

ESCO

WORLD CLASS. WORLDWIDE.



Isotherm[®]

Forced Convection Laboratory Incubators

Reliable Performance For Universal Applications





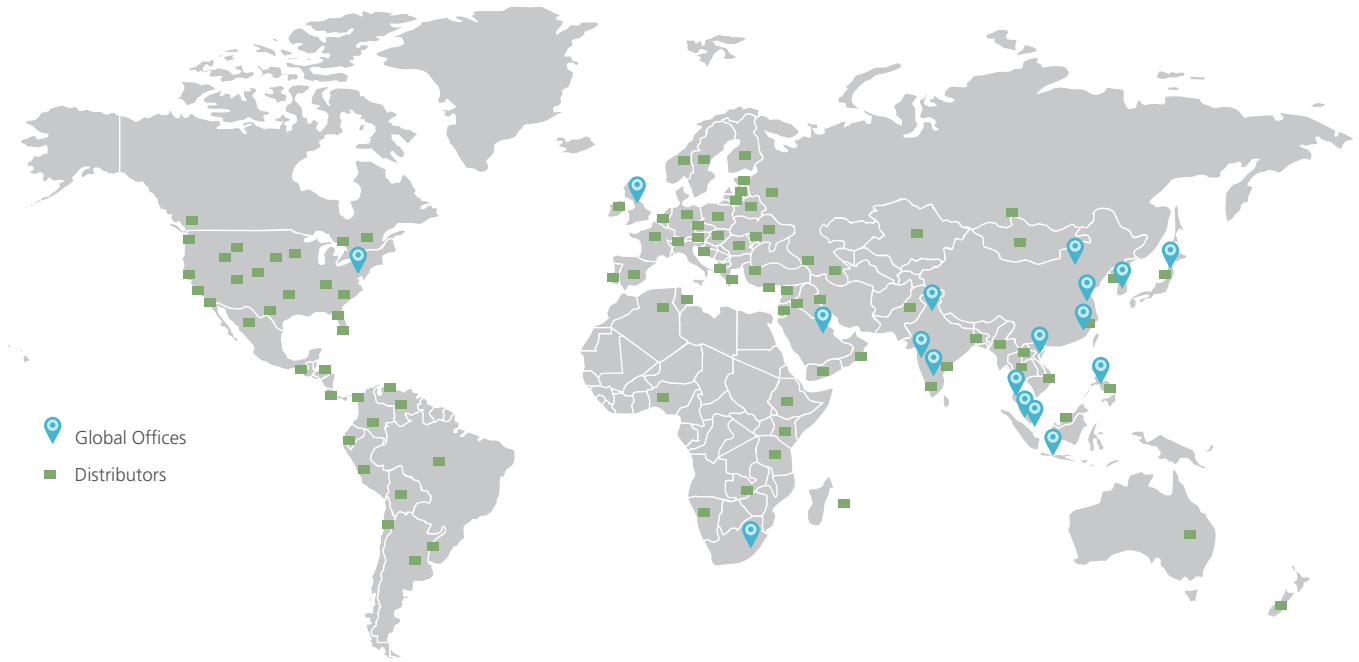
WELCOME TO ESCO

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



📍 Global Offices
■ Distributors

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®

Forced Convection Laboratory Incubators



INTRODUCTION

Introducing Esco Isotherm® - world class laboratory incubators from Esco with the technologies and compliance to prove it. Ergonomic, intuitive interfaces, microprocessor PID controls with programming options, 4-zone heated air jacket, precisely tuned and tested ventilation and insulation package, all supported by Esco's solutions-based sales and service representatives worldwide.

KEY FEATURES

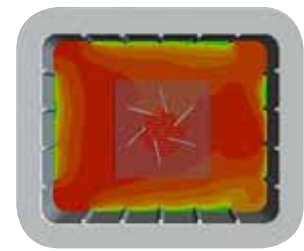
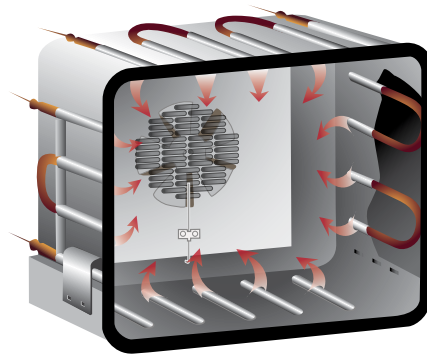
ISOTHERM® FORCED CONVECTION LABORATORY INCUBATORS

*Reliable Performance For
Universal Applications*

Isotherm® Forced Convection Laboratory Incubators available in 5 sizes, 32L, 54L, 110L, 170L, 240L.



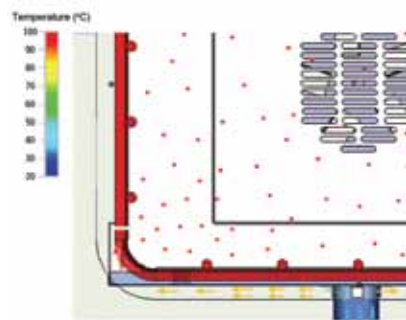
SOLARIS™ PRE-HEAT CHAMBER TECHNOLOGY



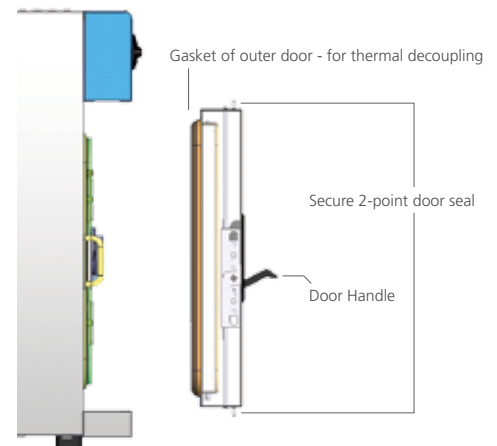
Extremely Uniform Thermal Distribution

- 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.

Pre-heated air enters work chamber



Pre-heat zone below work chamber Air supply from outside





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.
- Fan speed and air exchange rates are adjustable.
- 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 the user from being exposed to blasts of hot air when the door is opened.

QUALITY ESCO CONSTRUCTION

- Electrogalvanized steel with white oven-baked epoxy-polyester antimicrobial powder-coated finish.
- External surfaces are powder coated with Esco **ISOCIDE™** to eliminate 99.9% of surface bacteria within 24 hours of exposure.



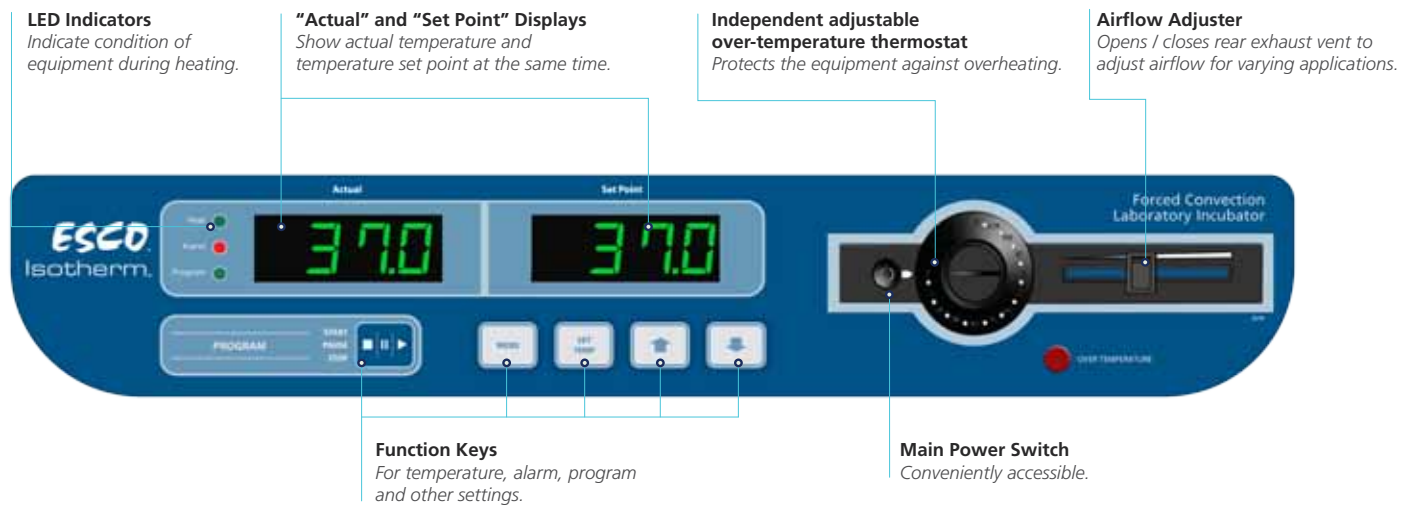
Isotherm® Forced Convection Laboratory Incubator

SUPERIOR INSULATION

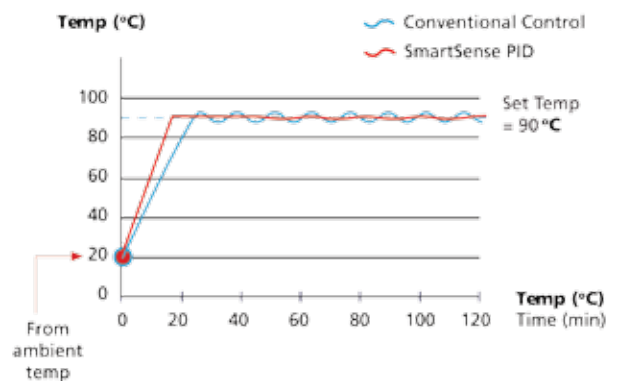
- Multi-layer chamber, pre-heat chamber, insulation and external carcass.
- Improves chamber temperature stability, while reducing external surface temperatures.
- Superior insulation performance reduces heat load output to the laboratory, reduces operating power consumption, and lowers operating costs.

CONTROLLER TYPE

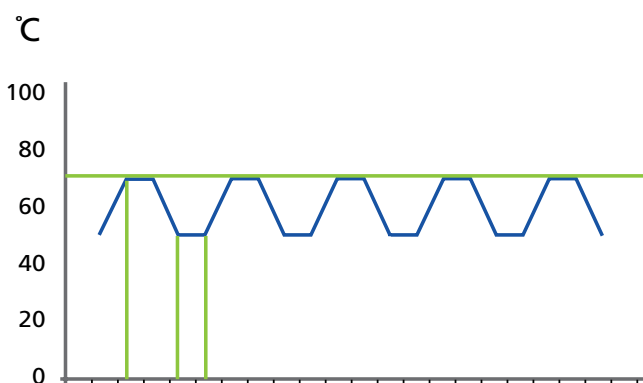
SMARTSENSE™ MICROPROCESSOR PID CONTROL TECHNOLOGY



- 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.
- User programmable alarm setpoints.
- Display temperature units selectable between °C / °F.
- User programmable PIN to prevent unauthorized use.
- Anywhere from 10 programs with 5 segments to 1 program with 50 segments may be configured. Programs may be set up to repeat automatically.
- 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.

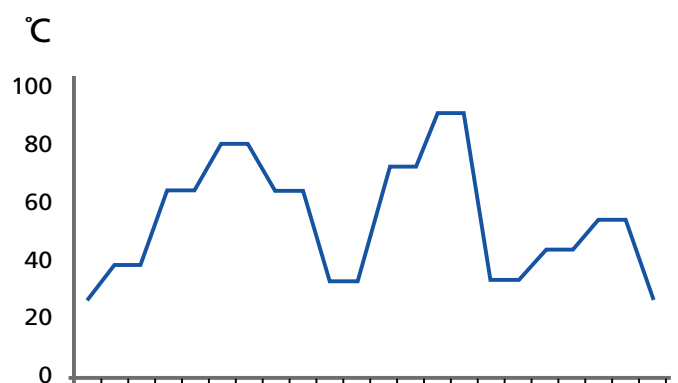


WIDE RANGE OF PROGRAM OPTIONS



Sample Program 1

Repeats of identical processes based on user's setting of 'start temp', 'arrival temp', and running time after arrival. All settings can be done in a single program. For example, repeat a process from 50°C to 70°C and back.



Sample Program 2

Running different processes sequentially based on user's setting of 'start temp', 'arrival temp', and running time after arrival. Different programs may be linked to extend the total number of sequences, thus creating virtually unlimited programming options.

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.

Voyager® interfaces with individual Esco equipment over RS485 using the EscoBUS communications protocol. Up to 16 devices of equipment may be interfaced to a single PC.

Compatible Equipment

- Lexicon® – Ultra-low Temperature Freezer (with U-Series Controller)
- CelCulture® – CO₂ Incubator (CCL)
- CelMate® - CO₂ Incubator (CLM)
- Isotherm® – Forced Convection Oven (OFA)
- Isotherm® – Forced Convection Incubator (IFA)
- Isotherm® – Low Temperature Incubator (IFC)



OTHER SUPERB FEATURES

FORCED CONVECTION LABORATORY INCUBATORS APPLICATIONS

APPLICATION	MATERIAL/ SAMPLE
Bacterial research	Bacteria
Microbiology	Microorganisms, cells
Coliform determination	Bacteria
Histology	Tissue
Paraffin embedding	Paraffin
Egg incubation	Eggs
Heated storage	Media, samples

APPLICATION	MATERIAL/ SAMPLE
Gene cloning	Bacteria, cells
Pharmaceutical stability testing	Various
Food and beverage	Various
BOD / water pollution	Water
Yeast growth	Yeast

SAFE, SUPERIOR PROTECTION FOR SAMPLE, USER AND THE ENVIRONMENT



- Multiple redundant over-temperature protection systems to guarantee maximum sample and user protection.
- Electronic over-temperature protection built into the microprocessor.
- Redundant mechanical over-temperature protection, adjustable from the front, independent from the microprocessor.
- Overall temperature protection meets DIN 12880 Class 3.1.
- Red LED illuminates if external mechanical temperature protection is engaged.
- Controller will control temperature at the over temperature setpoint.
- All electrical components are UL recognized.
- Electrical circuit protection in accordance with UL requirements.

ERGONOMIC DESIGN

ACCESS FOR TEMPERATURE VALIDATION AND MAPPING



Back View

Access port

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.



ERGONOMIC DOOR HANDLE WITH KEYLOCK



Ergonomic door handle, operation is gravity assisted.



Door keylock prevents unauthorized access to sensitive samples.



EASY-TO-CLEAN

- "Cleanroom" design with minimal joints and crevices is easy to clean.
- Single piece stainless steel chamber with rounded corners.
- Glass door is dismantable without tools for easy cleaning.



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.

OPTIONS AND ACCESSORIES



Wall bracket (only for 32L and 54L chambers)
Accommodates desired operating heights.



Support stands fixed height at 703 mm (27.7")



Reversed door swing (factory installed)



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 32L, 54L, 110L, 170L and 240L models as standard. Additional shelves may be ordered

TESTING AND CERTIFICATION



Esco Isotherm Laboratory Incubators 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).

The calibration was performed in accordance with ISO DIN 12880.

ORDERING INFORMATION

UNIT ORDERING

MODELS	DESCRIPTION
IFA-32-8	Isotherm® General Purpose Incubator, 32L, 220-240VAC 50/60Hz
IFA-32-8-SS	Isotherm General Purpose Incubator, Stainless Steel Exterior Cabinet, 32L, 220-240VAC 50/60Hz
IFA-54-8	Isotherm® General Purpose Incubator, 54L, 220-240VAC 50/60Hz
IFA-54-8-SS	Isotherm General Purpose Incubator, Stainless Steel Exterior Cabinet, 54L, 220-240VAC 50/60Hz
IFA-110-8	Isotherm® General Purpose Incubator, 110L, 220-240VAC 50/60Hz
IFA-110-8-SS	Isotherm General Purpose Incubator, Stainless Steel Exterior Cabinet, 110L, 220-240VAC 50/60Hz
IFA-170-8	Isotherm® General Purpose Incubator, 170L, 220-240VAC 50/60Hz
IFA-170-8-SS	Isotherm General Purpose Incubator, Stainless Steel Exterior Cabinet, 170L, 220-240VAC 50/60Hz
IFA-240-8	Isotherm® General Purpose Incubator, 240L, 220-240VAC 50/60Hz
IFA-240-8-SS	Isotherm General Purpose Incubator, Stainless Steel Exterior Cabinet, 240L, 220-240VAC 50/60Hz

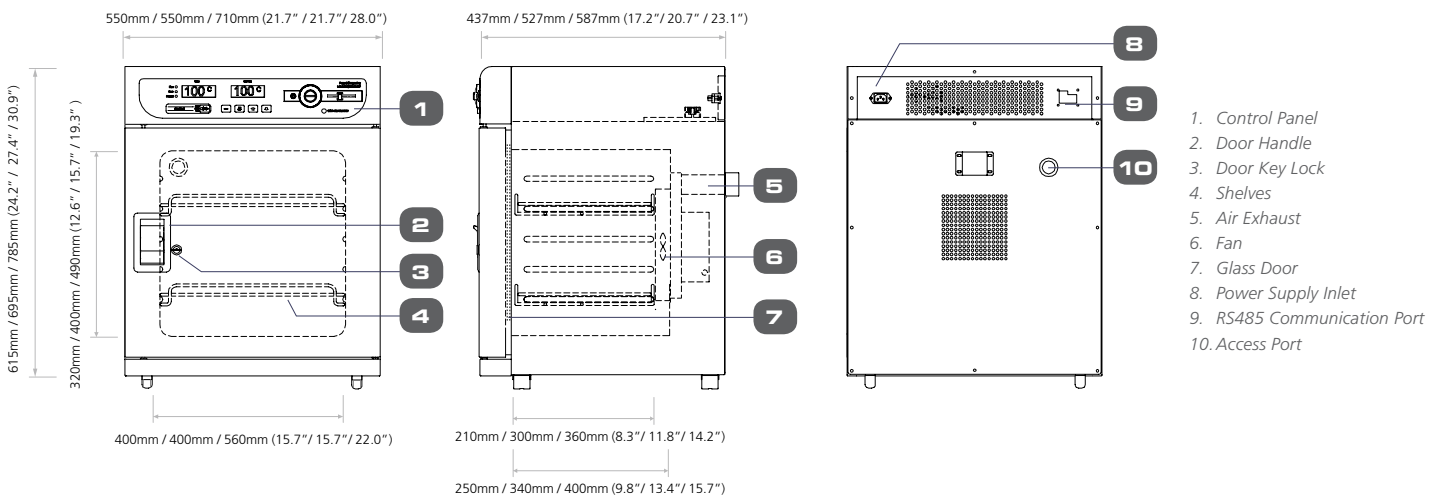
ORDERING INFORMATION

ACCESSORIES ORDERING

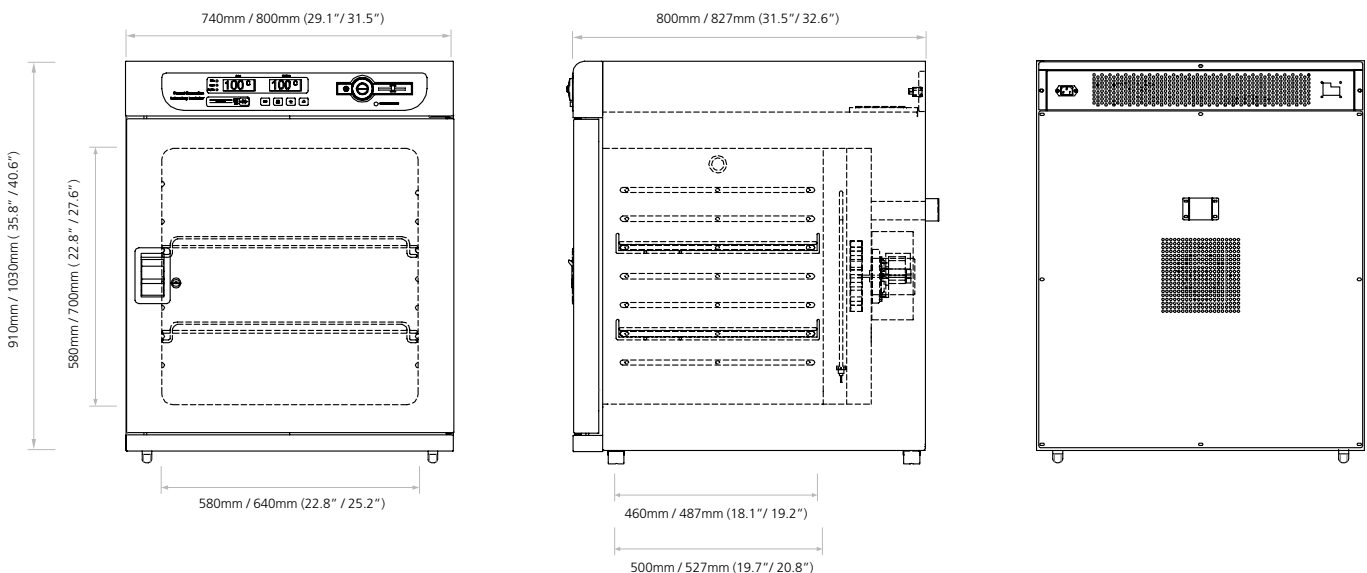
ACCESSORIES	DESCRIPTION
TOA-1005	Wall bracket for IFA-32-8
TOA-1006	Wall bracket for IFA-54-8
TOA-1007	Support stand, 703mm (27.7") for IFA-32-8
TOA-1008	Support stand, 703mm (27.7") for IFA-54-8
TOA-1009	Support stand, 703mm (27.7") for IFA-110-8
TOA-1010	Support stand, 703mm (27.7") for IFA-170-8
TOA-1011	Support stand, 703mm (27.7") for IFA-240-8
TOA-1012	Additional shelf, for IFA-32-8
TOA-1013	Additional shelf, for IFA-54-8
TOA-1014	Additional shelf, for IFA-110-8
TOA-1018	Additional shelf, for IFA-170-8
TOA-1019	Additional shelf, for IFA-240-8
5250001	Voyager software kit

TECHNICAL SPECIFICATIONS

IFA 32L, 54L, 110L








IFA 170L & 240L



GENERAL SPECIFICATIONS

FORCED CONVECTION LABORATORY INCUBATORS

		IFA-32-8 / IFA-32-8-SS*	IFA-54-8 / IFA-54-8-SS*	IFA-110-8 / IFA-110-8-SS*	IFA-170-8 / IFA-170-8-SS*	IFA-240-8 / IFA-240-8-SS*
						
Volume		32 liter (1.13 cu.ft)	54 liter (1.91 cu.ft)	110 liter (3.88 cu.ft)	170 liter (6.00 cu.ft)	240 liter (8.48 cu.ft)
Temperature Range		Ambient +7.5 °C to 100 °C				
Temperature Variation Per DIN 12880 Spatial Uniformity	at 37 °C	<=+/-0.5 °C	<=+/-0.4 °C	<=+/-0.4 °C	<=+/-0.3 °C	<=+/-0.6 °C
	at 50 °C	<=+/-0.6 °C	<=+/-0.7 °C	<=+/-0.7 °C	<=+/-0.5 °C	<=+/-0.6 °C
Temperature Fluctuation Per DIN 12880 Control Fluctuation	at 37 °C	<=+/-0.3°C	<=+/-0.3°C	<=+/-0.3°C	<=+/-0.2 °C	<=+/-0.2 °C
	at 50 °C	<=+/-0.3°C	<=+/-0.3°C	<=+/-0.3°C	<=+/-0.3 °C	<=+/-0.3 °C
Heating up time	at 37 °C	29 minutes	34 minutes	40 minutes	44 minutes	50 minutes
	at 50 °C	36 minutes	50 minutes	68 minutes	45 minutes	74 minutes
Recovery time after door opened for 30 sec	at 37 °C	6 minutes	4 minutes	8 minutes	1 minutes	4 minutes
	at 50 °C	8 minutes	10 minutes	13 minutes	2 minutes	5 minutes
Electrical data (220-240V, AC, 50/60Hz, 1Φ)	Power consumption at 37 °C	43 W	49 W	58 W	51 W	67 W
	Power consumption at 50 °C	77 W	83 W	98 W	110 W	115 W
	Maximum Power Consumption**	779W	919W	1097W	1248W	1255W
Noise level		49 dB	48 dB	49 dB	51 dB	51 dB
Incubator Construction	Main Body	Electrogalvanized steel with white oven-baked epoxy-polyester 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 29.1" x 31.5" x 35.8"	800 x 827 x 1030 mm 31.5" x 32.6" 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"	640 x 527 x 700 mm 25.2" x 20.8" 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, Maximum (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, Maximum		0.37 m ³ (13.1 cu.ft)	0.49 m ³ (17.3 cu.ft)	0.61 m ³ (21.5 cu.ft)	0.89 m ³ (31.4 cu.ft)	0.97 m ³ (34.3 cu.ft)

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 with DIN 2880 standards as per factory type test condition.
- Esco reserves the right to alter technical specifications at all times.

* Stainless steel exterior option is available for all sizes.

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

Standards Compliance	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



- Biological Safety Cabinets
- Compounding Pharmacy Equipment
- Containment / Pharma Products
- CO₂ Incubators
- Ductless Fume Hoods
- In-Vitro Fertilization Workstations
- Lab Animal Research Products
- Laboratory Fume Hoods
- Laboratory Ovens and Incubators
- Laminar Flow Clean Benches
- PCR Products
- Ultra-low Freezers

Since 1978, Esco has emerged as a leader in the development of controlled environment, laboratory and pharmaceutical equipment solutions. Products sold in more than 100 countries include biological safety cabinets, compounding pharmacy equipment, containment / pharma products, ductless fume hoods, in vitro fertilization workstations, lab animal research products, laboratory fume hoods, laboratory ovens and incubators, laminar flow clean benches and PCR products and instrumentation. With the most extensive product line in the industry, Esco has passed more tests, in more languages, for more certifications, throughout more countries than any biosafety cabinet manufacturer in the world. Esco remains dedicated to delivering innovative solutions for the clinical, life science, research and industrial laboratory community. www.escoglobal.com.

Biological Safety Cabinets and Laminar Flow • Laboratory Fume Hoods • Laboratory Ovens
 Laboratory Incubators • PCR Thermal Cyclers • Microplate Shaker/Incubators • Ultra-low Freezers

ESCO

WORLD CLASS. WORLDWIDE.

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