



Isotherm®

Refrigerated Incubator

Reliable Performance For Universal Applications





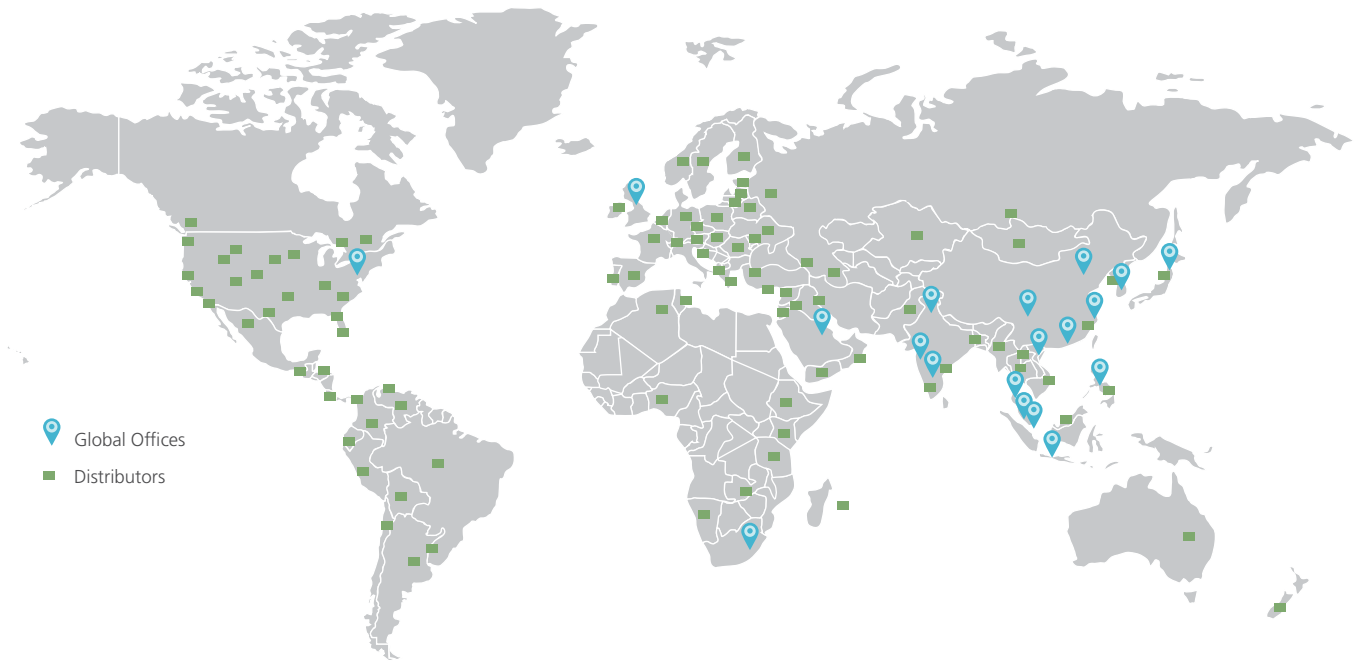
WELCOME TO ESCO

Esco's Vision is to provide enabling technologies for scientific discoveries to make human lives healthier and safer.

- A leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions.
- A world leader in biological safety cabinets.
- Esco has established offices in 13 countries such as Bahrain, China, India, Japan, Korea, Malaysia, Philippines, Singapore, UK, US, Vietnam, South Africa and Indonesia and is continually expanding.
- North American facilities in Pennsylvania; sales, service, logistics for US & Canada.
- Group total of more than 600 employees.
- Distributors in more than 100 countries.
- Products independently tested to international standards.
- Large R&D investments, world leading technologies.
- State-of-the-art production; vertically integrated manufacturing floor space.
- Worldwide service played out over a geographic expanse so broad that the sun never sets on what we do.



GLOBAL NETWORK



PRODUCTS AND APPLICATION

Esco Life Science Tools

Laboratory Equipment

Biosafety and Laminar Flow

Class II Type A2 Biological Safety Cabinets
 Class II Type B2 Biological Safety Cabinets
 Class III Biological Safety Cabinets
 Horizontal Laminar Flow Clean Benches
 Vertical Laminar Flow Clean Benches
 Laboratory Animal Research Workstations
 PCR Cabinets

Fume Hoods

Laboratory Fume Hoods
 Ductless Fume Hoods
 Fume Scrubbers
 Exhaust Blowers
 Fume Hood Airflow Monitors

PCR

PCR Thermal Cyclers
 Not Available in North America

Incubators and Ovens

Forced Convection Laboratory Ovens
 Forced Convection Laboratory Incubators
 Refrigerated Incubators
 CO₂ Incubators
 Remote Monitoring, Data Logging, and Programming Software

Cold Storage

Ultra-low Temperature Freezers

Medical Equipment

Assisted Reproductive Technology

ART Workstations
 CO₂ Incubators with Suppressed O₂
 Multi-room Incubators

Pharmaceutical Equipment

Containment / Compounding Pharmacy

Downflow Booths
 Powder Weighing Balance Enclosures
 Pharmacy Isolators
 Cytotoxic Safety Cabinets
 Soft Capsule
 Air Showers
 Straddle Units
 Garment Storage Cabinets
 Pass Boxes
 Transfer Hatches

Isotherm®

Refrigerated Incubator



INTRODUCTION

Esco Isotherm Refrigerated Incubators are widely used in applications such as B.O.D. Determinations, Environmental Research, Plant and Insect Studies, Fermentation Studies, and Bacterial Culturing among many others. Intuitive interfaces, microprocessor PID controls with programming options, pre-heat chamber technology, dual auto-defrosting system, UV disinfection, precisely tuned and tested ventilation and insulation package, all supported by Esco's solutions - based sales and service representatives worldwide.



KEY FEATURES

ISOTHERM® REFRIGERATED INCUBATOR

Isotherm® Refrigerated Incubator available in 2 sizes, 110L, 240L.



PRE-HEAT CHAMBER TECHNOLOGY

- No exposed heating elements located inside the chamber to ensure maximum user safety.
- Stable heating and maximum temperature uniformity in the chamber.
- Standard temp setting range 0°C up to 100°C for maximum application flexibility.
- Secure 2-point door seal and eccentric hinge ensure maximum gasket compression for stable chamber temperature.



AUTO-DEFROSTING SYSTEM

- Auto-heating activates and continues for a predetermined time during operation.
- Auto-defrosting during operation
- Auto-defrosting activates regularly. Influence on temperature fluctuation and uniformity is minimal.

SIDE ACCESS PORT

For temperature validation & mapping.



EASY TO SERVICE

- Diagnostic functions in the microprocessor include historical read-out of temperatures.
- Diagnostic menu provides read-out of all sensor inputs and controller settings.
- Service can be carried out from the front.
- All electronics components are isolated from the work chamber and easily accessible for replacement.
- Low service costs.

UV DISINFECTION

Auto-running disinfection after startup and during testing process as well, is adjustable to meet different requirements. UV light function stops when door is opened and resumes after it is closed.

GERMAN-MADE EBM PAPST FAN**GLASS DOOR**

For observing samples inside the chamber during operation



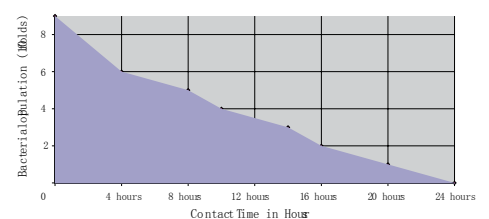
*Isotherm® Refrigerated Incubator,
Model IFC-110-8*

WATER RESEVOIR

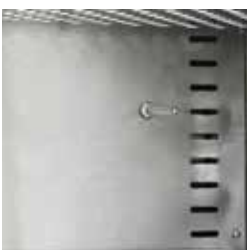
to collect water during defrosting

VENTILLATION SYSTEM

- Forced convection design allows rapid temperature response rates, improves uniformity, and reduces fluctuation.
- Low noise during operation.
- Ventilated stainless steel shelves contribute to uniform air circulation.

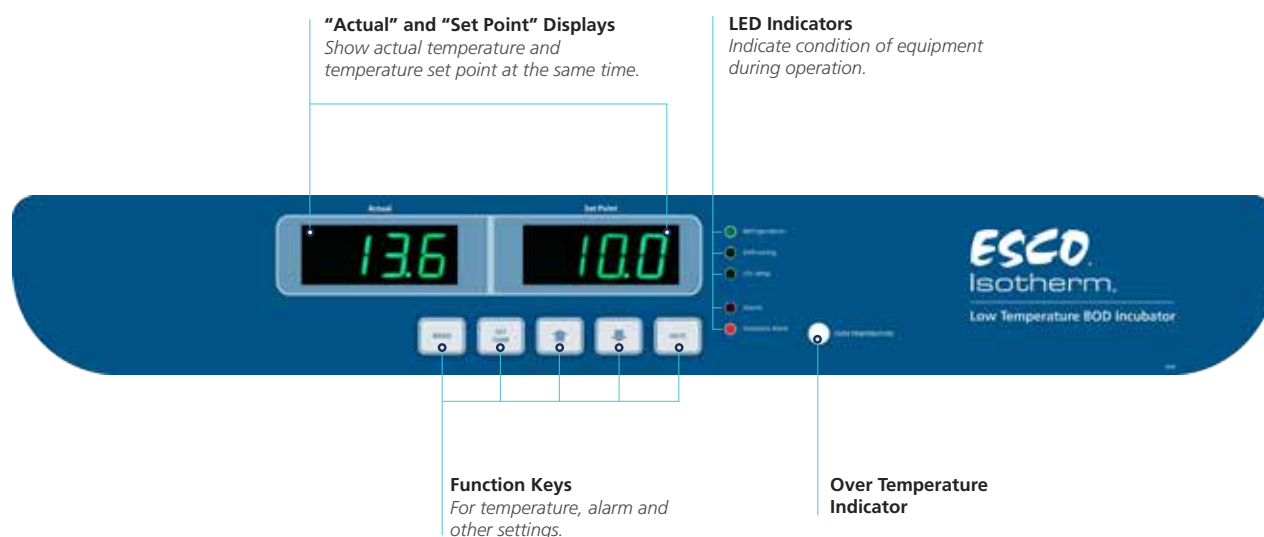
**Built-In Protection**

External surfaces are powder coated with Esco **ISOCIDE™** to eliminate 99.9% of surface bacteria within 24 hours of exposure.



CONTROLLER TYPE

SMARTSENSE™ MICROPROCESSOR PID CONTROL TECHNOLOGY



- Instrument-grade precision platinum temperature probe.
- Tuned PID control ensures fast ramp time, prevents overshoot, and ensures stable temperature once setpoint is achieved.
- Twin temperature displays for easy monitoring.
- Built-in menu is intuitive, easy to operate; left display shows parameter being set, and right display shows preset value.
- Audible confirmation of all settings.
- Diagnostic functions provide access to chamber historical temperatures and sensor read-outs to simplify service.
- Diagnostic LEDs on electronics PCB simplify service.
- Defrost setting function
- UV setting function



Voyager®

Remote Monitoring, Datalogging, Programming Software

Esco Voyager® is a PC-based software package developed for the remote monitoring, datalogging, and programming / device configuration of Esco thermostatic products.

It is a centralized monitoring and control system for your laboratory which provides extra protection for your samples.

Voyager® interfaces with individual Esco equipment over RS485 using the EscoBUS communications protocol. Multiple equipment may be interfaced to a single PC.

Compatible Equipment

- Lexicon® – Ultra-low Temperature Freezer
- CelCulture® – CO₂ Incubator (CCL)
- CelMate® - CO₂ Incubator (CLM)
- Isotherm® – Forced Convection Oven (OFA)
- Isotherm® – Forced Convection Incubator (IFA)
- Isotherm® – Refrigerated Incubator (IFC)

OTHER SUPERB FEATURES

FORCED CONVECTION LABORATORY REFRIGERATED INCUBATOR APPLICATIONS

APPLICATION
a. Biochemical Oxygen Demand (BOD) determinations of waste water and sewage
b. Plant cell growth
c. Fish and Insect studies
d. Fermentation studies

APPLICATION
e. Bacterial culturing
f. Mycology studies
g. Drug stability tests

SAFE, SUPERIOR PROTECTION FOR SAMPLE, USER AND THE ENVIRONMENT



- Electronic over-temperature protection built into the microprocessor.
- Controller will control temperature at the over temperature setpoint.
- All electrical components are UL recognized.
- Electrical circuit protection in accordance with UL requirements.
- Over Temperature LED illuminates if the chamber encounters temperature above the set-point.

ERGONOMIC DESIGN

ACCESS FOR TEMPERATURE VALIDATION AND MAPPING



Access port



Access port inside chamber

ERGONOMIC DOOR HANDLE WITH KEYLOCK



Ergonomic door handle, operation is gravity assisted.



Door keylock prevents unauthorized access to sensitive samples.

RS485 COMMUNICATION PORT



The RS485 provides serial communication port for PC. It can be daisy chained from product to product and connected to a PC.

OPTIONAL STAINLESS STEEL EXTERIOR



- Corrosion resistant surface.
- Robust construction.
- Meets pharmaceutical & clinical laboratory requirements.

EASY-TO-CLEAN

- "Cleanroom" design with minimal joints and crevices is easy to clean.
- Single-piece stainless steel chamber with rounded corners.

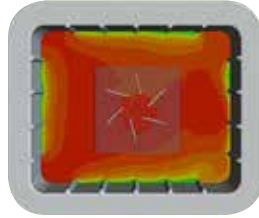
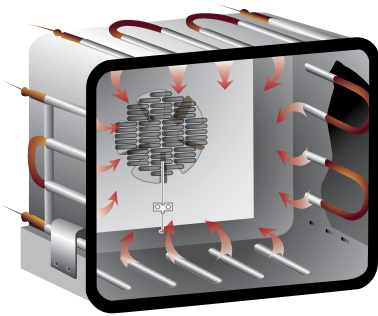
EASY-TO-SERVICE

- Diagnostic functions in the microprocessor include historical read-out of temperatures.
- Diagnostic menu provides read-out of all sensor inputs and controller settings.
- Service can be carried out from the front.
- All electronic components are isolated from the work chamber and easily accessible for replacement.
- Low service costs.



ISOCIDE™ ANTIMICROBATAL COATING

SOLARIS™ PRE-HEAT CHAMBER TECHNOLOGY



Extremely Uniform Thermal Distribution

- Innovative design guarantees maximum thermal performance.
- No exposed heating elements located inside the chamber to ensure maximum user safety.
- 4-zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber.
- Standard temperature range of up to 100 °C for maximum application flexibility.
- Secure 2-point door seal and eccentric hinge ensure maximum gasket compression for stable chamber temperature.

VENTIFLOW™ VENTILATION SYSTEM



- Forced convection design produces faster temperature response rates, improved uniformity, and reduced fluctuation.
- German made ebm-papst fan, permanently lubricated, maintenance free for uniform air circulation.
- Low energy consumption for reduced operating costs.
- Consistent air circulation and heat uniformity.
- Low noise during operation.
- Fresh air entry from the base of the chamber, combined with the rounded corners of the chamber interior and air exhaust at the rear of the chamber, creates uniform air circulation ensuring maximum temperature uniformity.
- Chamber fan inlet pulls air away from the user, preventing exposure of the user to blasts of hot air when the door is opened.

OPTIONS AND ACCESSORIES



Voyager Software Kit

Esco Voyager is a PC-based software package developed for the remote monitoring, datalogging and programming / device configuration of Esco controlled environment laboratory equipment.



Additional shelf

Two shelves are included for 110L and 240L models as standard. Additional shelves may be ordered.

ORDERING INFORMATION

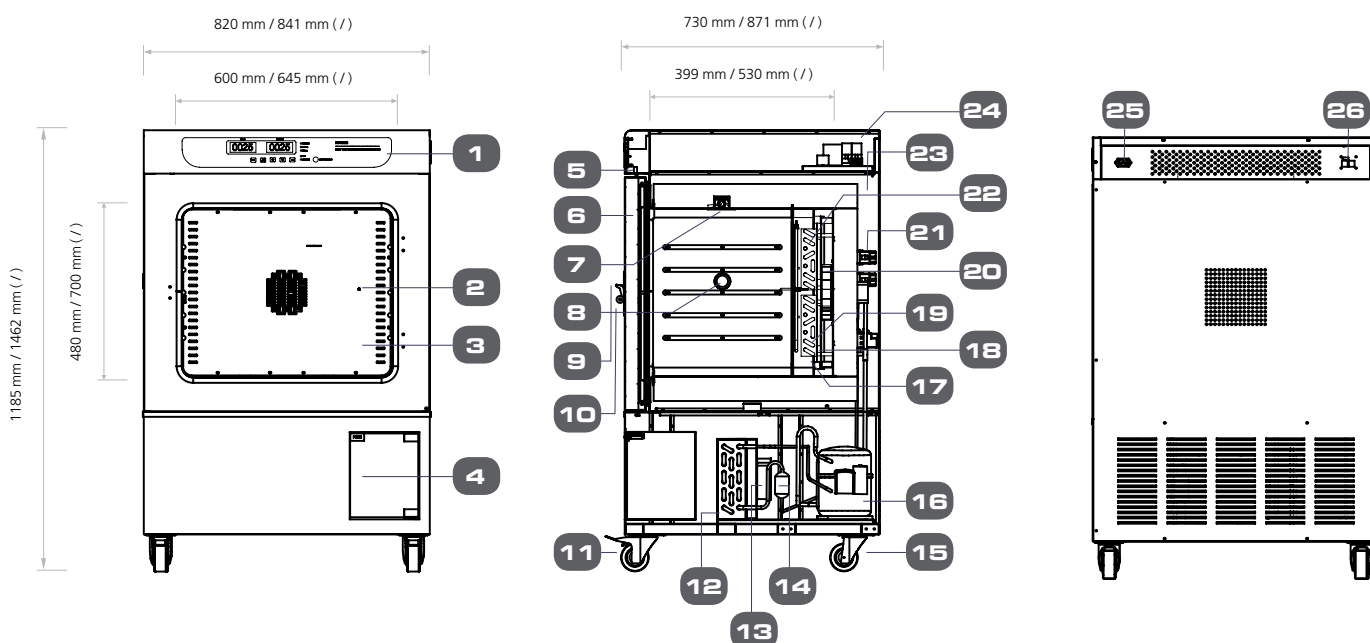
UNIT ORDERING

MODELS	DESCRIPTION
IFC-110-8	Isotherm Refrigerated Incubators, 110L, 220-240VAC 50/60Hz
IFC-240-8	Isotherm Refrigerated Incubators, 240L, 220-240VAC 50/60Hz
IFC-110-8-SS	Isotherm Refrigerated Incubators, Stainless Steel Exterior Cabinet, 110L, 220-240VAC 50/60Hz
IFC-240-8-SS	Isotherm Refrigerated Incubators, Stainless Steel Exterior Cabinet, 240L, 220-240VAC 50/60Hz

ACCESSORIES ORDERING

MODELS	DESCRIPTION
TOA-1021	Additional shelf, field-installed (IFC-110)
TOA-1019	Additional shelf, field-installed (IFC-240)
TOA-1022	IQ/OQ Document
5250001	Voyager Software Kit

TECHNICAL SPECIFICATIONS



1. Control Panel
2. Sensor
3. Inner Chamber
4. Water Container Storage
5. UV Switch (Magnetic Switch)
6. Outer Door
7. UV Lamp
8. Access Port
9. Door Handle

10. Key Lock Door
11. Caster Wheel with Break
12. Condenser
13. Condenser Fan
14. Filter drier
15. Caster Wheel without Break
16. Compressor
17. Assistant Heater
18. Evaporator

19. Main Heater
20. Convection Fan
21. Electromagnetic Valve
22. Evaporator
23. Polyurethane Foam
24. Power Board
25. Power Inlet
26. RS 485 Socket

GENERAL SPECIFICATIONS

ISOTHERM REFRIGERATED INCUBATOR

GENERAL SPECIFICATIONS			IFC-110-8 / IFC-110-8-SS	IFC-240-8 / IFC-240-8-SS
ISOTHERM REFRIGERATED INCUBATOR				
Volume			110 liter (3.88 cu.ft)	240 liter (8.48 cu.ft)
Temperature Range			0°C ~ 100°C	
Temperature Variation	at 10°C(±K)		≤±0.6°C	≤±0.6°C
	at 15°C(±K)		≤±0.4°C	≤±0.4°C
	at 25°C(±K)		≤±0.3°C	≤±0.3°C
	at 37°C(±K)		≤±0.3°C	≤±0.5°C
Temperature Fluctuation	at 10°C(±K)		≤±0.3°C	≤±0.3°C
	at 15°C(±K)		≤±0.3°C	≤±0.3°C
	at 25°C(±K)		≤±0.3°C	≤±0.3°C
	at 37°C(±K)		≤±0.3°C	≤±0.3°C
Heating up time to 37°C from the ambient temperature			31 minutes	37 minutes
Heating up time to 50°C from the ambient temperature			33 minutes	50 minutes
Recovery time after door was opened for 30 sec	at 5°C		3 minutes	5 minutes
	at 37°C		2 minutes	3 minutes
	at 50°C		2 minutes	3 minutes
Cooling down time from 22°C to 0°C			90 minutes	120 minutes
Cooling down time from 22°C to 5°C			60 minutes	80 minutes
Cooling down time from 22°C to 10°C			34 minutes	48 minutes
Heat emission at 37°C set point (compressor on) (Watt)			217	238
Heat emission at 37°C set point (compressor off) (Watt)			61.8	80.7
Electrical (200-240V, AC, 50/60Hz, 1Ø)	Power*	at 15°C	400 W	481 W
		at 25°C	431 W	563 W
	Cabinet Full Load Amps (FLA)		6 A	6 A
	Cabinet BTU	Set Point 15°C	1364.84	1641.23
		Set Point 25°C	1470.63	1921.03
Incubator Construction		Main Body	Electro galvanized steel with white oven baked epoxy powder-coated finish	
		Chamber	Stainless steel, grade 304	
Number of Shelves		Standard	2	2
		Maximum	4	8
Load Per Shelf			30 kg (13.6 lbs)	
Max. Total Load			60 kg (27.3 lbs)	
External Dimensions (W x D x H)			820 x 730 x 1185 mm (32.3" x 28.7" x 45.6")	841 x 871 x 1462 mm (33.1" x 34.3" x 53.3")
Internal Dimensions (W x D x H)			600 x 399 x 480 mm (23.6" x 15.7" x 18.9")	645 x 530 x 700 mm (25.4" x 20.9" x 27.6")
Net Weight			134 Kg (295.41 lbs)	164 kg (361.55 lbs)
Shipping Weight			166 Kg (365.96 lbs)	195 kg (429.90 lbs)
Shipping Dimensions, Maximum (W x D x H)			878 x 787 x 1425 mm (34.5" x 30.9" x 56.1")	891 x 933 x 1628 mm (35" x 36.7" x 64.1")
Shipping Volume, Maximum			0.98 m³ (34.60 cu.ft)	1.35 m³ (47.67 cu.ft)

* In order to calculate the current at maximum power consumption, divide maximum power consumption by the voltage.

- All technical specifications are specified for units with standard equipment at an ambient temperature of 25°C and a voltage fluctuation of ±10%.
- The temperature data is determined in accordance to DIN 12880 standards. All indications are average values, typical for units produced in series.
- Esco reserves the right to alter technical specifications at all times.



ART Equipment
 Biological Safety Cabinets
 CO₂ Incubators
 Compounding Pharmacy Equipment
 Containment / Pharma Products
 Ductless Fume Hoods
 Freeze Dryer
 Lab Animal Research Products
 Laboratory Fume Hoods
 Laboratory Ovens and Incubators
 Laminar Flow Clean Benches
 PCR Cabinets
 PCR Thermal Cyclers
 Powder Weighing Balance Enclosures
 Ultra-low Freezers

The Esco Group of Companies is a global life sciences tools provider with sales in over 100 countries. The group is active in lab equipment, pharma equipment and medical devices. Manufacturing facilities are located in Asia and Europe. R&D is conducted worldwide spanning the US, Europe and Asia. Sales, service and marketing subsidiaries are located in 12 major markets including the US, UK, Singapore, Japan, China and India. Regional distribution centers are located in the US, UK, and Singapore.

Life Science • Chemical Research • Assisted Reproductive Technology (ART) • Pharmaceutical Equipment • General Equipment

ESCO

WORLD CLASS. WORLDWIDE.

 **HeraScientific**
 LIFE SCIENCE

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