

**VIP treatment** for high success rate embryos in IVF

**Miri®**

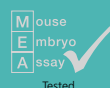
Multi-room Incubator for IVF



Designed in Denmark



Made in the E.U.





**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

### CO<sub>2</sub>+N<sub>2</sub> 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 O<sub>2</sub> concentration isn't always a good thing

While oxygen (O<sub>2</sub>) 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

## Heating optimization plates

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

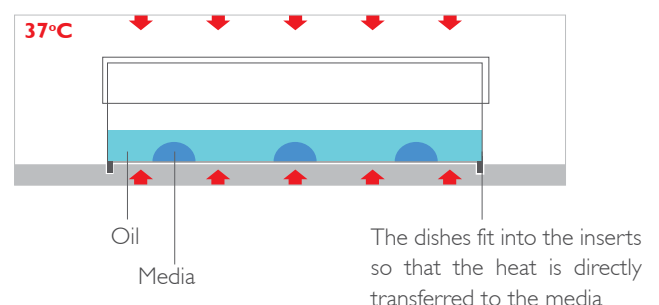
- Has inserts to fit various dish sizes
- Removable for easy cleaning



## The 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.





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

Do you prefer pure, pre-mixed, or just plain CO<sub>2</sub> control? The Miri's gas mixer gives total control over CO<sub>2</sub> and O<sub>2</sub> 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*



## 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% CO<sub>2</sub> and 100% N<sub>2</sub> as input gases is much cheaper and easier to source than using pre-mixed gas.

## 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.

## High quality airstream via HEPA+VOC filter + UV



The filter module can easily be replaced once used.

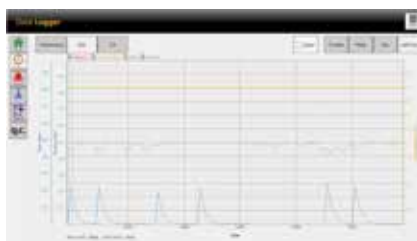
The gas in the Miri® is continuously recirculated through a HEPA/VOC filter: 185 nm filtered UV-C light sterilizes the airstream before passing through the filter.

# 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.



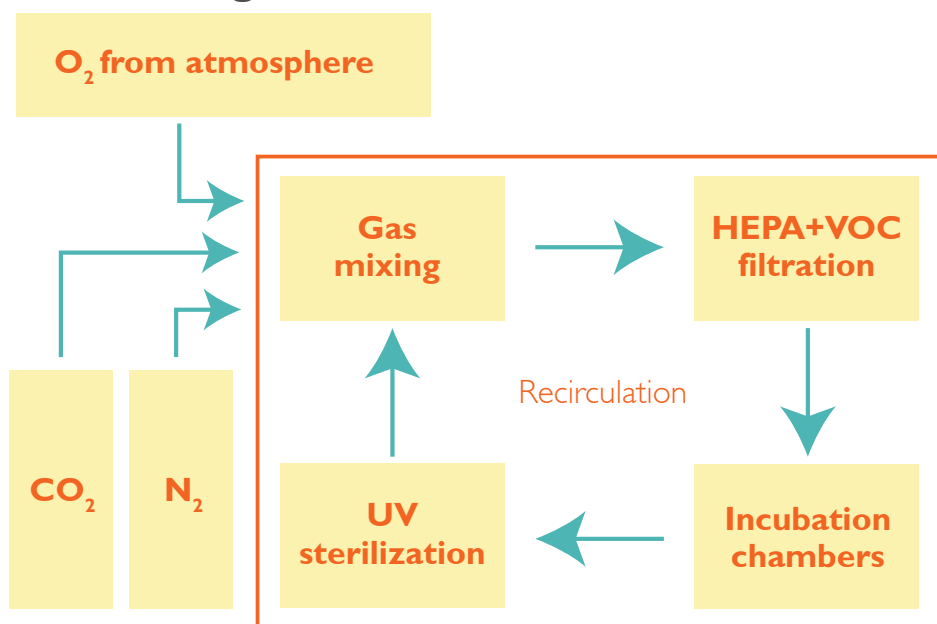
Conditions that put the Miri® into alarm state are recorded. It is possible for the software to send email alerts as well.

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 CO<sub>2</sub> and O<sub>2</sub> 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% CO<sub>2</sub>, 100% N<sub>2</sub>  
(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 <sub>2</sub> / O <sub>2</sub> & Temperature Validation Unit, 115V / 230V |



**MRA-1014** - Stacking frame for 2 units

## General Specification

| Miri® MULTI-ROOM INCUBATOR<br>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 <sub>2</sub> )                     | < 2 L/h                                  |
| **Gas consumption (N <sub>2</sub> )                     | < 12 L/h                                 |
| CO <sub>2</sub> control range                           | 1.9 - 10%                                |
| O <sub>2</sub> control range                            | 5 - 20%                                  |
| Input gas pressure (CO <sub>2</sub> )                   | 0.6 bar (8.7 psi)                        |
| Input gas pressure (N <sub>2</sub> )                    | 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 (CO<sub>2</sub> set point reached at 5.0%, all lids closed)

\*\* Under normal condition (O<sub>2</sub> set point reached at 5.0%, all lids closed)

## Certification



Cleared



Tested



IEC/EN60601-1-2  
3rd Edition

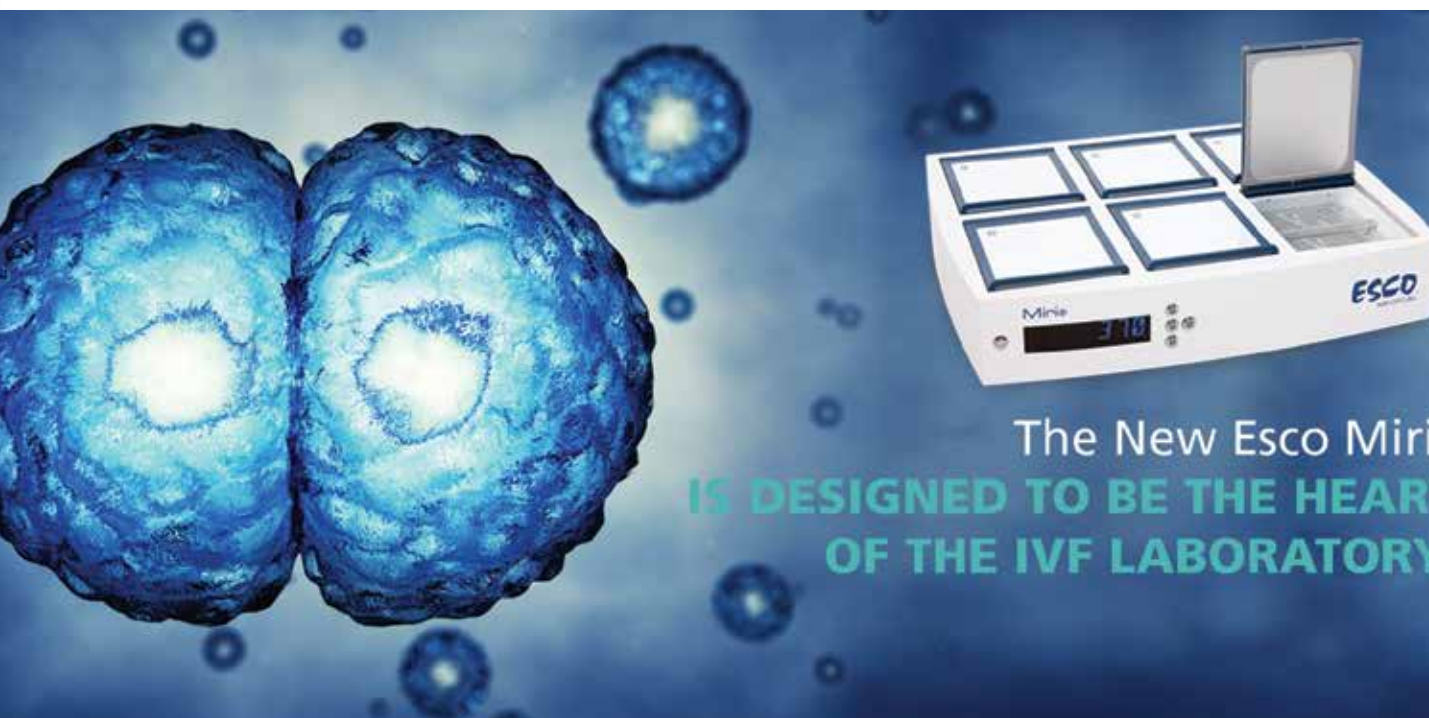
MDD Class II A



Medical Devices

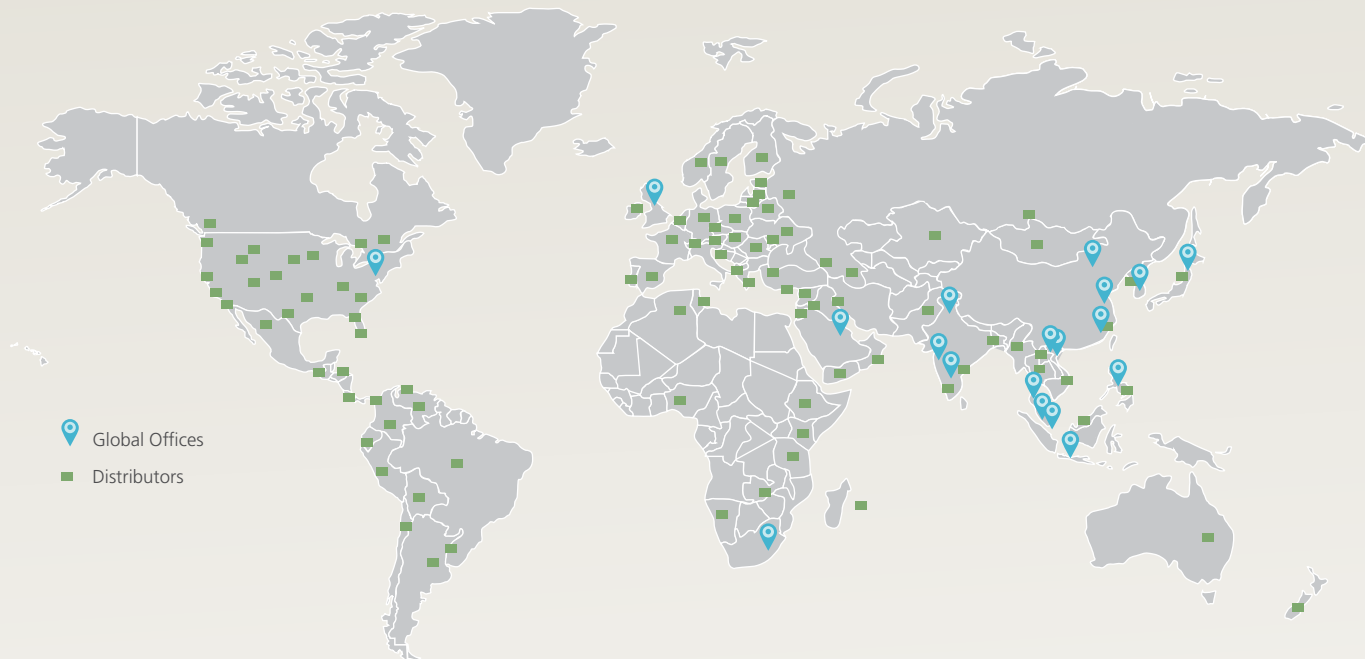




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The New Esco Miri®  
**IS DESIGNED TO BE THE HEART  
OF THE IVF LABORATORY.**

# ESCO GLOBAL NETWORK



 Global Offices  
 Distributors



**Esco Medical Products:**  
 ART Workstations  
 CO<sub>2</sub> 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.*



**ESCO**  
 MEDICAL

**dijkstra**  
 verenigde

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