

DATASHEET

EmbryoS@fe iREF

Laminar flow cabinet with operator & environment protection for IVF



The EmbryoS@fe iREF workstation series has been developed to provide the most controlled and safe environment for Embryo cell culturing. The heated work surface **keeps the cells at a constant temperature during all the steps**, creating a more uniform growth and/or differentiation behaviour. This allows to make sure that experiments involving the use of those cells return more consistent results. The possibility to install one or two (on the 1.8 size cabinet) **microscopes in the working area** allows the operators to check on their cells while still in a safe, sterile environment.

The EmbryoS@fe iREF cabinets is a **high retention efficiency recirculating cabinet engineered according to the EN12469:2000 European Standard for Microbiological Safety Cabinets**, that offers **Product,**



Operator and Environment Protection.

The specially designed air flows allow users to work in full safety, allowing the use of viral vectors or cells of human origin by providing the same level of protection of a Class II cabinet, even with the microscopes installed in the working area!
A complete and user friendly tool for the manipulation of Embryo cells that only experienced European design with over 40 years of know how and accurate quality manufacturing, can provide.

TECHNICAL SPECIFICATIONS

- Ready for the installation of 1 or 2 (only on 1.8 size cabinet) Olympus SZX10 or SZX16 stereo microscopes
- ThermoHeat technology-based heated built-in worktop with PID control.
- ThermoHeat technology-based heated built-in sample glass stage with PID control granting $\pm 1^{\circ}\text{C}$ overall accuracy with PID self-tuning control syEmbryo for optimized temperature control performance.
- 6 mm safety glass front sash and lateral sides offer great luminosity and cleanability. Front sash can be opened for cleaning purposes.
- Aperture protection factor (Apf) ≥ 105 as defined by the EN12469:2000 standard for Biohazard Class II cabinets.
- RS232 interface and volt-free contact
- Soft touch Membrane Keyboard
- Internal work chamber in stainless steel AISI 304 with radiussed corners
- Glass side walls.
- Unique removable work surface for easy maintenance and microscope replacement.
- Vertical laminar air flow cabinet providing ISO 5 environment for Embryo cell culturing and In-Vitro Fertilisation procedures.
- H14 filter with micromesh downstream equalising plenum, for the highest airflow speed uniformity.
- Gassing flow meter(s) [number and placement depends on size].
- Electrical socket(s) [number and placement depends on size].

Operating Specifications

- Microprocessor controlled motor blower, with volumetric sensor for exhausted air flow monitoring
- State of the art Microprocessor control system offering:
 - o Large screen monitor.

- o Automatic control of preset airflow volumes.
- o Permanent monitoring of HEPA filters life span.
- o Alarms. Multilevel alarms, with redundancy functions.
- o Permanent display of working conditions.
- o Highest air flow stability both in case of transitional disturbances or progressive filter clogging
- o Semi-automatic fumigation cycle (EN12297 tested and certified)
- o Continuous monitoring of front barrier air flow for the highest operator safety
- o Low barrier alarm
- o Power failure alarm
- Volt-free contact for remote monitoring of exhaust fan.
- Automatic reset of initial conditions in case of power failure

Mechanical and Functional specifications

- Front glass, main filter and back wall sloped for better visibility and air flow uniformity.
- Exhaust HEPA filter fully visible for visual inspection of filter's integrity.
- Main HEPA filter maintenance and changing from the front of the cabinet
- Programmable UV light kit (delay and exposure times) via cabinet software.
- Back-lighted digital display with constant visualisation of cabinet parameters:
 - Nominal functioning conditions "SAFE".
 - Downflow air speed in m/sec.
 - Exhaust air flow speed in m/sec.
 - Bar-graph for immediate visualization of air flow balancing.
- 2 HEPA filters class H14 with 99.999% efficiency on particles with 0,3 micron diameter (99.995% on MPPS as per EN1822-1)
- 1 Motorblower (2 on 1.8 size cabinets)
- Partially Recirculating air flow, granting 25 changes per minute in the working area
- Front aperture height: 195 mm
- Air speed at front aperture (in working position) ≥ 0.5 m/sec.
- Noise pressure level (ISO 1102) : lower than 57 dB (A).
- Power supply 230 V 50 Hz.
- Maximum current for service sockets 3A.
- Microprocessor with analog watchdog.

Options

- UV Light on back wall, controlled by built-in microprocessor, interlocked with the fluorescent lights and front panel.
- Integral LCD monitor 19" installed on back wall work area. Can be connected to an external server or the stereoscope camera.
- Integral CO2 incubator 14 lt. For the optimal work conditions, direct access from the inner work chamber.



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Optional accessories

- Support Stand available in fixed and electrical adjustable height versions.
- Warming blocks for test tubes from 12 to 17 mm diameters.
- Warming blocks for Petri dishes.
- Humidifier Glass Flask ensures the 5% CO2 / gas mixture is humidified and heated before delivering it to the glass hoods.
- Glass Hood Incubators for media in culture dishes



Model	EmbryoS@fe iREF 1.2 With 1 microscope	EmbryoS@fe iREF 1.4 with 1 microscope	EmbryoS@fe iREF 1.8 with 2 microscopes
External size (wxdxh) mm	1680x840x1450	1990x840x1450	1990x840x1450
Internal size (wxdxh) mm	1325x650x730	1930x650x730	1930x650x730
Height including stand (mm)	2175	2175	2175
Motorblowers	1	2	2
Weight (Kg)	190	300	300
Filters efficiency	Higher than 99,999% (for particles with a diameter	Higher than 99,999% (for particles with a diameter	Higher than 99,999% (for particles with a diameter

	>= 0,3 micron)	>= 0,3 micron)	>= 0,3 micron)
Exhaust air volume	about 500 m ³ /h	about 600 m ³ /h	about 600 m ³ /h
Power supply	230V single phase 50Hz	230V single phase 50Hz	230V single phase 50Hz
Power requirement (W)	750	800	800
Installed sockets	1 shuko	2 shuko	2 shuko
Fluorescent lamps	2x58W	2x58W	2x58W
Lighting intensity	>900 Lux	1200 Lux	1200 Lux
Aperture protection factor (Apf)	>=10 ⁵	>=10 ⁵	>=10 ⁵
Noise pressure (lower than)	57 dB(A)	57 dB(A)	57 dB(A)

SPECIFICATIONS