



Model: INA-110-8

Model: IFC-110-8

Model: IFA-110-8

Model: OFA-110-8

Isotherm[®]

Laboratory Thermostatic Products

Reliable Performance for Universal Applications



Combined
Catalogue

ESCO

WORLD CLASS. WORLDWIDE.

ISOTHERM® LABORATORY THERMOSTATIC PRODUCTS

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Welcome to Esco

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



Esco represents innovation and forward-thinking designs, which are all coupled with the highest standard quality since 1978. The Esco Group of Companies remains dedicated in delivering innovative solutions for the clinical, life sciences, research, industrial, laboratory, pharmaceutical and IVF community. With the most extensive product line in the industry, our products have passed a number of international standards and certifications. Esco operates under ISO 9001, ISO 14001 and ISO 13485.

Availability and Accessibility. Headquartered in Singapore, manufacturing facilities are located in Asia and Europe. R&D is conducted worldwide spanning the US, Europe and Asia. Sales, services and marketing subsidiaries are located in 12 major markets including the US, UK, Japan, China and India. Our regional distribution centers are located in Bangladesh, China, Denmark, Germany, Hong Kong, India, Indonesia, Italy, Japan, Lithuania, Malaysia, Philippines, Russia, Singapore, South Africa, South Korea, Russia, Taiwan, Thailand, UAE, United Kingdom, USA, and Vietnam. Because of our worldwide presence, you can be sure that Esco is within your reach.

High Quality, Reliable and Dependable. Our customers are confident that only with the best quality, reliable, and dependable products, can they be sure of the accuracy of their research and procedures. Cross functional teams from Esco Production, R&D, Quality Assurance and Senior Management, are regularly assembled to review and implement areas for improvement.

Esco Cares for Your Safety. Esco focuses on providing safety not just for your samples but also for you and the environment.

Esco Cares for Your Comfort. Comfort of our users is ensured by building ergonomic designs and by reducing the noise levels of the units.

Esco Cares for the Environment. One in every four of Esco's employees is involved in Research and Development and a number of these evaluate new components and/or designs to produce energy efficient equipment. Being GREEN is more than just modifying the parts we use to produce a new energy efficient technology, it also embodies the every aspect of the company.

Customer Service and Support. Our service does not stop once purchase has been made. Esco gives on-time customer service and offers end-user seminars, service training, preventive maintenance, provides educational materials and informative videos.

As Esco takes the opportunity to respond to the world's needs, we aim not just to contribute in the advancement of scientific discoveries but also in making the world a safer, healthier and a better place to live in.

Products and Application

Life Sciences Laboratory Equipment

Sample Preparation

- Class I Biological Safety Cabinets
- Class II Type A2 Biological Safety Cabinets
- Class II Type B1 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
- Laboratory Centrifuges

Sample Cultivation

- CO₂ Incubators, Direct Heat Air-Jacketed
- CO₂ Incubators with Cooling System
- CO₂ Incubators with Stainless Steel Exterior
- CO₂ Incubators (Water-Jacketed)
- Laboratory Shakers

Sample Analysis

PCR Thermal Cyclers

- Conventional Thermal Cyclers
- Real-time PCR Systems

PCR Sample Handling

- Microplate Shakers
- PCR Cabinets

Sample Storage & Sample Protection Solutions

- Ultra-low Temperature Freezers
- Lab Refrigerators and Freezers
- Sample Database Management Software
- Intelligent Remote Monitoring Application Protocol
- Remote Monitoring, Datalogging, Programming Software
- Wireless Monitoring System

Chemical Research

- Ductless Fume Hoods
- Laboratory Fume Hoods
- Fume Hood Airflow Monitors
- Exhaust Blowers
- Powder Weighing Balance Enclosures

General Equipment

Laboratory Thermostatic Products

- Laboratory Oven
- Forced Convection Laboratory Incubator
- Natural Convection Laboratory Incubator
- Refrigerated Incubator

Forensic Sciences

- Evidence Drying Cabinet

Medical / IVF Equipment

Controlled Embryo Handling

- Fertilisafe™ ART Workstation
- AVT-I Anti Vibration Table
- Semi Closed Environment IVF

Safe Embryo Culture

- Mini® Multi room Benchtop Incubator
- CelCulture® CO₂ Incubator
- Mini Mini® Humidified Benchtop Incubator

Innovative Time Lapse Imaging

- Mini® Time-lapse Incubator

Accurate Quality Control

- Mini® GA Gas and Temperature Validation Unit
- Mini® GA Mini Gas Validation Unit

Unique Consumables

- CultureCoin

Healthcare

Esco Pharma Products

Airflow Containment Products

- Pharmacon® Downflow Booths
- Ceiling Laminar Airflow Units
- Laminar Flow Horizontal/Vertical Trolley
- Enterprise™ Laminar Flow Straddle Unites
- Cytoculture™ Cytotoxic Safety Cabinets

Isolation Containment

- Aseptic Containment Isolator (ACTI)
- Weighing and Dispensing Containment Isolator (WDCI)
- General Processing Platform Isolator (GPPI)
- Containment Barrier Isolator (CBI)
- Turbulent Flow Aseptic (Grade A) Isolator (TFAI)
- Isoclean® Healthcare Platform Isolator (HPI)
- Streamline® Compounding Isolators (SCI)
- Technetium Dispensing Isolators
- Blood Cell Labeling Isolators
- Open and Closed Restricted Barrier Access Systems (RABS)

Cross Contamination Facility Integrated Barrier

- BioPass™ Pass Through
- Infinity® Air Shower Pass Box
- Cleanroom Air Shower
- Infinity® Cleanroom Transfer Hatch
- Infinity® Pass Box
- Soft capsule® Soft Wall Cleanroom
- Dynamic Passboxes and Dynamic Floor Label Hatches
- Laminar Flow Storage Cabinet

Ventilation Containment

- Ventilated Balance Enclosure

VacciXcell Products

Bioreactors and Fermenters

- CelCradle™
- TideCell®
- VacciXcell™ Hybrid Bioreactor

Cell Culture Monitoring, Media and Consumables

- Super Plus™
- Plus™ Vero
- Plus™ MDCK
- Plus™ MDCK II
- BioNOC™ II macrocarriers
- GlucCell® Glucose Monitoring System
- CVD Kit

Filling Line Equipment

- Filling Line Isolators
- cRabs (close restricted access barriers)
- oRabs (open restricted access barriers)

Integrated Solutions

- Cell Processing Isolator
- Cell Processing Center

TaPestle Rx Products and Services

PRODUCTS

Pharmacy Automation and Compounding Supply

- Compounding Pharmacy Isolators (SCI, HPI, CBI, GPPI)
- Safety Cabinets and Enclosures (Class II BSC, VBE, LFC)
- Radiopharmacy Hoods and Isolators
- Aseptic Filling Systems

Healthcare and Laboratory Construction Components

- Prefabricated Walls (Airecell®)
- Prefabricated Containerized Facility (Prefab™)
- Series Ceiling Systems
- Hygienic/Hermetic Door Systems
- Surgical Scrub Sinks
- Vinyl Tiles and Epoxy
- Laboratory Fit-outs
 - Worktops
 - Frames
 - Specialty Storage cabinets
 - Service Spines & Reagent Shelving

SERVICES

- Conceptualization
- Planning
- Procurement
- Installation

FACILITY DESIGNS

- Process Architecture
- Biocontainment/Biosafety
- Pharmacy Compounding/Nuclear Medicine
- Cleanroom, Vaccine and Cell Processing
- Laboratory
- Containerized Facility
- ART/IVF
- Cold Chain

LABORATORY THERMOSTATIC PRODUCTS OVERVIEW

Forced Convection and Natural Convection

Convection is a method of heat energy transfer that involves the movement of a fluid (gas or liquid). Fluid in contact with the source of heat expands and tends to rise within the bulk of the fluid. Cooler fluid sinks to take its place, setting up convection current. However, in a forced convection device, the fluid motion is generated by an external source (like a pump, fan, suction device, etc.).



Forced Convection Laboratory Oven

Laboratory ovens are used for high-forced volume thermal convection applications. These ovens generally provide uniform temperatures throughout. Process applications for laboratory ovens can be for annealing, die-bond curing, drying, Polyimide baking, sterilizing, and other industrial laboratory functions. Typical sizes are from one cubic foot (28 liters) to 32 cubic feet (906 liters) with temperatures that can reach 300°C (572°F).



Forced Convection Laboratory Incubator and Natural Convection Laboratory Incubator

Laboratory incubator is an equipment for controlling the temperature, humidity, and other conditions in which a microbiological culture is being grown. Typical incubators are insulated boxes with an adjustable heater, going up to 60°C to 65°C (140°F to 149°F), though some can go slightly higher (generally to no more than 100°C).

Incubators can vary in size from tabletop to units the size of small rooms. As for temperature, most commonly used is approximately 36°C to 37°C (97°F to 99°F).



Refrigerated Incubator

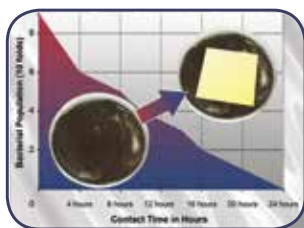
Incubator are designed to maintain 20°C necessary to perform a test called a Biochemical Oxygen Demand (BOD). It involves incubating samples saturated with oxygen at 20°C usually for five days.

Incubators designed to maintain temperatures below ambient to as low as about 10°C are generally called low temperature incubators.

Isotherm®

Forced Convection Laboratory Ovens

Introducing Esco Isotherm® - world class laboratory ovens from Esco for high-forced volume thermal convection applications such as drying and curing among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm® is your reliable oven for universal application.



Quality Esco Construction

- Electro-galvanized steel exteriors
- Isocide™ coated external surfaces to eliminate 99.9% of surface bacteria within 24 hours of exposure

Superior Insulation

- Improves chamber stability while reducing external surface temperatures
- Reduces heat load output to the laboratory and operating power consumption, and lowers operating costs



SmartSense™ Microprocessor PID Control Technology

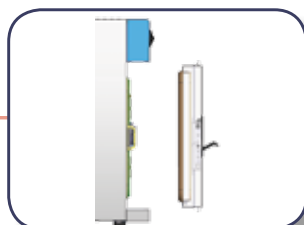
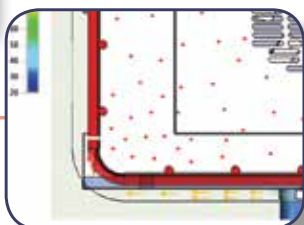
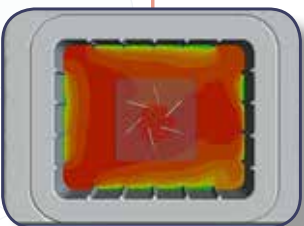
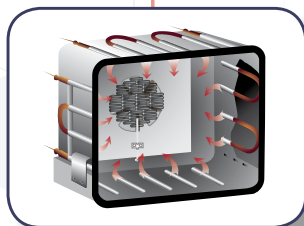
- Connected to an instrument-grade precision platinum-temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved
- Twin temperature display for easy monitoring ("Actual" and "Set Point" displays)
- Diagnostic LEDs simplify service
- Air flow adjuster via slider for exchange rate of air



*Isotherm® Forced Convection Laboratory Oven
Model OFA-110-8*

Solaris™ Pre-Heat Chamber Technology

- Guarantees maximum thermal performance
- 4-zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber
- Standard temperature range of up to 300°C for maximum application stability
- 2-point door seal and eccentric hinge ensures maximum gasket compression for stable chamber temperature



Ventiflow™ Ventilation System

- Forced convection design produces faster temperature response rates, improves uniformity and reduces fluctuation
- Permanently lubricated and maintenance-free German-made EBM-PAPST fan for uniform air circulation
- Low energy consumption and low noise level
- Adjustable fan speed and air exchange rates
- 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



Guide to Models, Forced Convection Laboratory Ovens

OFA - - -

Volume	Code	Electrical Rating	Code	Main Body	Code
32 L	32	220-240 VAC, 50/60 Hz, 1Ø	8	EG Steel	
54 L	54	110-120 VAC, 50/60 Hz, 1Ø	9	Stainless Steel	SS
110 L	110				
170 L	170				
240 L	240				

General Specifications, Forced Convection Laboratory Ovens

Model	220-240 VAC, 50/60 Hz, 1ø	OFA-32-8 2110001	OFA-54-8 2110002	OFA-110-8 2110003	OFA-170-8 2110006	OFA-240-8 2110007
		OFA-32-8-SS 2110012	OFA-54-8-SS 2110013	OFA-110-8-SS 2110014	OFA-170-8-SS 2110015	OFA-240-8-SS 2110016
	110-120 VAC, 50/60 Hz, 1ø	OFA 32-9 2110010	OFA-54-9 2110009	OFA-110-9 2110008	OFA-170-9 2110020	OFA-240-9 2110021
		OFA-32-9-SS 2110023	OFA-54-9-SS 2110022	OFA-110-9-SS 2110011	OFA-170-9-SS 2110024	OFA-240-9-SS 2110025
Volume		32 L (1.1 cu. ft)	54 L (1.9 cu. ft)	110 L (3.9 cu. ft)	170 L (6.0 cu. ft)	240 L (8.5 cu. ft)
Temperature Range		Ambient +7.5°C to 300°C				
Temperature Variation	70°C	± 0.7°C	± 0.6°C	± 0.6°C	± 1.3°C	± 1.3°C
	150°C	± 1.5°C	± 2.2°C	± 1.6°C	± 3.5°C	± 3.6°C
	250°C	± 3.3°C	± 4.0°C	± 4.1°C	± 8.5°C	± 6.4°C
Temperature Fluctuation	70°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.4°C	± 0.5°C
Heating Up Time*	70°C	36 min	40 min	45 min	40 min	41 min
	150°C	40 min	33 min	31 min	39 min	58 min
	250°C	32 min	58 min	58 min	48 min	58 min
Recovery Time after 30 sec door open*	70°C	6 min	5.5 min	7.5 min	3 min	4.5 min
	150°C	7 min	7 min	9.5 min	4 min	6 min
	250°C	7 min	8 min	10 min	7.5 min	7 min
Noise Level		51 dBA	49 dBA	49 dBA	51 dBA	52 dBA
Oven Construction	Main Body	Electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish				
	Chamber	Stainless steel, grade 304				
Number of shelves	Standard	2	2	2	2	2
	Maximum	4	5	6	7	9
Maximum Load per Shelf		15 Kg (33 lbs)	15 Kg (33 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)
External Dimensions (W x D x H)		550 x 437 x 615 mm (21.7" x 17.2" x 24.2")	550 x 527 x 695 mm (21.7" x 20.7" x 27.4")	710 x 587 x 785 mm (28" x 23.1" x 30.9")	740 x 800 x 910 mm (28.8" x 31.5" x 35.8")	800 x 827 x 1030 mm (31.5" x 32.5" x 40.6")
Internal Dimensions (W x D x H)		400 x 250 x 320 mm (15.7" x 9.8" x 12.6")	400 x 340 x 400 mm (15.7" x 13.4" x 15.7")	560 x 400 x 490 mm (22" x 15.7" x 19.3")	580 x 500 x 580 mm (22.8" x 19.7" x 22.8")	645 x 527 x 700 mm (25.4" x 20.7" x 27.6")
Net Weight		43 Kg (95 lbs)	52 Kg (115 lbs)	75 Kg (165 lbs)	114 Kg (251 lbs)	138 Kg (304 lbs)
Shipping Weight		55 Kg (121 lbs)	66 Kg (146 lbs)	94 Kg (207 lbs)	136 Kg (300 lbs)	160 Kg (353 lbs)
Shipping Dimensions (W x D x H)		620 x 530 x 840 mm (24.4" x 20.9" x 33.1")	630 x 620 x 920 mm (24.8" x 24.4" x 36.2")	780 x 680 x 1020 mm (30.7" x 26.8" x 40.2")	900 x 900 x 1100 mm (35.4" x 35.4" x 43.3")	900 x 900 x 1200 mm (35.4" x 35.4" x 47.2")
Shipping Volume		0.37 m³ (13.1 cu. ft)	0.49 m³ (17.3 cu. ft)	0.61 m³ (21.5 cu. ft)	0.89 m³ (31.4 cu. ft)	0.97 m³ (34.3 cu. ft)

*Up to 98% of the set value

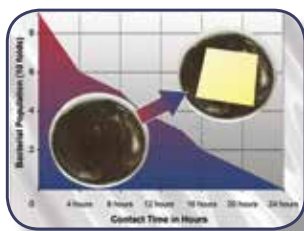
Note:

- 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 are determined in accordance to DIN 12880 standards as per factory type test condition.
- Stainless steel exterior option is available for all sizes.

Isotherm[®]

Forced Convection Laboratory Incubators

Introducing Esco Isotherm[®] - world class laboratory incubators from Esco for thermal convection applications such as bacteria culture and Coliform determination among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm[®] is your reliable incubator for universal application.



Quality Esco Construction

- Electro-galvanized steel exteriors
- Isocide[™] coated external surfaces to eliminate 99.9% of surface bacteria within 24 hours of exposure



SmartSense[™] Microprocessor PID Control Technology

- Connected to an instrument-grade precision platinum-temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved
- Twin temperature display for easy monitoring ("Actual" and "Set Point" displays)
- Diagnostic LEDs simplify service
- Air flow adjuster via slider for exchange rate of air

Superior Insulation

- Improves chamber stability while reducing external surface temperatures
- Reduces heat load output to the laboratory and operating power consumption, and lowers operating costs



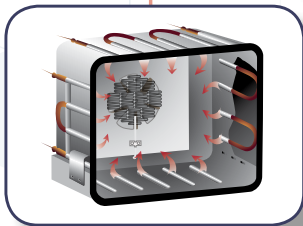
Isotherm[®] Forced Convection Laboratory Incubator, Model IFA-110-8

Glass Door

- For observing samples inside the chamber during operation

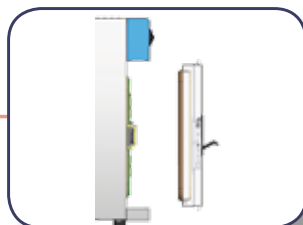
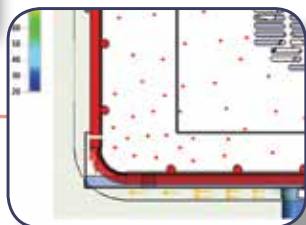
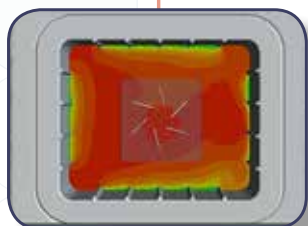
Solaris[™] Pre-Heat Chamber Technology

- Guarantees maximum thermal performance
- 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 stability
- 2-point door seal and eccentric hinge ensures maximum gasket compression for stable chamber temperature



Ventiflow[™] Ventilation System

- Forced convection design produces faster temperature response rates, improves uniformity and reduces fluctuation
- Permanently lubricated and maintenance-free German-made EBM-PAPST fan for uniform air circulation
- Low energy consumption and low noise level
- Adjustable fan speed and air exchange rates
- 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



Guide to Models, Forced Convection Laboratory Incubators

IFA - - -

Volume	Code	Electrical Rating	Code	Main Body	Code
32 L	32	220-240 VAC, 50/60 Hz, 1Ø	8	EG Steel	
54 L	54	110-120 VAC, 50/60 Hz, 1Ø	9	Stainless Steel	SS
110 L	110				
170 L	170				
240 L	240				

General Specifications, Forced Convection Laboratory Incubators

Model	220-240 VAC, 50/60 Hz, 1ø	IFA-32-8 2100001	IFA-54-8 2100002	IFA-110-8 2100003	IFA-170-8 2100014	IFA-240-8 2100015
		IFA-32-8-SS 2100021	IFA-54-8-SS 2100022	IFA-110-8-SS 2100016	IFA-170-8-SS 2100024	IFA-240-8-SS 2100025
	110-120 VAC, 50/60 Hz, 1ø	IFA 32-9 2100017	IFA-54-9 2100018	IFA-110-9 2100020	IFA-170-9 2100049	IFA-240-9 2100050
		IFA-32-9-SS 2100052	IFA-54-9-SS 2100051	IFA-110-9-SS 2100053	IFA-170-9-SS 2100054	IFA-240-9-SS 2100055
Volume		32 L (1.1 cu. ft)	54 L (1.9 cu. ft)	110 L (3.9 cu. ft)	170 L (6.0 cu. ft)	240 L (8.5 cu. ft)
Temperature Range		Ambient +7.5°C to 100°C				
Temperature Variation	37°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.4°C	± 0.4°C
	50°C	± 0.3°C	± 0.3°C	± 0.5°C	± 0.7°C	± 0.6°C
Temperature Fluctuation	37°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.5°C	± 0.3°C
	50°C	± 0.3°C	± 0.3°C	± 0.3°C	± 0.5°C	± 0.3°C
Heating Up Time*	37°C	28 min	23 min	30 min	38 min	35 min
	50°C	35 min	35 min	52 min	46 min	55 min
Recovery Time after 30 sec door open*	37°C	1.5 min	1.5 min	3 min	1 min	1.5 min
	50°C	4 min	3 min	5.5 min	3 min	3 min
Noise Level		49 dBA	48 dBA	49 dBA	51 dBA	51 dBA
Incubator Construction	Main Body	Electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish				
	Chamber	Stainless steel, grade 304				
Number of shelves	Standard	2	2	2	2	2
	Maximum	4	5	6	7	9
Maximum Load per Shelf		15 Kg (33 lbs)	15 Kg (33 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)
External Dimensions (W x D x H)		550 x 437 x 615 mm (21.7" x 17.2" x 24.2")	550 x 527 x 695 mm (21.7" x 20.7" x 27.4")	710 x 587 x 785 mm 28" x 23.1" x 30.9"	740 x 800 x 910 mm (28.8" x 31.5" x 35.8")	800 x 827 x 1030 mm (31.5" x 32.5" x 40.6")
Internal Dimensions (W x D x H)		400 x 250 x 320 mm (15.7" x 9.8" x 12.6")	400 x 340 x 400 mm (15.7" x 13.4" x 15.7")	560 x 400 x 490 mm 22" x 15.7" x 19.3"	580 x 500 x 580 mm (22.8" x 19.7" x 22.8")	645 x 527 x 700 mm (25.4" x 20.7" x 27.6")
Net Weight		45 Kg (99 lbs)	55 Kg (121 lbs)	79 Kg (174 lbs)	118 Kg (260 lbs)	144 Kg (318 lbs)
Shipping Weight		57 Kg (126 lbs)	69 Kg (152 lbs)	98 Kg (216 lbs)	140 Kg (309 lbs)	166 Kg (366 lbs)
Shipping Dimensions (W x D x H)		620 x 530 x 840 mm (24.4" x 20.9" x 33.1")	630 x 620 x 920 mm (24.8" x 24.4" x 36.2")	780 x 680 x 1020 mm (30.7" x 26.8" x 40.2")	900 x 900 x 1100 mm (35.4" x 35.4" x 43.3")	900 x 900 x 1200 mm (35.4" x 35.4" x 47.2")
Shipping Volume		0.37 m³ (13.1 cu. ft)	0.49 m³ (17.3 cu. ft)	0.61 m³ (21.5 cu. ft)	0.89 m³ (31.4 cu. ft)	0.97 m³ (34.3 cu. ft)

*Up to 98% of the set value

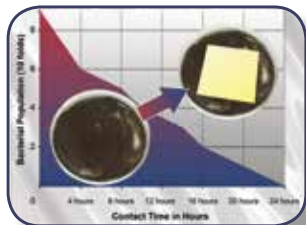
Note:

- 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 are determined in accordance to DIN 12880 standards as per factory type test condition.
- Stainless steel exterior option is available for all sizes.

Isotherm®

Natural Convection Laboratory Incubators

Introducing Esco Isotherm®- world class laboratory incubators from Esco for thermal applications that prefers natural convection design to minimize disturbance to the items being cultured such as bacteria culture and Coliform determination among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested insulation package, Esco Isotherm® is your reliable oven for universal application.



Quality Esco Construction

- Electro-galvanized steel exteriors
- Isocide™ coated external surfaces to eliminate 99.9% of surface bacteria within 24 hours of exposure



Superior Insulation

- Improves chamber stability while reducing external surface temperatures
- Reduces heat load output to the laboratory and operating power consumption, and lowers operating costs

SmartSense™ Microprocessor PID Control Technology

- Connected to an instrument-grade precision platinum-temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved
- Twin temperature display for easy monitoring ("Actual" and "Set Point" displays)
- Diagnostic LEDs simplify service
- Air flow adjuster via slider for exchange rate of air



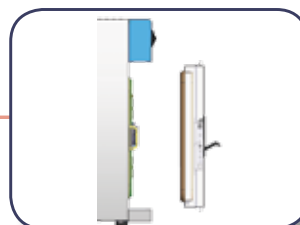
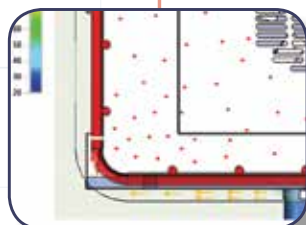
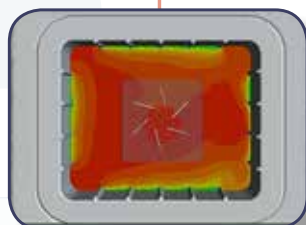
Isotherm® Forced Convection Laboratory Incubator, Model INA-110-8

Solaris™ Pre-Heat Chamber Technology

- Guarantees maximum thermal performance
- 4-zone heated air jacket ensures stable heating and maximum temperature uniformity in the chamber
- Standard temperature range of up to 80°C for maximum application stability
- 2-point door seal and eccentric hinge ensures maximum gasket compression for stable chamber temperature

Glass Door

- For observing samples inside the chamber during operation



Guide to Models, Natural Convection Laboratory Incubators

INA - -

Volume	Code	Electrical Rating	Code
32 L	32	220-240 VAC, 50/60 Hz, 1Ø	8
54 L	54	110-120 VAC, 50/60 Hz, 1Ø	9
110 L	110		
170 L	170		
240 L	240		

General Specifications, Natural Convection Laboratory Incubators

Model	220-240 VAC, 50/60 Hz, 1Ø	INA-32-8 2100045	INA-54-8 2100046	INA-110-8 2100044	INA-170-8 2100047	INA-240-8 2100048
	110-120 VAC, 50/60 Hz, 1Ø	INA-32-9 2100062	INA-54-9 2100063	INA-110-9 2100064	INA-170-9 2100065	INA-240-9 2100061
Volume		32 L (1.1 cu. ft)	54 L (1.9 cu. ft)	110 L (3.9 cu. ft)	170 L (6.0 cu. ft)	240 L (8.5 cu. ft)
Temperature Range		Ambient +7.5°C to 80°C				
Temperature Variation	37°C	± 0.6°C	± 0.5°C	± 0.5°C	± 0.8°C	± 0.7°C
Temperature Fluctuation	37°C	± 0.3°C	± 0.4°C	± 0.3°C	± 0.3°C	± 0.3°C
Heating Up Time*	37°C	30 min	39 min	36 min	42 mins	46 min
Recovery Time after 30 sec door open*	37°C	3 min	3.5 min	3 mins	3.5 min	3.5 min
Incubator Construction	Main Body	Electro-galvanized steel with Epoxy-polyester hybrid Isocide™ powder coating				
	Chamber	Stainless steel, grade 304				
Number of shelves	Standard	2	2	2	2	2
	Maximum	4	5	6	7	9
Maximum Load per Shelf		15 Kg (33 lbs)	15 Kg (33 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)	30 Kg (66 lbs)
External Dimensions (W x D x H)		630 x 437 x 652 mm (24.8" x 17.2" x 25.7")	630 x 531 x 733 mm (24.8" x 20.9" x 28.9")	790 x 592 x 819 mm (31.1" x 23.3" x 32.2")	810 x 693 x 889 mm (31.9" x 27.3" x 35.0")	875 x 693 x 1005 mm (34.4" x 27.3" x 39.6")
Internal Dimensions (W x D x H)		400 x 250 x 320 mm (15.7" x 9.8" x 12.6")	400 x 340 x 400 mm (15.7" x 13.4" x 15.7")	560 x 400 x 490 mm (22" x 15.7" x 19.3")	580 x 500 x 580 mm (22.8" x 19.7" x 22.8")	645 x 520 x 700 mm (25.4" x 20.5" x 27.6")
Net Weight		45 Kg (99 lbs)	55 Kg (121 lbs)	79 Kg (174 lbs)	92.5Kg (204 lbs)	112Kg (246 lbs)
Shipping Weight		54.5 Kg (120 lbs)	65 (143 lbs)	92 Kg (203 lbs)	111 Kg (245 lbs)	131Kg (289 lbs)
Shipping Dimensions (W x D x H)		720 x 650 x 865 mm (28.3" x 25.6" x 34.1")	720 x 650 x 945 mm (28.3" x 25.6" x 37.2")	895 x 720 x 1030 mm (35.2" x 28.3" x 40.6")	1115 x 895 x 1100 mm (43.9" x 35.2" x 43.3")	1115 x 895 x 1215 mm (43.9" x 35.2" x 47.8")
Shipping Volume		0.40m³ (14.1 cu. ft)	0.44 m³ (15.5 cu. ft)	0.66 m³ (23.3 cu. ft)	1.09 m³ (38.5 cu. ft)	1.21 m³ (42.7 cu. ft)

*Up to 98% of the set value

Note:

- 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 are determined in accordance to DIN 12880 standards as per factory type test condition.
- Stainless steel exterior option is available for all sizes.

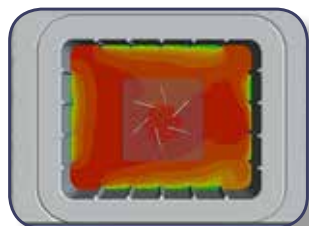
Isotherm® Refrigerated Incubators



Introducing Esco Isotherm® - world class laboratory incubators from Esco for applications such as BOD determination and environmental research among many others. With ergonomic design, microprocessor PID controls, 4-zone heated air jacket and precisely tuned and tested ventilation and insulation package, Esco Isotherm® is your reliable refrigerated incubator for universal application.

Pre-Heat Chamber Technology

- Ensures stable heating and maximum temperature uniformity in the chamber
- Standard temperature range of 0°C up to 100°C for maximum application flexibility
- 2-point door seal and eccentric hinge ensures maximum gasket compression for stable chamber temperature



SmartSense™ Microprocessor PID Control Technology

- Connected to an instrument-grade precision platinum-temperature probe
- Ensures fast ramp time. Prevents overshoot and ensures stable temperature once set point is achieved
- Twin temperature display for easy monitoring ("Actual" and "Set Point" displays)
- Diagnostic LEDs simplify service
- Air flow adjuster via slider for exchange rate of air



UV Disinfection

- Can be manually or automatically operated

Ventilation System

- Forced convection design produces faster temperature response rates, improves uniformity and reduces fluctuation
- Ventilated stainless steel shelves contribute to uniform air circulation
- Low energy consumption and low noise level



Auto-Defrost System

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

Side Access Port

- For temperature validation and mapping

Glass Door

- For observing samples inside the chamber during operation

Water Reservoir

- For water collection during defrosting



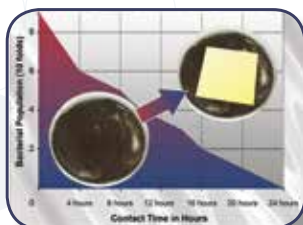
*Isotherm® Refrigerated Incubator,
Model IFC-110-8*

Quality Esco Construction

- Electro-galvanized steel exteriors
- Isocide™ coated external surfaces to eliminate 99.9% of surface bacteria within 24 hours of exposure

German-made EBM Papst Fan

- Permanently lubricated and maintenance-free for uniform air circulation



Guide to Models, Refrigerated Incubators

IFC - - -

Volume	Code	Electrical Rating	Code	Main Body	Code
32 L	32	220-240 VAC, 50/60 Hz, 1Ø	8	EG Steel	
54 L	54			Stainless Steel	SS
110 L	110				
170 L	170				
240 L	240				

General Specifications, Refrigerated Incubators

Model	220-240 VAC, 50/60 Hz, 1Ø	IFC-110-8 2100010	IFC-170-8 2100035	IFC-240-8 2100011
		IFC-110-8-SS 2100026	IFC-170-8-SS 2100056	IFC-240-8-SS 2100027
Volume		110 L (3.9 cu. ft)	170 L (6.0 cu. ft)	240 L (8.5 cu. ft)
Temperature Range		0°C - 100°C		
Temperature Variation per DIN 12880 Spatial Uniformity	15°C	± 0.3°C	± 0.3°C	± 0.3°C
	25°C	± 0.3°C	± 0.3°C	± 0.3°C
	37°C	± 0.3°C	± 0.3°C	± 0.3°C
Temperature Fluctuation per DIN 12880 Control Fluctuation	15°C	± 0.3°C	± 0.3°C	± 0.3°C
	25°C	± 0.3°C	± 0.3°C	± 0.3°C
	37°C	± 0.3°C	± 0.3°C	± 0.3°C
Heating Up Time*	37°C	31 min	27 min	37 min
Recovery Time after 30 sec door open*	5°C	3 min	4 min	5 min
	37°C	2 min	3 min	3 min
	50°C	2 min	3 min	3 min
Power Supply (220-240V, AC, 50/60Hz, 1Ø)**	Power Consumption at 15°C	400 W	481 W	481 W
	Power Consumption at 25°C	431 W	563 W	563 W
	Cabinet Full Load Amps (FLA)	6 A	6 A	6 A
Incubator Construction	Main Body	Electro-galvanized steel with white oven-baked epoxy-polyester Isocide™ antimicrobial powder-coated finish		
	Chamber	Stainless steel, grade 304		
Number of Shelves	Standard	2	2	2
	Maximum	4	7	8
Maximum Load per Shelf		30 Kg (66 lbs)		
External Dimensions (W x D x H)		820 x 730 x 1185 mm (32.3" x 28.7" x 45.6")	815 x 840 x 1311 mm (30.1" x 33.11" x 51.5")	841 x 871 x 1462 mm (33.11" 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")	620 x 500 x 550 mm (24.4" x 19.7" x 21.6")	645 x 530 x 700 mm (25.4" x 20.9" x 27.6")
Net Weight		134 Kg (295 lbs)	155 Kg (342 lbs)	164 Kg (362 lbs)
Shipping Weight		166 Kg (366 lbs)	180 Kg (397 lbs)	195 Kg (430 lbs)
Shipping Dimensions, (W x D x H)		878 x 787 x 1425 mm (34.5" x 30.9" x 56.")	930 x 900 x 1700 mm (36.6" x 36.6" x 66.9")	891 x 933 x 1628 mm (35.0" x 36.7" x 64.1")
Shipping Volume		0.98 m³ (34.6 cu. ft)	1.47 m³ (51.9 cu. ft)	1.35 m³ (47.7 cu. ft)

*Up to 98% of the set value

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

Note:

- 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 are determined in accordance to DIN 12880 standards as per factory type test condition.
- Stainless steel exterior option is available for all sizes.

OTHER SUPERB FEATURES OF ISOTHERM® LABORATORY THERMOSTATIC PRODUCTS



Safe, Superior Protection for Sample, User and the Environment

- Multiple redundant over-temperature protection systems guarantee maximum sample and user protection
- Over-all temperature protection meets DIN 12880 Class 3.1 standards
- All electrical components are UL recognized
- Electrical circuit protection is in accordance with UL requirements



Ergonomic Design

- Access port for temperature validation and mapping



RS485 Communication Port

- Provides serial communication port for PC that can be daisy chained from product to product and connected to a PC



Ergonomic Door Handle with Keylock

- For gravity assisted operation and prevents unauthorized access to sensitive samples



Easy to Clean

- "Cleanroom" design, single-piece stainless steel chamber with rounded corners and dismountable glass door



Easy to Service

- Diagnostics functions include historical read-out of temperatures, sensor inputs and controller settings
- Service can be carried out from the front and electrical components are isolated from the work chamber and easily accessible for replacement
- Low service costs

APPLICATIONS

Forced Convection Laboratory Ovens

Application	Material/Sample
Drying	Glassware
	Powder
	Paper & Textile
	Soil and Sand
	Electronics
	Pharmaceutical Preparations
	Tape
Material Testing	Cables
	Plastics
Curing	Adhesives
	Plastics
	Metals
Heated Storage	Drugs and Pills
Vulcanization	Rubber

Forced and Natural Convection Laboratory Incubators

Application	Material/Sample
Microbiological Culture	Bacteria, Yeasts and Molds
Coliform Determination	Bacteria
Egg Incubation	Eggs
Heated Storage	Media & Samples
Gene Cloning	Bacteria, Yeasts and Molds
Pharmaceutical Stability Testing	Pathogenic Bacteria
Food and Beverage Testing	Bacteria, Yeast and Molds
Paraffin Embedding	Paraffin

Refrigerated Incubators

Application	Material/Sample
BOD Determination of Wastewater and Sewage	Bacteria
Plant Cell Growth	Plant Cell
Fish and Insect Cell Growth	Fish and Insect Cells
Fermentation Studies	Bacteria and Yeasts
Microbiological Culture	Bacteria, Yeast and Molds
Pharmaceutical Stability Testing	Pathogenic Bacteria

OPTIONS AND ACCESSORIES



Wall bracket (only for 32 L and 54 L chambers)

- Accommodates desired operating heights



Reversed Door Swing (Factory-installed)



Voyager® Software Kit

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



Support stands fixed height at 720 mm (28.3")



Additional Shelf

- Two shelves are included for 32 L, 54 L, 110 L, 170 L and 240 L models as standard. Additional shelves may be ordered.



Optional Stainless Steel Exterior

- Robust construction and corrosion-resistant surface that meets pharmaceutical and clinical laboratory requirements

ORDERING INFORMATION

Unit Ordering

Model	Item Code	Description
OFA-32-8	2110001	Isotherm® Forced Convection Oven, 32 L, 220-240 VAC, 50/60 Hz
OFA-32-9	2110010	Isotherm® Forced Convection Oven, 32 L, 110-120 VAC, 50/60 Hz
OFA-32-8-SS	2110012	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 32 L, 220-240 VAC, 50/60 Hz
OFA-32-9-SS	2110023	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 32 L, 110-120 VAC, 50/60 Hz
OFA-54-8	2110002	Isotherm® Forced Convection Oven, 54 L, 220-240 VAC, 50/60 Hz
OFA-54-9	2110009	Isotherm® Forced Convection Oven, 54 L, 110-120 VAC, 50/60 Hz
OFA-54-8-SS	2110013	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 54 L, 220-240 VAC, 50/60 Hz
OFA-54-9-SS	2110022	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 54 L, 110-120 VAC, 50/60 Hz
OFA-110-8	2110003	Isotherm® Forced Convection Oven, 110 L, 220-240 VAC, 50/60 Hz
OFA-110-9	2110008	Isotherm® Forced Convection Oven, 110 L, 110-120 VAC, 50/60 Hz
OFA-110-8-SS	2110014	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 110 L, 220-240 VAC, 50/60 Hz
OFA-110-9-SS	2110011	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 110 L, 110-120 VAC, 50/60 Hz
OFA-170-8	2110006	Isotherm® Forced Convection Oven, 170 L, 220-240 VAC, 50/60 Hz
OFA-170-9	2110020	Isotherm® Forced Convection Oven, 170 L, 110-120 VAC, 50/60 Hz
OFA-170-8-SS	2110015	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 170 L, 220-240 VAC, 50/60 Hz
OFA-170-9-SS	2110024	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 170 L, 110-120 VAC, 50/60 Hz
OFA-240-8	2110007	Isotherm® Forced Convection Oven, 240 L, 220-240 VAC, 50/60 Hz
OFA-240-9	2110021	Isotherm® Forced Convection Oven, 240 L, 110-120 VAC, 50/60 Hz
OFA-240-8-SS	2110016	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 240 L, 220-240 VAC, 50/60 Hz
OFA-240-9-SS	2110025	Isotherm® Forced Convection Oven, Stainless Steel Exterior Cabinet, 240 L, 110-120 VAC, 50/60 Hz

Model	Item Code	Description
IFC-110-8	2100010	Isotherm® Refrigerated Incubator, 110 L, 220-240 VAC, 50/60 Hz
IFC-110-8-SS	2100026	Isotherm® Refrigerated Incubator, Stainless Steel Exterior Cabinet, 110 L, 220-240 VAC, 50/60 Hz
IFC-170-8	2100035	Isotherm® Refrigerated Incubator, 170 L, 220-240 VAC, 50/60 Hz
IFC-170-8-SS	2100056	Isotherm® Refrigerated Incubator, Stainless Steel Exterior Cabinet, 170 L, 220-240 VAC, 50/60 Hz
IFC-240-8	2100011	Isotherm® Refrigerated Incubator, 240 L, 220-240 VAC, 50/60 Hz
IFC-240-8-SS	2100027	Isotherm® Refrigerated Incubator, Stainless Steel Exterior Cabinet, 240 L, 220-240 VAC, 50/60 Hz

Model	Item Code	Description
IFA-32-8	2100001	Isotherm® Forced Convection Incubator, 32 L, 220-240 VAC, 50/60 Hz
IFA-32-9	2100017	Isotherm® Forced Convection Incubator, 32 L, 110-120 VAC, 50/60 Hz
IFA-32-8-SS	2100021	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 32 L, 220-240 VAC, 50/60 Hz
IFA-32-9-SS	2100052	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 32 L, 110-120 VAC, 50/60 Hz
IFA-54-8	2100002	Isotherm® Forced Convection Incubator, 54 L, 220-240 VAC, 50/60 Hz
IFA-54-9	2100018	Isotherm® Forced Convection Incubator, 54 L, 110-120 VAC, 50/60 Hz
IFA-54-8-SS	2100022	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 54 L, 220-240 VAC, 50/60 Hz
IFA-54-9-SS	2100051	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 54 L, 110-120 VAC, 50/60 Hz
IFA-110-8	2100003	Isotherm® Forced Convection Incubator, 110 L, 220-240 VAC, 50/60 Hz
IFA-110-9	2100016	Isotherm® Forced Convection Incubator, 110 L, 110-120 VAC, 50/60 Hz
IFA-110-8-SS	2100020	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 110 L, 220-240 VAC, 50/60 Hz
IFA-110-9-SS	2100053	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 110 L, 110-120 VAC, 50/60 Hz
IFA-170-8	2100014	Isotherm® Forced Convection Incubator, 170 L, 220-240 VAC, 50/60 Hz
IFA-170-9	2100049	Isotherm® Forced Convection Incubator, 170 L, 110-120 VAC, 50/60 Hz
IFA-170-8-SS	2100024	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 170 L, 220-240 VAC, 50/60 Hz
IFA-170-9-SS	2100054	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 170 L, 110-120 VAC, 50/60 Hz
IFA-240-8	2100015	Isotherm® Forced Convection Incubator, 240 L, 220-240 VAC, 50/60 Hz
IFA-240-9	2100050	Isotherm® Forced Convection Incubator, 240 L, 110-120 VAC, 50/60 Hz
IFA-240-8-SS	2100025	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 240 L, 220-240 VAC, 50/60 Hz
IFA-240-9-SS	2100055	Isotherm® Forced Convection Incubator, Stainless Steel Exterior Cabinet, 240 L, 110-120 VAC, 50/60 Hz

Model	Item Code	Description
INA-32-8	2100045	Isotherm® Natural Convection Incubator, 32 L, 220-240 VAC, 50/60 Hz
INA-32-9	2100062	Isotherm® Natural Convection Incubator, 32 L, 110-120 VAC, 50/60 Hz
INA-54-8	2100046	Isotherm® Natural Convection Incubator, 54 L, 220-240 VAC, 50/60 Hz
INA-54-9	2100063	Isotherm® Natural Convection Incubator, 54 L, 110-120 VAC, 50/60 Hz
INA-110-8	2100044	Isotherm® Natural Convection Incubator, 110 L, 220-240 VAC, 50/60 Hz
INA-110-9	2100064	Isotherm® Natural Convection Incubator, 110 L, 110-120 VAC, 50/60 Hz
INA-170-8	2100047	Isotherm® Natural Convection Incubator, 170 L, 220-240 VAC, 50/60 Hz
INA-170-9	2100065	Isotherm® Natural Convection Incubator, 170 L, 110-120 VAC, 50/60 Hz
INA-240-8	2100048	Isotherm® Natural Convection Incubator, 240 L, 220-240 VAC, 50/60 Hz
INA-240-9	2100061	Isotherm® Natural Convection Incubator, 240 L, 110-120 VAC, 50/60 Hz

ACCESSORIES ORDERING

Model Code	Item Code	Description	Available for
TOA-1005	5070326	Wall bracket for 32 L	OFA, IFA, INA
TOA-1006	5070327	Wall bracket for 54 L	OFA, IFA, INA
TOA-1007	5130106	Support stand, 720 mm (28.3") for 32 L	OFA, IFA, INA
TOA-1008	5130107	Support stand, 720 mm (28.3") for 54 L	OFA, IFA, INA
TOA-1009	5130108	Support stand, 720 mm (28.3") for 110 L	OFA, IFA, INA
TOA-1010	5130141	Support stand, 720 mm (28.3") for 170 L	OFA, IFA, INA
TOA-1017	5130110	Support stand, 720 mm (28.3") for 240 L	OFA, IFA, INA
TOA-1012	5070328	Additional shelves for 32 L	OFA, IFA, INA
TOA-1013	5070329	Additional shelves for 54 L	OFA, IFA, INA
TOA-1014	5070330	Additional shelves for 110 L	OFA, IFA, INA
TOA-1018	5070331	Additional shelves for 170 L	OFA, IFA, INA
TOA-1019	5070332	Additional shelves for 240 L	OFA, IFA, INA
TOA-1021	5070610	Additional shelves for IFC-110 L	IFC
5170622	5170622	Additional shelves for IFC-170 L	IFC
5072066	5072066	Additional shelves for IFC-240 L	IFC
5250001-U	5250001	Voyager® Software Kit	OFA, IFA, INA, IFC
TOA-1015	5070333	RS-485 Communication Port	OFA, IFA, INA, IFC
9010179	9010179	IQ/OQ Document	OFA, IFA, INA, IFC

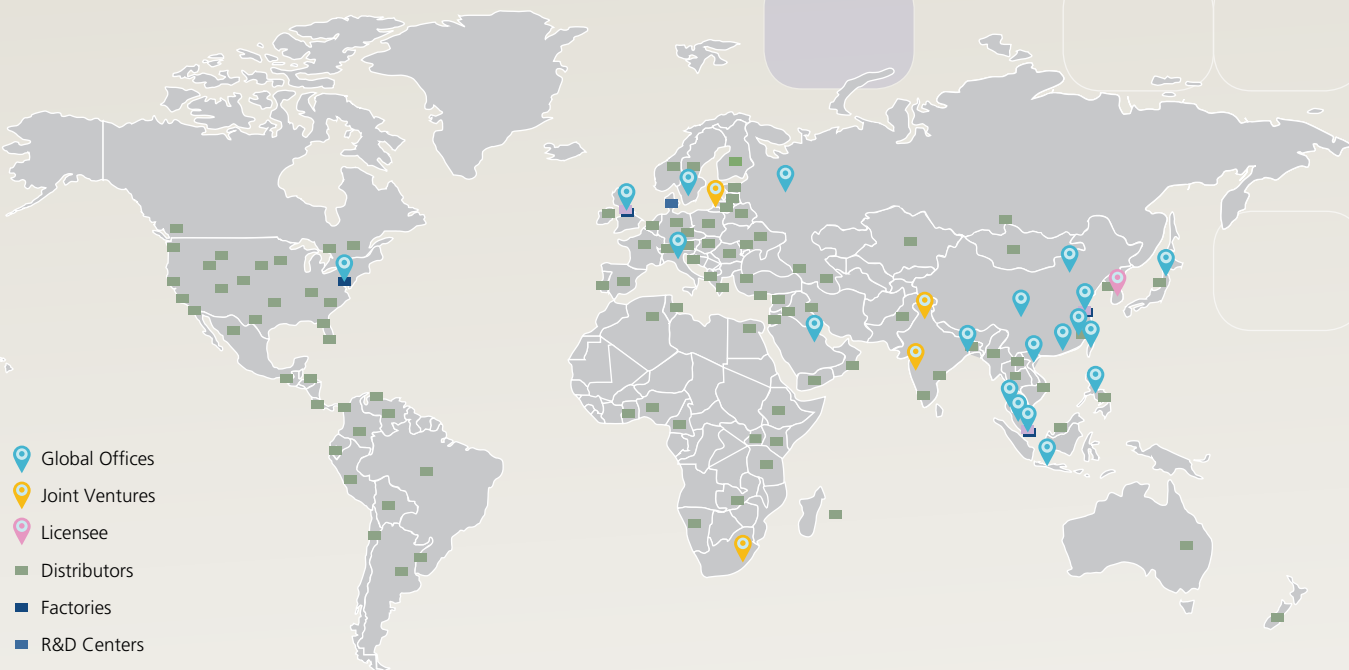
TESTING AND CERTIFICATION



Esco Isotherm® Laboratory Thermostatic Products were tested, validated and have passed the calibration conducted by Biomedis, an ISO/IEC 17025 accredited testing laboratory. The measuring installation used for calibration are regularly calibrated and traceable to the national standards of the German Federal Physical Technical Institute (PTB).

Standard Compliances	Temperature Safety	Electrical Safety
	DIN 12880 Class 3.1	UL 61010-1, USA; CAN/CSA-22.2, No. 61010-1; EN 61010-1, Europe; IEC 61010-1, Worldwide

ESCO GLOBAL NETWORK



- Global Offices
- Joint Ventures
- Licensee
- Distributors
- Factories
- R&D Centers
- Regional Distribution Centers



ART Equipment
 Biological Safety Cabinets
 CO₂ Incubators
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 Ultra-low Temperature 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.

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