

**TESTING**

**TESTA TT** TEMPERATURE TESTING

**TESTA CT** CLIMATIC TESTING

**'WALK-IN' ENVIRONMENTAL TEST CHAMBERS**





**ARALAB** is a company specialized 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.



**FitoTerm & FitoClima 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

**KEY FEATURES**

- The most advanced technology in climate control
- Internal aerodynamic optimization 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
- Able to comply with the most demanding testing standards and customer specifications
- Nonpolluting construction and cooling system
- Compliant with international standards and requirements EN, IEC, DIN, ISO, NP and UNE



Certified ISO:9001 for its Quality Management System  
Certified ISO:14001 for its Environmental Management System



## TEMPERATURE AND HUMIDITY CONTROL

### ● ● ● ● TESTA TT CHAMBERS - TEMPERATURE ONLY

TESTA TT CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
TESTA TT E20	-20°C to +150°C	N/A
TESTA TT E40	-40°C to +150°C	N/A
TESTA TT E60	-60°C to +150°C	N/A

### ● ● ● ● TESTA CT CHAMBERS - TEMPERATURE AND HUMIDITY CONTROL








TESTA CT CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
TESTA CT EP, EC & ECP 20	-20°C to +150°C	10 to 95% RH
TESTA CT EP, EC & ECP 40	-40°C to +150°C	10 to 95% RH
TESTA CT EP, EC & ECP 60	-60°C to +150°C	10 to 95% RH

Note: EP, EC & ECP refer to the humidity sensors. EP = Electronic Psychrometric; EC = Electronic Capacitive; ECP = Electronic Capacitive + Psychrometric

## OTHER TECHNICAL CHARACTERISTICS

### ● ● ● ● TESTA CT / TESTA TT CHAMBERS

#### Performance in CLIMATIC testing range | only TESTA CT chambers

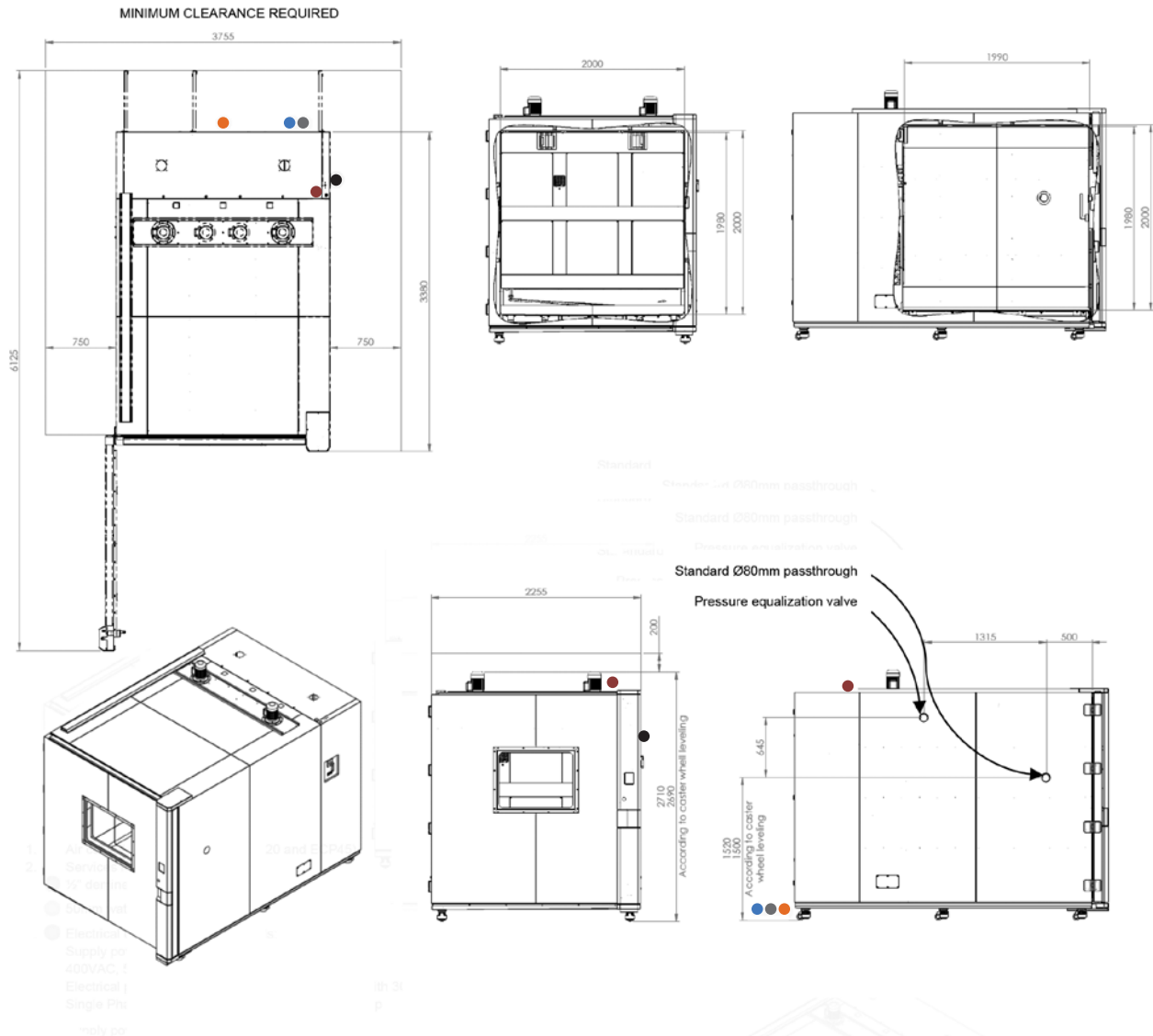
HEATING SPEED*		From 1,5°C to 5°C / minute
COOLING SPEED*		From 1°C to 5°C / minute Depending on model and compressor(s) power. Temperature change rates can be adjusted to fit customer requirements.
TEMPERATURE FLUCTUATION		± 1,0°C
TEMPERATURE UNIFORMITY IN SPACE		± 1,0°C
HUMIDITY RANGE ** (TESTA CT MODELS ONLY)		10% to 95% RH (** Humidity control possible in climatic range of 10°C to 95°C)
HUMIDITY FLUCTUATION		± 2 % RH
HUMIDITY UNIFORMITY IN SPACE		± 2 % RH

\* Please inform Aralab about the application or testing standard so we can provide with the most adequate solution. Aralab Testing chambers are configured and factory calibrated to comply with the necessary heating / cooling speed requirements.

## DIMENSIONS AND DRAWINGS

### ● ● ● ● TESTA TT / TESTA CT 8.000

EXTERNAL DIMENSIONS (HxWxD) (mm)		2.710 x 2.300 x 3.380
INTERNAL DIMENSIONS (HxWxD) (mm)		1.980 x 2.000 x 1.990



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, 55A / 3-Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 63A + N with 300mA differential  
 Single Phase electrical cable RV-K 5G16 on the top

**Supply power ECP45:**

400VAC, 50Hz, 80A / 3-Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 80A + N with 300mA differential  
 3-Phase electrical cable RV-K 3x25 + 2G35 on the top

**Supply power ECP60:**

400VAC, 50Hz, 125A / 3-Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 125A + N with 300mA differential  
 3-Phase electrical cable RV-K 3x50 + 2G35 on the top

● **RS232 (or RJ45) communications port**

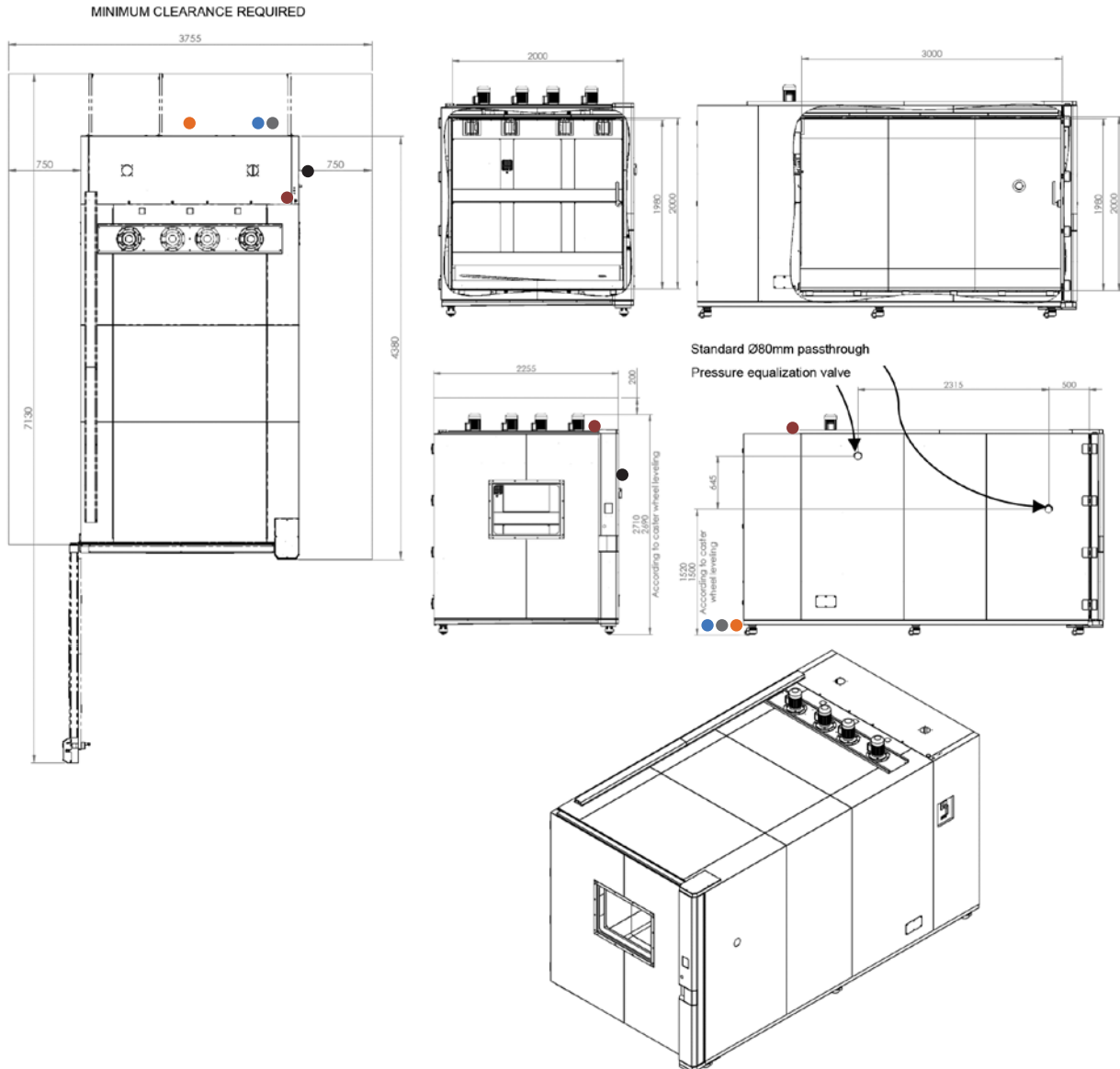
4. ● **Standard water cooled:**

Water flow (at 25 °C):  
 up to 5000 litres/hour (for 45 °C models)  
 up to 10000 litres/hour (for 60 °C models)  
 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

## DIMENSIONS AND DRAWINGS

### ● ● ● ● TESTA TT / TESTA CT 12.000

EXTERNAL DIMENSIONS (HxWxD) (mm)		2.710 x 2.300 x 4.380
INTERNAL DIMENSIONS (HxWxD) (mm)		1.980 x 2.000 x 3.000



1. **Air cooled as an option (only ECP20 and ECP45)**

2. **Services hub installation needs:**

- 1/2" demineralized water supply
- 50mm water drain at floor level

3. **Electrical cabinet installation needs:**

**Supply power ECP20:**

400VAC, 50Hz, 55A / 3-Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 63A + N with 300mA differential  
 Single Phase electrical cable RV-K 5G16 on the top

**Supply power ECP45:**

400VAC, 50Hz, 80A / 3-Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 80A + N with 300mA differential  
 3-Phase electrical cable RV-K 3x25 + 2G16 on the top

**Supply power ECP60:**

400VAC, 50Hz, 125A / 3 Phase + Neutral + Ground  
 Electrical protection: Circuit breaker 3 x 125A + N with 300mA differential  
 3-Phase electrical cable RV-K 3x50 + 2G35 on the top

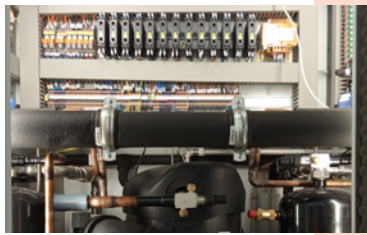
● **RS232 or RJ45 communications port**

4. ● **Standard water cooled:**

Water flow (at 20°C): up to 5000 litres/hour (at -45 °C models)  
 up to 10000 litres/hour (at -60 °C models)

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

## EQUIPMENT DESCRIPTION



### TEMPERATURE

#### TEMPERATURE SENSORS

- One (1) PT 100 Class A, located in air treatment tunnel
- One (1) PT 100 Class A, movable sensors for flexible placing inside chamber

#### HEATING

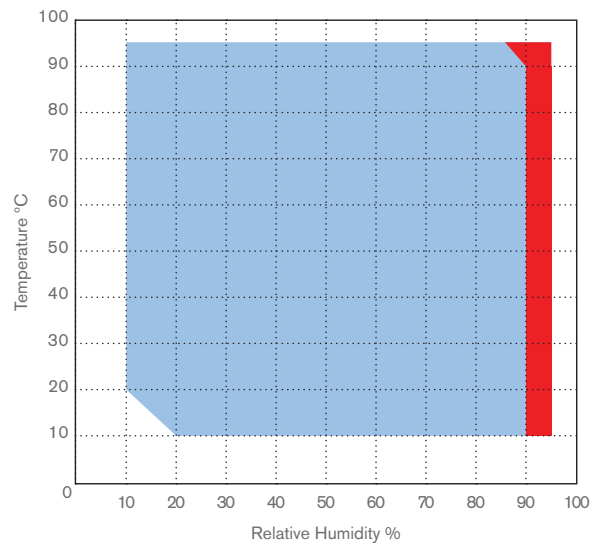
- By stainless steel electric heaters located in the air treatment tunnel

#### COOLING

- Mechanical compressor group Scroll (low noise, high efficiency) with enforced ventilation and without use of CFC's. In -60°C models water cooled condenser is used as standard. As an option the system can be cooled by an air condenser.

#### THERMAL SECURITY

- Safety thermostats with High / Low temperature configuration, with automatic stop of all heating systems. High / Low temperature alarms programmed in the controller, with mute function. This function won't stop the chamber and it's only used to record the occurrence and to call the attention of the users with an audible alarm.



Standard climatic range

Non-standard climatic range (psychrometric sensor control)



### HUMIDITY (TESTA CT CHAMBERS)

#### HUMIDITY SENSORS

- To measure and control humidity Aralab has different sensor technologies: Psychrometric, Capacitive, or both. Consult Aralab for technical support on the appropriate selection.

#### HUMIDITY / DRYING

- Humidity: Through thermostatic bath with dew point control.
- Drying: Through thermostatic bath with dew point control and additional dry coil



### SECURITY

- Automatic stop function in case of water failure, with indication on the controller; High / Low Temperature alarms; High / Low humidity alarms;



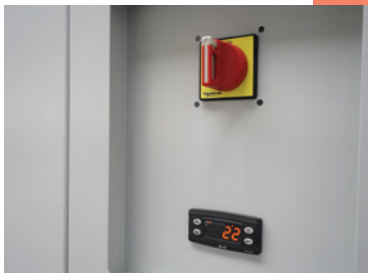
### CONSTRUCTION

- Interior: AISI 304 hermetical welded, vapor tight, stainless steel
- Exterior: Zinc mild steel with epoxy coating finish (color RAL 7035)
- Insulation: Rock Wool
- Interior illumination: Halogen lamp 12V (only available with optional window)
- Door: Double silicone joints and anti-condensation heating frames. Automatic electric locks with emergency opening from the inside



### AIR FLOW / VENTILATION

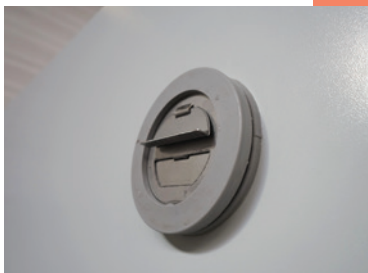
- Air Flow: Forced through 2 blowers installed at the back wall / top of the chamber.
- Air Renovation: By lateral port, also for compensating pressure.



### CUT-OFF PANEL, SECURITY AND COMMUNICATIONS

Mounted on left lateral panel of the chamber and equipped with:

- High / Low safety thermostat
- Main Power switch
- Audible alarms
- RJ45 Ethernet port



### INCLUSIONS

- 1 lateral left panel entry port with Ø 80 mm
- 6 casters for leveling and safely parking
- Instructions manual in English (other languages upon request)
- 2 years warranty



## CLIMAPLUS HMI CONTROLLER

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

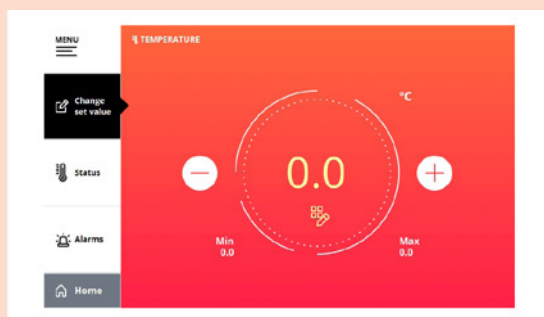
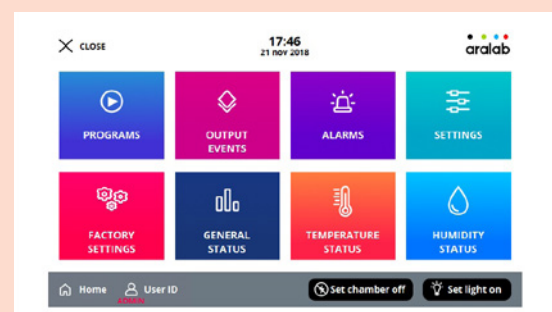
Several outputs for connecting computers or other devices

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 TESTA 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.

## COMMON ACCESSORIES

### PLEASE CONSULT ARALAB FOR OTHER ITEMS

FitoLog and FitoLogView Software pack

Anti-condensation observation window in multi layered glass

Water demineralizer

Water conductivity monitor

Additional entry side-ports

Calibration certificates from accredited external laboratory

Heating / Cooling temperature change rate speeds



Door with observation window



Compressed Air Dryer



Atex and safety protections



Additional Entry-ports



Water Treatment systems



Electronic safety locks



Water supply tank

## INSTALLATION REQUIREMENTS

To ensure a correct functioning of the chamber, the following installation conditions are required:

### INSTALLATION SITE

The place should be easily accessible, according to equipment dimensions and weight. It should have good air circulation and a room temperature between 10° and 26°C. The floor should be leveled and a minimum distance of 50cm from the walls and other equipment must be kept.

### ELECTRICAL SUPPLY

Near the equipment with the specified requirements: 3/N/PE AC 400V 10%; 50Hz. Amperage will vary with specific requirements of temperature / humidity ranges as well as cooling and heating speeds.

### HUMIDIFICATION CIRCUIT AND DEMINERALIZED WATER (FOR FITOCLIMA MODELS)

The humidification circuit works exclusively with distilled or demineralized water. For this circuit, a water admission pressure of 1 to 6 bares and conductivity of  $\leq 5\mu$  Siemens is required.

### WATER CIRCUIT FOR COOLING CONDENSER

#### (optionally, air condenser)

A cold water circuit is required for the cold system condenser. Technical characteristics:

- Water flow (at 25 °C): up to 5.000 liters/hour for -45°C models and 10.000 liters/hour for -60 °C models
- Intake pressure: 2 to 5 bar
- Water entry and exit pipe: 1" or 28mm
- Differential pressure between entry and exit:  $> 0,5$  bars
- Maximum temperature of water entry: 26°C
- Minimum temperature of water entry: 16°C
- Recommended temperature of water entry: 18°C

### DRAIN

At floor level and near the equipment. The draining of the humidification and cooling systems water is done by gravity. For a correct draining there should be a minimum inclination of 10° in a descending trajectory from the chambers draining pipe until the sewage system.

Features and specifications are subject to change. Aralab continuously studies ways to further develop its products to achieve better performances and overall product quality. As a result, characteristics and specifications provided in this document may be subject to changes.

Let's meet!

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aralab

**Control the environment**

Your own climate