

VIP treatment for high success rate embryos in IVF

Miri®

Multi-room Incubator for IVF





ESCO
MEDICAL

Esco Medical, one of the divisions of the Esco Group of Companies, is now targeting innovative technological solutions for fertility clinics and laboratories.

Esco Medical is positioned to become a leading manufacturer and innovator of high-quality IVF equipment such as long-term embryo incubators, ART workstations, anti vibration table, and time-lapse incubator.



ESCO
MEDICAL

**When controlled environment solutions are important to you,
depend on Esco equipment for proven safety and performance**

The better choice.

A range of innovative
IVF equipment
available worldwide.

Miri[®] Multi-room Incubator for IVF



A ground-breaking design for IVF

Designed especially for fertility laboratories, the new Esco Miri[®] delivers top performing features making it the perfect choice for routine incubation of embryos during IVF.

6 chambers

Advanced temperature regulation

Embryo-Safe

HEPA+VOC filtered air

UV sterilization

MEA-tested

CO₂+N₂ mixing

Pre-mixed gas is not needed

i Maximize embryo growth potential by providing “VIP treatment”

Oxygen range: 5-20%
 Carbon dioxide range: 1.9-10%
 Temperature: 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's overall design provides cultured embryos a minimum-stress environment. The 6-chamber format 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.

“Hand in hand to provide only the best in embryo incubation”



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

At the heart of any incubator is its temperature regulation. Miri® boasts one of the most advanced systems available for IVF.

The Miri's 6 chambers are completely independent from 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 12 temperature controlled points. That is 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.



Heated Lid

- Prevents condensation
- Enhances temperature regulation/recovery
- Excellent uniformity between the top and bottom

Heated Bottom

- Provides direct heat to the cultures through the heating optimization plates

Control Panel Buttons

- The simple 4-button control panel allows for easy and intuitive operation

Mute Button

- Temporarily mutes alarm messages and sound for 5 minutes

Fast Recovery

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

Gas composition recovery: Less than 3 minutes

Temperature recovery: Less than 1 minute

The little details count

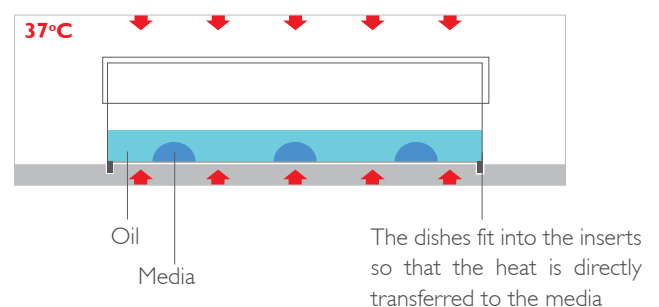


IVF practitioners deal with precious and fragile little things (embryos) and often, the little details make a big difference. The Miri® has a large LED display that can be easily seen from a distance. Also, the glass lid tops, while acting as chamber insulators, can be written on--- a very useful feature for organization.

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



The Miri's reliable gas mixing system allows for gas phase flexibility

Do you prefer pure, pre-mixed, or just plain CO₂ control? The Miri's gas mixer 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.

*Input of pure gases is recommended



A suite of IVF-essential features



BNC connection for pH monitoring, 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



Top row: 6 x PT1000 validation sensors

Bottom row: 6 gas sample ports

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

Pre-mixed gas is NOT required



Miri® can accept pure gas (and even pre-mixed gas if desired).

The use of 100% CO₂ and 100% N₂ as input gases is much cheaper and easier to source than using pre-mixed gas.

High quality airstream via HEPA+VOC filter + UV



The filter module can easily be replaced once used.

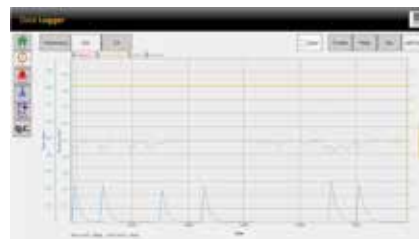
The gas in the Miri® is continuously recirculated through a HEPA/VOC filter: 185 nm filtered UV-C light sterilizes the airstream before passing through the filter.

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.



pH measurement can also be monitored and stored in the data logging software.



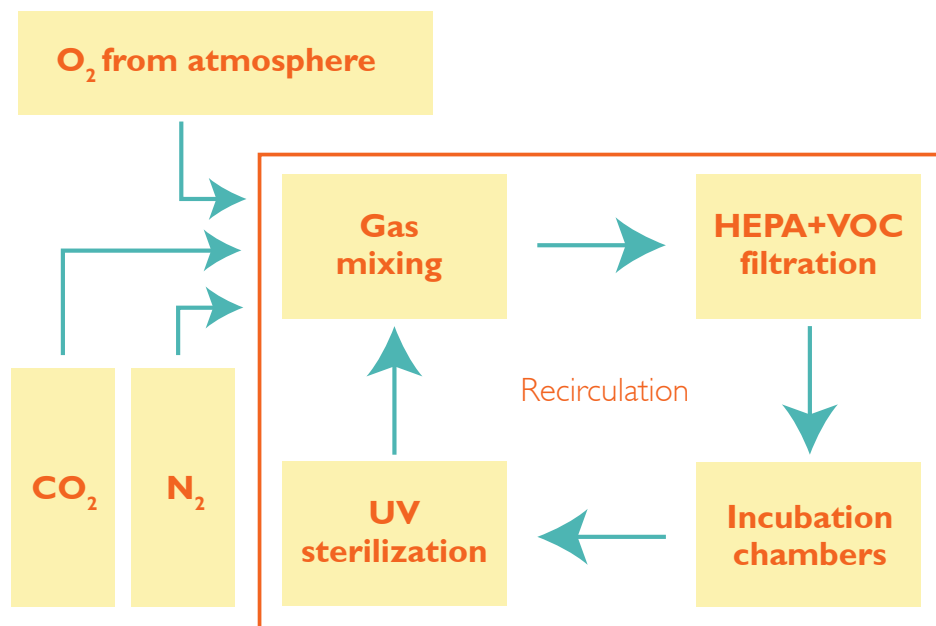
Conditions that put the Miri® into alarm state are recorded. It is possible for the software to send email alerts as well.

The Miri® can be connected to an easy-to-use, feature-packed data logging software installed on any ordinary 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 are continuously logged and can be viewed in convenient graphs. Details of any alarm events, such as out-of-range parameters, are also stored for retrieval.

Airflow Diagram



Provide total control of the gas phase environment

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

Product features

- Number of compartments**
 6 completely separate heating chambers
- Heating method**
 Direct heat transfer via heated bottom, also with heated lid and heating optimization plate
- Total capacity**
 Heating plates customized for several types of dishes.
 (Falcon, Nunc, Vitrolife or NIPRO)
 24 x IVF 4-well dishes
 24 x Petri dishes Ø 60 mm
 48 x Petri dishes Ø 35 mm
- Input gas**
 100% CO₂, 100% N₂
 (pre-mixed gas NOT required)
- HEPA/VOC filtered airstream**
 YES
- UV sterilized airstream**
 YES, 185 nm filtered UV-C light, can be switched OFF
- Data logging**
 YES, optional via supplied software
- Alarms**
 YES, audible+visible, for out-of-range parameters temperature, gas concentration, gas pressure and power cut off (can be connected to external monitoring systems)
- Stackable**
 YES

Ordering Information

ITEM CODE	DESCRIPTION
MRI-6A10	Miri® Incubator, 115V/230V, Dishes (Falcon, Nunc, Vitrolife or NIPRO)
MRA-1007	HEPA+VOC filter (recommended to be replaced every 3 months)
MRA-1014	Stacking frame for 2 units
MRI-GA	Miri® GA CO ₂ / O ₂ & Temperature Validation Unit, 115V / 230V



MRA-1014 - Stacking frame for 2 units

General Specification

Miri® MULTI-ROOM INCUBATOR	
PRODUCT CODE: MRI-6A10- _	
Overall dimensions (W x D x H)	700 x 580 x 150 mm (27.6" x 22.9" x 6")
Power supply	115 / 230V, 50/60Hz
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 300mm (33.1" X 29" x 11.9")

* 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)

Certification



Cleared



Tested



IEC/EN60601-1-2
3rd Edition

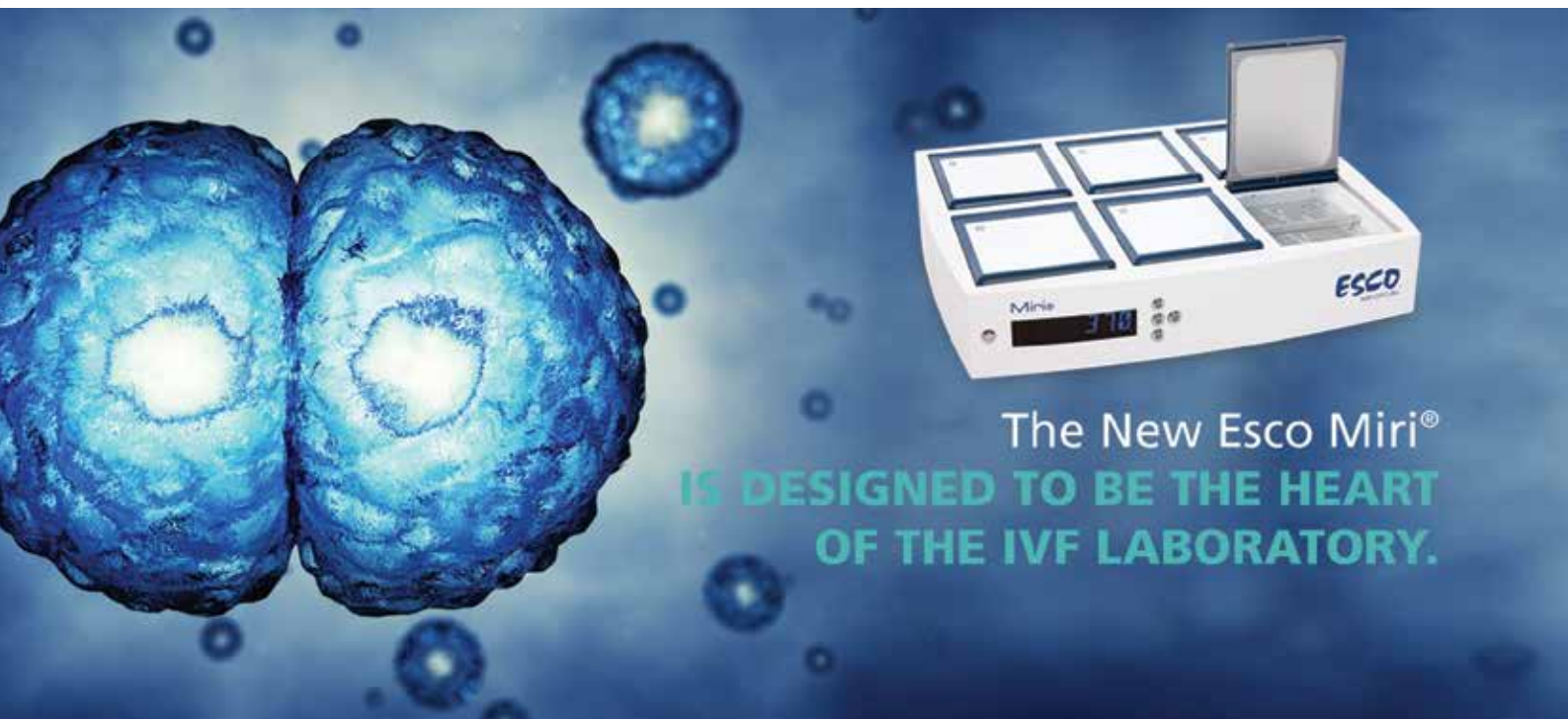
MDD Class II A



Medical Devices

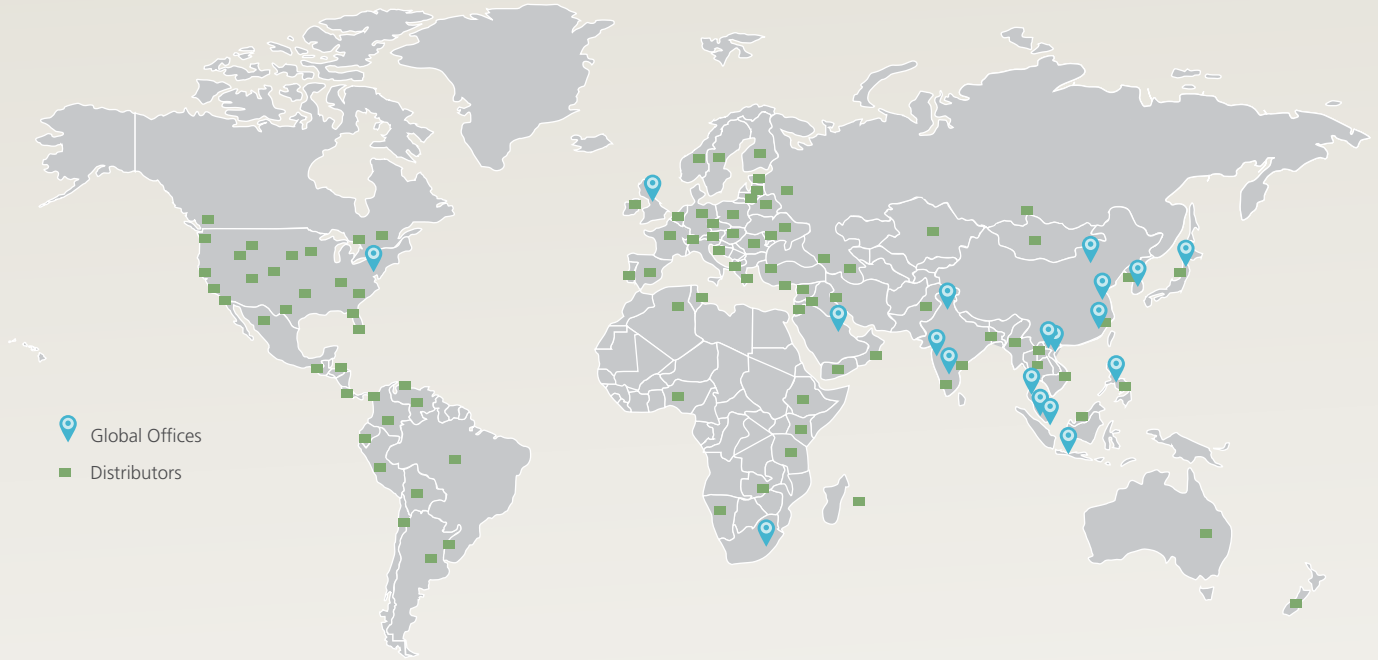




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The New Esco Miri®
IS DESIGNED TO BE THE HEART
OF THE IVF LABORATORY.

ESCO GLOBAL NETWORK



 Global Offices
 Distributors



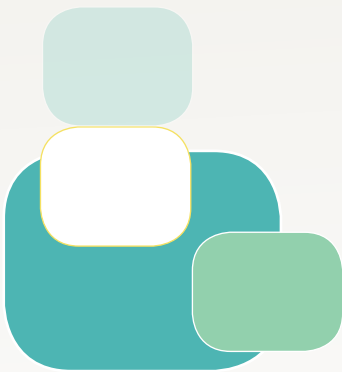
Esco Medical Products:

- ART Workstations
- CO₂ Incubators
- Miri® Multi-room Incubators
- Miri® TL (Time Lapse) Bench Top Incubators
- Miri® GA (Gas Analyser)
- Anti-Vibration Table (AVT)

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

Esco Medical is one of the divisions of the Esco Group of Companies, the other two being the laboratory and pharmaceutical equipment divisions. Esco is now targeting innovative technological solutions for fertility clinics and laboratories. Esco Medical is positioned to become a leading manufacturer and innovator of high-quality equipment such as long-term embryo incubators, ART workstations, anti vibration table, time-lapse incubator and etc.

Esco Medical products are designed to develop 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. The primary focus of this division 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
 csis-medical@escoglobal.com • www.medical.escoglobal.com

Esco Global Offices: Manama, Bahrain | Beijing, China | Chengdu, China | Guangzhou, China | Hong Kong, China | Shanghai, China
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