Made in Poland. Established 1990.

POL-EKO
Perfect Environment

Constant Climatic Chambers with Peltier cooling system

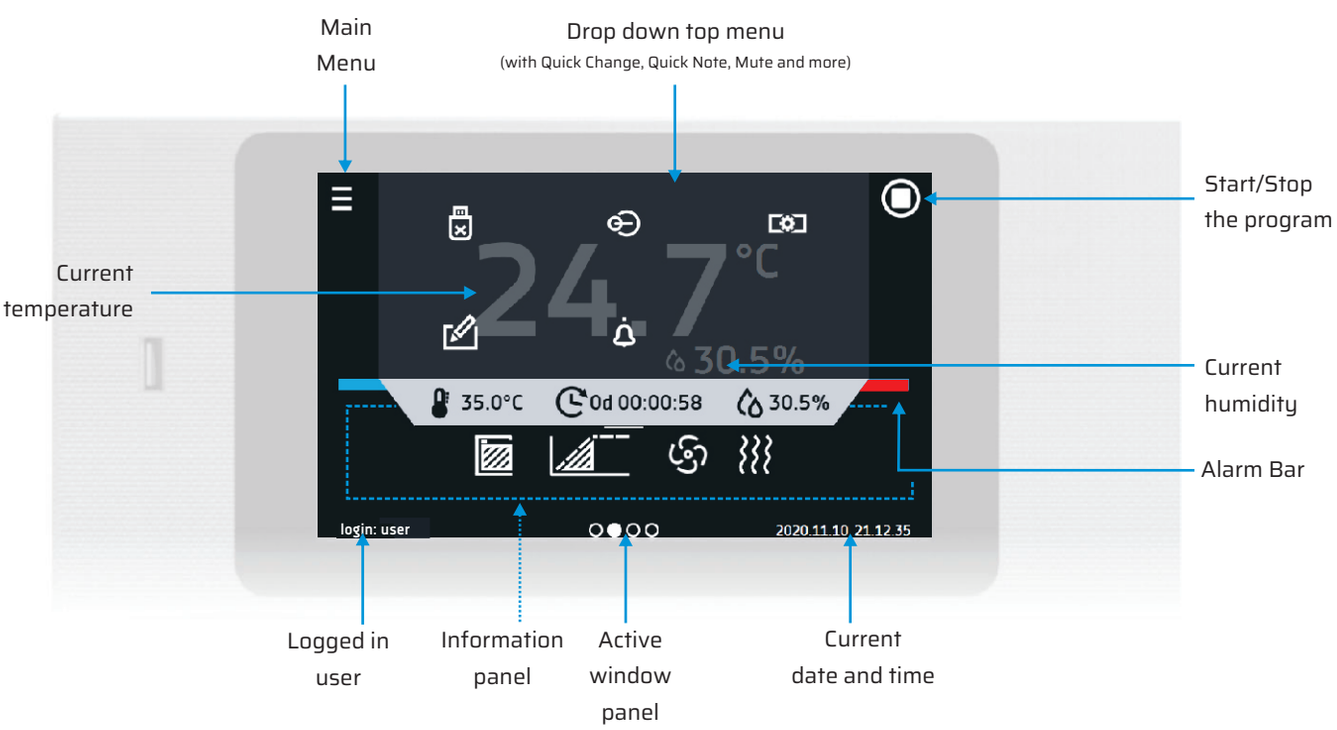
KKP 240/750 SMART PRO

Constant Climatic Chambers with Peltier cooling KKP SMART PRO

The **constant climatic chambers KKP SMART PRO** series feature a stainless steel (DIN 1.4301) inner chamber, stainless steel or powder coated housing, solid outer door and internal glass door. They are designed for long-term stability tests of drugs and medicinal products (in terms of temperature and humidity conditions), in accordance with the guidelines of the ICH (Q1A) standard. These chambers can also be used for testing the stability of cosmetics, food, as well as for various types of durability tests.

Controller

The KKP SMART PRO constant climate chamber is equipped with an innovative controller with a large (7") colour touch screen. It displays all important information about the program settings, current parameters, alarms and program status in a very clear, easy to understand way. The controller is using icons for easy navigation. All information is easy legible and programming the unit is extremely intuitive.

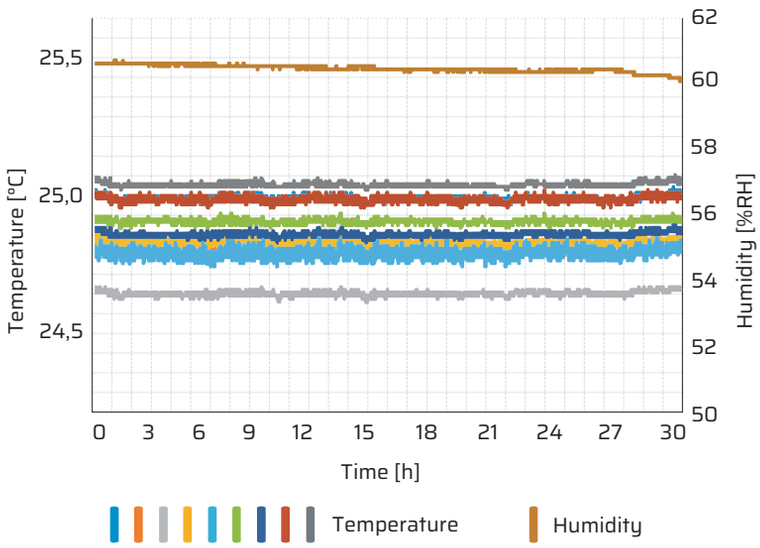


The most important advantages of the SMART PRO controllers:

- multi-segment time, temperature and humidity profile with adjustable ramps
- overview of data in tabular and graphic form
- visual and audible alarm
- administration functions for easy management
- password protected log-in
- internal memory for programs and data storage
- event registry with user notifications
- adjustable start delay feature and loop function
- LAN port, USB port and WiFi for communication and data transfer
- LabDesk software and instruction manual for direct download
- alarm bar- instant visual information about chamber status
- Quick Note - user can save text notes (50 characters) in the controller's memory
- Quick Change - quick change of program parameters: temperature, humidity, time, fan (depending on the module)
- Quick change of parameters: temperature, humidity, time and fan
- over- and under-temperature protection class 3.3 (DIN 12880) protects samples and the chamber

Gloves friendly touch screen!

Excellent performance - boosted with Peltier-element cooling system



As smart as your smartphone

Highly advanced SMART PRO controller, managing the KKP family, combined with a large 7-inch touch screen, makes easy and intuitive operation of the unit.

Energy saving

The tests performed at a temperature close to the ambient temperature shows the impressive economy of the heating and cooling concept with Peltier. The energy cost is reduced on average by 40% compared to compressor-cooled chambers.

Perfect performance

The cooling system based on the Peltier element features excellent temperature variation and fluctuation. It also improves the temperature recovery time (e.g. after door opening). The humidity inside the chamber is extremely stable.

Environmentally friendly

Elimination of compressor and refrigerants ensures environmental protection.

Lighter and smaller

The cooling system based on Peltier modules allows reducing the dimensions of the unit and its weight (compared to compressor-cooled chambers).

No vibration and more quiet operation

Compared to compressor-cooled climate chambers, the KKP SMART PRO units do not vibrate, and the noise level is significantly lower.

Low water consumption

The external 6 L water tank is factory mounted on the left side wall for easy access, but may be placed on the right side of the climatic chamber.
Water consumption is only 90 ml per day for KKP 240 and 290 ml per day for KKP 750 (at 40°C, 75% RH). Water consumption is so low that the tank only needs to be refilled every second month. Thanks to the installation of a heater in the wastewater pan, the chamber is maintenance-free and can be used in any location.

How does work Peltier cooling-heating system?

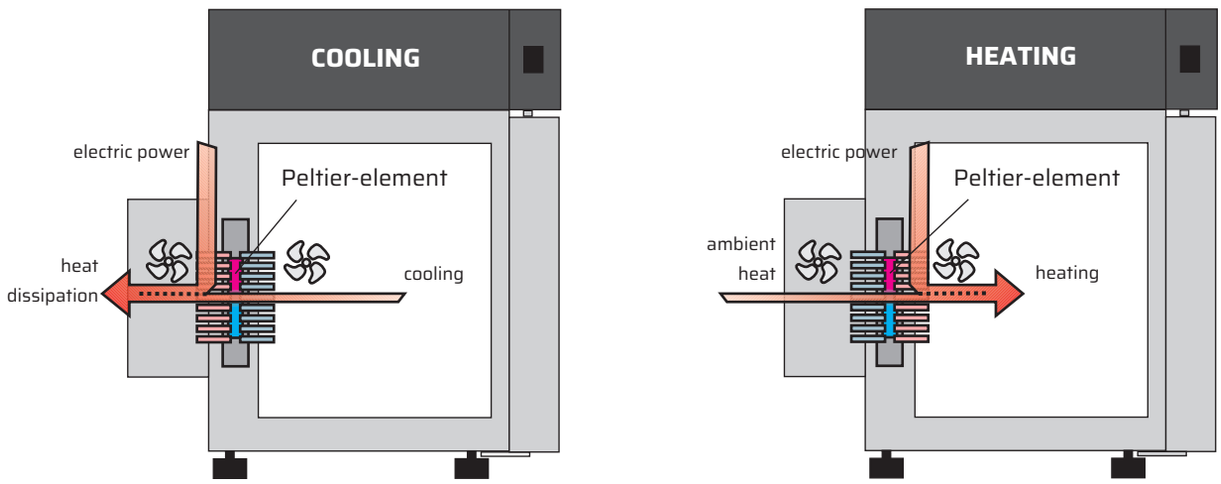
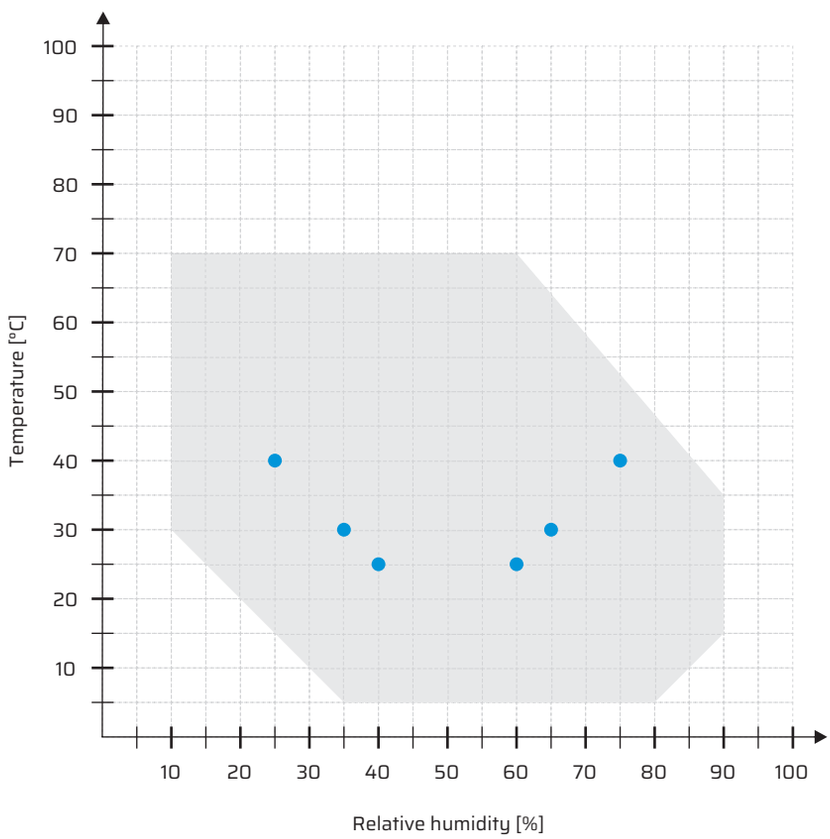


Diagram temperature-humidity range

Climate testing points according to ICH Q1 A (R2) guidelines



STABILITY STUDY	STORAGE CONDITIONS	MINIMUM TIME PERIOD	TESTING FREQUENCY
Long term (choice of storage conditions)	25 ±2°C/60 ±5%RH or 30 ±2°C/65 ±5%RH	12 months	each 3rd month 1st year,each 6th month 2nd year, annually thereafter
Intermediate (if long term conditions is 25 ±2°C/60 ±5%RH)	30 ±2°C / 65 ± 5%RH	6 months	minimum three time points
Accelerated	40 ±2°C / 75 ±5%RH	6 months	minimum three time points
Long term (only semi-permeable containers)	25 ±2°C / 40 ± 5%RH or 30 ±2°C/35 ±5%RH	12 months	each 3rd month 1st year, each 6th month 2nd year, annually thereafter
Accelerated (only semi-permeable containers)	40 ±2°C / not more than ±25%RH	6 months	minimum three time points

Labdesk software - remote control of the unit

KKP SMART PRO Constant Climate Chambers can be connected to the Ethernet network and controlled remotely using the LabDesk Software supplied. This Software can be downloaded from the unit's internal memory to a USB stick.

The application was created for a demanding customers to facilitate operation and control of units manufactured by POL-EKO.

LabDesk features:

- simultaneous connection of several SMART PRO units
- remote control of units
- current temperature and humidity preview
- running program status preview
- real-time running program data record to the file
- alarm information
- remote creating and uploading programs
- existing programs edition
- creating programs offline
- starting / stopping programs
- setting a delayed start for a program
- opening data file / events registry downloaded from the unit
- generating reports /graphs from registry or events data file
- generating schedules
- current data statistics preview
- generating reports from current statistics
- downloading statistics of the launched program
- downloading registered data / events
- creating charts
- user management panel
- time zone change
- unit interface settings
- temperature correction
- alarms settings

LabDesk Cloud – on-line platform for SMART PRO units in your laboratory

Our cloud platform enables remote preview of current status and measured data of POL-EKO branded units anywhere, anytime and on any equipment you want to (smartphone, tablet, laptop, PC, etc.). It also offers an easy auto-update for SMART PRO controller firmware.

LabDesk Cloud features:

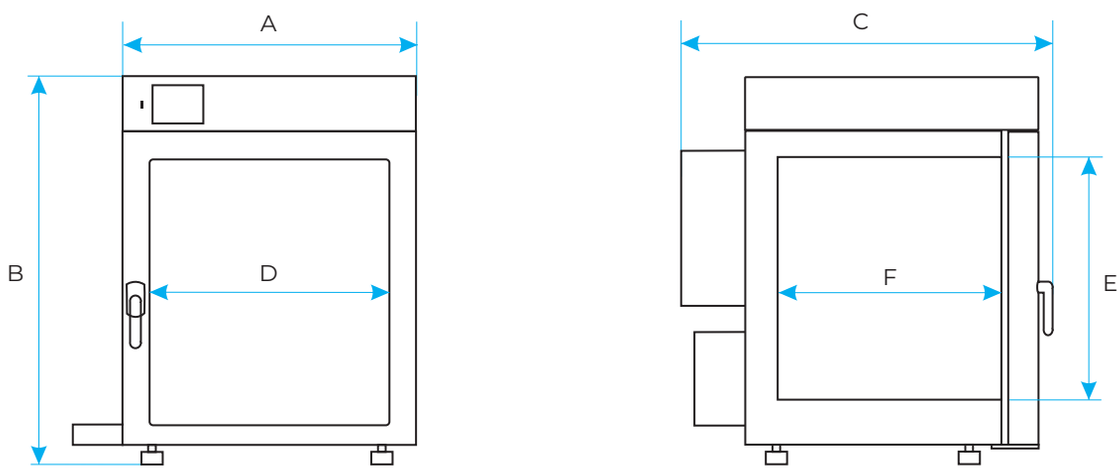
- simultaneous connection of several SMART PRO units
- current measured values preview in the form of a table and chart
- unit status preview with events history and data export option

Humidification with a steam generator

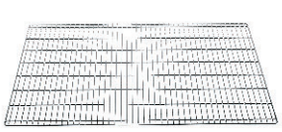
The KKP constant climatic chambers with a steam humidifier do not emit ultrasounds and therefore allow insects breeding (e.g. Drosophila melanogaster). Compared to the KK chambers, they feature an extended temperature and humidity range and can be used for tests of electronics, plastic or building materials.

Steam humidifier in the KKP models is an energy-saving solution based on an aluminum heating block and a peristaltic pump controlled by a stepper motor. This humidifier has a very fast heating time and enables the dosing of precisely measured amounts of water. Operation in ECO mode (the block heats up only when it detects the need for dosing moisture to the chamber) saves energy.

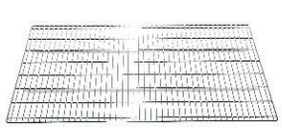
Dimensions drawing KKP 240/750 SMART PRO



Additional options for KKP 240/750 SMART PRO



Additional
wired shelf



Reinforced wired shelf
max. loading 100 kg

Additional
perforated shelf

Support frame on castors
for KKP 240, height 370mm

Technical Specification

Description		KKP 240 SMART PRO	KKP 750 SMART PRO
			
Air convection		forced	
Chamber capacity [l]		245	749
Door type		1 external solid door, 1 internal glass door	2 external solid door, 2 internal glass door
Controller		microprocessor with a large 7" full colour touch screen	
Interior		stainless steel to DIN 1.4301	
Housing	-	powder coated sheet	
	IG	stainless steel (linen finished)	
	A width	960	1400
Overall dims [mm]	B height	1140	1580
	C depth	840	1040
	D width	600	1040
Internal dims [mm]	E height	800	1200
	F depth	510	600
Working temperature range without humidity [°C]		0...+70 (max 20°C below ambient temp.)	
Temperature variation (spatial) at 40°C [°C]		±0,3	±0,2
Temperature fluctuation (time) at 40°C [°C]		±0,1	±0,1
Working temperature range with humidity [°C]		+5...+70 (max 20°C below ambient temp.)	
Temperature resolution [°C]		every 0,1	
Temperature variation (spatial) at 40°C, 75% RH [°C]		±0,3	±0,2
Temperature fluctuation (time) at 40°C, 75% RH [°C]		±0,1	±0,1
Temperature variation (spatial) at 25°C, 60% RH [°C]		±0,2	±0,2
Temperature fluctuation (time) at 25°C, 60% RH [°C]		±0,1	±0,1
Humidity range [%]		10 to 90	
Humidity resolution [%]		every 0,1	
Humidity variation (spatial) at 40°C, 75% RH [%RH]		<±1,0	<±1,0
Humidity fluctuation (time) at 40°C, 75% RH [%RH]		±0,3	±0,3
Humidity variation (spatial) at 25°C, 60% RH [%RH]		±0,8	±0,8
Humidity fluctuation (time) at 25°C, 60% RH [%RH]		±0,2	±0,4
Recovery time humidity (min) after 30 sec door open at 40°C, 75% RH		10	23
External water tank [l]		6	6
Max shelf workload [kg]		25	100
Max unit workload [kg]		90	140
Nominal power [W]		2300 W	2700 W
Weight [kg]		117	233
Power supply		230V 50Hz	
Shelves (fitted/max)		3/10	3/16
Warranty		24 months	

1) width doesn't include shelve for water tank - 140mm
2) fluctuation measured in centre of the chamber
3) in space, variation (K) calculated for chamber as: $K=+/-(\bar{T}max-\bar{T}min)/2$

Options and accessories

POL-EKO

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POL-EKO

Manufacturer of laboratory equipment,
fume hoods and on-line instruments.

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