

Thermostatic, climate and phytological cabinets  
Series EKOCT - EKOCTL - EKOCH - EKOCHL



The series of thermostatic, climate and phytological cabinets is used in all those activities where the monitoring of light, temperature and humidity parameters is crucial for the purpose / objective of the research / work. Useful in the field of pharmaceutical industries, for laboratory tests, for quality assurance, environmental simulations, in the materials industry, in the food industry and for molecular and plant biotechnology.

The applied sector is guided by a regulatory framework that requires compliance with ICH (International Conference on Harmonization) quality guidelines that regulate the data package on the stability of new substances or pharmaceuticals within the EC, in Japan and in the United States.

The objective of this stability test is to provide evidence on how the quality of a substance or pharmaceutical product varies according to the influence of environmental factors such as temperature, humidity and light and sets storage conditions, storage test and duration periods. The main specifications for Angelantoni climate chambers refer to ICH Q1A (stability test) and ICH Q1B (photostability test).

The active ingredient for the manufacture of potential drugs is intended for storage in a climate chamber for subjecting it to stability tests.

BASSA RIS.



#### EKOCH

- ECKOCH 700
- ECKOCH 1500
- ECKOCH 900 P
- ECKOCH 1500 P

#### EKOCHL SERIES

- ECKOCHL 700
- ECKOCHL 1500
- ECKOCHL 900 P
- ECKOCHL 1500 P

#### EKOCTL SERIES

- ECKOCTL 700
- ECKOCTL 1500
- ECKOCTL 900 P
- ECKOCTL 1500 P

#### EKOCT SERIES

- ECKOCT 700
- ECKOCT 1500

## APPLICATIONS

The line described is used in all units with controlled environmental parameters:

- **Stability test** for active ingredients: monitoring of chemical/biological components over time at controlled temperature and humidity
- **Phytotrons:** controlled environment cabinet, temperature and relative humidity adjustment, and photoperiod for quick agronomic screening
- **Armadi climatici** cabinets with controlled temperature, humidity and photoperiod for the growth of entomological strains



The climate chamber line by **Angelantoni Life Science** represents a range of thermostatic and climate cabinets, dedicated to pharmaceutical industries or laboratories carrying out tests on pharmaceutical products, research facilities and laboratories for cell cultures, plant growth, insects, analysis of solutes and solvents etc.

These machines are designed to perform temperature and humidity tests on electronic components and equipment. They are also suitable for temperature and humidity tests on industrial or pharmaceutical products.

## SERIE EKOCH

The **EKOCH** series chambers are designed to control temperature in the range from -10°C to +60°C and relative humidity between 20 and 90% RH (in the temperature range +10°C/+50°C). The range has three volumes: 700, 900 and 1500 litres.

The EKOCH 900P and EKOCH 1500P are supplied as standard with a programmable microprocessor to generate T and RH ramps while all other models are equipped with standard controllers.

The line of climate chambers has a supporting structure in pre-painted grey sheet metal, a self-closing service door in pre-painted grey sheet metal, complete with magnetic closure and special rubber gaskets, equipped with a tempered glass counter door, complete with closure.

The internal chamber is made of AISI 304 stainless steel with rounded internal corners for easy cleaning and a shelled bottom to contain accidentally dropped liquids.

The cooling system is entrusted to a particularly silent hermetic compressor, located in the upper part of the chamber, there is also an air condenser, finned copper tube coil, complete with helical electric fan with horizontal air flow.

Internal ventilation is provided by special high-temperature resistant motors with an IP44 degree of protection. The system is equipped with door switches to switch on the inside light when the door is opened.

The humidification system is provided by a steam generator consisting of a thermoregulated boiler fed with softened water.

Versions are available with digital readout P.I.D. controllers, dedicated to the regulation and control of temperature and humidity, or versions with an electronic PLC programmer that allows the execution of humidity and temperature cycles.



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#### BASIC CONFIGURATION

- Blind external door
- Inside in AISI 304
- Glass counter door
- Internal shelves
- Double-fan evaporators

#### ACCESSORIES

- Temperature chart recorder
- Stainless Steel grated shelf
- Additional safety thermostat Min/Max temperature
- Winkratos, external monitoring software (for P versions).

## SERIE EKOCHL

The **EKOCHL** series chambers are dedicated to stability and growth tests of plant species with controlled temperature, light and humidity.

The EKOCHL 900P and EKOCHL 1500P are supplied as standard with a programmable microprocessor to generate T, RH and brightness ramps while all other models are equipped with standard controllers.

The line of climate chambers has a supporting structure in pre-painted grey sheet metal, a self-closing service door in pre-painted grey sheet metal, complete with magnetic closure and special rubber gaskets, equipped with a tempered glass counter door, complete with closure.

The internal chamber is made of AISI 304 stainless steel with rounded internal corners for easy cleaning and a shelled bottom to contain accidentally dropped liquids.

The cooling system is entrusted to a particularly silent hermetic compressor, located in the upper part of the chamber, there is also an air condenser, finned copper tube coil, complete with helical electric fan with horizontal air flow.

Internal ventilation is provided by special high-temperature resistant motors with an IP44 degree of protection. The system is equipped with door switches to switch on the inside light when the door is opened.

The humidification system is provided by a steam generator consisting of a thermoregulated boiler fed with softened water.

Versions are available with digital readout P.I.D. controllers, dedicated to the regulation and control of temperature and humidity, or versions with an electronic PLC programmer that allows the execution of humidity, temperature, and brightness cycles.

### BASIC CONFIGURATION

- Blind external door
- Inside in AISI 304
- Glass counter door
- Internal shelves
- Neon outside the body
- Double-fan evaporators

### ACCESSORIES

- Temperature chart recorder
- Stainless Steel grated shelf
- H<sub>2</sub>O Tank with level control and free contact alarm
- Additional safety thermostat Min/Max temperature
- Winkratos, external monitoring software (for P versions).



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### MICRO PLC TOUCH SCREEN

This PLC electronic programmer and touch screen user interface designed in ALS gives you the maximum flexibility in meeting the customer's requests. Enables to program up to 1000 cycles of 350 segments for temperature ramps (humidity and light on demand). Unlimited possibility of recording temperature (and humidity) variations over time. Alarm log on table with date and time and total number of times triggered, the stored cycles, the records and alarm logs can be exported from compact flash to pen drive directly through the USB port on the control panel. There is a buffer battery which allows you to store data even in case of a power failure.

## SERIE EKOCTL

The **EKOCTL** series chambers are dedicated to temperature and light controlled stability testing. The EKOCTL 900P and EKOCTL 1500P are supplied as standard with a programmable microprocessor to generate T and brightness ramps while all other models are equipped with standard controllers.

The line of climate chambers has a supporting structure in pre-painted grey sheet metal, a self-closing service door in pre-painted grey sheet metal, complete with magnetic closure and special rubber gaskets, equipped with a tempered glass counter door, complete with closure.

The internal chamber is made of AISI 304 stainless steel with rounded internal corners for easy cleaning and a shelled bottom to contain accidentally dropped liquids.

The cooling system is entrusted to a particularly silent hermetic compressor, located in the upper part of the chamber, there is also an air condenser, finned copper tube coil, complete with helical electric fan with horizontal air flow. Internal ventilation is provided by special high-temperature resistant motors with an IP44 degree of protection. The system is equipped with door switches to switch on the inside light when the door is opened.

Versions are available with digital readout P.I.D. controllers, dedicated to temperature regulation and control, or versions with an electronic PLC programmer that allows the execution of temperature and brightness cycles.

### BASIC CONFIGURATION

- Blind external door
- Inside in AISI 304
- Glass counter door
- Internal shelves
- Neon outside the body
- Double-fan evaporators

### ACCESSORIES

- Temperature chart recorder
- Stainless Steel grated shelf
- Additional safety thermostat Min/Max temperature
- Winkratos, external monitoring software (for P versions).



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### ADDITIONAL ACCESSORIES: PROTOCOLLI IQ - OQ - PQ

- IQ:** Installation Qualification
- OQ:** Operation Qualification
- PQ:** Performance Qualification

These tests are requested 9 times out of 10 by the customer, and are used to verify that the instruments can provide the performance declared by the manufacturer. The tests are carried out in compliance with IEC standard 60068-3-5. The various tests verify the correctness of the start-up stage, the achievement and maintenance of the working setpoint, the fluctuation in time and space of the thermoclimatic conditions, etc

## SERIE EKOCT

The **EKOCT** series chambers are dedicated to temperature controlled stability testing.

The line of climate chambers has a supporting structure in pre-painted grey sheet metal, a self-closing service door in pre-painted grey sheet metal, complete with magnetic closure and special rubber gaskets, equipped with a tempered glass counter door, complete with closure.

The internal chamber is made of AISI 304 stainless steel with rounded internal corners for easy cleaning and a shelled bottom to contain accidentally dropped liquids.

The cooling system is entrusted to a particularly silent hermetic compressor, located in the upper part of the chamber, there is also an air condenser, finned copper tube coil, complete with helical electric fan with horizontal air flow.

Internal ventilation is provided by special high-temperature resistant motors with an IP44 degree of protection. The system is equipped with door switches to switch on the inside light when the door is opened.

### BASIC CONFIGURATION

- Blind external door
- Inside in AISI 304
- Glass counter door
- Internal shelves
- Neon outside the body
- Double-fan evaporators

### ACCESSORIES

- Temperature chart recorder
- Stainless Steel grated shelf
- H<sub>2</sub>O Tank with level control and free contact alarm
- Additional safety thermostat Min/Max temperature



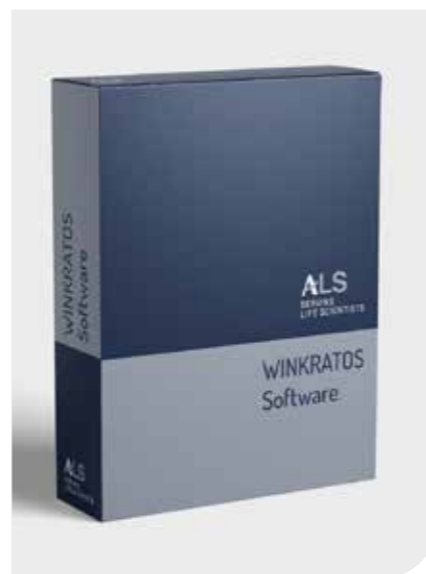
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## WINKRATOS

**Winkratos™** is the proprietary software for monitoring and supervising thermostatic and climate chamber families. The extremely flexible and powerful structure of this package also allows it to be easily adapted to 'special' chambers, thus giving the operator the same operating interface, the same operating modes and therefore the same working philosophy, regardless of the type of machine being operated.

The actual control system of the chambers consists of a PLC inside the machine. The Winkratos™ software is the natural complement to these controllers as it provides all the monitoring, graphical interface and data analysis functions that make both the progress and results of the tests usable and verifiable. On request, Winkratos™ allows the complete supervision of several chambers (up to a maximum of 16), even different ones.

This can be done via Ethernet connection or in the classic RS232 or RS422 serial configurations. It is therefore a natural complement to the system controller, providing the operator with an advanced graphic interface, in a Windows environment, with which to carry out all the operations required to manage a test (in all its phases) with the camera supplied.



## SPECIFICHE TECNICHE

Model	EKOCH				EKOCT	
	700	1500	900P	1500P	700	1500
Comercial code	12880	12881	13379	13383	12871	12873
Capacity (l)	700	1500	900	1500	700	1500
Temperature range (°C)	-10°C / +60°C		-20°C / +60°C		+10°C / +50°C	
Dewpoint (°C)	+5°C				/	
Relative humidity (%)	20/90				/	
Humidity precision (%)	-/+4				/	
Supply voltage (V)	230v (+6 / -10%) 50-60 Hz 1+T(G)					
Maximum absorbed current (A)	11				8	9
Cooling gas	R134A		R452A		R134A	
External dimensions (mm)	740(L)x940(P)x2020(H)	1480(L)x940(P)x2020(H)	810(L)x1135(P)x2020(H)	1480(L)x940(P)x2020(H)	740(L)x815(P)x2020(H)	1480(L)x815(P)x2020(H)
Internal dimensions (mm)	590(L)x600(P)x1500(H)	1330(L)x600(P)x1500(H)	660(L)x800(P)x1500(H)	1330(L)x600(P)x1500(H)	590(L)x600(P)x1500(H)	1330(L)x600(P)x1500(H)
Overall weight with standard packaging (Kg)	180	270	210	270	180	270
Noise level (dbA)	< 65					

Model	EKOCHL			
	700	1500	900P	1500P
Comercial code	12884	12885	13413	13302
Capacity (l)	700	1500	900	1500
Temperature range (°C) with lights on	+10°C / +50°C			
Temperature range (°C) with lights off	+10°C / +50°C		-10°C / +60°C	
Dewpoint (°C)	+5°C			
Relative humidity (%)	20/90			
Intensity light (lux)	0 / 20.000			
Humidity precision (%)	+ 5			
Supply voltage (V)	230v (+6 / -10%) 50-60 Hz 1+T(G)			
Maximum absorbed current (A)	20			
Cooling gas	R134A		R452A	
External dimensions (mm)	840(L)x940(P)x2100(H)	1580(L)x940(P)x2100(H)	910(L)x1135(P)x2100(H)	1580(L)x940(P)x2100(H)
Internal dimensions (mm)	590(L)x600(P)x1500(H)	1330(L)x600(P)x1500(H)	660(L)x800(P)x1500(H)	1330(L)x600(P)x1500(H)
Overall weight with standard packaging (Kg)	190	280	220	280
Noise level (dbA)	< 65			

Model	EKOCTL			
	700	1500	900P	1500P
Comercial code	12882	12883	13414	13300
Capacity (l)	700	1500	900	1500
Temperature range (°C) with lights on	+10°C / +50°C			
Temperature range (°C) with lights off	+10°C / +50°C		-10°C / +60°C	
Intensity light (lux)	0 / 20.000			
Supply voltage (V)	230v (+6 / -10%) 50-60 Hz 1+T(G)			
Maximum absorbed current (A)	18			
Cooling gas	R134A		R452A	
External dimensions (mm)	840(L)x815(P)x2100(H)	1580(L)x815(P)x2100(H)	910(L)x1010(P)x2100(H)	1580(L)x815(P)x2100(H)
Internal dimensions (mm)	590(L)x600(P)x1500(H)	1330(L)x600(P)x1500(H)	660(L)x800(P)x1500(H)	1330(L)x600(P)x1500(H)
Overall weight with standard packaging (Kg)	190	280	220	280
Noise level (dbA)	< 65			

AS

AG

STERIL

AIC

**Angelantoni Life Science (ALS)** is a world leader in the supply of refrigeration equipment and in the design of technological solutions in the biomedical sector, constantly engaged in innovation and safety, both biological and environmental.

**AS** brand provides for a wide range of refrigerators cabinets, ultra-low temperature freezers, blood banks refrigerators, freezers to preserve blood components, mortuary prefabricated rooms, stability tests and plant growth chambers, refrigerators and freezers for COVID-19 vaccines.

**AG** brand supplies standardized brine chilling units for pharmaceutical and chemical applications or pharma process, manual or automated solutions allow to reach  $-70^{\circ}\text{C}$  for special walk-in chambers and shelters to storage vaccines or other farmaceutical products.

**STERIL** brand provides for equipment able to meet any product protection need, as well as the product, operator and environment safety requirements, for any level of concentration and for any kind of substance (horizontal and vertical laminar flow cabinets, biohazard and cytostatic safety cabinets, laminar flow pass boxes with UV, sanitized hydrogen peroxide pass boxes, weighing, sampling and dispensing cabinets and isolators designed in accordance with the latest international standards (GMP).

**AIC** brand provides Waster, and an automated treatment system for hospital and contaminated waste.



Angelantoni Plants



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