

Climatic chambers

Climatic chambers with phytotron system

KK

Application

- plant and fungus growing
- seeds germination
- microorganisms and insects breeding
- photostability tests
- food preservation experiments
- all research and tests that require stable temperature and humidity conditions (optionally light)
- tests of building materials

Climatic chambers can control humidity and temperature to provide a precise environment.



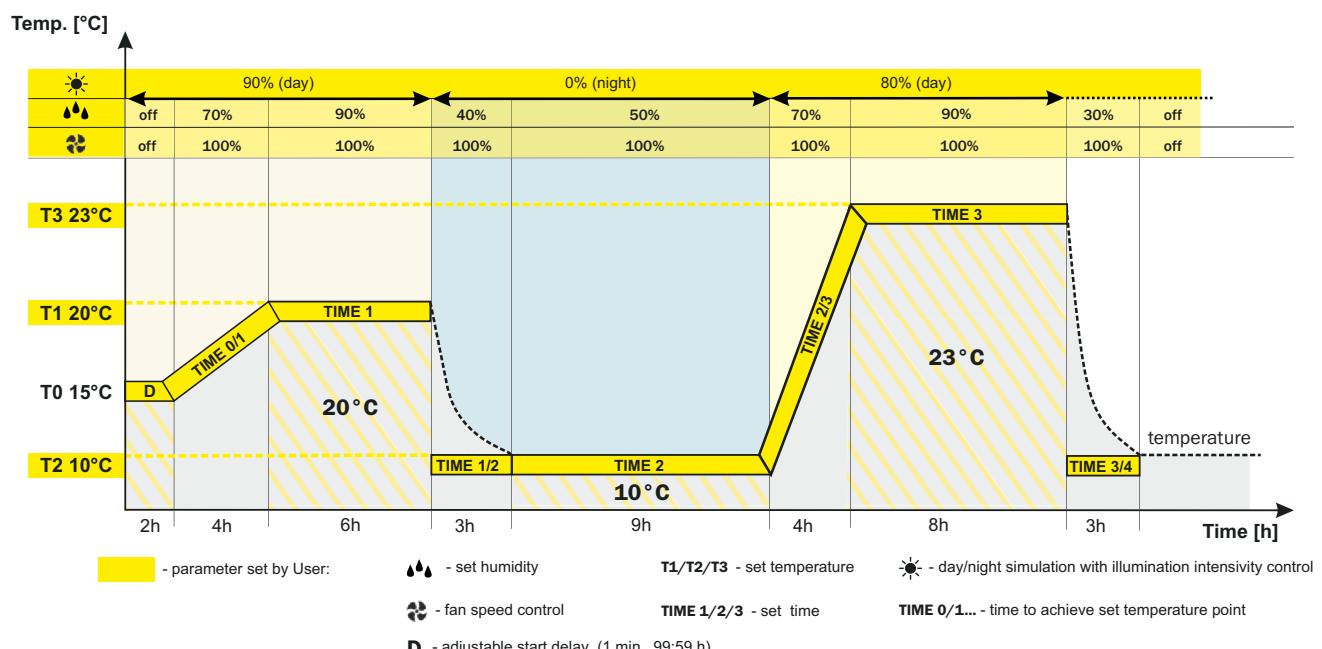
KK 350 TOP+ with KK 350/FIT

Advantages

- available TOP+ version
- chamber capacity from 112 to 1460 litres
- stainless steel interior
- housing: powder coated sheet, stainless steel liner finish (**INOX/G**) (depending on model)
- forced air convection
- fan speed control from 10 to 100%
- heating and cooling systems to hold the set temperature regardless of ambient conditions
- thermal insulation - polyurethane foam
- automatic defrosting function
- LCD touch screen in TOP+ version
- microprocessor temperature and humidity controller (illumination intensity controller optionally - */FIT option)
- temperature and humidity sensor fail alarm
- power failure control system
- real time clock
- sound alarm
- self check function (auto control)
- test results memory

Program possibilities

- TOP+ version



Climatic chambers

- time, temperature and humidity control
- temperature range: -10 to +60 °C

Climatic chambers with phytotron system (*/FIT option)

- time, temperature, humidity and illumination intensity control
- illumination system: day and night simulation system with intensity control (every 10%):
 - placed in the door and in the side walls for KK 350, 500 and 700 FIT DS
 - placed in the side walls for KK 500 and 700 FIT S
 - fixed as over-shelf panel with intensity control for KK 115, 240, 500, 400, 700, 750, 1200, 1450 FIT P
- temperature range - lighting off: -10 to +60 °C
- temperature range - lighting on: +10 to +50 °C
- light colour selection
- illumination power of up to 15 000 LUX per shelf (measured in geometrical center of the shelf placed 25 cm under illumination panel)
- program priority: temperature or time

Climatic chambers

Climatic chambers with phytotron system

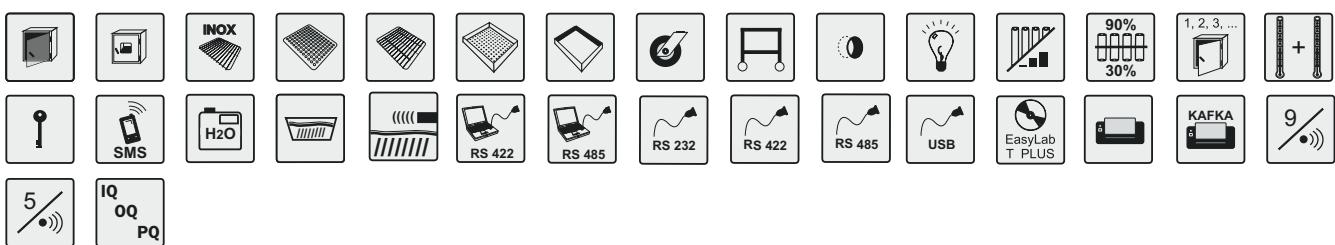
KK



Standard equipment

- double door (solid outside, glass inside)
- wheels with brakes (except KK 115 and 240)
- RS 232 interface and USB port **New!**; RS 232 or USB cable must be purchased additionally (RSK or USBK)
- stainless steel wire shelves (2-6 pieces, depending on model) with slides set
- manufacturer's test certificate at 25 °C and 60% humidity
- operation manual in English and English menu (other languages on request)
- over temperature protection according to DIN 12880: class 3.3
- container for deionised water
- container for waste water
- open door alarm
- access port for external sensor (diameter: 30 mm)

Options and accessories



POL-EKO Measurement Laboratory provides Qualification procedures are required by pharmaceutical (also by veterinary pharmacy), cosmetic and biotechnology industries. A complete qualification procedure consists of the following parts: installation qualification (IQ), operational qualification (OQ), and performance qualification (PQ).



All POL-EKO-APARATURA products can be supplied with a calibration certificate issued by an accredited Measurement Laboratory. Further information is available on our website: www.polekolam.com.

Climatic chambers

Climatic chambers with phytotron system



Chambers of this kind can be also produced according to customer's requirements.

Available options

KK*/A - external glass door
FIT - phytotron system

Parameter	Model		KK 115	KK 240	KK 350	KK 400	KK 500	KK 700	KK 750	KK 1200	KK 1450	
air convection			forced									
chamber capacity ¹	[l]	115	245	335	424	493	625	749	1365	1460		
	[cu ft]	3,9	8,6	11,8	15	17,4	22	26,4	48,2	51,6		
door type	double (external solid, internal glass) / external glass (option)											
temperature range	[°C]	-10...+60 (with phytotron ON +10...+50)										
	[°F]	+14...+140 (with phytotron ON +50...+122)										
humidity range [%]	30...90 (with temperature range +10...+60)											
phytotron system** (available models)	FIT DS option	-	-	YES	-	YES	YES	-	-	-	-	
	FIT P option	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	
	FIT S option	-	-	-	-	YES	YES	-	-	-	-	
controller	microprocessor with external display											
interior	acid-proof stainless steel according to DIN 1.4301											
housing	powder coated sheet / stainless steel (INOX/G)											
overall dims [mm] ²	width	650	815	645	1015	645	735	1260	1470	1450		
	height	1200	1490	2025	1740	2025	2025	1890	2000	1970		
	depth	710	770	980	770	1025	1075	870	1075	1175		
internal dims [mm]	width	460	600	500	800	510	600	1040	1310	1340		
	height	540	800	1340	1040	1525	1510	1200	1510	1460		
	depth	450	510	500	510	635	690	600	690	750		
max shelf workload [kg]*	-	10	10	10	10	20	30	10	30	30		
	PW version	50	100	100	100	100	100	100	100	100		
max unit workload [kg]	-	60	90	100	120	100	150	140	300	300		
	W version	120	300	on request	300	on request	on request	300	on request	on request		
nominal power [W]	-	1000	1500	1400	2000	1600	1600	2500	2200	2200		
	FIT version	1200	1800	2600	2300	2000	2000	2900	3000	3000		
weight [kg]		90	140	125	185	130	170	275	220	230		
temperature resolution [°C]	every 0,1											
over temperature protection	class 3.3											
voltage 50/60 Hz [V]	115/230											
wire shelves fitted/max ³	2/7	3/10	3/11	3/14	3/11	3/11	5/16	2 x 3/11	2 x 3/11			
over-shelf illumination panels fitted/max ³	FIT P option	1/1	1/2	-/-	1/2	1/3	1/3	1/2	1/3	1/3		
max illumination power [lux]	FIT version	5000	10000	15000	15000	15000	15000	15000	15000	15000		
warranty	24 months											
manufacturer	POL-EKO-APARATURA											

* - at even surface workload

** - FIT DS - lamps in door and walls

FIT P - over-shelf panel with lamps

FIT S - lamps in walls

FIT options can not be combined!

1 - working capacity of chamber can be smaller

2 - overall dims for units without FIT DS/FIT D option,
dims of power cable (50 mm) and shelf for water container
(250 mm) not included

3 - "fitted" number of shelves/panels fitted, included in price
"max" number of shelves/panels which can be fitted

Features			
interior		plastic (ZLN 75, 145, 180)	1.
		aluminum	2.
		stainless steel (ST/CHL INOX; ZLN 85+; ZLN-T)	3.
housing		powder coated sheet	4.
		stainless steel (ST/CHL INOX; ZLN 85+, ZLN-T INOX)	5.
air convection		natural	6.
		forced	7.
fan speed control		0...100% (CL/SL 15...240, SR 53...240)	8.
		10...100% (CL/SL/SR 400-1000)	9.
automatic fan shut down after completing the program			10.
automatic air-flap control (adjustable)			11.
system		heating	12.
		cooling	13.
defrosting function			14.
automatic defrosting function			15.
external display		graphic LCD	16.
		5.7" LCD touch screen	17.
microprocessor temperature (humidity in KK; light with FIT and FOT options) controller			18.
temperature-time profile (humidity in KK; light with FIT and FOT options)		1 segment	19.
		6 segment	20.
		multi-segment (max 10 000)	21.
program priority		temperature	22.
		time (ST and IL in STD with FOT/FIT option)	23.
cycle run of the program			24.
user programs memory		1	25.
		3	26.
		20	27.
start delay		1 min...99:59 h	28.
		date/time	29.
adjustable heating up time		1 min...99:59 h	30.
adjustable hold at set point (temperature; humidity in KK; light with FIT and FOT options)		1 min...99:59 h	31.
		1 min...999:59 h	32.
		1 min...31 days	33.
overview of set parameters during operating time			34.
recording min, average and max temperature (and humidity in KK) value for each segment (unavailable for ZLN 75, 145, 180)			35.
over/under temperature and humidity sound alarm (and humidity in KK)			36.
over/under temperature protection class according to DIN 12880			37.
temperature sensor fail alarm (and humidity sensor fail alarm in KK)			38.
power failure control system			39.
real time clock			40.
sound alarm			41.
test results memory			42.
access port for external sensor (diameter: 30 mm) (option for ZLN 75, 145, 180)			43.
door lock (option for ZLN 75, 145, 180)			44.
open door alarm			45.
interface / port		RS 232	46.
		USB	47.
Ethernet connection and remote control via Internet			48.
self-check function (auto control)			49.
Administrator function			50.
access control via login			51.
e-mail info			52.
manufacturer's test certificate (for: ZL at -10 °C; CHL at +4 °C; KK at +25 °C and 60% rH; ST, CL, IL at +37 °C; SL at +105 °C; SR at +170 °C)		53.	
24 months warranty			54.
CE mark			55.
manufacturer's certificate PN-EN ISO 9001			56.

	ST		CHL		ZL	CL		IL		SL		SR STD	KK TOP+
	P*	TOP+	P*	TOP+		STD	TOP+	STD	TOP+	STD	TOP+		
1.					•								
2.	•	•	•	•									
3.	•	•	•	•	•	•	•	•	•	•	•	•	
4.	•	•	•	•	•	•	•	•	•	•	•	•	
5.	•	•	•	•	•	•	•	•	•	•	•	•	
6.					•	•	•			•	•	•	
7.	•	•	•	•		•	•	•	•	•	•	•	•
8.						•	•			•	•	•	
9.	o	•	o	•		•	•	•	•	•	•	•	
10.	•	•	•	•		•	•	•	•	•	•	•	
11.						•	•			•	•	•	
12.	•	•				•	•	•	•	•	•	•	
13.	•	•	•	•	•			•	•				•
14.	•	•	•	•									
15.	o	o	o	o				o	o				•
16.	•		•			•	•		•			•	
17.	•		•				•		•		•		•
18.	•	•	•	•	•	•	•	•	•	•	•	•	
19.			•		•								
20.	•					•		•		•		•	
21.	•		•				•		•		•		•
22.	•	•	•	•	•	•	•	•	•	•	•	•	
23.	•	•			•			•		•		•	
24.	•	•			•	•	•	•	•	•	•	•	
25.			•		•								
26.	•					•		•		•			
27.	•		•				•		•		•	•	
28.	•	•	•	•	•	•	•	•	•	•	•	•	
29.	•		•		•	•	•	•	•	•	•	•	
30.	•		•		•	•	•	•	•	•	•	•	
31.	•	•	•	•	•	•	•	•	•	•	•	•	
32.	•		•		•	•	•	•	•	•	•	•	
33.	•		•										
34.	•	•	•	•	•	•	•	•	•	•	•	•	
35.	•	•	•	•	•	•	•	•	•	•	•	•	
36.	•	•	•	•	•	•	•	•	•	•	•	•	
37.	1.0	3.3	1.0	3.2		2.0	3.1	2.0	3.3	2.0	3.1	2.0	3.3
38.	•	•	•	•	•	•	•	•	•	•	•	•	
39.	•	•	•	•	•	•	•	•	•	•	•	•	
40.	•	•	•	•	•	•	•	•	•	•	•	•	
41.	•	•	•	•	•	•	•	•	•	•	•	•	
42.	•	•	•	•	•	•	•	•	•	•	•	•	
43.	•	•	•	•	•	•	•	•	•	•	•	•	
44.	•	•	•	•	•	•	o	o	o	o	o	o	o
45.	•	•	•	•	•	•	•	•	•	•	•	•	
46.	•	•	•	•	•	•	•	•	•	•	•	•	
47.	•	•	•	•	•	•	•	•	•	•	•	•	
48.	•		•				•		•		•		
49.	•	•	•	•	•	•	•	•	•	•	•	•	
50.	•		•			•		•		•			
51.	•		•				•		•		•		
52.	•		•				•		•		•		
53.	•	•	•	•	•	•	•	•	•	•	•	•	
54.	•	•	•	•	•	•	•	•	•	•	•	•	
55.	•	•	•	•	•	•	•	•	•	•	•	•	
56.	•	•	•	•	•	•	•	•	•	•	•	•	

• - standard equipment
 o - option
 * - basic version of thermostatic cabinets and laboratory refrigerators

Options and accessories

KK

Options and accessories	ST		CHL		ZL	CL		IL		SL		SR STD	KK TOP+	Order no.
	P ⁶	TOP+	P ⁶	TOP+		STD	TOP+	STD	TOP+	STD	TOP+			
internal glass door ^{1,5}	•	•	•	•		•	•	•	•			•	•	*/C
external glass door ^{1,8}	•	•	•	•									•	*/A
door with viewing window ^{4,7}						•	•	•	•	•	•		•	*/A
internal socket ^{1,5}	•	•	•	•		•	•	•	•					GNZ
interior lighting ^{1,4,5}	•	•	•	•	•	•	•	•	•	•	•		•	OWW
door lock ^{1,12}	S	S	S	S	S	•	•	•	•	•	•		•	ZKL
wire shelf ¹	•	•	•	•										*/P
stainless steel wire shelf ^{1,9}	•	•	•	•	•	•	•	•	•	•	•		•	*/P INOX
perforated shelf ¹	•	•	•	•	•	•	•	•	•	•	•		•	*/PP
glass shelf ³						•								*/PS
reinforced shelf	•	•	•	•	•	•	•	•	•	•	•		•	*/PW
extended temperature range to +70 °C ¹	•													ST/70
reinforced version ¹²						•	•	•	•	•	•		•	*/W
low temperature version ^{1,10}					•				•	•				*/T
photoperiodic system - FOT ¹	•							•	•					*/FOT
phytotron system - FIT ¹¹		•							•				•	*/FIT
automatic defrosting function	•	•	•	•				•	•				S	*PLUS
over temperature protection system according to DIN 12880 ¹	3.3	S (3.3)	3.2	S (3.2)		3.1	S (3.1)	3.3	S (3.3)	3.1	S (3.1)	3.1	S (3.3)	*/**
stainless steel cuvettes	•	•	•	•	•	•	•	•	•	•	•	•	•	KUW GN */*
stainless steel drawers	•	•	•	•	•	•	•	•	•	•	•	•	•	*/SW
humidity measurement ⁵		•		•		•	•	•	•					PHR
door openings counter ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	LOD
fan speed control	•	S	•	S		S	S	S	S	S	S	S	S	ST/CHL WENT
additional Pt 100 temperature sensor	•			•		•	•	•	•	•	•	•	•	PT100
HEPA - fresh air filter							•	•		•	•	•		HEPA
RS 422 interface (instead of RS 232) ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	RS422
RS 485 interface (instead of RS 232) ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	RS485
wheels	•	•	•	•	•	•	•	•	•	•	•	•	•	QLK*
table with wheels ²	•	•	•	•	•	•	•	•	•	•	•	•	•	*/S, */INOX
RS 232 cable ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK
RS 422 cable ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/422
RS 485 cable ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/485
USB cable ¹	•		•		•	•	•	•	•	•	•	•		USBK
EasyLab-T PLUS software	•	•	•	•	•	•	•	•	•	•	•	•	•	EasyLab-T PLUS
dot printer	•	•	•	•	•	•	•	•	•	•	•	•	•	EPSON
"Kafka" thermal printer	•	•	•	•	•	•	•	•	•	•	•	•	•	KAFKA
calibration at 9 points ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/9/L
chamber calibration at 5 points on 1 shelf ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/5/L
IQ, OQ, PQ qualification ¹	•	•	•	•	•	•	•	•	•	•	•	•	•	IQ/OQ/PQ
SMS Info ^{1,12}	•	•	•	•	•	•	•	•	•	•	•	•	•	SMS INFO
container for deionised water													•	KK/Z
container for waste water													•	KK/K
water level sensor													•	KK/CP
FIT panels independent control ¹¹		•							•				•	FIT/R3

* - model (e.g. ST 1+, IL 53, ZL 75)

** - over temperature protection system (e.g. 3.1)

1 - for double chamber units, the option available for both chambers separately

2 - unavailable for 400, 500, 700, 750, 1200, 1000 and 350/350 models, ST/CHL 4+ and 5+

3 - only for ZL 75, 145, 180

4 - in case of SL range, maximum temperature is reduced to +250°C

option unavailable for CL/SL 15/32

5 - in case of CL/IL in TOP+ version, maximum temperature is reduced to +70°C

6 - basic version of thermostatic and laboratory refrigerators

7 - for KK 115, 240, 400, 750

8 - for KK 500, 700, 1200

9 - for ZLN 85+

10 - for CHL 500, 700, 1200, 1450, 350/350

11 - thermostatic cabinets ST 500, 700, 1200, 1450

12 - except ZL 75, 145, 180

S - standard equipment

• - available option