CO_2-Incubator

MCO-17AC
MCO-15AC

Inner cabinet is made from Copper stainless steel alloy

Air jacketed CO_2 incubators

SANYO's MCO-17 AC/15AC CO_2 incubators were developed utilizing advanced technology for unprecedented temperature and CO_2 control. Chamber conditions are accurately maintained by the Microprocessor P.I.D. controller. The new DHA Direct Heat & Air jacket was designed to surpass the performance of the traditional water jacket and eliminates the inconveniences of using water. Start-up is simple and easy with the Automatic set-up function.

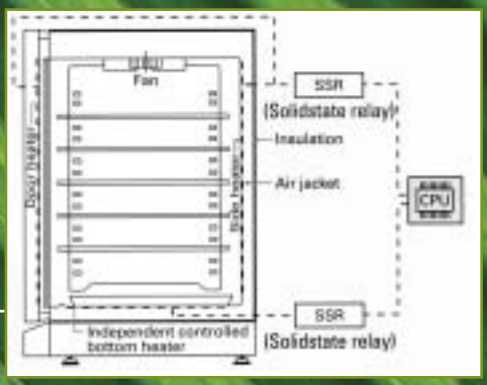
What's inCusaFe?
InCusaFe is our name for products using copper-alloyed stainless steel.

Why Copper Alloy?
Contamination is the worst enemy of laboratory work. Therefore the production of bacteria in CO_2 incubators is too great a problem to ignore.

Copper Alloyed Stainless Steel - SANYO's New Concept Against Contamination
Contamination is the worst enemy of laboratory work. When designing its new range of incubators, SANYO examined two methods commonly used to combat contamination: HEPA filters and copper. HEPA filters are efficient at removing bacteria in the air, but maintenance is demanding. Copper is effective against bacteria but corrosion is a problem; even a small spill of culture media is enough to cause oxidation.

SANYO's solution to the problem is copper alloyed stainless steel; a material that combines the bacteria killing properties of copper with the corrosion resistance of stainless steel.

Copper Alloy Stainless Steel Kills Mycoplasma
SANYO is proud to announce that InCusaFe, the new copper/stainless steel alloy used in the interior of its CO_2 incubators, kills mycoplasma. Mycoplasma is one of the most common causes of contamination found in cell culture and the source can often be traced back to contaminated laboratory apparatus. The InCusaFe walls and shelves inside SANYO CO_2 incubators eliminate mycoplasma and significantly reduce the risk of contamination without emptying the incubator.



Precision control & quick recovery. Direct Heat & Air (DHA) jacket system.
The incubator has three sources of heat sides, door, and independent bottom heaters, all of which are located outside the chamber.

The sealed air jacket and foam insulation maintain a uniform temperature. The DHA jacket design provides quick recovery for temperature after door openings.

1 Day Drop method with E. Coli (ATCC8739)

Bacteria killing after 24 hours (Drop method)		
Species	***Stainless steel (Type 304)***	***Copper Alloy Stainless steel***
Escherichia coli (ATCC8739)	***0%***	***99,928%***
Escherichia coli (IFO3301)	***0%***	***99,847%***
Staphylococcus aureus (ATCC6538P)	***0%***	***99,98%***
Bacillus subtilis (ATCC6633)	***0%***	***99,997%***

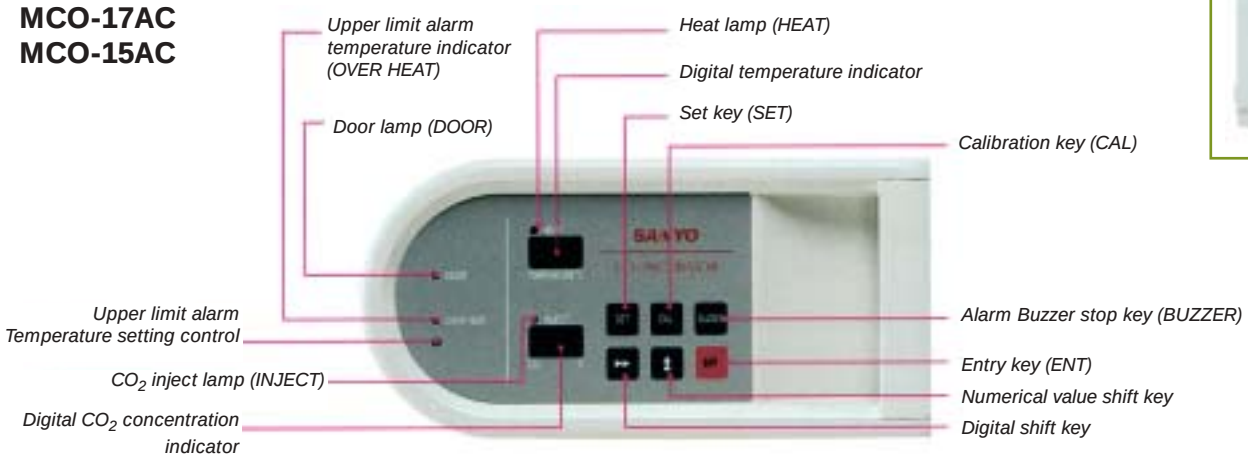
Independent control bottom heater
The microprocessor controls the bottom heater independent from the sides and door heaters. By adjusting the bottom heater control, you can change the ratio, resulting in humidity control from about 93% to 98% RH.

Automatic setup
By turning on the power and simply entering the temperature and CO_2 set points you can walk away from the unit while the microprocessor takes over. The unit will attain set point and adjust itself to your required parameters.

Full rounded corners
The interior chamber is constructed of Copper Alloy Stainless steel with full rounded corners. All plenums, shelves, brackets are removable without use of tools. These design features provide an interior that is easily cleaned to reduce chances of contamination.
(MCO-15AC Round Corners)

Stackable function
Due to the design and minimal weight one unit can be stacked on top of another using stacking kit MCO-17PS.
This provides not only the space saving of a double unit but also the flexibility of independent chambers.

MCO-17AC
MCO-15AC



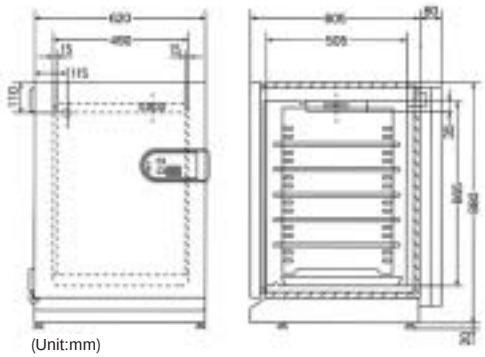
CO_2-Incubator

MCO-17AC
MCO-15AC

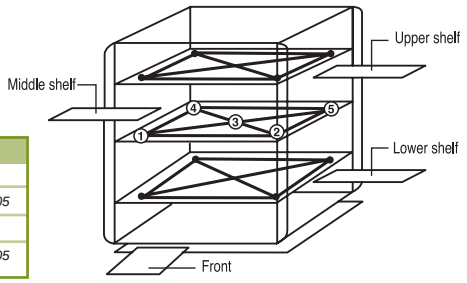
MCO-17AC

- *acurate temperature control & recovery characteristics*
- *Space saving*
- *Easy installation*

Condition:
Ambient temp. 20°C
Ambient humidity 45%
CO2 level setting 5,0%
Water humidity pan 2,0 litres



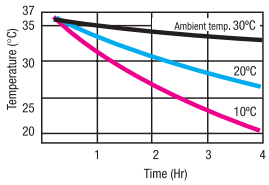
(Unit:mm)



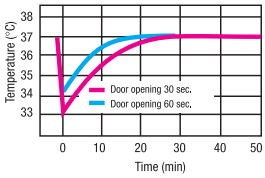
Measurement position	①	②	③	④	⑤
Shelf position					
Upper shelf	+0,03	+0,14	0,00	-0,15	+0,05
Middle shelf			0,00		
Lower shelf	-0,15	-0,13	-0,18	-0,13	+0,05

Performance data
(Reference data)

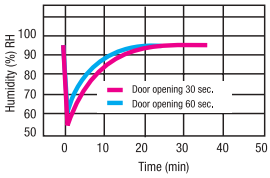
■ *Temperature decrease characteristics when power failure occurs*



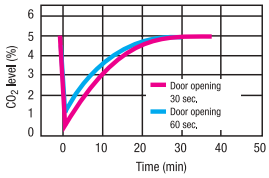
■ *Temperature recovery characteristics*



■ *Humidity recovery characteristics*



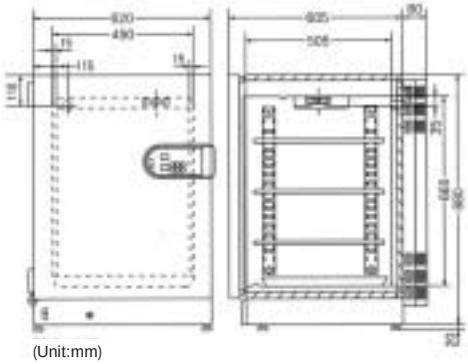
■ *CO_2 level recovery characteristics*



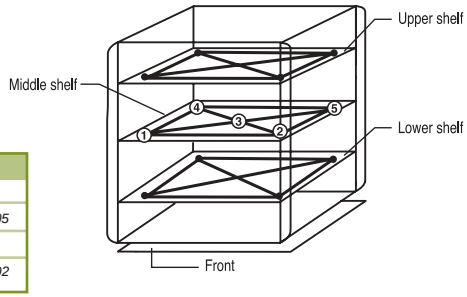
MCO-15AC

- *Easy maintenance, easy installation and quick warm up*
- *Automatic CO_2 control system*
- *Space utility*

Condition:
Ambient temp. 20°C
Ambient humidity 45%
CO_2 level setting 5,0%
Water humidity pan 2,0 litres



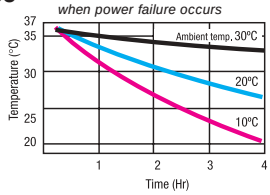
(Unit:mm)



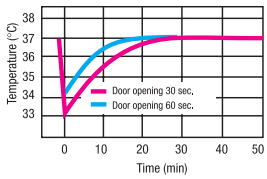
Measurement position	①	②	③	④	⑤
Shelf position					
Upper shelf	+0,03	+0,07	0,00	-0,15	+0,05
Middle shelf			0,00		
Lower shelf	-0,05	-0,02	-0,05	-0,03	+0,02

Performance data
(Reference data)

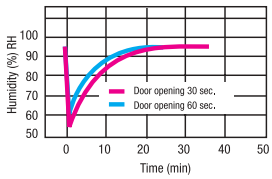
■ *Temperature decrease characteristics when power failure occurs*



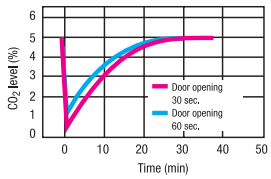
■ *Temperature recovery characteristics*



■ *Humidity recovery characteristics*



■ *CO_2 level recovery characteristics*



Specifications

Specifications*	CO_2-Incubators		
Model	**MCO-17AC**	**MCO-15AC**	**MCO-175**
Exterior dimensions (WxDxH)	620 x 610 x 900	620 x 685 x 900	770 x 620 x 900
Interior dimensions (WxDxH)	490 x 505 x 665	490 x 505 x 665	490 x 505 x 690
Effective capacity	164 Liter	164 Liter	170 Liter
Shelves	Standard 5 max. 17	Standard 3	Standard 6 max. 19
Exterior finish	Baked-on acrylic finish on galvanized steel		
Interior finish	Copper Alloy stainless full rounded corner	Copper Alloy stainless round corner	Stainless steel round corner
Door	Baked-on acrylic finish on galvanized steel with door heater		
Inner door	Tempered glass		
Insulation	Foamed in place polyurethane (non CFC)		
Heating method	Direct heat & Air (DHA) jacket system		Waterjacketed
Humidifying system	Natural evaporation with water in humidity pan (stainless)		
Temperature control	Microprocessor PID control (sensor: thermistor)		PID-Steuerung (sensor: Pt.100 Ohm)
CO_2 control	Microprocessor control (sensor : Thermal conductivity)		ON-OFF control system (sensor : Thermister)
Air circulation system	Gentle air circulation		
Temperature range	Ambient temperature +5°C~50°C		
Temperature uniformity	±0,2°C (setting temperature: 37°C, ambient temperature: 20°C)		
CO_2 range	0 – 20%		
CO_2 variation	± 0,15%	± 0,15%	± 0,15%
CO_2 secondary pressure	0,03 bar		
Chamber humidity	95% ± 5% RH (AT: 20°C, 60% RH)		
Power source Voltage	230/240 V	230/240 V	230/240 V
Amps	1,7 A	1,6 A	1,4 A
Breaker	10A	10A	15A
Alarm system	■ Audible and visual Alarm ■ Temperature, CO_2, Door alarm (circulation fan and CO_2 valve OFF) ■ Independent overheat protection circuit and sensor ■ Remote alarm contact (w/o MCO-15AC)		
Power consumption	405 W	380 W	285 W
Net weight	84 Kg	78 Kg	108 Kg

* Specifications subject to change without notice.

Stacking kit

MCO-17S (MCO-175)
MCO 17PS (MCO-15AC/17AC)

Electronic automatic recorder
MCO-101TR
With a 6-point data recorder, this automatically records temperature and CO_2 level.

Specifications:
Recording range; temperature 0~100°C, CO_2 level 0~20%.
Recording paper: folding type.
Effective width: 60mm
Overall length: 10m
Approx. 40 days recorded on one roll.
Paper feeding speed: 10mm/Hr.

MCO-175 only

CO_2 pressure regulator
MCO-100L
Primary pressure gauge: 0~25 Bar.
Secondary pressure gauge: 0~2 Bar.
With 2-stage pressure adjustment, fluctuation of secondary pressure caused by the change of primary pressure is eliminated. Thus, stable pressure and flow of CO_2 can be maintained.

Water preservative agent
MCO-100C (cleaner #1000)
When added to the water in the tank (o,~1% of total amount of water), algae or stains are not produced, enhances anticorrosion and rust proof qualities.

MCO-175 only

Exclusive tray
MCO-45ST
External dimensions
450(W)x450(D)x10(H)mm