

ESCO
MEDICAL



VIP treatment for high success rate embryos in IVF

MIRI®

Multiroom Incubator for IVF

Get superior stability with the MIRI® Multiroom Incubator.

Make the most of its integrated
tri-gas system and six independent chambers.



table of contents

MIRI® Multiroom Incubator Parts and General Features4

Quality Control Features7

Accessories8

General Specifications9

Ordering Information9



MIRI®

“An advanced temperature regulation system for routine/long-term embryo incubation at your fingertips”

The MIRI® has six (6) chambers which are completely independent of each other. This is ideal because any disruption (e.g. temperature drop after opening the lid) has zero impact on the rest of the system. Furthermore, calibration is so much simpler because there is no crossover of heat from adjacent chambers.

Temperature regulation is thus completely independent per chamber. The MIRI® features a total of twelve (12) temperature controlled points. That is two (2) points for every chamber: one on the bottom and another on the heated lid. The heated lid is another great feature of the MIRI® as it prevents condensation and enhances temperature uniformity across cultured dishes.



Hand-in-hand with the best in incubation.

This equipment is a CE-marked device and is in conformity with the essential requirements of the Medical Devices Directive 93/42/EEC as amended by Directive 2007/47/EC.

FEATURES:

Heated Lid

- Prevents condensation
- Enhances temperature regulation and recovery
- Excellent uniformity between the top and the bottom
 - Temperature accuracy: ± 0.2 °C
 - Temperature uniformity: ± 0.2 °C

Heated bottom

- Provides direct heat transfer to the cultures through the optimization plate for stable heat regulation.
- Removable Heating Optimization Plate with wide selection of inserts.
 - Temperature accuracy: ± 0.2 °C
 - Temperature uniformity: ± 0.2 °C

Optional SAFE Sens Integration

For continuous pH monitoring. *See page 9 for more info.*

Six (6) Chambers

Completely individual chambers for easier calibration, faster recovery, less disruption, and prevents cross-contamination.

Control Panel Buttons and LED Display

Has large LED display that can be easily seen from a distance. The simple 4-button control panel allows for easy and intuitive operation.

Mute Button

Temporarily mutes alarm messages and sound for five (5) minutes



Maximize embryo growth potential by providing VIP treatment



Oxygen range: 5-20%
 Carbon dioxide range: 1.9-10%
 Temperature range: 25 Ambient to 40°C
 Gas recovery: less than 3 minutes
 Temperature recovery: less than 1 minute

Common Stressors:

- Temperature fluctuations
- Gas concentration fluctuations
- Non-optimal pH
- Volatile Organic Compounds (VOCs)

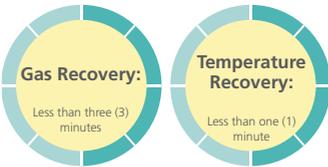
Elevated O₂ concentration isn't always a good thing

While oxygen (O₂) is necessary for normal aerobic metabolism, it is a double-edged sword as it can harm the developing embryo through oxidative damage. Recent studies highlight the benefit of having suppressed oxygen levels when incubating human embryos reflecting the natural low oxygen conditions in the womb.

Shhh... Do not disturb

The MIRI® has an overall design that provides cultured embryos a minimum-stress environment. The independent chamber system prevents cross-contamination while HEPA/VOC filtration cleans the airstream. The small chamber volumes and direct heat regulation further translate to faster temperature and gas recovery.

Fast Recovery



There are many advantages to using benchtop multiroom incubators. One important benefit is the speed of recovering temperature and gas parameters after opening a chamber.

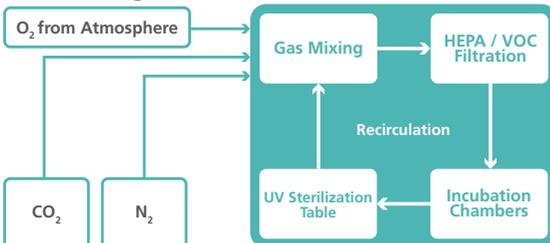
The little details count



IVF practitioners deal with precious, fragile and sensitive embryos, and often, the little details make a big difference. The MIRI® has a large LED display that can be easily seen from a distance. Also, the glass lid tops, can be written on — a very useful feature for organization.

Provide total control of the gas phase environment

Airflow Diagram



The built-in gas mixer and the high-performance CO₂ and O₂ sensors allow accurate control of gas phase composition within the chambers.

The MIRI[®] is built with Excellent Quality Control Features



The MIRI[®] has reliable gas mixing system that allows gas phase flexibility.

The gas mixer of MIRI[®] gives total control over CO₂ and O₂ concentration levels while also giving flexibility over what gas input is desired.* Moreover, the HEPA/VOC filter and UV sterilization ensure only the highest quality of air is circulated to the cultures.



Premixed gas is NOT required

MIRI[®] can accept pure gas (and even premixed gas if desired). The use of 100% CO₂ and 100% N₂ allows the incubator to achieve steady-state gas condition faster than premixed gases. This is important as this will stabilize the pH during embryo development.

High quality airstream via HEPA/VOC filter + UV

The filter module can be easily replaced once used. The gas in the MIRI[®] is continuously recirculated through a HEPA/VOC filter. A UV-C light (254 nm) sterilizes the airstream before passing through the filter.

A suite of IVF-essential features

There is a BNC connection for pH measurement, USB communication port, and port for external alarm monitoring. The MIRI[®] can be connected to a PC to avail of data logging via the supplied software included. Connections to external alarm monitoring systems and pH measurements are also possible.

Stress-free validation of chamber parameters



PT1000 temperature sensors are built-in, which are completely independent from the main circuitry. Gas sampling ports are likewise available for all 6 chambers.



The MIRI[®] can be connected to an external device such as the Esco MIRI[®] GA for gas and temperature validation.

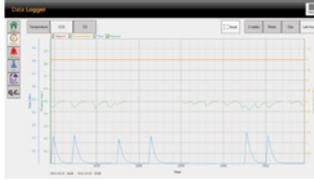
* Input of pure gases is recommended

Full-featured and user-friendly

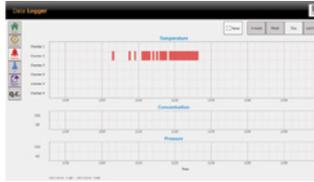
Control panel, display, and data logging software



Complete parameters are displayed. Histories of any alarm events are logged.



The data logger stores continuous performance data of the machine throughout its use. These can be viewed in graphs.



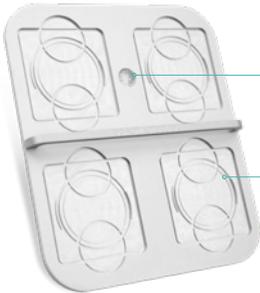
Conditions that put the MIRI® into alarm state are recorded. It is possible for the software to send email alerts as well.

The MIRI® can be connected to an easy-to-use, feature-packed data logging software installed on any PC and connected via USB.

Multiple machines can be connected and managed from a single computer. All real-time parameters of the machine can be conveniently viewed. These include the temperature of all monitored temperature and gas concentration points, gas input pressures, gas flow rates, current gas readings, and all set points.

All performance data of the machine including alarms are continuously logged and can be viewed in graphs. The data logger also automatically generate reports weekly which makes it more convenient for the user.

Accessories



For MIRI® with integrated SAFE Sens (optional), order a different plate with hole to accommodate the SAFE Sens sensor (see ordering information on page 11).

The dishes fit into the inserts so that the heat is directly transferred to the media.

Heating optimization plates

Each chamber contains a heating optimization plate to facilitate heat transfer directly to the culture dishes.

- Has inserts to fit various dish sizes
- Removable for easy cleaning



Nunc™



Falcon®



Vitrolife



LifeGlobal®
GPS Dishes



Nipro™



SparMED Oosafe®

Total Capacity

Heating plates customized for several types of dishes:

- 4 x Falcon® Ø 50/60 mm
- 8 x Falcon® Ø 35 mm
- 4 x Nunc™ Ø 54/60 mm
- 8 x Nunc™ Ø 35 mm
- 4 x Vitrolife Dishes
- 4 x LifeGlobal® GPS Dishes
- 4 x Nipro™
- 4 x SparMED Oosafe®

*Applicable for MIRI® only

SAFE Sens* Continuous pH Monitoring

The MIRI® can be installed with an integrated SAFE Sens technology for fast, effective, and non-invasive continuous pH monitoring product for *in vitro* fertilization (IVF) procedures.

The SAFE Sens technology employs an optical fluorescent measurement technology, used in combination with disposable sensors, which accurately and reliably monitors the pH of small volumes of fluids such as the media used in IVF.



Key Features



Continuous pH measurement

- Reading and recording every 30 minutes (default setting - adjustable).
- Single use sensor probe for up to seven (7) days of pH readings.



Data Logging System**

- Data Logging and user alarms.
- Each TrakStation® can be connected to multiple incubators.



Compact and Efficient

- No more unnecessary openings of your incubator for spot pH measurement.
- Only requires 100 µL of media + 50 µL of oil.

* SAFE Sens is a trademark brand of Blood Cell Storage, Inc. (BCSI). SAFE Sens integration is currently offered as a factory-installed option.

**Minimum system requirements for Data Logger PC/Tablet:

- Intel Core 2 Duo or AMD Athlon X2 at 2.4 GHz processor • 4Gb RAM • 15Gb Hard Disk space • Integrated Video Card • Monitor with resolution 1024 x 768 • Windows 7 pro/ 8 Pro/ 10 OS with 64 Bit architecture • USB 3.0 port for each connected device



MIRA-1014 - Stacking frame for 2 units



MIRI® Stacking Frame with drawer

MIRI® Stacking Frame

MIRI® has a stacking system to maximize space in your IVF laboratory.

General Specifications



MIRI® Multiroom Incubator

Product Code	MRI-6A10-_-_-
Overall Dimensions (W x D x H)	700 x 580 x 160 mm (27.6" x 22.9" x 6.3")
Power Supply	115 / 230V, 50/60 Hz
Power Consumption	280 W
Temperature Control Range	25 - 40°C
*Gas Consumption (CO ₂)	<2 L/h
**Gas Consumption (N ₂)	<12 L/h
CO ₂ Control Range	1.9 - 10%
O ₂ Control Range	5 - 20%
Input Gas Pressure (CO ₂)	0.6 bar (8.7 psi)
Input Gas Pressure (N ₂)	0.6 bar (8.7 psi)
Net Weight	35 kg (77.2 lbs)
Shipping Weight	40 kg (88.2 lbs)
Shipping Dimension	840 x 735 x 300 mm (33.1" X 29" x 11.9")

MIRI® Stacking Frame Dimensions	
Stacking frame for 2 units (W x D x H)	717 x 572 x 632 mm (28.2" x 22.5" x 24.9")
MIRI® Stacking Frame with Drawer (W x D x H)	715 x 650 x 363 mm (28.1" x 25.6" x 14.3") On full opening of the drawer: 715 x 1245 x 363 mm (28.1" x 49" x 14.3")

* Under normal condition (CO₂ set point reached at 5.0%, all lids closed)

** Under normal condition (O₂ set point reached at 5.0%, all lids closed)



Ordering Information

ITEM CODE	MODEL CODE	DESCRIPTION
Unit		
2070047	MRI-6A10-8	MIRI® Incubator, 230V, 50/60Hz
2070048	MRI-6A10-9	MIRI® Incubator, 115V, 50/60Hz
2070086	MRI-6A10-SS-8	MIRI® Incubator, with SAFE Sens for pH measurement, 230V, 50/60Hz
2070087	MRI-6A10-SS-9	MIRI® Incubator, with SAFE Sens for pH measurement, 115V, 50/60Hz
1320045	MRI-GA	MIRI® GA CO ₂ / O ₂ & Temperature Validation Unit, 115V / 230V
Accessories		
1320191	TBA	SAFE Sens TrakStation, a tablet with SAFE Sens Software, for pH monitoring
1320011	MRA-1007	HEPA/VOC filter (recommended to be replaced every 3 months)
1320018	MRA-1014	Stacking frame for 2 units
1320226	TBA	Stacking Frame for 2 Units, With Drawer at the Bottom
1081277	TBA	SAFE Sens SV2 Sensor, Pack of 10 pieces (shelf-life 12 months)
1081278	TBA	SAFE Sens QC2 Alignment Tool

Accessories

ITEM CODE	MODEL CODE	DESCRIPTION
1320003	TBA	Insert for Falcon® Dishes
1320004	TBA	Insert for Nunc™ Dishes
1320070	TBA	Insert for Vitrolife Dishes
1320099	TBA	Insert for Nipro™ Dishes
1320100	TBA	Insert for LifeGlobal® GPS Dishes
1320101	TBA	Insert Without Footprint for Plain Dishes
1320118	TBA	Insert for SparMED Oosafe®
1320219	TBA	Insert for Falcon® Dishes, with hole for SAFE Sens
1320220	TBA	Insert for Nunc™ Dishes, with hole for SAFE Sens
1320221	TBA	Insert for Vitrolife Dishes, with hole for SAFE Sens
1320222	TBA	Insert for Nipro™ Dishes, with hole for SAFE Sens
1320223	TBA	Insert for LifeGlobal® GPS Dishes, with hole for SAFE Sens
1320224	TBA	Insert Without Footprint for Plain Dishes, with hole for SAFE Sens
1320225	TBA	Insert for SparMED Oosafe®, with hole for SAFE Sens

ESCO GLOBAL NETWORK



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



Esco Medical Products:

- MIRI[®] TL6 Time-Lapse Incubator
- MIRI[®] TL12 Time-Lapse Incubator
- MIRI[®] Multiroom Incubator
- MIRI[®] II Multiroom Incubator
- Mini MIRI[®] Incubator
- Esco Multi-Zone ART Workstation
- Esco Multi-Zone ART Workstation Class II
- CelCulture[®] CO₂ Incubator
- MIRI[®] GA (Gas and Temperature Validation Unit)
- Anti-Vibration Table (AVT)
- Versati[™] Tabletop Refrigerated Centrifuge
- CultureCoin[®]

Infertility is a problem that has a significant social, psychological, and economic impact on afflicted individuals and couples. It is a global concern that knows no race or creed. It has been estimated that 1 in 6 couples struggle with infertility at least once in their lifetime.

Esco Medical is one of the divisions of the Esco Lifesciences Group. We provide innovative technological solutions for fertility clinics and laboratories. We aim to become the leading manufacturer of high-quality equipment such as long-term embryo incubators, ART workstations, anti-vibration tables, and time-lapse incubators.

Our products are designed with the Silent Embryo Hypothesis as a guiding principle. The Silent Embryo Hypothesis states that the less disturbed an embryo can remain, the better its developmental potential will be. Most of our products are designed in Denmark and made in the EU. Our primary focus is to increase pregnancy success rates and patient satisfaction.



21 Changi South Street 1 • Singapore 486 777
 Tel +65 6542 0833 • Fax +65 6542 6920
 medical@escoglobal.com • www.esco-medical.com



Esco Global Offices: Bangladesh | China | Denmark | Germany | Hong Kong | Indonesia | Italy | Lithuania | Malaysia | Myanmar | Philippines | Russia | Singapore | South Africa | South Korea | Taiwan | Thailand | UAE | UK | USA | Vietnam



Designed in Denmark



Made in the E.U.

ISOCIDE™

9010137_ART Equipment_MIRI_Brochure_A5_vk_120720
 Esco can accept no responsibility for possible errors in catalogues, brochures and other printed materials. Esco reserves the right to alter its products and specifications without notice. All trademarks and logos in this material are the property of the Esco Group Companies.

