



TESTING

TESTA_e

REACH-IN ENVIRONMENTAL
AND TEMPERATURE TEST CHAMBERS



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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_e 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



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

MAIN TECHNICAL PARAMETERS

- ● ● ● TESTA_E TT (TEMPERATURE CONTROL ONLY)
- ● ● ● TESTA_E CT (TEMPERATURE AND HUMIDITY CONTROL)

			TT/CT 200 with -20C range	TT/CT 400 with -20C range	TT/CT 1.000 with -20C range	
Nominal interior volume (L)			200	400	1.000	
Performance	Temperature range		-20~+150°C			
	Temperature fluctuation		≤ 0.5°C			
	Temperature deviation		±1.5°C			
	Temperature uniformity			1.0°C (humidity test, humidity > 90%RH)		
				1.5°C (temperature < 100°C)	2.0°C (no other conditions and additional glass door)	
	Humidity range (only humidity type)		(20~98%)RH / (10~98)°C			
	Humidity deviation (only humidity type)		±2.0%RH(>75%), ±5.0%RH(≤75%)			
	Temperature heat-up rate			-20 → +150°C		
				≤ 45min	≤ 60min	
	Temperature pull-down rate			+20 → -20°C		
			≤ 20min	≤ 27min		
Inside dimension (mm)	W		500	600	1000	
	H		750	850	980	
	D		600	800	1000	
Outside dimension (mm) (with protrusions excluded)	W		700	800	1200	
	H		1906	2006	2036	
	D		1507	1707	1928	
Applicable power supply			380V (three phases and four wires + protective grounding wire)			
Power Capacity (kW)			2.2	2.6	4	
Condensing method			Air-cooled/water-cooled			
Controllable humidity range (only CT models)						

Main technical parameters (The data is measured under the conditions: Ambient Temp. +25°C. no test samples)

MAIN TECHNICAL PARAMETERS

- ● ● ● TESTA_E TT (TEMPERATURE CONTROL ONLY)
- TESTA_E CT (TEMPERATURE AND HUMIDITY CONTROL)

		TT/CT 100 with -40C range	TT/CT 200 with -40C range	TT/CT 400 with -40C range	TT/CT 1.000 with -40C range
Nominal interior volume (L)		100	200	400	1000
Performance	Temperature range	-40~+150°C			
	Temperature fluctuation	≤ 0.5°C			
	Temperature deviation	±1.5°C			
	Temperature uniformity	1.0°C (humidity test, humidity> 90%RH)			
		1.5°C (temperature < 100°C) and 2.0°C (no other conditions and additional glass door)			
	Humidity range (only humidity type)	(20~98%)RH / (10~98)°C			
	Humidity deviation (only humidity type)	±2.0%RH(>75%), ±3.0%RH(≤75%)			
Temperature heat-up rate		-35→+150°C	-40→+150°C		
		≤ 45min			≤ 60min
Temperature pull-down rate		+20→-35°C	+20→-40°C		
		≤ 60min	≤ 40min	≤ 60min	
Inside dimension (mm)	W	500	500	600	1000
	H	500	750	850	980
	D	500	600	800	1000
Outside dimension (mm) (with protrusions excluded)	W	700	700	800	1200
	H	1581	1906	2006	2036
	D	1477	1507	1707	1928
Applicable power supply		380V (three phases and four wires + portective grounding wire)			
Power Capacity (kW)		1.8	2.2	2.6	4
Condensing method		Air-cooled/water-cooled			
Controllable humidity range (only CT models)					

Main technical parameters (The data is measured under the conditions: Ambient Temp. +25°C. no test samples)

MAIN TECHNICAL PARAMETERS

- ● ● ● TESTA_E TT (TEMPERATURE CONTROL ONLY)
- TESTA_E CT (TEMPERATURE AND HUMIDITY CONTROL)

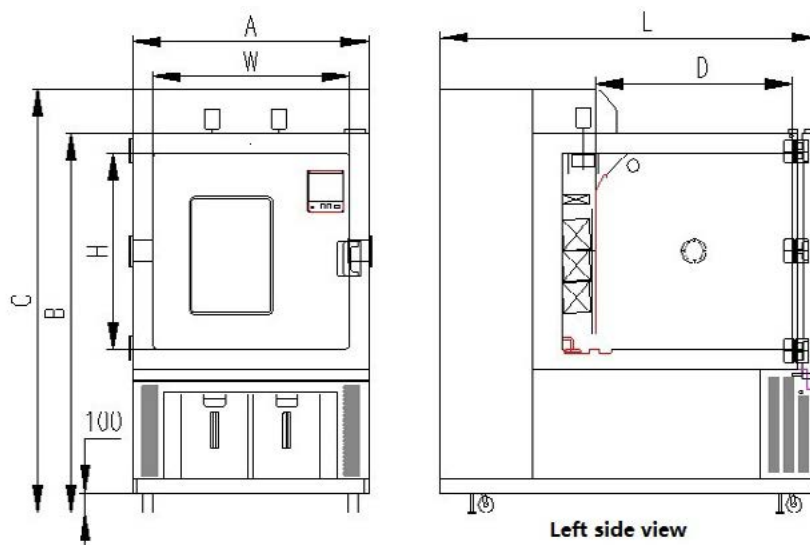
		TT/CT 400 with -80C range	TT/CT 1.000 with -80C range	TT/CT 2400 with -70C range
Nominal interior volume (L)		400	1000	2360
Temperature range		-80~+150°C		-70~+150°C
Temperature fluctuation		≤ 0.5°C		
Temperature deviation		±1.5°C		
Performance	Temperature uniformity	1.0°C (humidity test, humidity> 90%RH) 1.5°C (temperature< 100°C) 2.0°C (no other conditions and additional glass door)		≤ 2°C ≤ 1°C (temperature ≤ 70°C, humidity ≥ 90%RH) ≤ 1°C (temperature ≤ 70°C, humidity ≥ 80%RH)
	Humidity range (only humidity type)	(20~98%)RH / (10~98)°C		(20~98%)RH / (20~85)°C
	Humidity deviation (only humidity type)	±2.0%RH(>75%), ±5.0%RH(≤75%)		±3.0%RH(>75%RH), ±5.0%RH(≤75%RH)
	Temperature heat-up rate	-70→+150°C ≤ 50min		-65→+150°C ≤ 80min
	Temperature pull-down rate	+20→-70°C ≤ 70min		+20→-65°C ≤ 80min
Inside dimension (mm)	W	600	1000	1300
	H	850	1000	1300
	D	800	1000	1400
Outside dimension (mm) (with protrusions excluded)	W	800	1200	1500
	H	2006	2156	2400
	D	1707	1927	3150
Applicable power supply		380V (three phases and four wires + protective grounding wire)		
Power Capacity (kW)		3.7	6	20
Condensing method		Air-cooled and water-cooled methods are optional		Water cooled
Controllable humidity range (only CT models)				

Main technical parameters (The data is measured under the conditions: Ambient Temp. +25°C. no test samples)

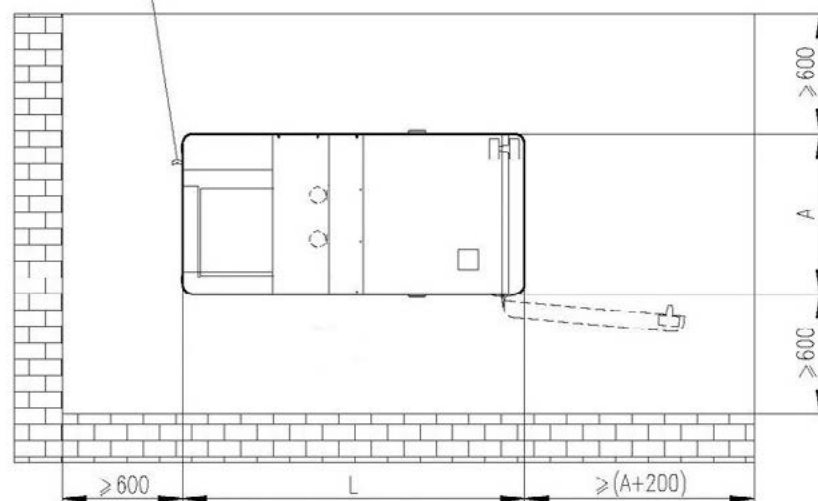
DIMENSIONS AND DRAWINGS

● ● ● ● TESTA_e TT/CT 100, 200, 400 AND 1.000 MODELS

DIMENSIONS	W	H	D	A	B	L	C
Testa_e TT/CT 100	500	470	500	700	1426	1480	1576
Testa_e TT/CT 200	500	725	600	700	1681	1507	1906
Testa_e TT/CT 400	600	825	800	800	1781	1707	2006
Testa_e TT/CT 1.000	1000	975	1000	1200	1931	1927	2156



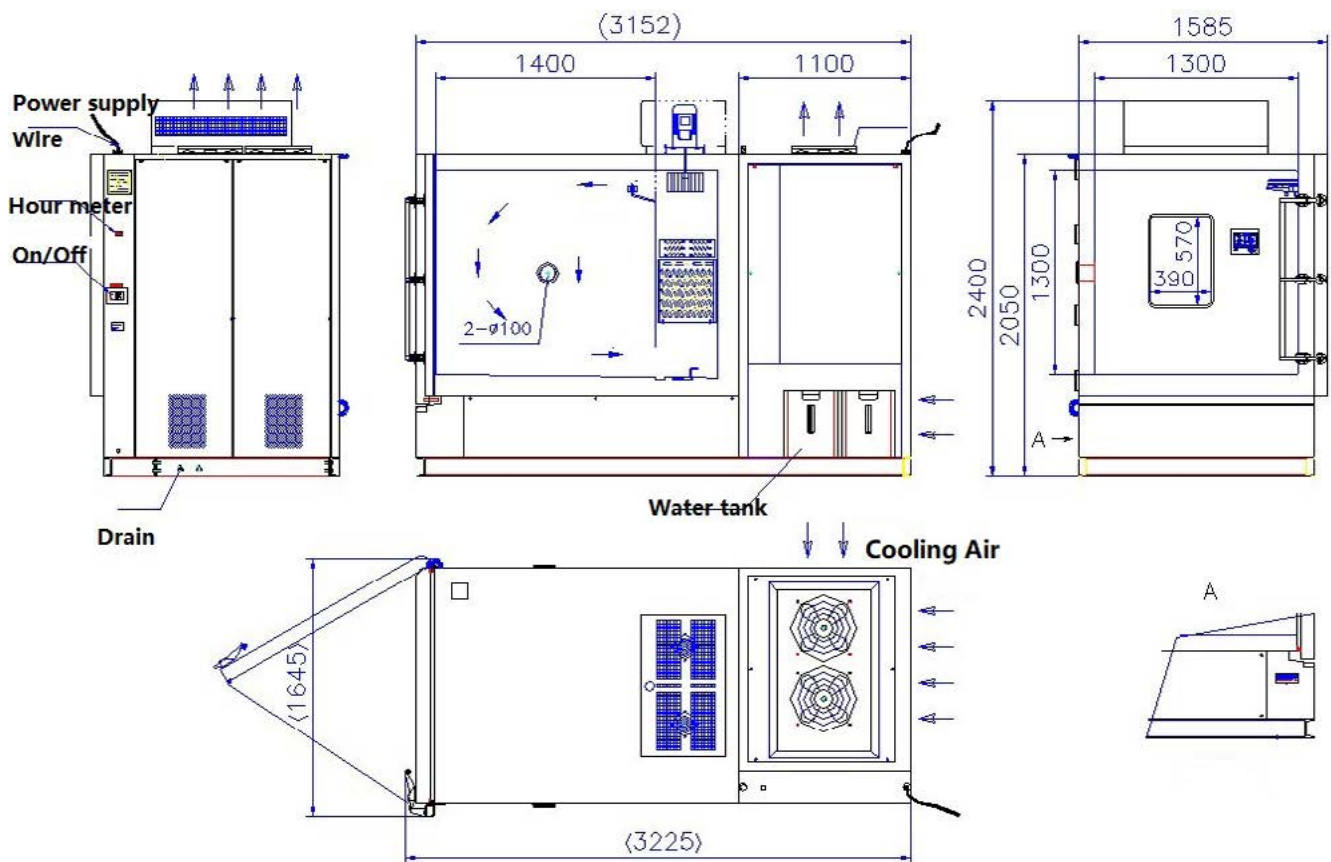
Power wire: 6m long



DIMENSIONS AND DRAWINGS

● ● ● ● TESTA_e TT/CT 2.400

EXTERNAL DIMENSIONS (HxWxD) (mm)		2400 X 1585 X 3152
INTERNAL DIMENSIONS (HxWxD) (mm)		1300 X 1300 X 1400



EQUIPMENT DESCRIPTION

CONSTRUCTION

INSULATION ENCLOSING STRUCTURE

- Outer wall: two-sided galvanized steel sheet with plastic-sprayed surface
- Inner wall: SUS304 stainless steel plate
- Thermal insulating material for chamber body: polyurethane foam + glass wool
- Thermal insulating material for door: glass wool

AIR CONDITIONING CHANNEL

- Fans: number depends on model / volume
- heater, evaporator(dehumidifier), overheat protector, water supply and drainage port, dry-bulb temperature transducer, humidifier, dry boil protector, wet-bulb temperature transducer, wet-bulb sink

TEST CHAMBER DOOR

- Single hinged door with the hinge at the left side and knob on the right side, viewing window, LED lamp, electric heated anti-dew device on window frame or door frame

OBSERVATION WINDOW

- Transparent electric heating hollow glass observation window (one, on the door)

CABLE PORT

- $\Phi 100\text{mm} \times 2$, with rubber plug at the left side of chamber body

LAMP

- Indoor LED lamp

CONTROL PANEL

- Controller display, over-temperature protection setting device, USB interface, hour meter

MACHINERY ROOM

- Refrigeration unit, water receiving plate, drainage port,
- blower fan for refrigeration, inlet port filter screen for condensers
- RS-485 interface
- RJ-45 Ethernet interface

STANDARD CONFIGURATION OF TEST CHAMBER

TEST SAMPLE SHELF

- Stainless steel shelves x2

MOVABLE CASTERS

- 4 (with adjusting wheels)



EQUIPMENT DESCRIPTION

AIR ADJUSTMENT SYSTEM

HEAT TRANSFER

- Heat transfer convection by air circulating

AIR CIRCULATION DEVICE

- 4 (with adjusting wheels)

AIR HEATING

- Nichrome strip wire heater
- Control method of heater: equivalent periodic pulse-width modulation without contact, SSR (solid-state relay)

AIR HEATING

- Evaporator cooling

REFRIGERATION SYSTEM

WORKING MODE

- Mechanical compression single-stage refrigeration (air cooled)

REFRIGERATION COMPRESSOR

- Hermetically sealed compressor

CONDENSER

- Finned tube heat exchanger

EVAPORATOR

- Finned tube heat exchanger

THROTTLING DEVICE

- Electronic expansion valve

REFRIGERANT

- R449a (ozone zero)

WATER SUPPLY SYSTEM

HUMIDIFIER

- Basin humidifying and heating.
- Stainless steel armored heater
- Water level control device, dry boil protector for heater

WATER SUPPLY METHOD

- Lifted by water pump

POSITION OF WATER SUPPLY DEVICE

- Drawer type water tank on the front side

WATER QUALITY

- Resistivity $\geq 500 \Omega m$

EQUIPMENT DESCRIPTION

OTHER CONFIGURATION

POWER SUPPLY CABLE

- One piece of 5-core (three phases four wires + protective grounding wire) cable (6m long)

TEST SAMPLE POWER SUPPLY CONTROL TERMINAL

- Relay contact control, AC240V, within 2A (contact is closed in normal operation; contact will be opened when the equipment shuts down or fault occurs)
- The use of this terminal for controlling the power on or off is strongly recommended, to ensure the power supply connected the test sample being reliably cut off when the equipment shuts down or fault occurs

GENERAL POWER SUPPLY LEAKAGE CIRCUIT BREAKER

- Power input
- For the leakage circuit and overload circuit
- Rated current: 30mA

HOUR METER

- (0~99999) h, zero reset is not available

SAFETY FEATURES

TEST CHAMBER

- Debugging over temperature
- Thermal fuse in test space
- Over temperature of air conditioning channel
- Fan motor overheat
- Power-off protection when the distribution control cabinet opens
- Alarm indication for the chamber door opened Running status
- Alarm protector of Refrigeration system fault (caused by door opened in several times)

REFRIGERATION SYSTEM

- Overpressure of compressor
- Overheat of compressor
- Over-current of compressor

HUMIDIFYING SYSTEM

- Dry boil of heating pipe
- Abnormality of water supply and drainage

ELECTRICAL CONTROL SYSTEM

- General power supply phase sequence and default phase protection
- Leakage circuit breaker
- Overload and short circuit protection



CONTROLLER

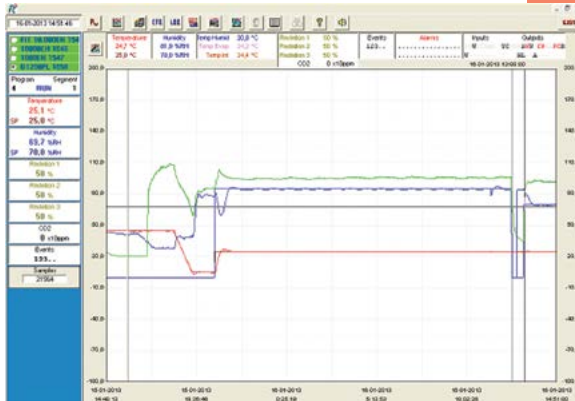
ELECTRICAL CONTROL SYSTEM

Controller model	ClimaPlus
Display	7 inches, 800X480 dot matrix, TFT 64k color LCD display
Operating mode	Program mode; fixed value mode
Setting mode	English menu; input via touch screen
Program capacity	Editable programs Quantity: 20 max Steps: 1000 max Cycles: each step has a maximum of 20 cycles (each cycle step has a maximum of 99cycles); Fixed:10 programs that can be linked
Set & Display resolution	Temperature: 0.1 Time: 0.1min Humidity:0.1%RH
Input	Thermocouple Platinum resistance, voltage, current, etc., if the equipment needs
Communication interface	RS-485 interface RJ-45 Ethernet interface IEEE802.3i/3u/3ab 100Mbps
Communication protocol	STEN Communication protocol
Curve recording function	RAM with battery protection can save the set values, sampling values of equipment, and the time of sampling instant. The maximum recorded time is 350 days (when sampling period is 1.5min). The test curve data recorded by controller is: 2 channel temperature: set temperature and measured temperature. 2 channel humidity: set humidity and measured humidity.
Affiliated function	Malfunction alarm, cause and treatment indicating function; power failure protection function; highest and lowest temperature protection function. Calendar timing function (automatic startup and shutdown) Self-diagnosis function
Measuring transducer	Temperature T-type armored thermocouple Humidity: wet and dry bulb thermometer method



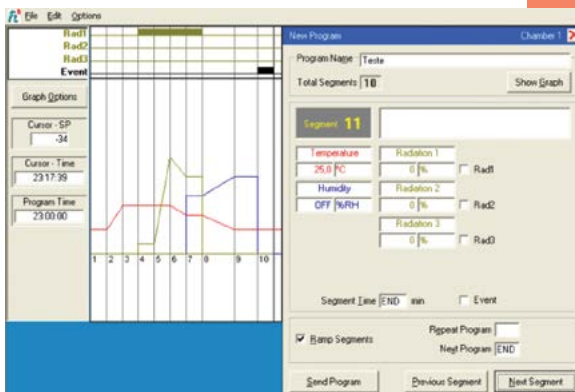
FITOLOG SOFTWARE

The FitoLog software pack is a set of applications designed to facilitate the managing, monitoring and recording of programs and data from the TESTA_e chambers.



FITOLOG

Records and displays in real time all data and details related to the set-points, running variables and equipment behaviour.



FITOPROGRAM

This application simplifies the creation of programs and its integration on the chamber ClimaPlus controller. Up to 20 programs, each with 50 segments, can be designed and linked to create detailed environmental profiles and simulations.

ACCESSORIES

- Additional shelves
- Reinforced shelves (up to 100Kg weight load, chamber model dependent)
- Reinforced chamber floor (up to 300 Kg weight load, chamber model dependent)
- Additional entry-ports (diameter of 100, 150 and 200mm)
- Automatic door lock
- Emergency stop switch

INSTALLATION REQUIREMENTS

The following conditions shall be guaranteed by user. The user will be responsible for the installation of electricity supply line and cooling water supply

INSTALLATION SITE

- The ground is flat: flatness \leq 5mm/2m;
- Well-ventilated;
- No strong vibration occurs around the equipment;
- No powerful electromagnetic field exists around the equipment;
- No flammable, explosive and corrosive gas or fine dust exists

ENVIRONMENTAL CONDITION

- Temperature: 5°C~35 °C
- Relative humidity: \leq 85%
- Air pressure: 80kPa~106kPa

RUNNING WATER

(ONLY FOR THE HUMIDITY-TEMPERATURE EQUIPMENT WITH WATER FILTER SYSTEM)

- Flow rate: \geq 200kg/h water pressure 0.1MPa 0.25MPa
- The running water shall be conformed to a healthy standard of drinking water.
- The water filter system is provided with a pair of DN15 screwed joints.

POWER SUPPLY CONDITION

POWER SUPPLY

- 3-phases four wires + protective grounding wire
- AC(380 \pm 38)V
- (50 \pm 0.5)Hz
- The earth resistance of protective grounding wire is less than 4 Ω ;
- Users are required to provide air or power switches with appropriate capacity for equipment at the installation site, and the switch must be independently provided for this equipment. suggested power supply switch capacity 32A

MAXIMUM CURRENT

- Please consult Main Technical Parameters (pages 3-4)



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Your own climate