OPTIKA®
ITALY

CO_2 INCUBATORS

Advanced Cell Culture Solutions

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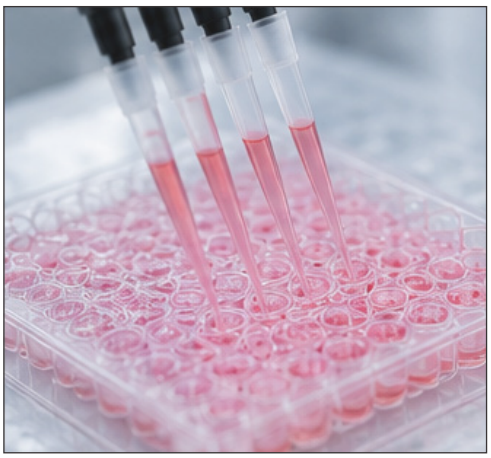

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Solutions for High Value Cells

OPTIKA CO_2 incubators are essential laboratory instruments widely used in modern life science research, biotechnology, pharmaceutical development, and clinical laboratories.
They create a precisely controlled environment that reproduces the physiological conditions required for the growth and preservation of sensitive cell cultures.

Cell cultures, especially mammalian cells, require **stable temperature, humidity,** and **carbon dioxide (CO_2) levels** to ensure optimal growth and reproducible experimental results. Even small environmental fluctuations can affect cell viability, metabolism, and experimental reliability.
For this reason, OPTIKA advanced CO_2 incubators are designed to provide highly accurate control of all critical parameters while minimizing contamination risks.

OPTIKA series CO_2 incubators including the fanless P150, P170, and the ventilated P170F models are developed to meet the demanding requirements of scientific laboratories worldwide.

These systems combine advanced temperature control technology, precise CO_2 regulation, and optimized chamber design to support a wide range of applications such as:

- **Mammalian cell culture**
- **Stem cell research**
- **Tissue engineering**
- **Pharmaceutical and biotechnology research**
- **Cancer and immunology studies**

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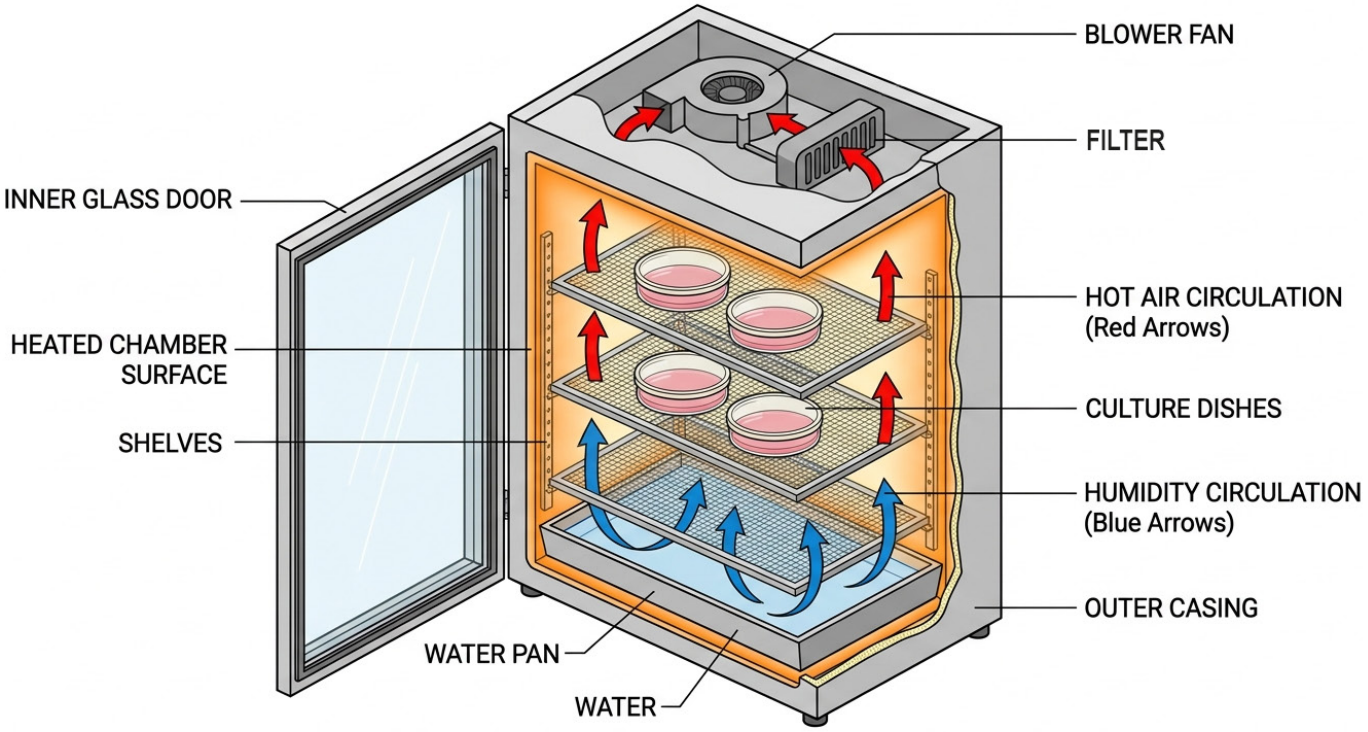
CO_2 Incubator Working Principle



The above diagram is for illustrative purposes only and may differ from the actual product

User-friendly and easy-to-operate 7" LCD Touchscreen Interface

- **Real-Time Function Monitoring**
- **Graphical Interface for Clear System Status Visualization**
- **Smart Alarm System:**

  - Temperature monitoring

  - CO_2 concentration control

  - Door opening detection

  - Sensor error alerts

  - Heating wire abnormality detection
- **USB Data Export Function**

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P150

Fanless CO_2 Incubator

Description

OPTIKA P150 CO_2 Incubator delivers an optimal environment for cell growth through precise control of temperature and CO_2 concentration, providing the ideal environment for a wide range of cell culture applications, including **sensitive mammalian cells**.

With a **150 L chamber capacity**, it is the perfect solution for laboratories seeking robustness, efficiency, and outstanding performance.

Main Applications

- Routine mammalian cell culture
- Academic and university research laboratories
- Small-scale biotechnology applications
- Stem cell and primary cell culture
- Laboratories requiring compact footprint and low-vibration environments

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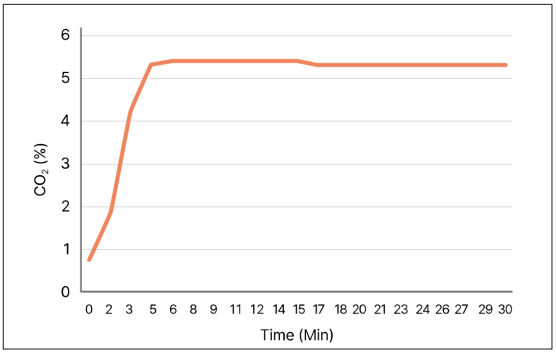
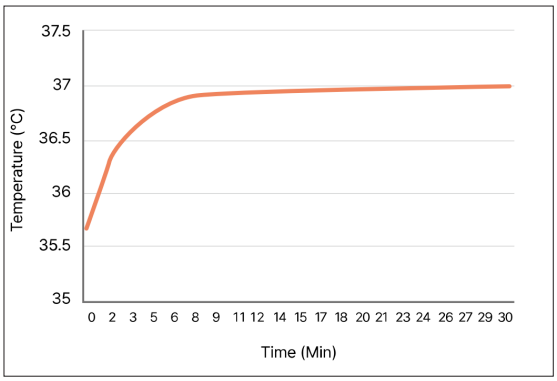
Key Features

- **Dual-Beam NDIR CO_2 Sensor.**
  Guarantees precise and stable CO_2 concentration levels, even during frequent door openings.
- **7" LCD Touchscreen Interface and USB Data Transfer**
  Provides intuitive operation with real-time graph monitoring and convenient USB data transfer for seamless data management.
- **Fanless Design.**
  No fan, no vibration, no HEPA filter maintenance, and no spread of contamination.
- **Uniform Temperature Distribution.**
  Ensures stable cell culture conditions through direct heating and advanced insulation technology.
- **Safety Alarm System.**
  Alerts users to issues related to temperature, CO_2 concentration, and door openings.
- **High-Temperature Sterilization (140°C / 4 Hours).**
  Ensures effective decontamination of the chamber interior, reducing the risk of cross-contamination and maintaining a sterile environment.
- **Easy-to-Clean interior and Large Water Pan.**
  Facilitates routine maintenance and ensures consistent humidity control for optimal cell culture conditions.

CO_2 concentration recovery after
the incubator door was open after 30"



Temperature recovery after the incubator door
was opened for 60"



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P170

Fanless CO_2 Incubator

Description

OPTIKA P170 CO_2 Incubator is engineered to support demanding cell culture applications with **enhanced internal space** and superior environmental control. Featuring a generous **170 L chamber capacity**, it provides laboratories with greater flexibility and increased sample throughput.

Main Applications

- Medium to high-throughput cell culture laboratories
- Pharmaceutical and biotechnology research
- Tissue engineering and regenerative medicine
- Long-term cell culture studies
- Multi-user laboratories requiring larger incubation capacity

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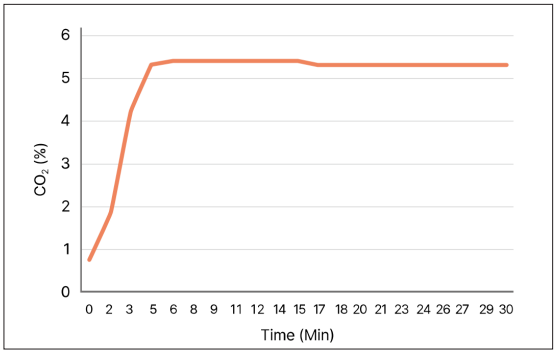
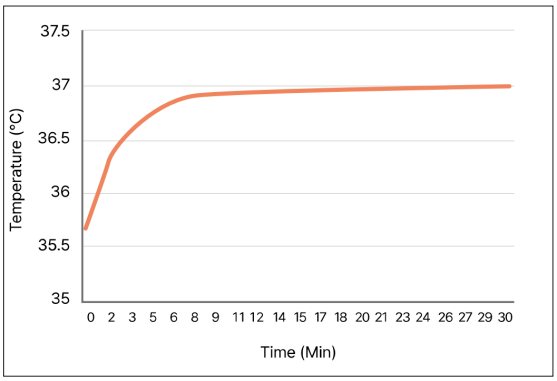
Key Features

- **170L Chamber Capacity**
  Expanded chamber volume designed for higher-capacity workflows and advanced research needs.
- **Dual-Beam NDIR CO_2 Sensor.**
  Guarantees precise and stable CO_2 concentration levels, even during frequent door openings.
- **7″ LCD Touchscreen Interface and USB Data Transfer**
  .Provides intuitive operation with real-time graph monitoring and convenient USB data transfer for seamless data management.
- **Fanless Design.**
  No fan, no vibration, no HEPA filter maintenance, and no spread of contamination.
- **Uniform Temperature Distribution.**
  Ensures stable cell culture conditions through direct heating and advanced insulation technology.
- **Safety Alarm System.**
  Alerts users to issues related to temperature, CO_2 concentration, and door openings.
- **High-Temperature Sterilization (140°C / 4 Hours).**
  Ensures effective decontamination of the chamber interior, reducing the risk of cross-contamination and maintaining a sterile environment.
- **Easy-to-Clean interior and Large Water Pan.**
  Facilitates routine maintenance and ensures consistent humidity control for optimal cell culture conditions.

CO_2 concentration recovery after
the incubator door was open after 30″



Temperature recovery after the incubator door
was opened for 60″



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P170F

Circulating Fan CO_2 Incubator

Description

Featuring a **robust stainless steel chamber** and an advanced air-jacket heating system, **OPTIKA P170F CO_2 incubator** ensures excellent **temperature uniformity** (±0.1°C) and **stability** (±0.25°C), with fast **recovery after door openings**.
Its **PID-controlled CO_2 system** provides accurate gas regulation (0–20%, ±0.15% at 5%), while forced air circulation and natural evaporation humidity create a stable environment for **sensitive cell cultures**.
Equipped with **UV sterilization**, a **tempered glass inner door** and a **safety alarm system**, the P170F is a perfect solution for laboratories worldwide.

Main Applications

- Medium to high-throughput cell culture laboratories
- Pharmaceutical and biotechnology research
- Tissue engineering and regenerative medicine
- Long-term cell culture studies
- Multi-user laboratories requiring larger incubation capacity

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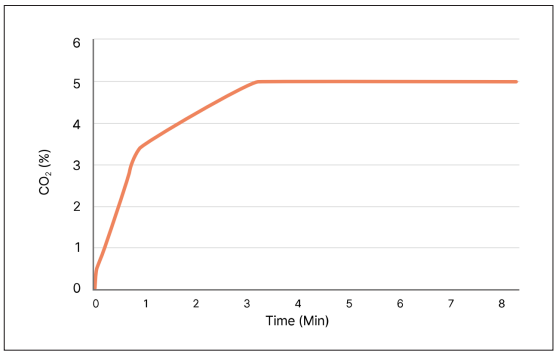
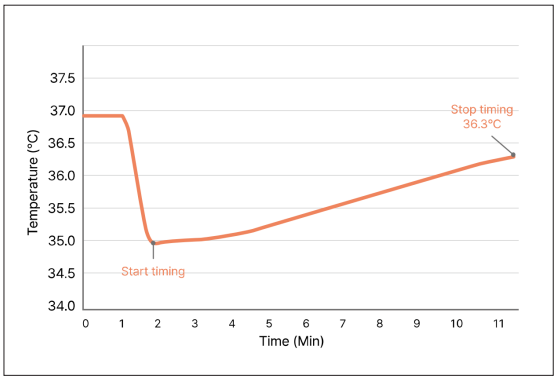
Key Features

- **Ventilated Airflow System**
  Fan-Forced Airflow Ensures Uniform Temperature and CO_2 Distribution
- **UV-Assisted Sterilization for Chamber and Internal Surfaces**
  Ensures effective sterilization of the chamber and internal surfaces, reducing contamination risks and maintaining a clean culture environment.
- **High-Humidity Chamber for Stable Culturing Conditions**
  Maintains optimal humidity levels to support stable and reliable cell culture environments.
- **PID-Based Temperature and CO_2 Regulation**
  Delivers precise control of temperature and CO_2 levels, ensuring stable and reliable conditions for sensitive cell cultures.
- **7" LCD Touchscreen Interface and USB Data Transfer**
  Allows intuitive monitoring and operation through a 7" touchscreen interface, with convenient USB data transfer for efficient data management.
- **Safety Interlock with Door Detection**
  Automatically stops the fan and CO_2 supply when the door is opened, ensuring user safety and stable environmental control.
- **Safety Alarm System**
  Alerts users to deviations in temperature, CO_2 concentration, and door status to ensure safe and reliable operation.
- **Low-Noise and Robust Structure for Laboratory Use**
  Designed with a durable, low-noise structure suitable for demanding laboratory environments.

Quickly recovering to the set value when CO_2 and temperature change.



Door open (30") temperature recovery curve (AT: 22°C)



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Technical Specifications

Category		Value	
General	Model	**P150**	**P170**
	Capacity	**150 L**	**170 L**
Dimensions	External (WxDxH, mm)	**657 x 741 x 877**	**726 x 670 x 927**
	Internal (WxDxH, mm)	**470 x 520 x 610**	**547 x 479 x 647**
	Net weight	**62kg**	**91kg**
Materials	Exterior/Interior	Painted steel sheets	Stainless steel
	Inner Door	Tempered glass	Tempered glass
Shelves	Qty	3 standard, 6 maximum	3 standard, 6 maximum
	Area dimension	> 425 x 466 mm	> 425 x 466 mm
	Material	Stainless Steel	Stainless Steel
Access Port	Rear Port	Ø32mm × 1	Ø32mm × 1
Door	Left/Right	Both sides available (default: Left)	Both sides available (default: Left)
	Fan	No	No
Insulation	Method	Glass wool insulation	Glass wool insulation
Heating	System	Direct heating system	Direct heating system
Humidity	Method	Water Tray	Water Tray
	Range, %RH	**92~98%**	**over 90%**
Temperature	Control heating	Active Thermal Surface Control	Active Thermal Surface Control
	Control system	Microprocessor PID	Microprocessor PID
	Range	Amb. +5~50°C	Amb. +5~50°C
	Accuracy	±0.2°C	±0.2°C
	Uniformity	±0.3°C	±0.3°C
	Recovery rate	< 10 min	< 10 min
CO2	Control	NDIR	NDIR
	Accuracy	±0.1	±0.1
	Range	0-20%	0-20%
	Recovery rate	< 10 min	< 10 min
	Gas Tube	Ø12 mm (OD)	Ø12 mm (OD)
Sterilization / Disinfection	Method	High-temperature sterilization (140°C / 4 hours)	High-temperature sterilization (140°C / 4 hours)
Alarm / Safety	Alarm Types	Temperature, CO2 , door, sensor error	Temperature, CO2 , door, sensor error
Digital Interface	Display	7' LCD, touchscreen	7' LCD, touchscreen
	Data tracking	240 hours continuous	240 hours continuous
Accessories	Included	Shelves x 3, gas tube x 1, gas filter x 1, water tray x 1	Shelves x 3, gas tube x 1, gas filter x 1, water tray x 1
Power	Supply	110/220 V, 50/60 Hz	110/220 V, 50/60 Hz
	Power consumption	330 W	330 W

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Technical Specifications

Category		Value
General	Model	**P170F**
	Capacity	**170 L**
Dimensions	External (WxDxH, mm)	**620 x 772 x 907**
	Internal (WxDxH, mm)	**490 x 525 x 666**
	Net weight	**100kg**
Materials	Exterior/Interior	Painted steel sheets / Stainless steel
	Inner Door	Tempered glass
Shelves	Qty	4 standard, 8 maximum
	Area dimension	469 x 444 x 9 mm
	Material	Stainless Steel
Access Port	Rear Port	Ø30 mm × 1
Door	Left/Right	Both sides available (default: Left)
	Fan	**Yes**
Insulation	Method	Polyurethane foam insulation
Heating	System	Direct heating system
Humidity	Method	Water Tray
	Range, %RH	**95±5%**
Temperature	Control heating	Thermal Surface Control with fan-assisted
	Control system	Microprocessor PID
	Range	Amb. +5 to 50°C
	Accuracy (stability?)	±0.25°C
	Uniformity	±0.1°C
	Recovery rate	< 10 min
CO2	Control Method	NDIR
	Accuracy	±0.15% at 5% CO_2
	Range	0–20%
	Recovery rate	<6 min
	Gas Tube	Ø8 mm hose compatible
Sterilization / Disinfection	Method	**UV Sterilization**
Air Circulation	Type	**Fan-Assisted (Forced Air)**
UV System	UV Lamp	**4 W × 1**
Alarm / Safety	Alarm Types	Temp/CO_2 high-low, door open, sensor error, heater abnormality
Digital Interface	Display	7' LCD, touchscreen
	Data tracking	240 hours continuous
Accessories	Included	Shelves x 4, gas tube x2, water tray x1, wear pad x2
Power	Supply	220~230V, 50/60Hz
	Power consumption	330 W

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Notes

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OPTIKA is an established international company specializing in the design, production, and distribution of educational and laboratory and medical solutions. With over 55 years of experience, we support laboratories, research centers, and educational institutions worldwide by delivering reliable, precise, and high-quality solutions for scientific and industrial applications. Our mission is to enhance the customer experience through continuous innovation, rigorous quality standards, and the development of accessible technologies that meet the evolving needs of the global scientific community. We offer a comprehensive portfolio of laboratory solutions, including optical and digital microscopes, analytical balances, experimental kits for educational laboratories, a complete range of centrifuges, freeze dryers, and much more. All products undergo strict QC procedures and are 100% individually tested in OPTIKA Italy to ensure premium quality standards, in line with our continuous commitment to customer satisfaction.

TÜV SÜD ISO 9001 | ISO 9001 - 13485 | CE | IVD

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