

## GENERAL CATALOGUE

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AcLabbo



**Climate rooms and laboratories**  
for metrology rooms and special processing



## Experience and “turnkey” service

Whether you are planning in your company to add a new technical laboratory, a thermo-hygrometric control metrology room or a controlled chamber for special processing, **ACLABO® PRECISION ENVIRONMENTS** offers many advantages. First of all, the **turnkey service given by the manufacturer.**

AC GRAF, with thirty years of experience in the air conditioning of laboratories and environments for industrial metrology, is a **direct manufacturer of ACLABO**, a construction system equipped with integrated technological systems

necessary for operation in an industrial environment.

From small modular boxes for insertion in the production line to protect precision machinery, to larger air-conditioned environments designed to accommodate entire control departments or particular production tasks where precise micro-climatic conditions are necessary, our solutions range from the use of **standard construction elements** to **complex custom builds**, always made to our clients' strictest specifications.



Air-conditioned chamber for the highest precision dimensional control instrument



## The ideal system for your environments with controlled micro-climate

The experience gained in the manufacture of systems for the fine control of environmental parameters has allowed us to develop the **ACLABO®** system, designed for quality control applications in the laboratory and advanced technological production, such as:

- **Climate rooms** for dimensional controls
- **Metrology rooms** with opening front and roof gates enabling access of overhead cranes and any lifting and moving device in the plant
- **Quality control cells** with automated opening interfaced with the production line
- **Calibration laboratories** of primary samples and electrical, thermal and dimensional testing
- **Cleanroom with absolute filtration** for special processing in a classified environment
- **Blind compartments** for protection against laser radiation



Metrology room equipped with CMMs, quality control in production



Precision laboratory for calibration on dimensional samples



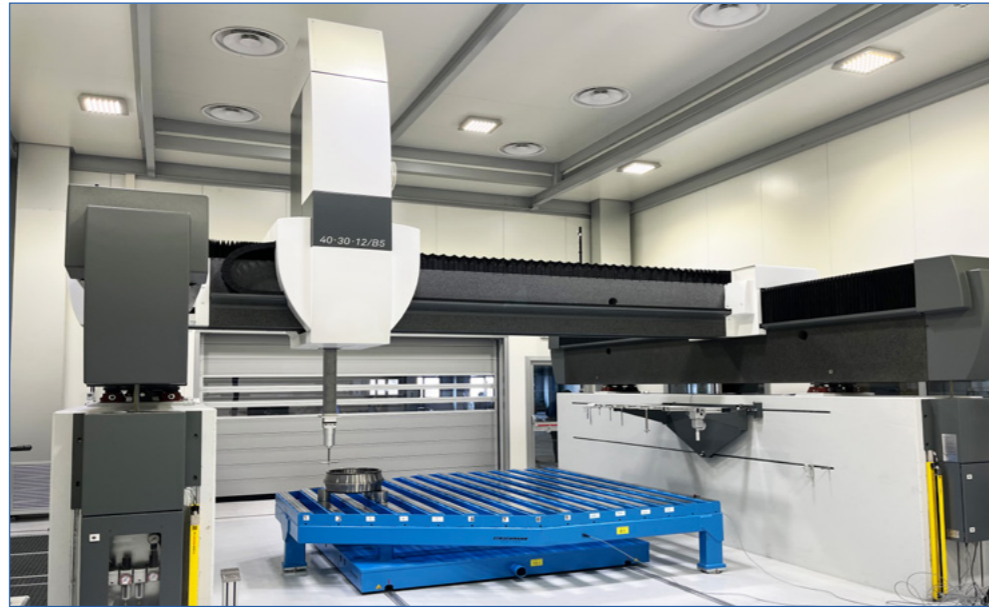
## Design and Engineering

A **coordinated team** of designers uses an advanced **3D design** platform to communicate dynamically and comprehensively with you, our future clients.

Each project begins with a meeting and a technical survey to evaluate the solution that best suits your functional, operational and financial requirements.

A detailed three-dimensional simulation allows you to visualise the work in all its content before the execution phase:

- Architectural modelling, structural verification and drawing of each element of the casing
- Dimensioning and positioning of air treatment, distribution and filtration systems
- Electrical distribution and lighting with lighting calculation, suitable for the intended use, hydraulic and pneumatic systems
- Insertion of automation, technical furniture and accessories



Controlled rooms for high precision metrology systems



## Production inside structures and plants

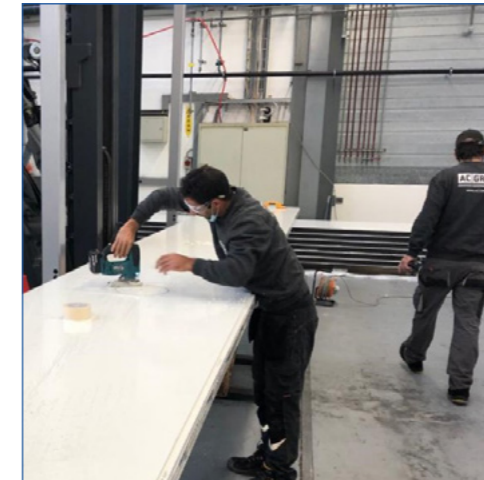
AC GRAF, in its headquarters, has the know-how and construction departments for the **construction, processing and storage of each component** of the **ACLABO®** construction system.

- Insulated structures, frames and partitions
- Insulated doors and windows
- Refrigeration machines, in compliance with FGAS standards, with precision controls
- Insulated ducts for air treatment
- Electrical systems with lighting equipment
- Hydraulic and pneumatic systems for compressed air

Research and development and test activities are performed in-house, in a laboratory and an equipped test room.

Trained and prepared operating technicians transform projects and drawings into concrete works and finished products, using technological equipment and machinery for the transformation of semi-finished products.

**Control of the complete production cycle** allows us to take **responsibility for the finished product** and the management of the subsequent **technical support**.



Preparation of the partitions



Door and window production



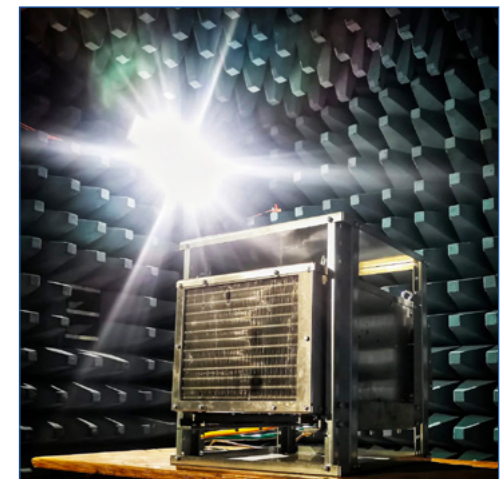
Construction of refrigeration units



Wiring of electric boxes



Duct processing



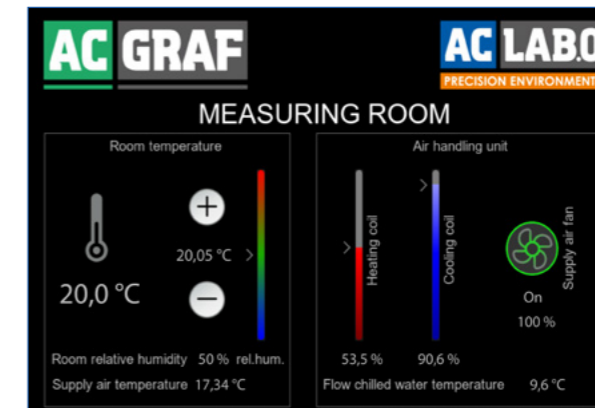
Refrigeration machine testing



## Fine control of thermo-hygrometric parameters

The **fine control air conditioning and treatment systems manufactured by us** maintain a constant level of precision of the measuring instruments installed, through **continuous control of the essential thermo-hygrometric parameters** outline by the manufacturers:

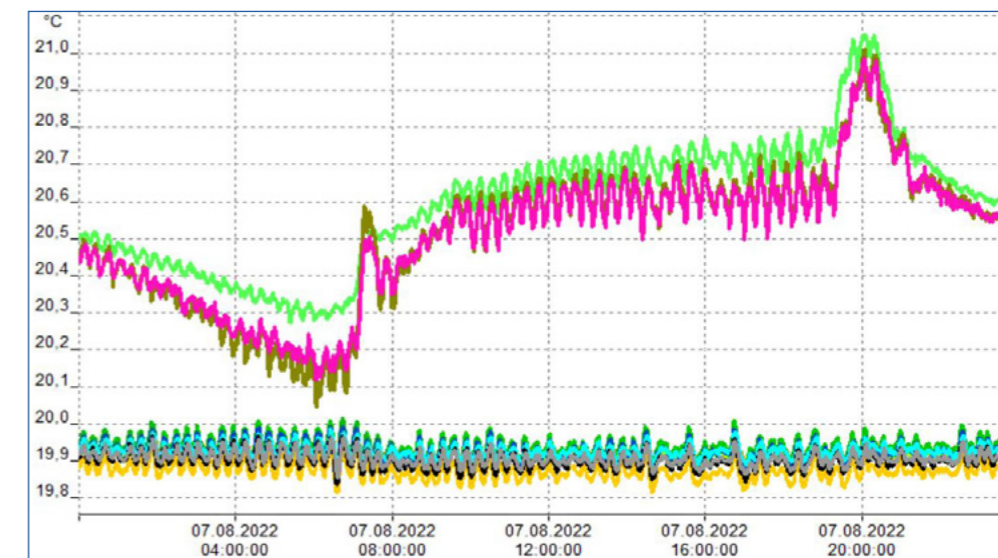
- Spatial temperature gradient: up to **0.1K/m**
- Temporal temperature gradient: up to **0.2K/h** and up to **0.4K/24h**
- Relative humidity control, up to  $\pm 5\%$
- Distribution of air treated from above, with adjustable diffusers or micro-perforated false ceiling
- Recovery through perimeter extraction from below
- Dust filtration, standard or absolute
- Optimisation of flow rate and speed of the treated air



Controller of environmental parameters



Test thermal probes



Analysis and recording of internal temperatures against external conditions

## An excellent solution for metrology rooms and climate laboratories

**ACLABO®** is an integrated system consisting of a **complete casing of technological systems** to accommodate precision metrological equipment, typically coordinate measuring machines and dimensional control instruments, requiring **stable, homogeneous, constant and verified thermo-hygrometric conditions**.

Developed according to the specifications of leading manufacturers of dimensional control machinery, which impose accurate environmental conditions, the **ACLABO®** system is proposed in **standard or customised configurations** to meet particular temperature and relative humidity maintenance requirements.



Monobloc IDROBLOKK and A.T.U. high precision machines



"Air-water" or "water-water" liquid refrigerators with tank and pump

**ACLABO®** meets the **Precision categories of metrology rooms** indicated in standards **VDI/VDE 2627-1**



Fluid dynamic representation of flows within the laboratory

# Automated openings and gates for every production requirement

Movement of the parts to be measured within the laboratories is facilitated by special windows and openings compatible with the use of lifting and moving systems in the plant, such as:

- **Doors and gates**, hinged or sliding, manually operated or motorised
- **Motorised gates in the roof** to use the overhead crane also inside the room, with independent operation of the vertical doors and the roof opening to minimise temperature changes
- **Vertical roller gates**, with motorised opening and high insulation, compatible with the linear movement carriages



Roof gate opening for use of the external overhead crane and internal crane, for maximum flexibility



Insulated roller gates for movement from the acclimatisation chamber to the test room



Metrology room with opening roof and rail movement carriage

The automated ACLABO® gates are manufactured in compliance with Regulation 2006/42/EC (EN 13241:2016)



## Maximum in line integration for accurate machining and control

When dimensional control tasks or particular precision machining must be inserted in an automated production line, the **ACLABO®** system is suitable to be integrated into more complex structures through:

- Accurate design of volumes and **interface points with the surrounding devices**, which is precise and completely dedicated, considering every mechanical and kinematic constraint
- The use of automated gates and doors designed for **automated control of the line supervisor**
- The choice of plug&play **monobloc air conditioning machines**
- Electronic management of accesses and safety devices



Test room integrated in production line MONOESSE conditioning system



Measurement cell, automatic opening for loading/unloading robot

ACLABO® is integrated in automated lines with Declaration of Incorporation (Directive 2006/42/EC Annex IIb)



## Functional and aesthetic customisation for every requirement

In order to meet the most complex requirements of optimisation of the production space, the **ACLABO®** line is enriched with **dedicated solutions**:

- **Multi-surface structures** with raised platforms and access ramps
- **High transparency partitions** curtain wall with ample glass surfaces
- Coated **flooring**
- Safety **guards**
- **Insulation made-to-measure** of production departments and industrial laboratories to achieve protected environments suitable for special processes

Particular attention is given to requests for customisation and compliance with the client's *corporate identify*, through:

- Corporate logos
- Customised colours
- Window stickers and signs
- Lighting profiles



Ample window surfaces



Guards and customised signs



Laboratory and office on two levels

## Controlled atmosphere and filtration for cleanrooms and classified environments

The **ACLABO®** system is used in the construction of **cleanrooms and laboratories**, equipped with air treatment systems with **absolute filtration** to maintain the controlled atmosphere in a classified environment and equipped with:

- Pre-entry cubicles in entrance in access halls
- Interlocked doors and windows
- Special seals and rounded edges

The laboratories are over-pressurised compared to the adjacent volumes, to avoid external contamination.

During system release, an **airborne dust dispersal test** is carried out with laser particle-counting instrumentation.



Laboratories for clean processes with absolute filtration



Entrances with double interlocked doors and cubicle compartments



**ACLABO®** meets standard **ISO 14644-1** in **Class ISO-7** to control the number of airborne dispersed particles in the volume of the laboratory





## A complete and guaranteed system

Our team has gained the experience necessary to provide you with a complete service. From design to implementation, through certified and documented processes, we create controlled workspaces to fit into your operating areas.

The specialist assembly teams guarantee quick installation and service throughout Europe with competence and professionalism.

Our **AC GRAF SERVICE** division can also assist the client after first installation, for scheduled or extraordinary maintenance.

The **AC LABO®** system complies with **European regulations**, in accordance with:

- Technical standards of structural construction and seismic testing according to Eurocodes
- Standards and requirements for air conditioning and ventilation, lighting and electrical connections
- FGAS certification
- CE Certification



### *Thermodynamics, Our Business*

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