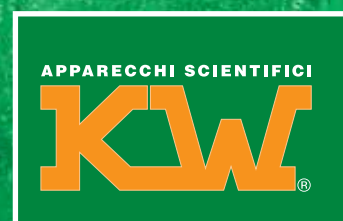




# GreenLine

## Climate Chamber series model WR UR700C for pharmaceutical stability tests and environmental simulations





# Climate Chamber series model **WR UR700C**

for pharmaceutical stability tests  
and environmental simulations



climate chamber  
**MOD. WR UR700C**

# Climate Chamber series model WR UR700C

## for pharmaceutical stability tests and environmental simulations

### STRUCTURE:

**Single body frame** in sheet steel prepainted or plastic-coated white on the outside; **AISI 304 stainless steel on the inside.**

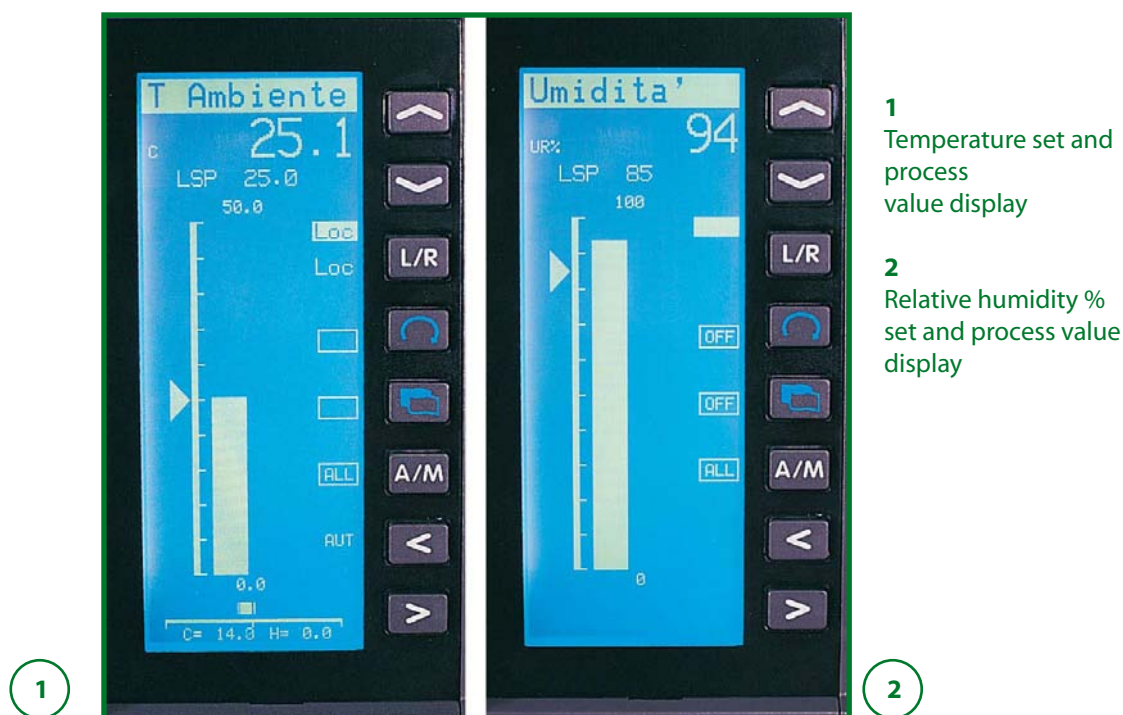
- False bottom with tub in AISI 304 stainless steel; tub complete with cover with eyelets for internal air circulation for the purpose of evaporation and condensation of water vapour. The dewpoint is produced with n.2 axial 24 Vac fans that send air over the surface of the water.
- Rounded internal corners
- Insulation in high density expanded polyurethane in situ
- Insulation thickness mm 60.
- Openings for cables of validation and recording probes
- Reversible blind door, equipped with lock and key.
- Two transparent internal doors, in plastic
- n.4 height adjustable wire grill shelves.
- Magnetic seal.
- Self closing device.
- Stainless steel height adjustable feet.
- The internal surface of the door is heated as well as the rim of the external cabinet. This heating is managed by PID (proportional, integral, derivative) by the main microcomputer, through a thermocouple sensor

### FUNCTION:

- **Heating** by means of armoured resistors for the internal air and by means of thermofoil for the water of the tub, placed on the false bottom of the internal chamber.
  - Fanned **refrigeration** aeroevaporator for the internal air and with a **coil in AISI 304 for the water in the tub**, placed on the false bottom of the internal chamber.
  - **The implementation** in stainless steel, together with the external thermofoil heaters, the tub and the stainless steel tube, allows and ensures perfect cleaning.
  - **The refrigeration system** consists of a silent hermetic compressor, with forced air condensation; liquid receiver, oil separator, capillary tubes for the expansion of the cooling liquid of the cooling circuits of the internal air and the water of the internal tub; solenoid valves for interception of the fluid in the above-mentioned circuits; low pressure switch for compressor activation.
  - **The compressor** is protected against frequent switching, by means of delay, managed by the microcomputer.
- Refrigerant used, CFC free, R134-a.

Model	External dim. (WxDxH)	Internal dim. (WxDxH)	Total Internal Capacity	Usable internal capacity	Power	Range of Temperature	Range of Relative Humidity	T stability and uniformity	RH stability and uniformity	Weight
WR UR700C	cm. 71x80x200 h	cm. 59x68x125 h	700 litres	500 litres	Watt 1500	+20°C +50°C	30% ÷ 80%	<±1,5°C	<± 5%	Kg. 160

V230/1/50 power supply







# Climate Chamber series model WR UR700C

## for pharmaceutical stability tests and environmental simulations

### OPERATING PRINCIPLE:

The climate chamber works on the psychrometric principle, maintaining a constant difference between the temperature of the internal air and tub of the false bottom.

The surface of the water in the tub is adequately ventilated; this, in addition to the internal ventilation, ensures an optimum uniformity of temperature and relative humidity.

A fine regulation of the hygrometric level is obtained this way, with pure water vapour and not nebulization (micro particles), as is the case in the use of humidifiers.

The user – through display and keys on the microcomputer – sets the set point of the internal temperature and internal relative humidity; through a dedicated programme, the controller sets the values of all other parameters necessary for the correct operation of the equipment.

### THERMOREGULATION AND CONTROLS:

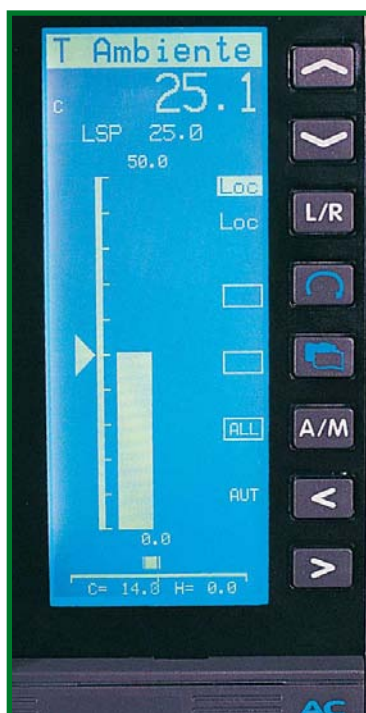
The electrical system is provided with general switch and operating signal. Thermoregulation is obtained with a programmable multifunctional digital electronic microcomputer; 8 analogue inputs, 4 analogue outputs, 8 digital inputs and 8 digital outputs; front connector for programming, RS485 serial communication, Modbus/J-bus protocol, complete with programmable transmitters for Pt 100 and programmable transmitters for thermocouples. The microcomputer is equipped with a software package for its programming; the exclusive "KW Scientific Instruments" programme allows the user to assign a set point for the temperature of the internal chamber and a set point for the relative humidity; the microcomputer automatically takes care of all the subsequent steps.

The microcomputer is provided with protection against accidental manipulation and/or tampering by means of an electronic key, with the use of a user-personalized password. On request the microcomputer can be connected to a remote PC to transfer and download control parameter values for recording purposes, or for statistical purposes, with direct processing onto Microsoft Excel electronic worksheets.

**Heating and refrigeration management is obtained by means of PID regulation, for maximum stability of set point values.**

For detecting temperature (dry bulb and dewpoint) RTD Pt 100 Ohm sensors are used; for detecting the temperature of the door and temperature of the evaporator surface a thermocouple is used. For detection of relative humidity a compact electronic sensor is used, inserted in a stainless steel container. The probes are all easily accessible and extractable for validation and/or calibration operations. The user can verify the status of the equipment and working conditions through 4 different representations on the display:

- **Dynamic bar-graph for display of current ambient temperature value** (with indication down to the tenth degree Celsius) and specified set point value
- **Dynamic bar-graph for display of current ambient relative humidity % value** (with decimal indication) and specified set point value



3  
temperature set and  
process value display

# Climate Chamber series model WR UR700C

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- **Diagnostic**, with a complete series of values:

ambient air temperature,  
internal tub water temperature,  
evaporator surface temperature,  
internal door surface temperature,  
internal relative humidity.

- **Alarms**, with indication of:

internal temperature min/max alarm;  
internal relative humidity min/max alarm;  
open door;  
broken probe.

The microcomputer manages all the acoustic and visual alarms, for maximum process management security:

- **minimum/maximum temperature alarm**  
(default value  $\pm 5^{\circ}\text{C}$  of set point)
- **relative humidity alarm minimum/maximum**  
(default value  $\pm 5\%$  of set point)
- **probe failure alarm inhibits all the outputs on the microcomputer**
- **open door alarm**

The alarm signal is acoustic and visual, with buzzer mute capability by means of button placed on panel. The acoustic signal is delayed in case of machine startup and open door. The delay is programmed. The visual alarm signal is always active.

In addition there are:

- **alarm for minimum water level not obtained**
- **maximum water level alarm**

The control of the water level in the tub and false bottom is produced with floating devices: one for the minimum level and the other for the maximum level; these control the action of a solenoid valve for the intake of demineralized water from the laboratory loop or from a tank prepared for the purpose. This allows safe use as well as minimizes the thermal inertia in the bath.

### SECURITY

The appliance is also equipped with a security thermostat with independent probe, against overtemperature, manually calibrated, independent from the microcomputer.

### ACCESSORIES (OPTIONAL)

- Wheel kit
- Supplementary grill shelf
- On-disc recorder with weekly cycle for T and RH %
- Digital electronic strip-chart recorder for T and RH %
- AISI 304 stainless steel construction
- Supplementary RTD Pt 100 Ohm probe, for connection to external acquisition system and T recorder, such as **T-GUARD®** and **SensiNet®**, or similar systems
- Additional RTD Pt 100 Ohm probe, complete with 4-20 mA converter, mounted on DIN rails, for connection to external recording system

An I.Q. (Installation Qualification) and O.Q. (Operational Qualification) can be carried out on this series of equipment; for an evaluation of the costs of these activities, consult the KW commercial office.

KW is also available for ISO calibration certification services for SIT sample comparisons.



4



4  
operation diagnosis  
display

5  
active alarms display

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 = Min. / max. temperature alarm

 = Internal light

 = Power failure alarm

 = Open door alarm

 = Lock

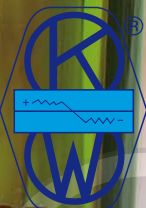
 = Temperature programmer for thermal cycling

 = Graphic temperature recorder

 = Wheels

APPARECCHI SCIENTIFICI

**KW**



- **GreenLine** Introduction
- **W-LAB WR-LAB** series legend
- **WI** series  
natural guided convection incubators
- **WPL** series **INCUBATORS**  
table and floor incubators
- **WPLR** series **INCUBATORS**  
refrigerated table and floor incubators
- **W-LAB** series **INCUBATORS**  
forced air circulation incubators
- **WR-LAB** series **INCUBATORS**  
forced air circulation  
refrigerated incubators
- **WRC** series  
forced air circulation  
thermal refrigerator  
for modern scientific  
and industrial laboratories
- **W 90 - 102** series  
thermostatic chambers / precision incubators  
with water jacket

DATA LOG

- **WR 90 - 102** series  
thermostatic chambers / precision incubators  
refrigerated with water jacket
- **W.80 - W.82** series  
precision water bath
- **W.82/O - W.84/O** series  
precision water bath  
with linear and/or orbital shaking
- **W180CCI.IR model CO2** Incubator series
- **WRS 96 - 85** series  
thermal refrigerating chambers with photoperiod  
control for environmental simulation
- **WR UR700C model Climate Chamber** series  
for pharmaceutical stability tests  
and environmental simulation
- **KW 20/B-100/B KW 6/B-12/B-18/B** series  
modular glass or plastic bottle rollers ø80-120mm
- **Walk-in incubator**
- **Walk-in stability chamber**