memmert
aralab
BL

ENVIRONMENTAL TEST CHAMBERS

TESTA TT | TESTA CT

YOU SET THE LIMITS.
WE HOLD THE CONDITIONS.

TESTA-CT and TESTA-TT environmental test chambers expand the Memmert portfolio with solutions for precise environmental simulation. Featuring a wide temperature range from –52 / –75 °C up to +180 °C, controlled humidity from 10 to 98% RH (CT models), and temperature change rates of up to 10 K/min on request, they ensure reliable and reproducible testing conditions.

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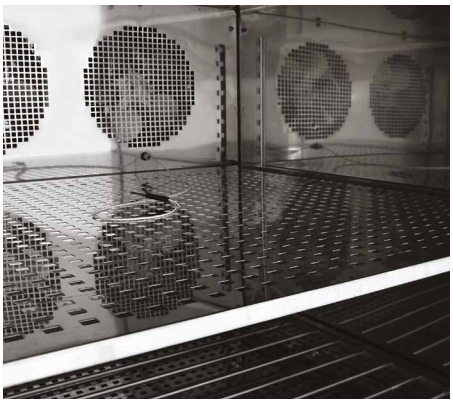
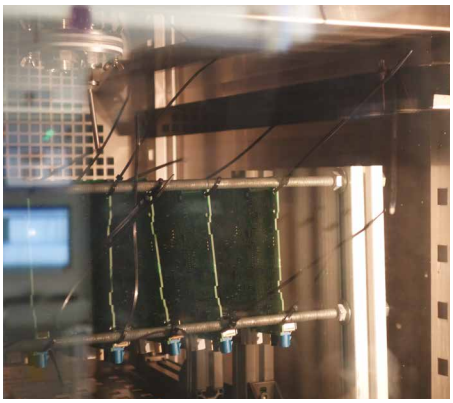
Benefit from the combined strengths of two industry leaders. Memmert, a pioneer in climate and temperature control since 1933, and Aralab, known for its innovation in climate chambers since 1985, bring decades of specialized knowledge to the table. This collaboration ensures that customers receive the highest quality solutions, backed by the expertise of two of the most trusted names in the industry.





TESTA TEMPERATURE AND HUMIDITY TESTING CHAMBERS

OFFER HIGHLY PRECISE AND REPRODUCIBLE CONDITIONS FOR CLIMATIC AND TEMPERATURE TESTING IN MANY INDUSTRIES.

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**.

COMMON APPLICATIONS INCLUDE

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

CERTIFIED
ISO 9001
ISO 14001

TESTA CHAMBERS - MODELS AND REFERENCES

TESTA TT CHAMBERS – TEMPERATURE ONLY

TESTA TT CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
TESTA TT E50	-52ºC to +180ºC	N/A
TESTA TT E75	-75ºC to +180ºC	N/A

TESTA CT CHAMBERS – TEMPERATURE AND HUMIDITY

TESTA CT CHAMBERS	TEMPERATURE RANGE	HUMIDITY RANGE
TESTA CT EP50, EC50 or ECP50	-52ºC to +180ºC	10 to 98% RH
TESTA CT EP75, EC75 or ECP75	-75ºC to +180ºC	10 to 98% RH

EC - models with Capacitive humidity sensor
EP - models with Psychrometric humidity sensor
ECP - models with both Capacitive and Psychrometric humidity sensors.
Please consult Aralab if in doubt about the type of sensor to chose

RANGES FOR CLIMATIC AND TEMPERATURE TESTING

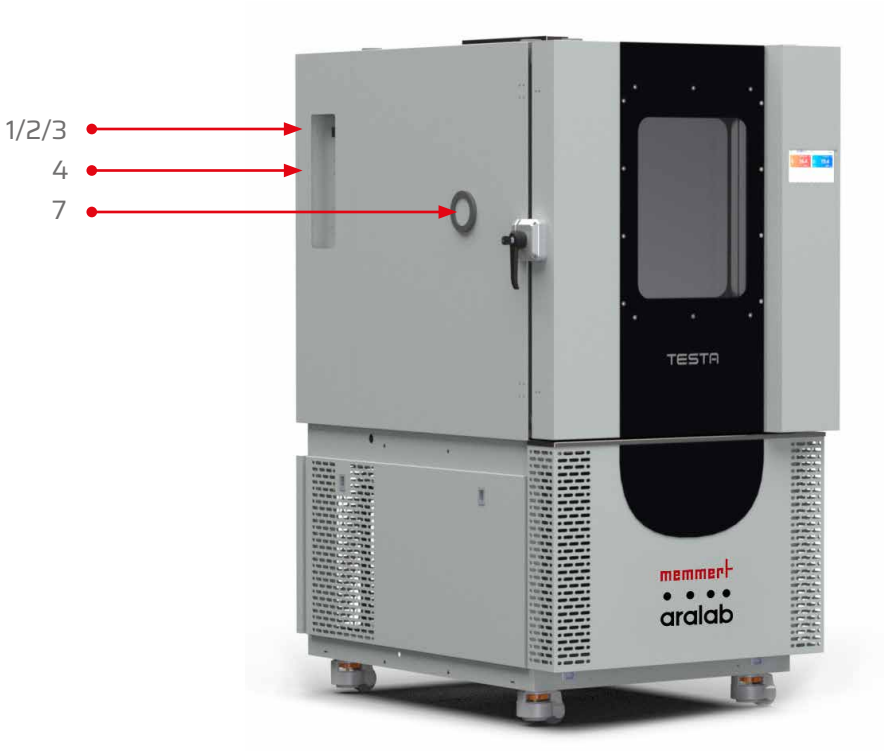
TESTA CT TESTING CHAMBERS

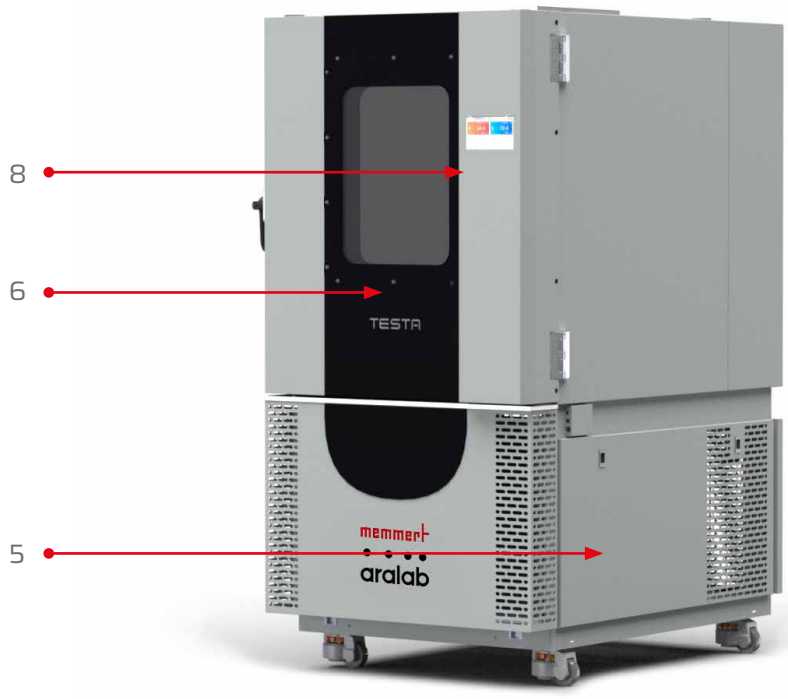
Performance in CLIMATIC testing range | only TESTA CT chambers	
TEMPERATURE RANGE	10ºC to 95ºC
TEMPERATURE UNIFORMITY	± 0,1ºC to ± 1,0ºC (1b)
HUMIDITY RANGE	10% RH to 98% RH
Performance in TEMPERATURE testing | TESTA TT and TESTA CT chambers	
TEMPERATURE RANGE	-75ºC, or -52ºC, up to 180ºC
TEMPERATURE UNIFORMITY (1a)	± 0,5ºC to ± 1,5ºC
TEMPERATURE RATE OF CHANGE HEATING (2a) (2b)	3 versions available: Up to 5K/minute 5k/minute 10k/minute
TEMPERATURE RATE OF CHANGE COOLING (2a) (2b)	3 versions available: Up to 5K/minute 5k/minute 10k/minute (only for Testa 1000 and above) Higher cooling rates available upon request
Other technical data	
NOISE LEVEL	55 to 64 dBA

Performances measured in factory with ambient temperatures between 20ºC and 25ºC.
(1a) Measurements at center of test space, with empty chamber and no optional accessories.
(1b) In temperature range up to 150ºC.
(2a) According to IEC/EN60068-3-5/6.
(2b) Values will vary with TESTA CT/TESTA TT 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.

DIMENSIONS AND DRAWINGS

SYSTEM STRUCTURE



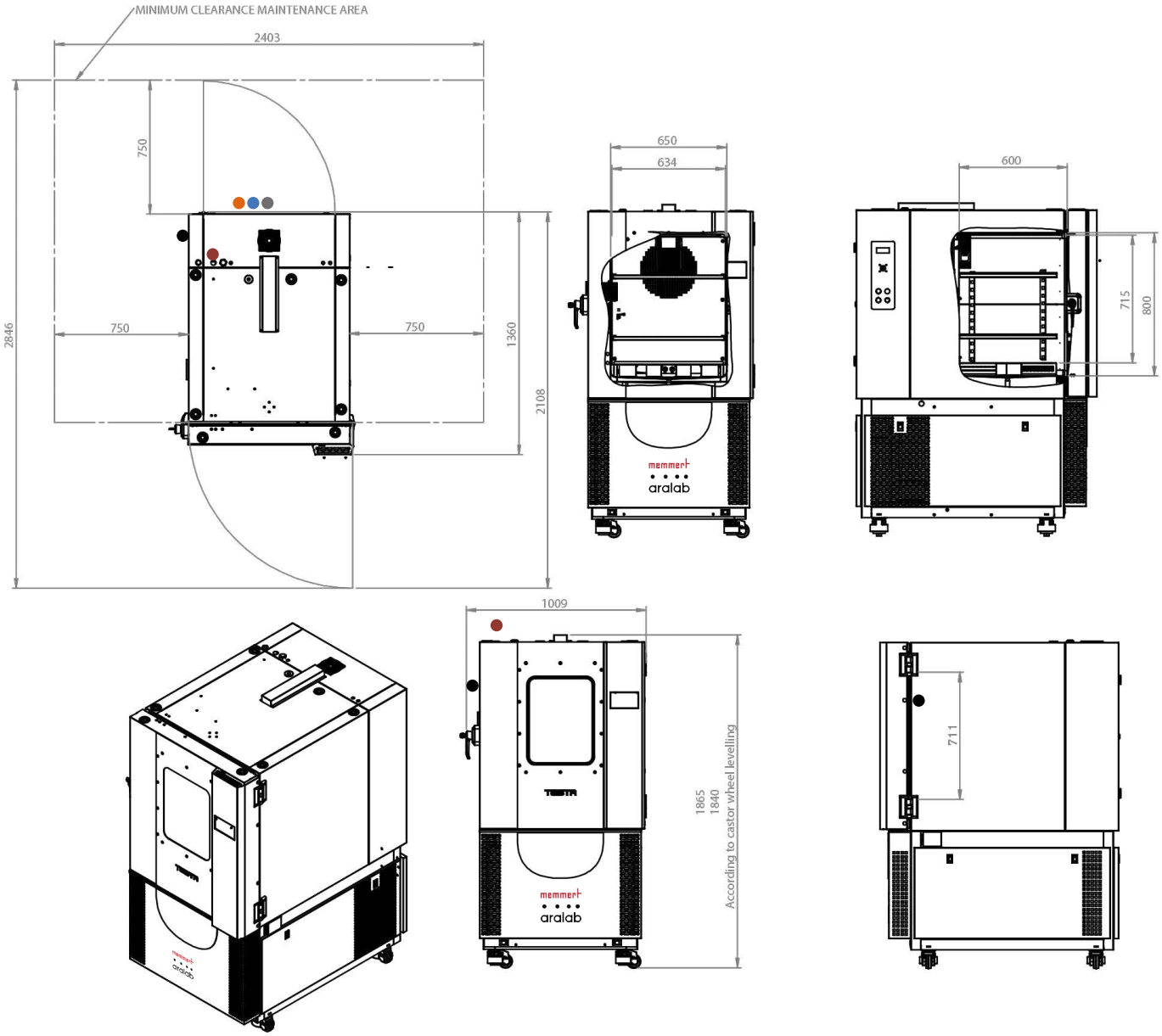


1. Main switch
2. DB9 connector
3. Safety thermostat
4. Electrical Board
5. Machinery compartment
6. Observation window with working light (optional)
7. Entry-port Ø80
8. Touch screen controller

TESTA 300 - PERFORMANCES, DIMENSIONS AND DRAWINGS

TESTA TT / TESTA CT 300

EXTERNAL DIMENSIONS (HxWxD) (mm)		1 840 x 1 009 x 1 340
INTERNAL DIMENSIONS (HxWxD) (mm)		715 x 634 x 600



1. Standard refrigeration system in -52 °C models is air cooled; water cooling is optional. For -75 °C models, see point 4.
2. Services hub installation needs:
   - ¾" demineralized water supply
     Condutivity: <50µS/cm , TDS <35PPM
   - 20mm water drain at floor level female connection
3. Electrical cabinet installation needs:
   Supply power TESTA 300 TT/CT 50:
   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

   Note: Cooling or Heating rate upgrades can affect Electrical Requirements. Please consult Memmert.

   Supply power TESTA 300 TT/CT 75:
   400VAC, 50Hz, 20A / 3-Phase + Neutral + Ground
   Electrical protection: Circuit breaker 3 x 32A + N with 300mA differential
   3-Phase electrical cable RV-K 5G10 on the top
   - RJ45 communications port
4. Water cooled option (is included as standard in -75°C models)
   Intake pressure: 3 to 5 bar
   Water entry and exit pipe: 1" or 28mm
   Maximum temperature of water entry: 23 °C
   Minimum temperature of water entry: 16 °C
   Recommended temperature of water entry: 18 °C

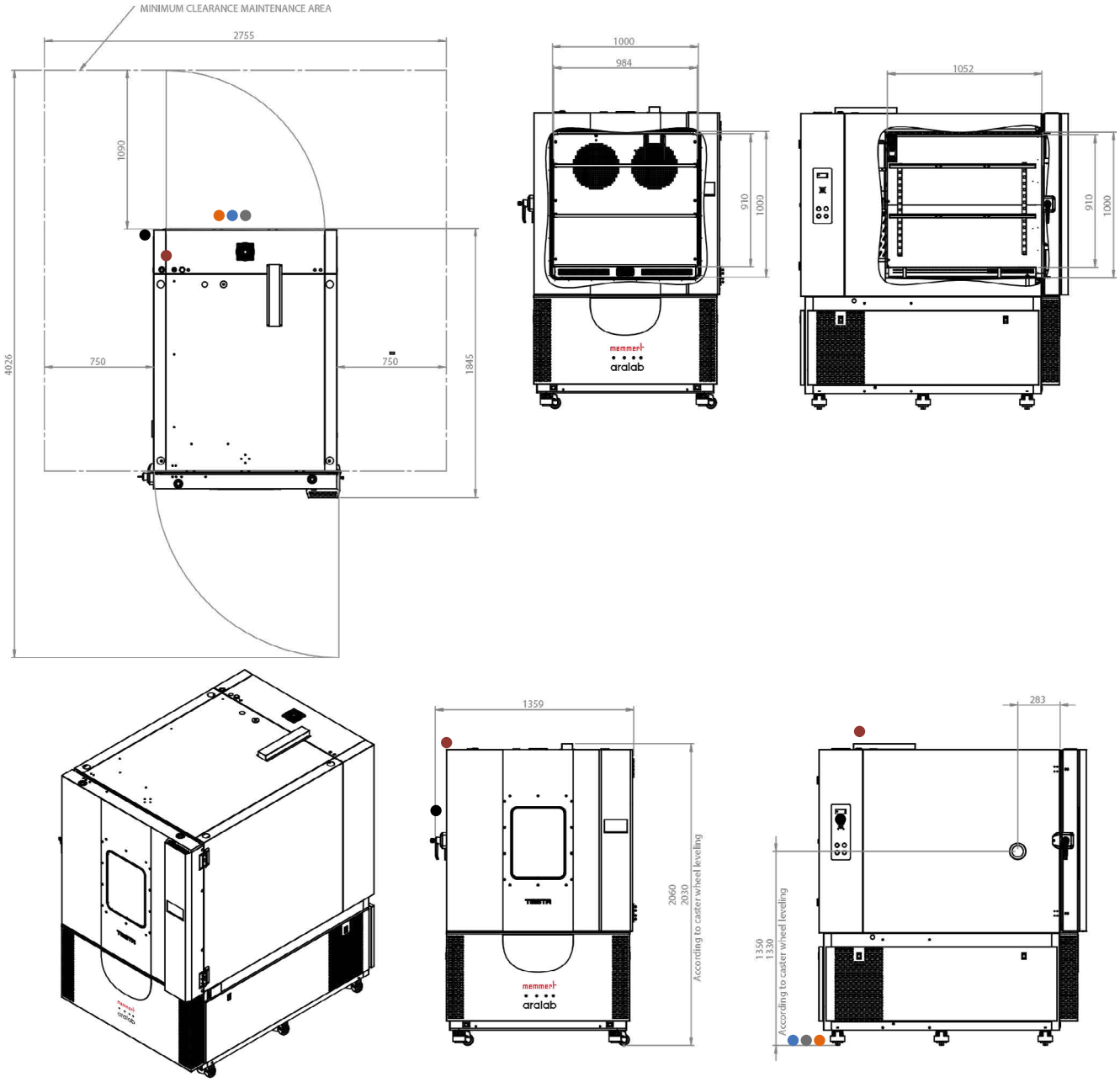
TESTA CHAMBERS PERFORMANCE	units	Testa TT 300 -50	Testa CT 300 -50	Testa TT 300 -75	Testa CT 300 -75
PERFORMANCE IN TEMPERATURE TESTING					
Temperature range					
Min	°C	-52	-52	-75	-75
Max	°C	180	180	180	180
Temperature uniformity [1a] [1b]					
in Space @ low temp. point	°C	± 0,8	± 0,7	± 0,7	± 1,3
in Space @ +25°C	°C	± 0,1	± 0,2	± 0,2	± 0,2
in Space @ high temp point	°C	± 1,1	± 1,5	± 1,1	± 1,5
Max. According to IEC60068-3-5	°C	± 1,5			
Temperature fluctuation in time	°C	± 0,1°C to ± 0,3°C			
Temperature change rate [2a] [2b]					
cooling	K/ min	5,4	5,7	3,5	3,5
heating	K/ min	5	5	5	5
PERFORMANCE IN HUMIDITY TESTING					
Humidity range					
Min	%rH	-	10	-	10
Max	%rH	-	98	-	98
Humidity uniformity IEC60068-3-5 [1a] [1b]					
in space	%rH	-	± 2	-	± 2
Fluctuation in time	%rH	-	± 1	-	± 1
DIMENSIONS					
Test space volume	liters	272			
Shelves					
number of shelves included (more can be added)	#	2			
maximum weight load per shelf	kg	25			
Entry ports					
Included as standard (more can be added)	units	1			
Diameter (other diameters available)	mm	Ø80			
Weight (approximately)	Kg	535		540	
POWER & REFRIGERATION					
Supply voltage	V	3/N/PE AC 400V±10% 50Hz-60Hz			
Nominal Power	kW	11	11	22	22
Type of Refrigeration [3c] **(air or water cooled)**					
Air		Standard		Optional	
Water		Optional		Standard	
Type of Refrigerant [3c]		R449A		R449A + R23	
Noise levels	dBA	55 to 64 dBA			

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/EN60068-3-5/6.
(2b) Values will vary with TESTA CT/TESTA TT 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.
(3c) Other refrigerant gases available.

TESTA 1.000 PERFORMANCES, DIMENSIONS AND DRAWINGS

TESTA TT / TESTA CT 1.000

EXTERNAL DIMENSIONS (HxWxD) (mm)		2 010 x 1 359 x 1 845
INTERNAL DIMENSIONS (HxWxD) (mm)		910 x 984 x 1 052



1. Standard refrigeration system in -52 °C models is air cooled; water cooling is optional. For -75 °C models, see point 4.
2. Services hub installation needs:
   - ¾" demineralized water supply
     Condutivity: <50µS/cm , TDS <35PPM
   - 20mm water drain at floor level female connection
3. Electrical cabinet installation needs:
   Supply power TESTA 1000 TT/CT 50:
   400VAC, 50Hz, 32A / 3-Phase + Neutral + Ground
   Electrical protection: Circuit breaker 3 x 32A + N with 300mA differential
   3-Phase electrical cable RV-K 5G4 on the top

   Supply power TESTA 1000 TT/CT 75 and 10K model:
   400VAC, 50Hz, 50A / 3 Phase + Neutral + Ground
   Electrical protection: Circuit breaker 3 x 63A + N with 300mA differential
   3-Phase electrical cable RV-K 5G10 on the top
   - RJ45 communications port
4. Water cooled option (is included as standard in -75°C models)
   Intake pressure: 3 to 5 bar
   Water entry and exit pipe: 1" or 28mm
   Maximum temperature of water entry: 23 °C
   Minimum temperature of water entry: 16 °C
   Recommended temperature of water entry: 18 °C

TESTA CHAMBERS PERFORMANCE	units	Testa TT 1.000 -50	Testa CT 1.000 -50	Testa TT 1.000 -75 (-40 10k)	Testa CT 1.000 -75 (-40 10k)	Testa TT 1.000 -75	Testa CT 1.000 -75
PERFORMANCE IN TEMPERATURE TESTING							
Temperature range							
Min	°C	-52	-52	-75	-75	-75	-75
Max	°C	180	180	180	180	180	180
Temperature uniformity [1a] [1b]							
in Space @ low temp. point	°C	± 0,7	± 0,7	± 0,7	± 0,7	± 1,2	± 1,2
in Space @ +25°C	°C	± 0,3	± 0,3	± 0,3	± 0,3	± 0,3	± 0,1
in Space @ high temp point	°C	± 1,4	± 1,5	± 1,5	± 1,5	± 1,5	± 1,5
Max. According to IEC60068-3-5	°C				± 1,5		
Temperature fluctuation in time	°C		± 0,1°C to ± 0,3°C			± 0,1°C to ± 0,3°C	
Temperature change rate [2a] [2b]				Calculated in the 180°C to -40°C range		Calculated in the 180°C to -75°C range	
cooling	K/min	5,1	5,1	10	10	4	4
heating	K/min	6	6	10	10	4,5	4,5
PERFORMANCE IN HUMIDITY TESTING							
Humidity range							
Min	%rH	-	10	-	10	-	10
Max	%rH	-	98	-	98	-	98
Humidity uniformity IEC60068-3-5 [1a][1b]							
in space	%rH	-	± 2	-	± 2	-	± 2
Fluctuation in time	%rH	-	± 1	-	± 1	-	± 1
DIMENSIONS							
Test space volume	liters		967			967	
Shelves							
number of shelves included (more can be added)	#		2			2	
maximum weight load per shelf	kg		50		25		50
Entry ports							
Included as standard (more can be added)	units		1			1	
Diameter (other diameters available)	mm		Ø80			Ø80	
Weight (approximately)	Kg		874		910		910
POWER & REFRIGERATION							
Supply voltage	V	3/N/PE AC 400V±10% 50Hz-60Hz			3/N/PE AC 400V±10% 50Hz-60Hz		
Nominal Power	kW	22	22	44	44	35	35
Type of Refrigeration [3c] **(air or water cooled)**							
Air			Standard		N/A		Optional
Water			Optional		Standard		Standard
Type of Refrigerant [3c]			R449A			R449A + R23	
Noise levels	dBA		55 to 64 dBA			55 to 64 dBA	

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/EN60068-3-5/6.
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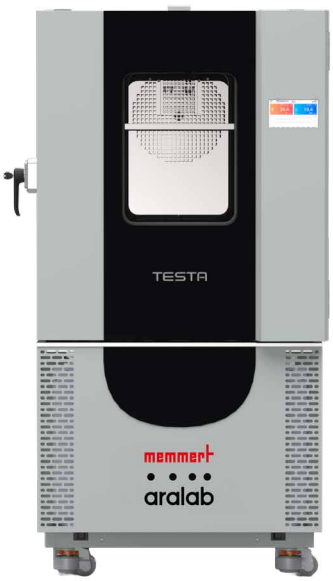
(3c) Other refrigerant gases available.

EQUIPMENT DESCRIPTION



TEMPERATURE

TEMPERATURE SENSORS

- One (1) PT 100 Class A
- One (1) PT 100 Class A, movable sensors for flexible placing inside chamber

HEATING

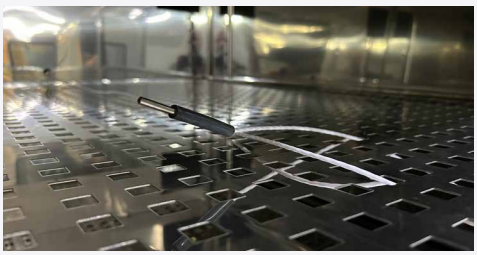
- By stainless steel electric heaters located in the air treatment tunnel

COOLING

- Air cooled hermetic compressor group (low noise and high efficiency) with enforced ventilation and without CFC's. Water-cooled condensers are also available as standard in -75ºC models or an option for models with temperature cooling rate upgrades.

THERMAL SECURITY

- Safety thermostat with High / Low temperature configuration, with automatic stop of all thermic systems.
- High / Low temperature alarms programmed in the controller, with mute function. This function will not stop the chamber and it is only used to record the occurrence and to call the attention of the users with an audible alarm.



HUMIDITY (TESTA CT CHAMBERS)

HUMIDITY SENSORS

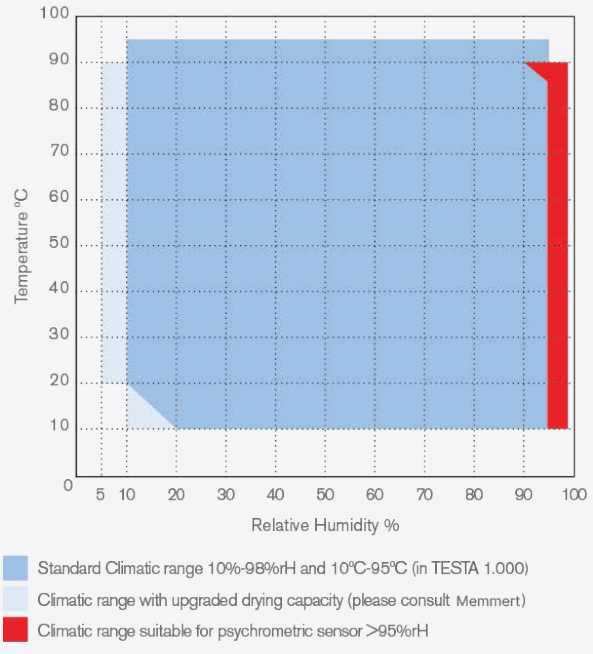
- To measure and control humidity use two different sensor technologies: Psychrometric (EP models), Capacitive (EC models), or both (ECP models). Consult Memmert for technical support on the appropriate selection.

HUMIDITY / DRYING

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

HUMIDITY SENSORS: HUMIDITY VS. TEMPERATURE RANGES GRAPHIC

- For climatic tests that require humidity and temperature ranges highlighted in red on the graph, a Psychrometric sensor is recommended (EP and ECP models). Please consult Memmert for help on the choice between these two models.

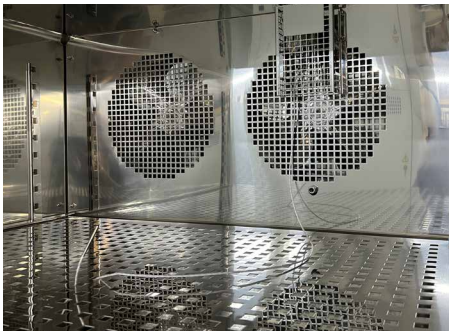


SECURITY

- 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, vapour tight, stainless steel
- Exterior: Zinc mild steel with epoxy coating finish (color RAL 7035)
- Insulation: Rock Wool
- Interior illumination: Included with Optional Observation Window
- Door: Double silicone joints and anti-condensation heating frames (optional window)



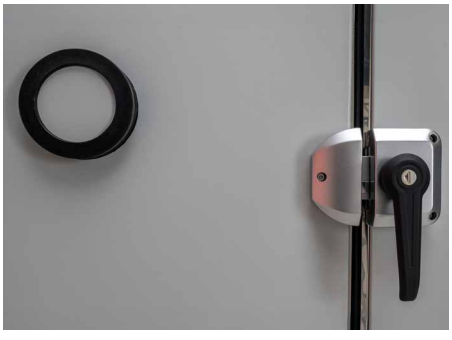
AIR FLOW / VENTILATION

- Air Flow: Forced through ventilators/fans (300 model has one ventilator/fan, 1.000 model has two).
- Air Renovation: By lateral port, also for compensating pressure.

CUT-OFF PANEL, SECURITY AND COMMUNICATIONS

On left lateral panel of the chamber and equipped with:

- High / Low safety thermostat
- Mains Power switch
- Audible alarms
- Ethernet communications port

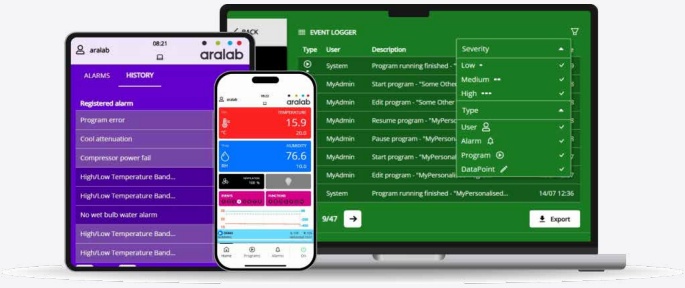


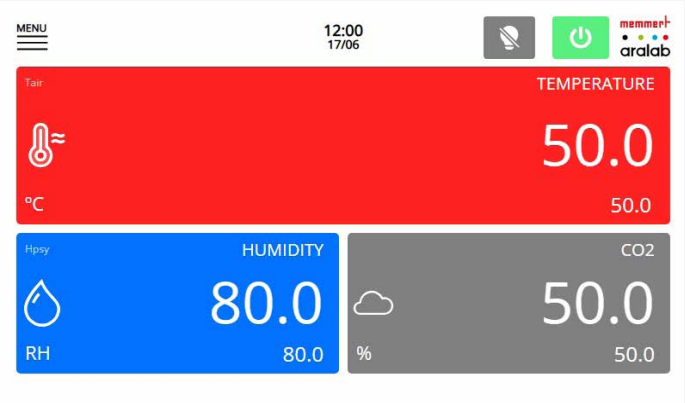
INCLUSIONS

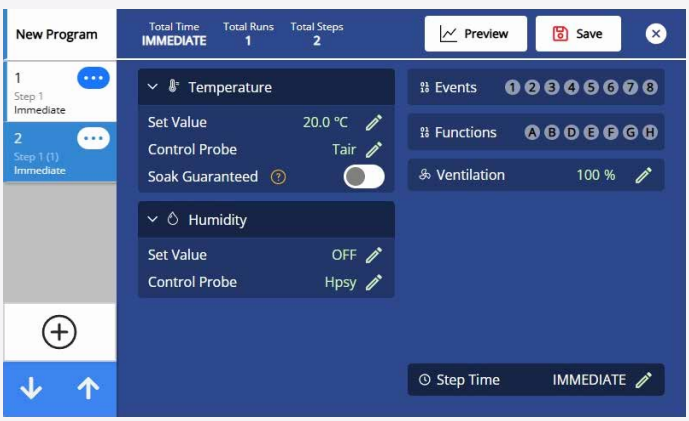
- 2 Stainless steel shelves
- Lockable door
- 1 left side entry port with Ø 80 mm (more can be added)
- 4 or 6 height leveling casters (model dependent)
- Instructions manual
- 2 years' warranty

CLIMAPLUS HMI WEB CONTROLLER

- Programmable PLC exclusively developed for Test chambers.
- Easy to use coloured Touch-Screen Display Interface.
- Resolution of 0,1ºC for Temperature and 0,1% for Relative Humidity.
- High performance temperature and humidity control with value correction in all ranges.
- Capability for creating unlimited programs and segments.
- 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.





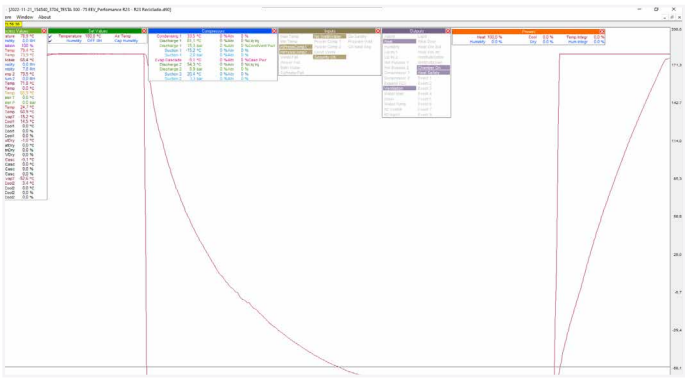


FITOLOG SOFTWARE

The FitoLog software is 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.

FITOPROGRAM

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

NOTIFICATIONS, FAST DIAGNOSTICS AND PROMPT TROUBLESHOOTING

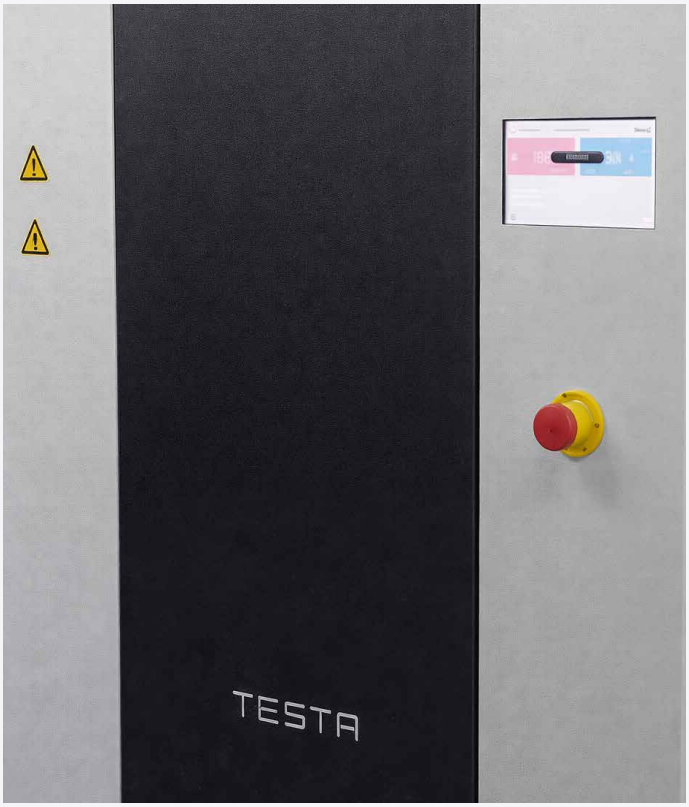
With FitoLog it is possible to gather data from each of the chambers systems, which makes it a very useful tool to diagnose any necessary maintenance. This tool works as the “black box” of the equipment, giving our technicians the necessary data to remotely carry out a fast and efficient diagnostic.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

ACCESSORIES AND APPLICATIONS

Water supply tank

Rain simulation sprinklers

Latex gloves ports



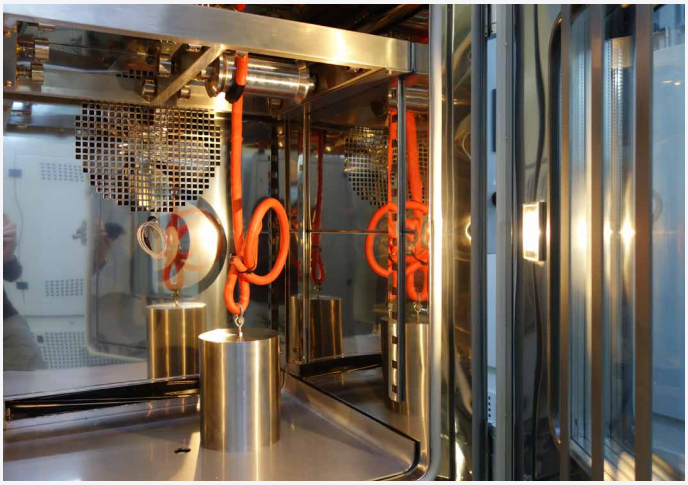
Emergency stop button

Reinforced Shelves (up to 100 Kg load)

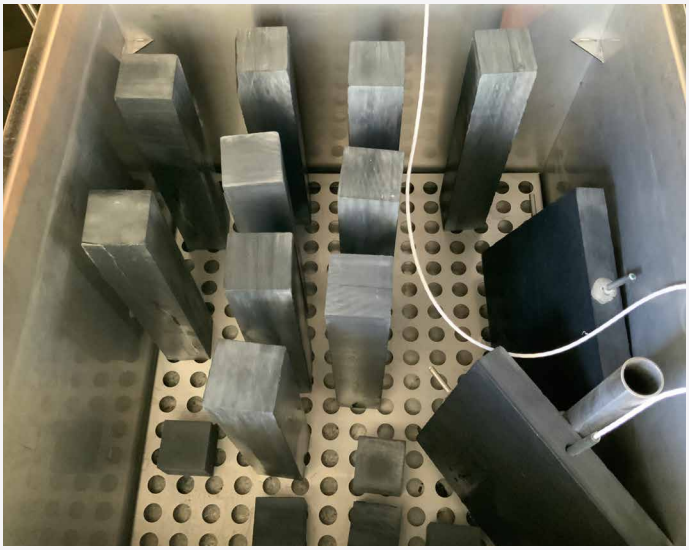
Water Treatment systems

Door with observation window

Additional Entry-ports



Cold Bend Cables Testing



Freeze-Thaw test tank

Electronic safety locks

Compressed Air Dryer

Let’s meet!

Blanc-Labo SA
Chemin des Mouettes 1
CH - 1027 Lonay

T: +41 21 804.18.50
E: sales@blanc-labo.com
I: www.blanc-labo.com