

CERTOMAT® CTplus

Incubation Shaker



CERTOMAT® CTplus is the first incubation shaker designed specifically for cultivation of mammalian cells under stringent control of temperature, CO₂ concentration and humidity. Instead of modifying existing bacterial shakers, a radically new design was chosen placing all components into their functional context.

Basic design principle for CERTOMAT® CTplus is encapsulation – incubation chamber, mechanical drive unit and control unit are strictly isolated from another. This prevents corrosion of the drive unit and other parts due to formation of carbonic acid in the incubation chamber. Insulation and advanced sealing of the incubation chamber ensure highly constant temperature levels, CO₂ levels and relative humidity levels. Loss of CO₂ to the environment is minimal, and recovery of all parameters after door opening is very fast. Separate heating systems for incubation chamber, doors and humidification pan prevent effectively any condensation.

The interior of the incubation chamber is made from stainless steel, glued with sealed seams, and can be easily kept clean. The stainless steel humidification pan can be taken out for autoclaving. Even the inspection lights are sealed against the chamber.

CERTOMAT® CTplus incubators can be stacked three units high and run fully independently without speed reduction of the upper units. Maximum capacity is six 5 Liter flasks. Doors opening to the front make it easy to transfer cultivation vessels from one unit to the other.

CERTOMAT® CTplus features a central DCU controller unit for all process parameters operated by a touchscreen display. It is ready for connection to MFCS/win software for data acquisition and remote control via Ethernet. An analog-output for data documentation and a potential-free contact for connection to external alarm systems are available.

The working parameters time, speed, temperature and illumination (option) can be programmed, linear or in cycles, in 20 programs, each consisting of 4 steps plus one pre-step. Safety features include visual and acoustic alarms, memory function for automatic re-start after power failure, and recording of any error messages including date and time of the event.

CERTOMAT® CTplus is available with a choice of two shaking amplitudes. Other optional accessories include support frames of different height. Clamps for Erlenmeyer flasks, racks for centrifuge tubes or holders for microtiter plates are the same as for the standard shaker units.

Features

- Designed for cultivation of mammalian cells
- Fully encapsulated drive system
- Optimal control of temperature, CO₂ level and humidity
- Separate heating systems prevent condensation at up to 80% rel. humidity
- Polished stainless steel interior
- Capacity: 6×5 Liter flasks
- Programmable for time, speed and temperature
- DCU controller for all process parameters
- Data management by connection to MFCS/win
- optional second temperature sensor for recording
- access port (normally closed) for lead-through of cables, for instance during IQOQ
- IQOQ can be offered
- prepared for integration of Sensolux® intelligent tray for pH and DO measurements

Technical Data**Mechanical Construction**

Incubator dimensions	Outer 1275 × 735 × 790 mm (W × H × D) inner 886 × 476 × 645 mm (W × H × D)
Weight (incl.accessories)	Approx. 230 kg
Shaker table	440 × 420 mm (W × D)
Material	Incubator made of steel with acid-proof paint; incubation chamber stainless steel
Trays	Type E/EU: (420 × 420 mm)*; type F/FU: (800 × 420 mm)
Load	Depending on tray and mounting system and other accessories of the Sartorius Stedim Biotech GmbH range of accessories
Volume of watertank	Approx. 1.7 L, incl. level sensor

Electrical Connections

Power connection	Ground earth plug
Mains voltage	230 V (±5%)/50 Hz or 115 V (±5%)/60 Hz
Power consumption	1.8 kW
Light	Approx. 0.0023 kW, encapsulated LEDs
Fuses	T10A at 230 V

CO₂-supply and control

Connection	Quick coupling for tubing Ø 6 × 4 mm
Pressure	1...5 bar; built-in internal pressure controller
Sensor	0–20% (v/v)
Accuracy of controller	0.1% (v/v)

Humidity measurement and control

Water supply	Stainless steel tank, approx. 1.7 L, incl. level sensor, with external heater
Sensor	0–100% r.H.
Accuracy of controller	1% r.H.

Operating data

Orbital motion	Ø 25 mm or Ø 50 mm, depending on drive ordered	
Speed range	20...400 min ⁻¹	
Speed deviation	max. ±1% (relative to end value)	
Incubation temperature	Heated version (UH)	RT +8°C...+70°C
Accuracy of incubation temperature	±0.1°C	
Ambient temperature	+10...+40°C	
Ambient relative humidity	10...80%, non condensing	

Interface

Ethernet	Connection for MFCS/win and MFCS/DA
Analog out	Socket, 15-pin Sub-D, 0–10 V, ±0.1 V
Collective alarm	Potential-free contact (changer), max. 230 VAC (6.5 A)

RT = Room temperature
(We reserve the right to change design and dimensions)

Ordering information

Sartorius Stedim Order No.	Fisher Scientific Order No.	
CERTOMATCTPLUS	14-559-210	CERTOMAT® CTplus, 25 mm orbit*, 115 V 60 Hz, UH version. Please indicate the desired orbit of the shaker with your order!
BBI-8864446	14-559-194	Support frame, 780 mm high, 2 shelves, for one unit

*50 mm orbit available upon request



For customer service, call 1-800-766-7000.
To fax an order, use 1-800-926-1166.
To order online: www.fishersci.com