|---|---|---|---|---|---|
| Power | Controller | 220V - 2Phase, 60(50)Hz, 5A, 1.1KW | | 220V - 2Phase, 60(50)Hz, 9.1A, 2.0KW | 220V - 2Phase, 60(50)Hz, 4.6A, 1KW | 220V - 2Phase, 60(50)Hz, 6.8A, 1.5Kw |
| Electric Transformer | Input | N / A | | | 380V - 3Phase, 60(50)Hz, 30A, 15KW | 380V - 3Phase, 60(50)Hz, 114A, 57KW |
| | Output | N / A | | | 220V - 3Phase, 60(50)Hz, 40A, 15KW | 220V - 3Phase, 60(50)Hz, 150A, 57KW |
| Gas Supply | Inlet Pressure | <600KPa | | | | |
| | Gas Tubes | Ø6.0mm | | | | |
| | Connection Hose Coupling (External) | Ø6.0mm | | | | |
| Operative Environment | Ambient Temperature | 5 - 40°C | | | | |
| | Relative Humidity Range | 50% (40°C) - 80% (31°C) | | | | |

# Process Control

| Model | | | CELBIC 25 | CELBIC 50 | CELBIC 100 | CELBIC 200 | CELBIC 1000 |
|---|---|---|---|---|---|---|---|
| | | |  |  |  |  |  |
| Temperature Module<br>Heating Only - Electrical Heating Plates | Temperature Control | | RT - 70°C | | | | |
| | Heating Capacity | | 1 x 300W (220V) | 1 x 450W (220V) | 1 x 600W (220V) | 1 x 800W (220V) | 2 x 900W (220V) |
| | Over Temperature Protection | | Maximum 70°C (Bi-metal Interrupted Heating) | | | | |
| Gassing Module Control box (MFC BOX)<br>4-Gas Mix ($O_2$, $N_2$, $CO_2$, Air) with Headspace Outlet | MFC | Flow Rates | 0.03 - 3.5lpm | | 0.1 - 5lpm | 0.2 - 10lpm | 1.0 – 50lpm |
| | | Accuracy | ±1.0% F.S. (25°C) | | | | |
| | DO Cascade | | Available | | | | |

# Process Control

| Model | | | CELBIC 25 | CELBIC 50 | CELBIC 100 | CELBIC 200 | CELBIC 1000 |
|---|---|---|---|---|---|---|---|
| Sensor & Measurement | Temperature Probe Pt 100 | Temperature Range | 0 - 150°C | | | | |
| | | Display Resolution | 0.1°C | | | | |
| | | Amplifiers | 1 | | | | |
| | pH Single Use | pH Range | 6 - 10 | | | | |
| | | Display Resolution | 0.01pH | | | | |
| | | Amplifiers | Maximum 2 | | | | |
| | | Recalibration Function | Available | | | | |
| | DO Single Use | Saturation Range | 0 - 250% | | | | |
| | | Display Resolution | 0.1% | | | | |
| | | Amplifiers | Maximum 2 | | | | |
| | | Recalibration Function | Available | | | | |
| | Load Cells | Load Cells | | | | Optional | |
| | | Weight Range Accuracy | | | | 250g per 100 kg | |
| | Balance Substrate | | | | | Optional: Up to 4 per side | |
| | External Signal Input | | | | | 4 (0 - 5V DC) | |
| Pump Module | Internal Pumps | | 2 (Longer Pump FG15-13, WM114) | | | 3 (WM114) | 3 (WM314) |
| | Control Range (Fixed Speed) | | 5 – 59 rpm | | 10 – 99 rpm | 20 – 200 rpm | 36 – 360 rpm |

# Communication & Technical Data

| Model | | CELBIC 25 | CELBIC 50 | CELBIC 100 | CELBIC 200 | CELBIC 1000 |
|---|---|---|---|---|---|---|
| Communication | Industrial Ethernet | Optional | | | | |
| Technical Data | Maximum Total Volume (L) | 25 / 50 | | 125 | 250 | 1250 |
| | Working Volume (L) | 5 – 12.5 / 10 - 25 (20 - 50%) | | 25 – 60 (20 - 48%) | 50 – 120 (20 - 48%) | 250 - 600 (20 - 48%) |
| | Rocking Rate (R / Min) | 14 - 34 ± 1 | | 14 - 32 ± 1 | | |
| | Rocking Angle ( º ) | 6 - 12 ± 0.5 | | 6 - 12 ± 0.5 | | |
| | Free Orbital Rocking Rate (R / Min) | 14 - 34 ± 1 | | 14 - 32 ± 1 | | |
| | Free Orbital Rocking Angle ( º ) | 6 - 12 ± 0.5 | | 6 - 12 ± 0.5 | | |
| | Sensor Clamps for Secure Fixation of Glass Fiber Cables | 2 | | | | |
| | Filter Heater | Available | | | | |
| | Color Touch Screen | Available | | | | |
| | Safety Measurement & Shut-off | 30mbar | | | | |
| | Measurement Data Storage | Optional SD memory card | | | | |

# Certifications & Patents


CE Verification of Conformity


CELBIC SUB System Patent


ISO 13485:2016


CE EU-Type Examination Certificate


3-D Culture Bag Patent


ISO 9001:2015