

ESCO

WORLD CLASS. WORLDWIDE.



Isotherm[®]

Refrigerated Incubator

Reliable Performance For Universal Applications





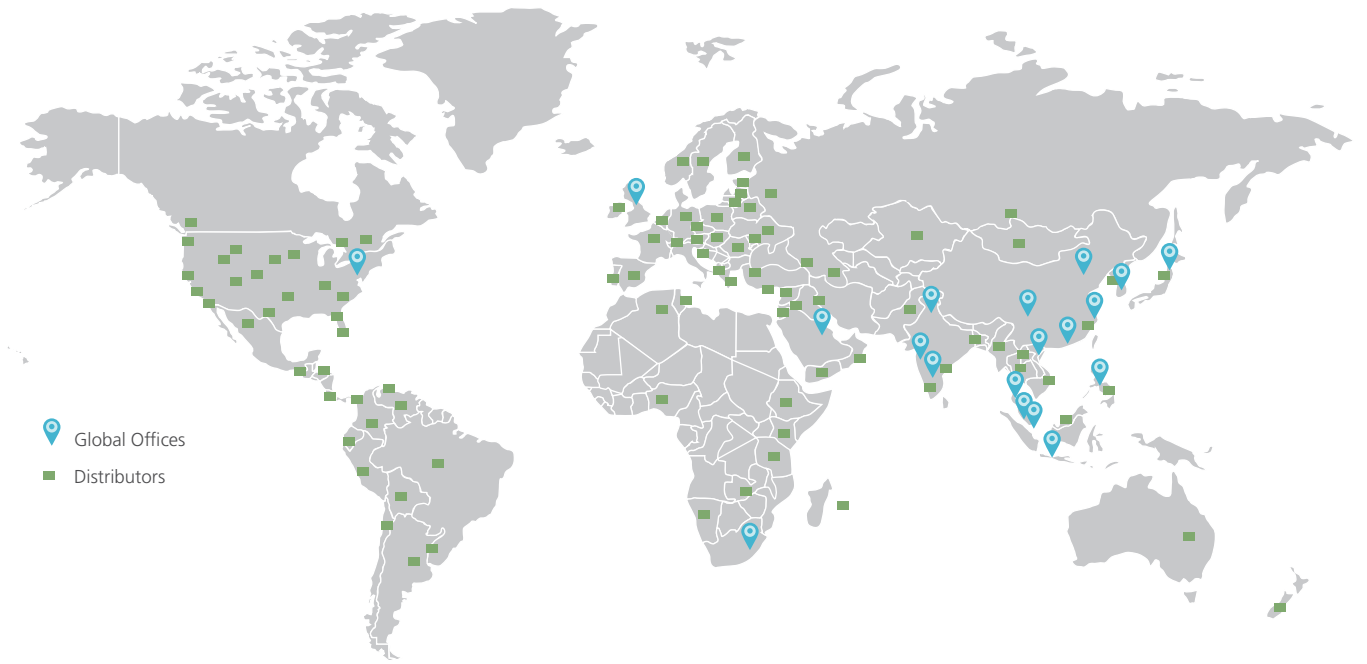
WELCOME TO ESCO

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

- Laboratory Refrigerators
- Laboratory Freezers
- Laboratory Combination Freezers
- 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 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

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.

Isotherm® Refrigerated Incubator available in 3 sizes, 110L, 170L, 240L.



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

WATER RESEVOIR

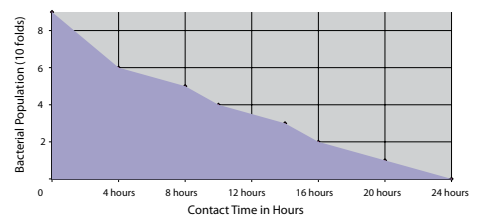
to collect water during defrosting



Isotherm® Refrigerated Incubator, Model IFC-110-8

VENTILATION 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.



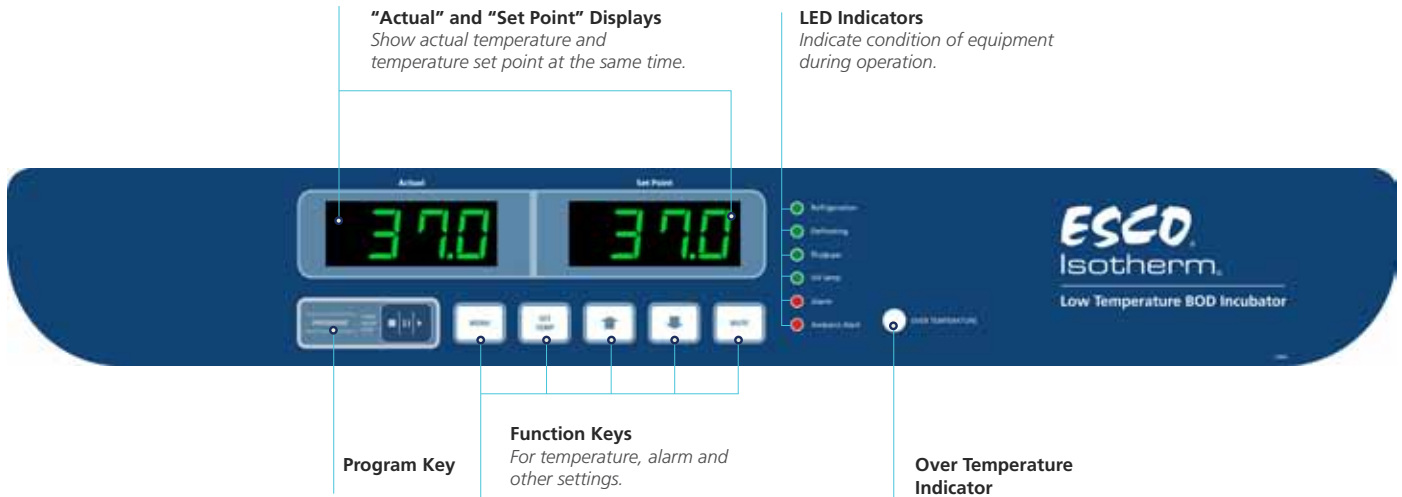
Built-In Protection

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



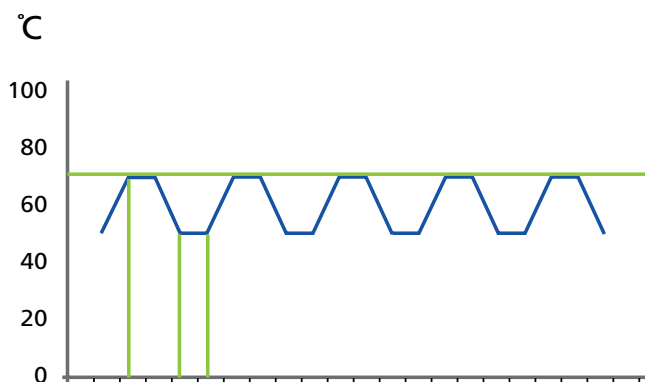
CONTROLLER TYPE

SMARTSENSE™ MICROPROCESSOR PID CONTROL TECHNOLOGY



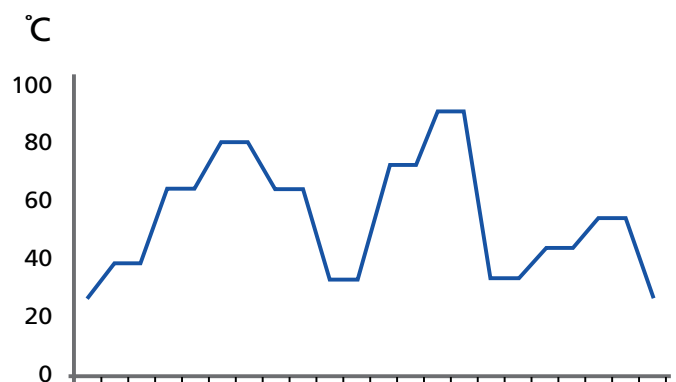
- Instrument-grade precision platinum temperature probe.
- Tuned PID control ensures fast ramp time, prevents overshoot, and ensures stable temperature once setpoint is achieved.
- Twin temperature displays for easy monitoring.
- Built-in menu is intuitive, easy to operate; left display shows parameter 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

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.

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.



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)



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

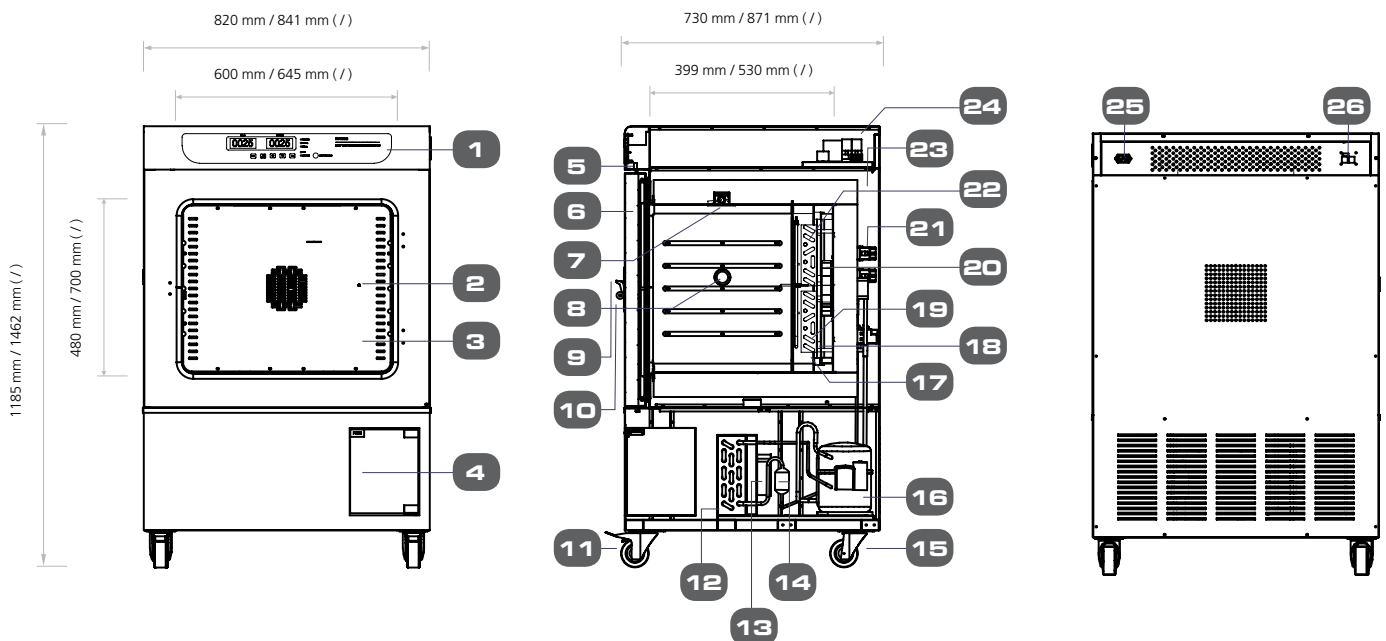
UNIT ORDERING

MODELS	DESCRIPTION
IFC-110TN-8	Isotherm Refrigerated Incubators, 110L, 220-240VAC 50/60Hz
IFC-170TN-8	Isotherm Refrigerated Incubators, 170L, 220-240VAC 50/60Hz
IFC-240TN-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-170-8-SS	Isotherm Refrigerated Incubators, Stainless Steel Exterior Cabinet, 170L, 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

		IFC-110TN-8 IFC-110TN-8SS*	IFC-170TN-8 IFC-170TN-8SS*	IFC-240TN-8 IFC-240TN-8SS*	
Volume		110 liter (3.88 cu.ft)	170 liter (6.00 cu.ft)	240 liter (8.48 cu.ft)	
Temperature Range		0°C ~ 100°C			
Temperature Variation	at 15°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
	at 25°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
	at 37°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
Temperature Fluctuation	at 15°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
	at 25°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
	at 37°C(±K)	≤±0.3°C	≤±0.3°C	≤±0.3°C	
Heating up time to 37°C from the ambient temperature		31 minutes	27 minutes	37 minutes	
Recovery time after door was opened for 30 sec	at 5°C	3 minutes	4 minutes	5 minutes	
	at 37°C	2 minutes	3 minutes	3 minutes	
	at 50°C	2 minutes	3 minutes	3 minutes	
Electrical (200-240V, AC, 50/60Hz, 1Ø)	Power*	at 15°C	400 W	481 W	481 W
		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 powder-coated finish			
	Chamber	Stainless steel, grade 304			
Number of Shelves	Standard	2	2	2	
	Maximum	4	7	8	
Load Per Shelf		30 kg (13.6 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 33.1" x 51.5")	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")	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 (295.41 lbs)	155 kg (314.7 lbs)	164 kg (361.55 lbs)	
Shipping Weight		166 kg (365.96 lbs)	180 kg (396.8 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")	930 x 930 x 1700 mm (36.6" x 36.6" x 66.9")	891 x 933 x 1628 mm (35" x 36.7" x 64.1")	
Shipping Volume, Maximum		0.98 m ³ (34.60 cu.ft)	1.47m ³ (51.9 cu. ft.)	1.35 m ³ (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

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