TESTA ATX-B AND ATX

ENVIRONMENTAL TEST CHAMBERS FOR BATTERY TESTING. WITH ATEX SAFETY.

aralab

ARALAB is a company specialised in designing, developing, manufacturing and servicing of high quality climatic chambers and controlled environment rooms.

Since 1985 we have been perfecting ways to create and control temperature, humidity, light, air flow and many other environmental conditions.

Only the highest quality components are used to manufacture our chambers so customers can have the best equipment for their research and testing purposes.

Control the environment, Your own climate.

TESTA
temperature and humidity testing chambers offer highly precise and reproducible conditions for climatic and temperature testing in many industries.

COMMON APPLICATIONS INCLUDE:

- ENVIRONMENTAL TESTING
- ELECTRONICS, AUTOMOTIVE, AEROSPACE,
- BUILDING MATERIALS, MILITARY EQUIPMENT, MATERIALS IN GENERAL RESEARCH
- QUALITY CONTROL
- PRODUCTION FACILITIES

ISO 9001 BUREAU VERITAS Certification

Certified ISO:9001 for its Quality Management System

KEY FEATURES

- The most advanced technology in climate control
- Internal aerodynamic optimisation to ensure uniformity of climatic conditions
- Time saving features with easily configurable testing programs that can run, start and stop automatically
- Highly resistant stainless steel interior for maximum durability and easy cleaning
- Flexible interior with height adjustable and removable stainless steel shelves
- Nonpolluting construction and cooling system
- Compliant with international standards and requirements EN, IEC, DIN, ISO, NP and UNE

TEMPERATURE AND HUMIDITY CONTROL RANGES

TESTA TT CHAMBERS – TEMPERATURE ONLY

FITOTERM CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
FitoTerm E20	-20°C to +150°C	N/A
FitoTerm E45	-45°C to +150°C	N/A

TESTA TT CHAMBERS – TEMPERATURE AND HUMIDITY

FITOCLIMA CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
FitoClima EP, EC & ECP 20	-20°C to +150°C	10 to 98% RH
FitoClima EP, EC & ECP 45	-45°C to +150°C	10 to 98% RH

TEMPERATURE AND HUMIDITY CONTROL RANGES

TESTA TESTING CHAMBERS

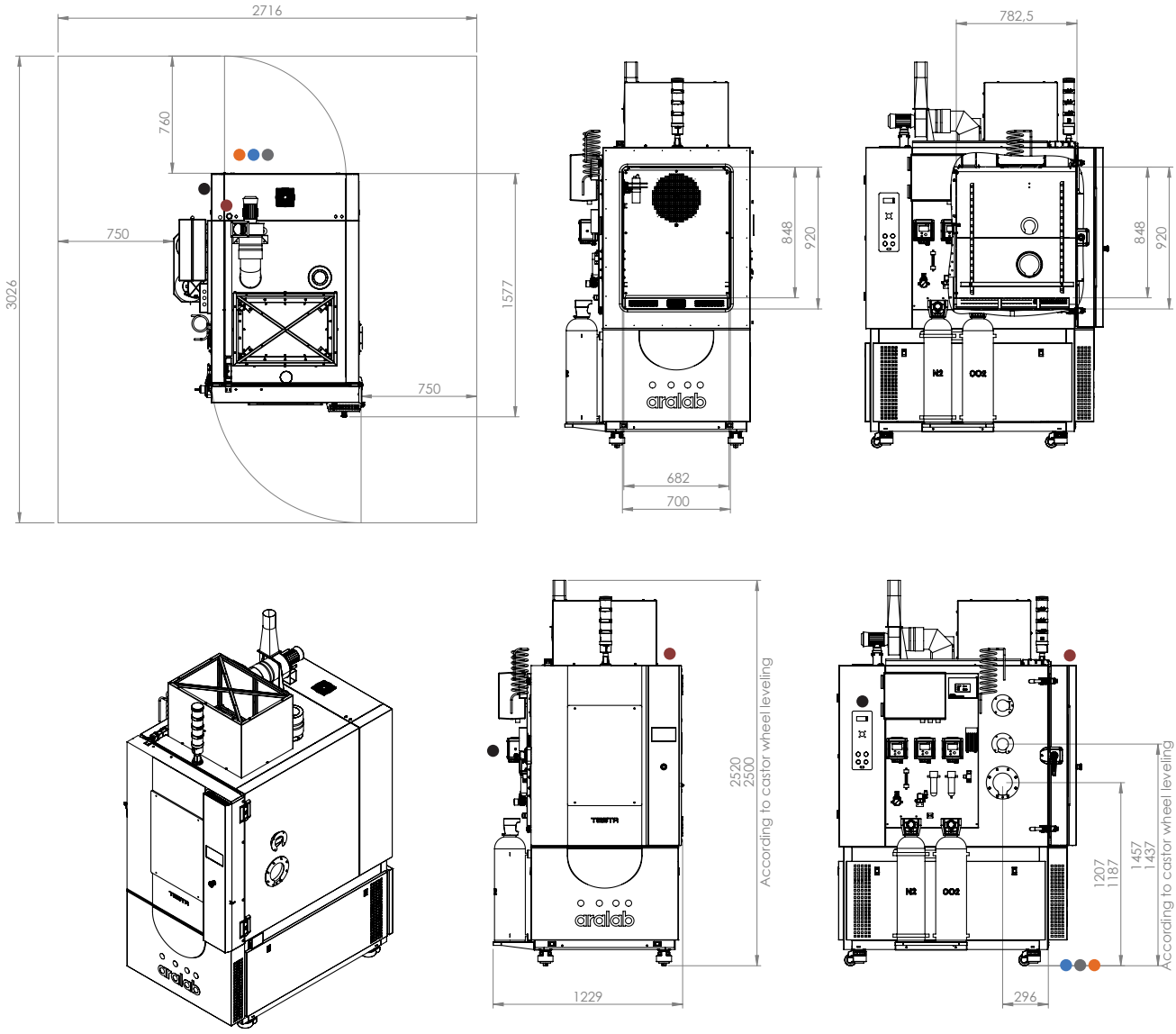
Performance in CLIMATIC testing range | only TESTA CT chambers		
TEMPERATURE RANGE		10°C to 90°C
TEMPERATURE UNIFORMITY		± 0,1°C to ± 1,0°C (1b)
TEMPERATURE FLUCTUATION (1a)		± 0,1°C to ± 0,3°C (1b)
HUMIDITY RANGE		10% RH to 98% RH
HUMIDITY FLUCTUATION (1a)		± 0,5% RH to ± 3% RH
Performance in TEMPERATURE testing | TESTA TT / CT chambers		
TEMPERATURE RANGE		-45°C or -20°C up to 150 °C
TEMPERATURE UNIFORMITY (1a)		± 0,5°C to ± 1,5°C
TEMPERATURE FLUCTUATION (1a)		± 0,1°C to ± 0,5°C
TEMPERATURE RATE OF CHANGE HEATING (2a) (2b)		From 2,5°C to 4,5°C / min 10°C / min in “10K” models
TEMPERATURE RATE OF CHANGE COOLING (2a) (2b)		From 2,5°C to 4,5°C / min 10°C / min in “10K” models
Other technical data		
NOISE LEVEL		55 to 64 dBA
ELECTRICAL CONNECTION		3/N/PE AC 400V ± 10% 50Hz

Performances measured in factory with ambient temperatures between 20°C and 25°C.
(1a) Measurements at center of test space, with empty chamber and no optional accessories; (1b) in temperature range up to 150°C;
(2a) According to IEC/EN 60068-3-5. Values will vary with TESTA model, internal volume, compressor type and condenser cooling system. Temperature rate of change can be adjusted to comply with the needed heating / cooling speed requirements. Optional accessories are available for more demanding heating and cooling temperature change rates.
(2b) The Testa TT/CT 20 model is a monophasic chamber with a standard temperature rate of change of 1,9°C/min for heating and 1,8°C/min for cooling.

DIMENSIONS AND DRAWINGS

● ● ● ● TESTA CT / TT 500

EXTERNAL DIMENSIONS (HxWxD) (mm)		2.500 x 1.229 x 1.557
INTERNAL DIMENSIONS (HxWxD) (mm)		848 x 682 x 782



1. **Standard refrigeration system is air cooled**
2. **Services hub installation needs:**
   - ● ½" demineralized water supply
   - ● 50mm water drain at floor level
3. ● **Electrical cabinet installation needs:**

   Supply power ECP20:

   400VAC, 50Hz, 16A / 3-Phase + Neutral + Ground

   Electrical protection: Circuit breaker 3 x 16A + N with 300mA differential

   Single Phase electrical cable RV-K 5G2,5 on the top

   Supply power ECP45:

   400VAC, 50Hz, 16A / 3-Phase + Neutral + Ground

   Electrical protection: Circuit breaker 3 x 16A + N with 300mA differential

   3-Phase electrical cable RV-K 5G4 on the top

   ● **RS232 (or RJ45) communications port**
4. ● **Water cooled option:**

   Water flow: up to 2000 l/hr (at 25 °C)

   Intake pressure: 2 to 5 bar

   Water entry and exit pipe: 1" or 28mm

   Differential pressure between entry and exit: ≥ 2,5 bars

   Maximum temperature of water entry: 26 °C

   Minimum temperature of water entry: 16 °C

   Recommended temperature of water entry: 18 °C

RECHARGEABLE LITHIUM BATTERIES

AUTOMOTIVE - COMPUTER - TELECOMMUNICATIONS - DEFENSE – CONSUMER - ALTERNATIVE-ENERGY

Rechargeable Lithium Batteries became the choice energy storage for portable electronic devices, appliances, electric bicycles, vehicles, military equipment, etc. Reliability and safety become crucial. The batteries must perform well in hot and cold conditions, while not posing a hazard due to leaking or exploding.

Published standards by IEC, SAE, UL, and UN specify environmental tests like temperature cycling, heat resistance, thermal abuse and short circuit while hot.

Because failure during testing can produce hazardous results, these test chambers will require proper safety features and considerations.

THE MOST COMMON TEST STANDARDS FOR LITHIUM ION BATTERY

IEC 62660-2	Abuse testing of automotive batteries
SAE J2464	Automotive rechargeable batteries
IEC 60086-4	Safety of lithium batteries
UL 1642	Lithium ion batteries
UN/DOT 38.3	Testing lithium ion batteries
IEC 61960	Portable battery cells
UL 2054	Consumer and commercial batteries
IEEE 1625	Laptop rechargeable batteries
IEEE 1725	Phone rechargeable batteries

During the thermal tests, battery malfunctions may occur that can lead to the destruction of the batteries. For this reason, safety in the laboratory and protection of the staff during such tests must have the highest priority.

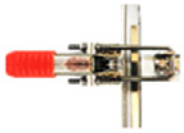
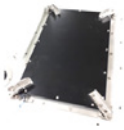
Aralab TESTA chambers for Battery Testing can offer safety systems / devices which comply with the EUCAR Hazard Levels. The Hazard Levels safety equipment can be adapted according to customer specifications. Based on your own testing needs and safety requirements, Aralab can help with the required safety options to create a comprehensive security system.

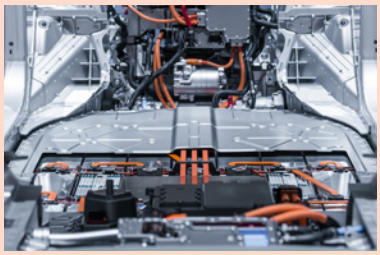
EUCAR HAZARD LEVELS AND DESCRIPTION

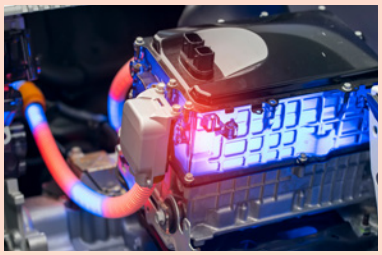
EUCAR assigns the hazard levels shown in Table below to an electrical energy storage systems technology based on that technology's response to abuse conditions. Manufacturers and integrators may find it useful to consider these EUCAR Hazard Levels when evaluating the abuse response.

HAZARD LEVEL	DESCRIPTION	CLASSIFICATION CRITERIA / EFFECT
1	Passive protection activated	No defect; no leakage; no venting, fire or flame; no rupture; no explosion; no exothermic reaction or thermal runaway. Cell reversibly damaged. Repair of protection device needed.
2	Defect Damage	No leakage; no venting, fire or flame; no rupture; no explosion; no exothermic reaction or thermal runaway. Cell irreversibly damaged. Repair needed.
3	Leakage - Δ mass < 50%	No venting, fire or flame; no rupture; no explosion. Weight loss < 50% of electrolyte weight (electrolyte = solvent + salt).
4	Leakage - Δ mass > 50%	No fire or flame; no rupture; no explosion. Weight loss 50% of electrolyte weight (electrolyte = solvent + salt).
5	Fire or Flame	No rupture; no explosion (i.e. no flying parts).
6	Rupture	No explosion, but flying parts of the active mass.
7	Explosion	Explosion (i.e. disintegration of the cell).

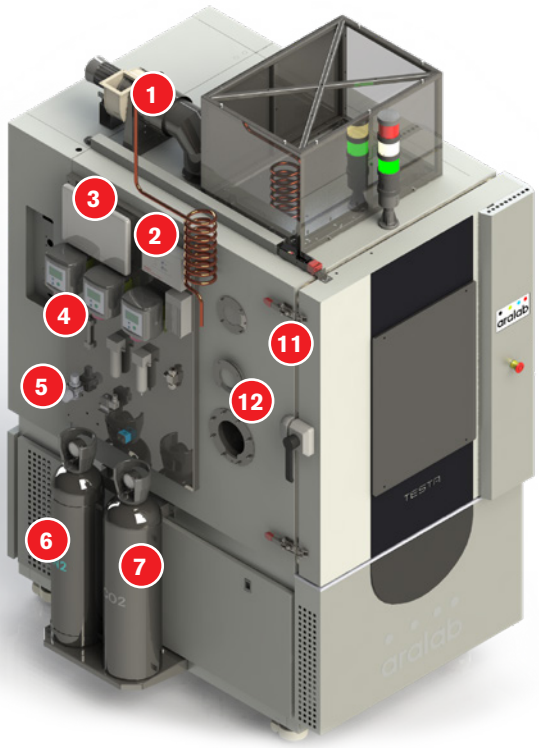
EUCAR HAZARD LEVEL PROTECTIONS

HAZARD LEVEL 0-3	HAZARD LEVEL 4	HAZARD LEVEL 5	HAZARD LEVEL 6
			
Status indicator	Mechanical Door Lock	Fire extinguishing	Permanent gas inertization with nitrogen or argon. O_2 measurement
			
Emergency Stop	Reversible pressure release	Fire detection w/ CO Sensor	Gas measurement H?, HF, O?, CO?, HC
			
Security Door lock	Especial entry port	ATEX Extration / renovation	Explosion Pressure relief
			
		Gas measurement H?, HF, O?, CO?, HC	





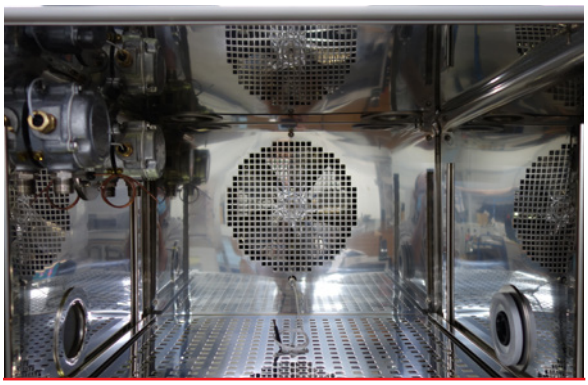
SAFETY DEVICES



1.	Flushing ATEX System	8.	Explosion Pressure Relief System
2.	Fire detection and extinguishing system	9.	Status Indicator
3.	PLC - Safety Control Systems	10.	Emergency Stop command
4.	Gas Sensors – CO, H_2, HF, HC, O_2, others	11.	Mechanical Door Lock w/ retaining clamps
5.	Permanent Gas Enertization Inlet	12.	Security Entry Ports
6.	N_2 - Gas Cylinder or N2 Inlet	13.	Security Door Lock
7.	CO_2 - Gas Cylinder	14.	Polycarbonate window protection

TESTA BATTERY TESTING CHAMBER

TESTA ATEX CHAMBER

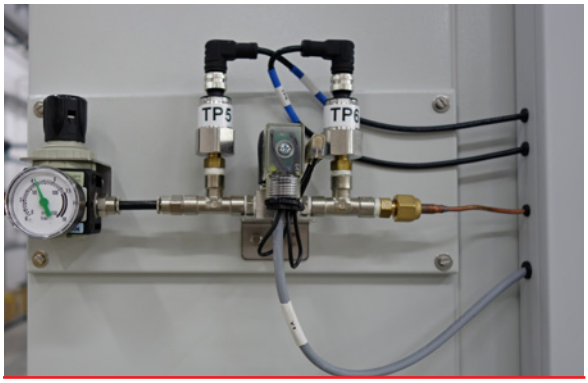


GAS SENSORS, FIRE DETECTORS

POLYCARBONATE WINDOW PROTECTION

SAFETY CONTROL SYSTEMS PLC

MAGNETIC DOOR LOCK AND MANUAL LATCHES



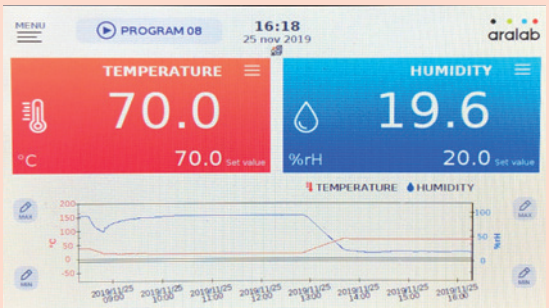
INERTIZATION SYSTEMS

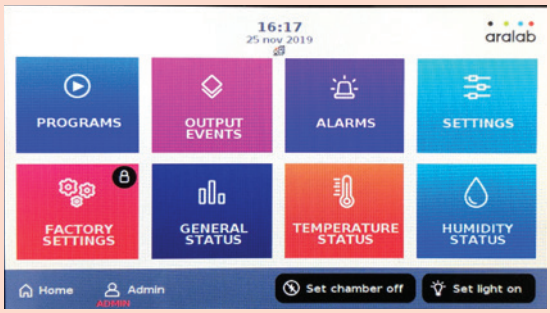
FLUSHING / PRESSURE RELIEF SAFETY

CONTROLLER

CLIMA PLUS

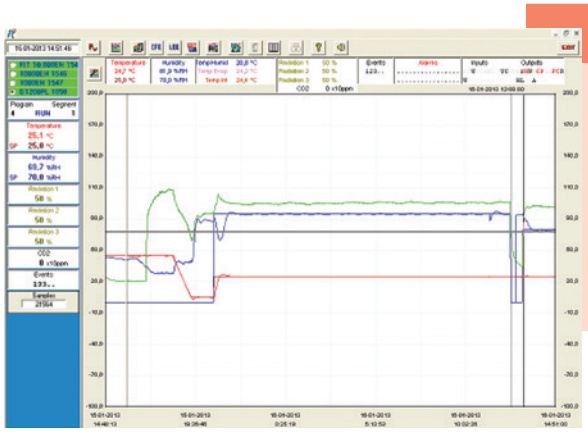
Programmable PLC exclusively developed for ARALAB chambers
Easy to use coloured Touch-Screen Display Interface
Resolution of 0,1°C for Temperature and 0,1% for Relative Humidity
High performance temperature and humidity control with value correction in all ranges
Capability for creating 50 programs of 50 segments each
Internal non volatile memory for storing test data
Automatic restart of tests due to power failure, without losing data and restarting test where it was interrupted
Real-time monitoring of all functions and control of equipment.
Manage control settings via MODBUS/TCP
Possibility of programming a delay of the beginning of test
Monitoring and recording of all alarms
Possibility of performing events by external commands
Several outputs for connecting computers or other devices
Alarms management
Graphic representation of the tests and conditions
Remote access through VNC server
Possibility of running computer test programs and export them to the controller





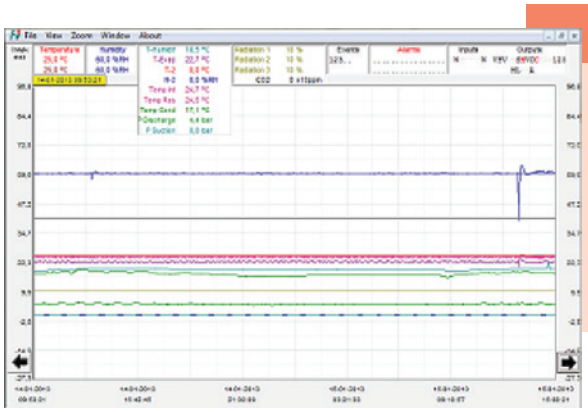
FITOLOG SOFTWARE

The FitoLog software pack is a set of applications designed to facilitate the managing, monitoring and recording of programs and data from the FitoClima chambers. It consists of 3 applications: **FitoLog**, **FitoLogView** and **FitoProgram**.



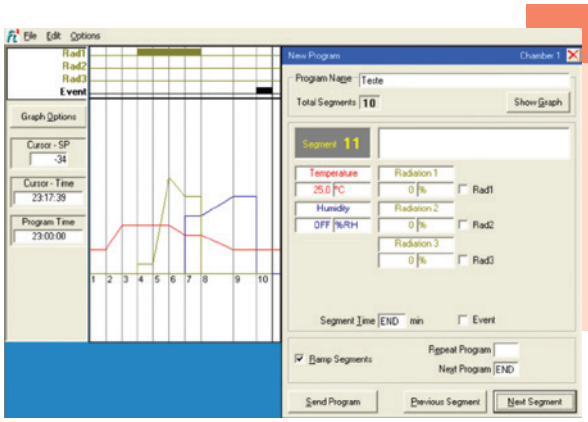
FITOLOG

Records and displays in real time all data and details related to the set-points, running variables and equipment behaviour. It also retrieves information about the active components of the chamber, running processes, errors, alarms and allows the configuration of periodic or alarm triggered remote notifications (by email or SMS, depending on existing connections and accessories).



FITOLOGVIEW

It is a working tool to process the data recorded by the FitoLog program. One can view, print and export the log contents to other file types, and analyse the data in other data management software (Excel, Star Office, Access or others).



FITOPROGRAM

This application simplifies the creation of programs and its integration on the chamber ClimaPlus controller. Up to 32 programs, each with 24 segments, can be designed and linked to create detailed environmental profiles and simulations.

NOTIFICATIONS, FAST DIAGNOSTICS AND PROMPT TROUBLESHOOTING

With FitoLog it is possible to gather data from each of the chambers systems, which makes it a very useful tool to diagnose any necessary maintenance. This tool works as the “black box” of the equipment, giving Aralab technicians the necessary data to remotely carry out a fast and efficient diagnostic. All that is needed is a FitoLog file.

Let's meet!
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aralab

Control the environment

Your own climate