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WORLD CLASS. WORLDWIDE.

Isotherm®

Forced Convection Laboratory Incubators

RELIABLE PERFORMANCE FOR UNIVERSAL APPLICATIONS

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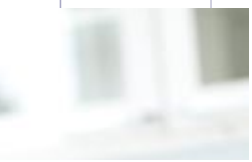




Isotherm®
Forced Convection Laboratory Incubators

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.

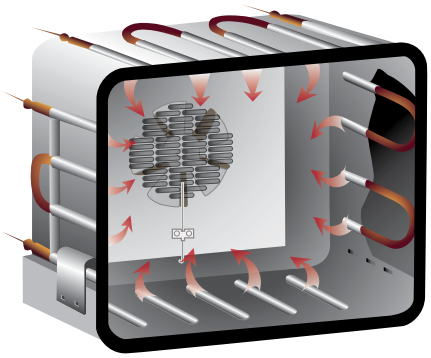
KEY FEATURES

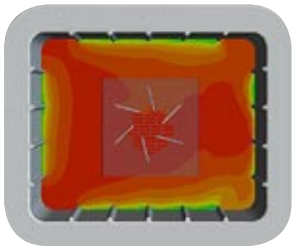
ISOTHERM® FORCED CONVECTION LABORATORY INCUBATORS

Reliable Performance For Universal Applications

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

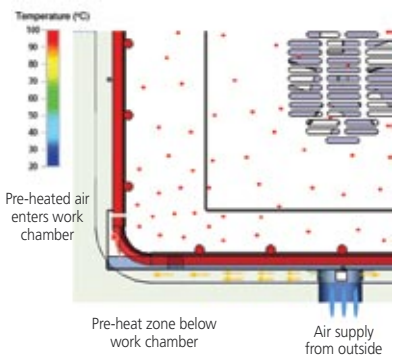
SOLARIS™ PRE-HEAT CHAMBER TECHNOLOGY

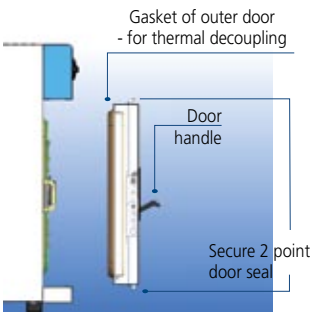


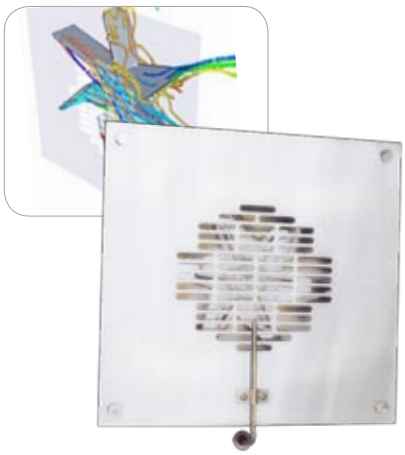


Extremely Uniform Thermal Distribution

- 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 temp range up to 100 °C for maximum application flexibility.
- Secure 2 point door seal and eccentric hinge ensure maximum gasket compression for stable chamber temperature.





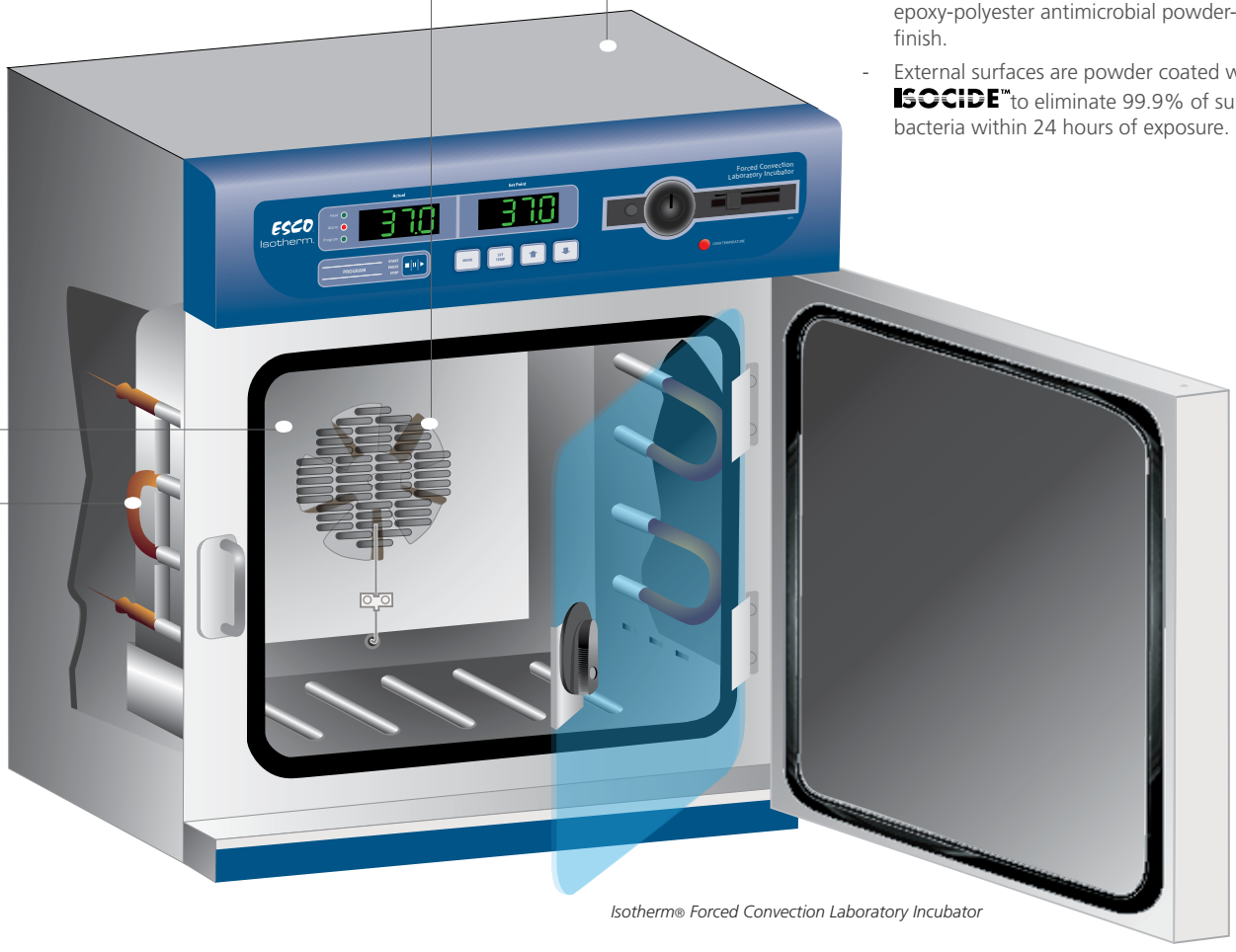


VENTIFLOW™ VENTILATION SYSTEM

- 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.
- 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

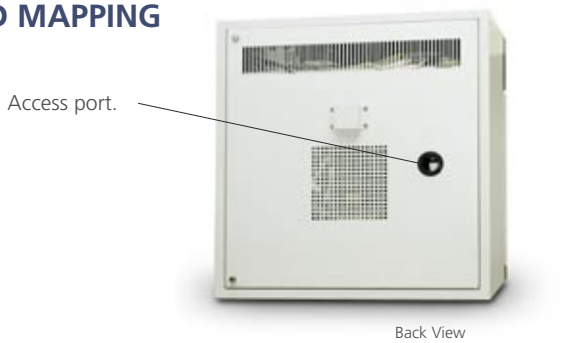
SUPERIOR INSULATION

- 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.

ERGONOMIC DESIGN IMPROVES CONVENIENCE

- Ergonomic door handle, operation is gravity assisted.
- Bright LED displays mounted at top (not base) of the device are easily read from across the laboratory.
- 2 shelves are included for 32L, 54L, 110L, 170L and 240L models.

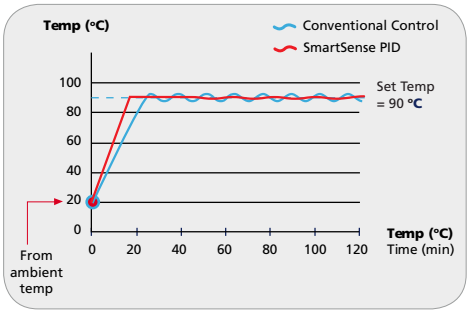
ACCESS FOR TEMPERATURE VALIDATION AND MAPPING



Back View

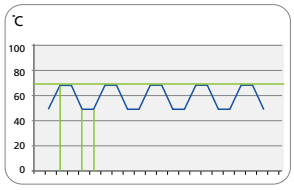
SMARTSENSE™ MICROPROCESSOR PID CONTROL TECHNOLOGY

- Instrument-grade precision platinum temperature probe.
- Tuned PID control ensures fast ramp time, prevents overshoot, and ensures stable temperature once setpoint is achieved.

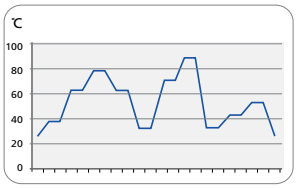


- Twin temperature displays for easy monitoring.
- Built-in menu is intuitive, easy to operate; left display shows parameter being set, and right display shows preset value.
- User programmable alarm setpoints.
- Display units selectable between °C / °F.
- User programmable PIN to prevent unauthorized 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.

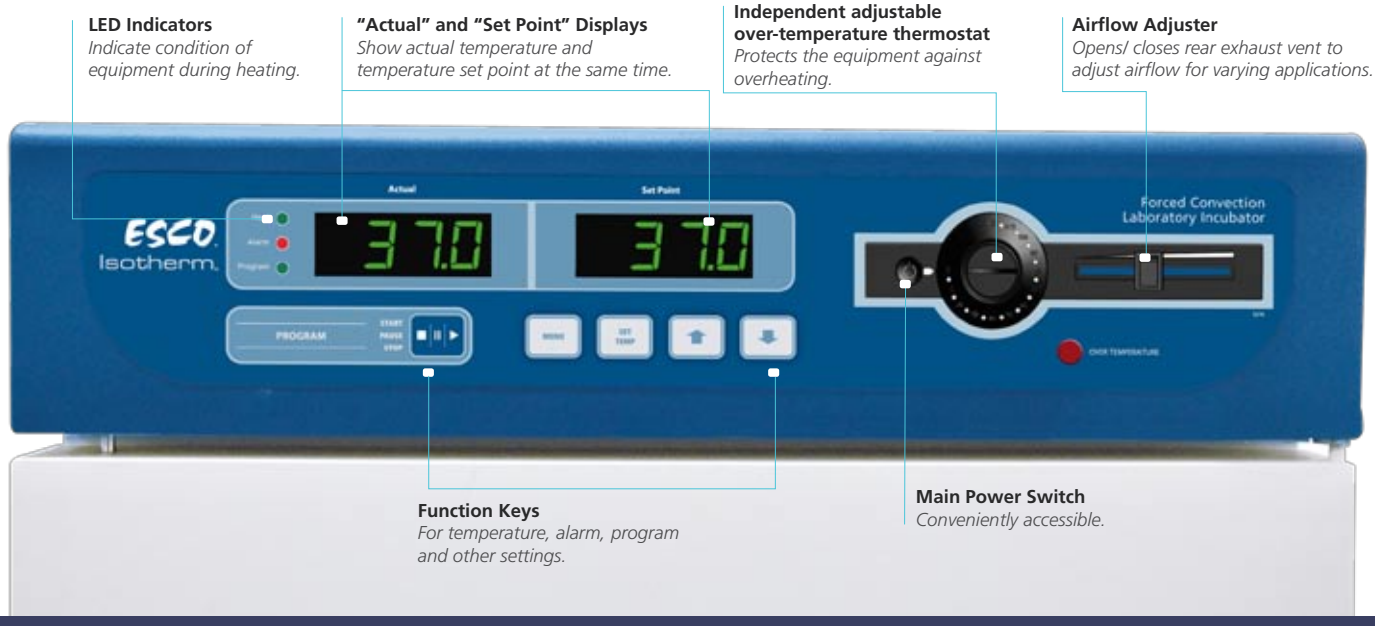
WIDE RANGE OF PROGRAM OPTIONS



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.



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 UL recognized.
- Electrical circuit protection in accordance with UL requirements.

RS485 COMMUNICATION PORT

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

SECURITY FEATURES TO PROTECT SAMPLES

Ergonomic door handle, operation is gravity assisted.

Door keylock prevents unauthorized access to sensitive samples.

Door latch and inner door seal to provide excellent temperature uniformity and accuracy.

OPTIONAL STAINLESS STEEL EXTERIOR

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

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
Gene cloning	Bacteria, cells
Pharmaceutical stability	Various
Food and beverage testing	Various
BOD / water pollution	Water
Yeast growth	Yeast
Hatching of insects, fish	Insects

Support Stand

MAXIMIZED SPACE EFFICIENCY

Wall Mount Bracket

Wall Mount Bracket:
Available only for 32L, 54L chambers

Support Stand:
Support stands, fixed height, available 703 mm (27.7")

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 dismountable 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 electronics components are isolated from the work chamber and easily accessible for replacement.
- Low service costs.

OPTIONS AND ACCESSORIES

FORCED CONVECTION LABORATORY INCUBATORS

- Wall bracket (only for 32L, 54L chambers) accommodates desired operating heights.
- Support stands, fixed height, available 703 mm (27.7").
- Reversed door swing. (factory installed)
- Additional shelf.
- Esco Voyager software for the remote monitoring, datalogging, and programming / device configuration of Esco controlled environment laboratory equipment.
- Optional stainless steel cabinet.

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"	645 x 527 x 700 mm 25.4" 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 to 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 avaiable 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

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IVF Workstations
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Laboratory Fume Hoods
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Laboratory Ovens
Laminar Flow Cabinets
Microplate Shaker/Incubator
PCR Cabinets
PCR Thermal Cyclers
Powder Weighing Balance Enclosures
Ultra-low Temperature Freezers

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