



EuroClone[®]
serving science through innovation

**VERTICAL LAMINAR FLOW
MODULAR SYSTEM
MODUL@IR 1400**

Developed to satisfy the most various needs of every customer, the **Modul@ir 1400** system allows customized configuration of contamination free areas by properly connecting the modular units. Each module is an autonomous laminar flow generator that guarantees an ISO 5 air classification as indicated in ISO EN 14644-1.

The **Modul@ir** units are composed of a base module that can be completed with a series of accessories and components that allow to create a customized configuration.

The base module has not only filtration and ventilation capability but also has a structural function that reduce the number of standing supports or suspension points of the final assembled system

External dimensions in mm: 1.400 x 700 x 600 (W x D x H)





1. **DESCRIPTION OF THE MODUL@IR SYSTEM**

Main characteristics:

- Construction in stainless steel AISI 304 L scotch-brite finishing;
- Diffuser grid in AISI 304 L stainless steel;
- Double inlet centrifugal fan with nominal airflow rate of 1400 Nm³/h and air velocity of 0.45 m/s measured 15cm under diffuser grids;
- HEPA filter with dynamic air tight that even in case of leakage guarantee that contaminated air is not supply into the clean room but is captured by the fan.
- Diffuser plenum in special textile material that allow a good air velocity distribution and reduce the noise.
- D.O.P. test point



- HEPA filter differential pressure test point
- Differential pressure switch for fan working status monitoring.
- Air filtration by means of a HEPA filter with H14 efficiency (99.995% measured on MPPS as from EN1822.1) with 610 x 1220 x 69 mm dimensions;
- Weight: Kg. 60 – 80 (depending on accessories).
- Fan Power: 300 W;
- Power supply V 230/50 Hz single phase.

2. **SAFETY REQUIREMENTS**

Modul@ir are designed and realized in agreement with the following safety rules:

- Machinery Directive: 2006/42/CE
- Low voltage Directive: 2006/95/CE
- EMC directive: 2004/18/CE
- Safety of machinery – “General requirements of machines” – CEI EN 60204-1

Note: the Modul@ir can be supply as single module and single accessories or as a complete system. In the first case it is customer responsibility to install it in agreement with current directories. For this reason Euroclone S.p.a suggest to contact our commercial offices to have a “custom” quotation of the entire system that will be designed, pre-assembled, tested and installed under Euroclone full responsibility.

3. **PERFORMANCE**

Average air velocity, measured 300 mm under filter diffuser grid: 0.45 m/s ±10%.
Contamination class of the area under laminar flow: ISO 5 in agreement with ISO EN 14644-1.

4. **ACCESSORIES:**

Hereafter a list of the available accessories that can complete a laminar flow system made of Modul@ir. For the right choice please contact Euroclone S.p.A.

4.1 **PRE-FILTERS SIDE PANEL**

Stainless steel panel, to be installed on the Modul@ir side, for pre-filter installation.

4.2 PRE-FILTERS

Set of pre-filters with stainless steel frame and G4 grade (average arrestance greater than 90% as from EN 779).

4.3 BLIND SIDE PANEL

Stainless steel panel, to be installed on the Modul@ir side, completely blind.

4.4 MAGNEHELIC SIDE PANEL

Stainless steel panel, to be installed on the Modul@ir side, complete with a pressure differential indicator to monitor the pressure drop of the filter.

4.5 LIGHTING

Kit for lighting of the working area under the Modul@ir composed of the supporting system and of the fluorescent lamp. The lamp has a shape that reduce to minimum the turbulences so that it guarantee the respect of the laminar flow requirement.

4.6 STRIP CURTAINS

The strip curtains allow the double effect to physical separate the clean area from the surrounding contaminated area and to guide the laminar flow till the working surface. The curtains will have a length till 15 cm from the floor in order to allow airflow to exit from the area without risk that air from contaminated area goes inside. They are made of transparent PVC strips 20cm width each one, connected under Modul@fe and easy to remove for operator entrance into the area.

4.7 STAINLESS STEEL LEGS

The stainless steel legs are used as support system for Modul@ir. The number of legs needed to have a stable structure should be defined depending on the area covered by modules.

4.8 REMOTE CONTROL BOARD.

The Modul@ir base do not have any electrical board but comes only with the two electrical terminals where the fan and the differential pressure switch are connected.

In order to have a complete system Euroclone S.p.a supply a remote control board, made in stainless steel AISI 304, that can be installed on a wall or directly on a supporting leg.

The electrical board has the following capability:

- Main switch
- Start and Stop ventilation button
- Alarm in case of a pressure loss in the filter
- Start and Stop lighting system
- Internal trimmer for air velocity manual regulation

The size of the electrical board is 600x600x200 mm (WXHxD) and can be configured to control up to 12 modules. More modules require a custom board with bigger dimensions.

4.9 SELF REGULATION

The self regulation, available as an additional option to the remote electrical board, allow that the airflow is automatically controlled. A microprocessor base system receive a signal from a volumetric airflow sensor and modify the electrical power to the fans in order to keep constant the air velocity even during the clogging of the filters. The system has a display positioned on the remote electrical board with the instantaneous indication of the measured airflow and with an alarm in case of high or low airflow. The system can be set up to the desired air velocity from a minimum of 0,2 m/s to 0,5 m/s.

5. FAT (Factory acceptance test)

Each single Modul@ir are factory tested in agreement with the high Euroclone S.p.a. Quality standard. Each fan will be checked to be able to reach the nominal performance and to be correctly balanced not to generate vibrations.

The Hepa filters are individually tested by the constructor and each Modul@ir is supplied with the certificate with filter serial number indication.

6. SAT (Site acceptance test)

After installation EUROCLONE S.p.a. is able to perform the following optional tests:

- Laminar flow air velocity measurements with calibrated anemometer;
- Determination of the area classification as from ISO 14644.1
- Integrity test of HEPA filters;
- Smoke test made with smoke generation and visualization of the air trajectory and realization of a video.

7. DOCUMENTATION

The base Modul@ir is supplied with the following documentation:

- User and installation manual
- HEPA filter certificate
- CE certificate

In case that Euroclone is required to supply a complete system, in addition to the previous documentation, the following documents will be supply:

- User and installation manual of the whole system
- Overall drawing
- Electrical scheme
- CE certificate of the single system

EUROCLONE S.p.A.