BASIC

The BASIC version has been designed for those customers who look for professional lab equipment at a very competitive price. The cooled incubators (ST) and refrigerators in the BASIC version feature aluminum interior and powder-coated sheet housing (RAL 7035) with a graphite (RAL 7016) front panel. This combination of construction materials maintains the quality of the equipment and guarantees an attractive price.

model	Interior	housing
BASIC	aluminum	powder coated sheet

COMFORT

The COMFORT version is ideal for those customers who appreciate high quality products, reasonably priced. The inner chamber is made of smooth stainless steel (to DIN 1.4016) being a great advantage. The external housing can either be constructed of a powder-coated sheet (RAL 7035) with a graphite front panel (RAL 7016) - COMF, or polished stainless steel - COMF/S.

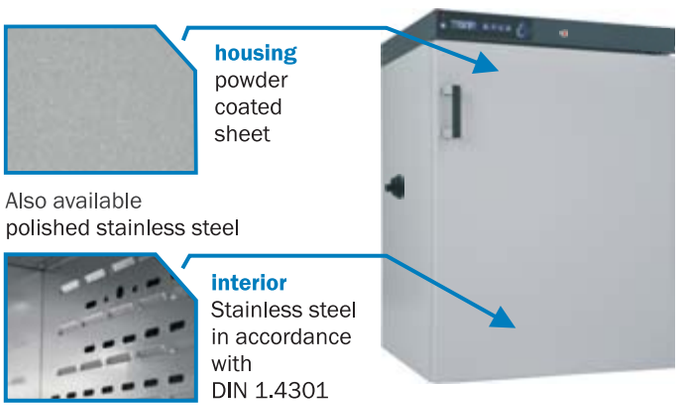
model	interior	housing
COMF	stainless steel to DIN 1.4016	powder coated sheet
COMF/S	stainless steel to DIN 1.4016	polished stainless steel

PREMIUM

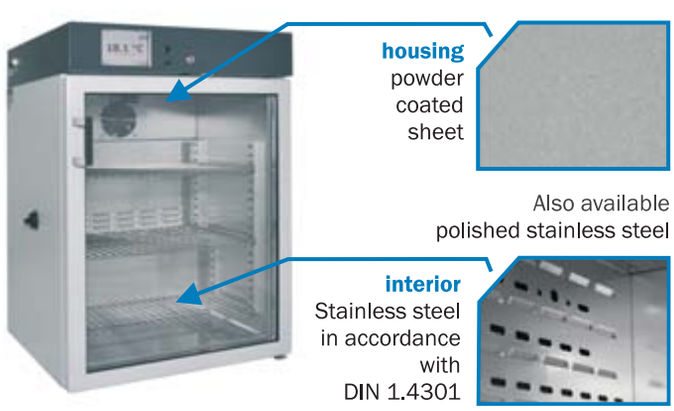
The PREMIUM version equipment is produced of highest quality materials, mechanically and chemically resistant. It features an acid-proof stainless steel (to DIN 1.4301) interior. The external housing can either be constructed of a powder-coated sheet (RAL 7035) with a graphite front panel (RAL 7016) - PREM, or polished stainless steel - PREM/S. Additionally, the ST units are equipped with class 2.0 temperature protection system to DIN 12880 to protect the samples.

model	interior	housing
PREM	stainless steel to DIN 1.4301	powder coated sheet housing
PREM/S	stainless steel to DIN 1.4301	polished stainless steel

PREMIUM



PREMIUM TOP +



PREMIUM TOP+

The PREMIUM TOP+ version is comprises of all the features of the PREMIUM version with advanced programming possibilities. Constructed of an acid-proof stainless steel (to DIN 1.4301) interior and a powder-coated sheet (RAL 7035) with a graphite front panel (RAL 7016) - PREM, or polished stainless steel - PREM/S housing, the equipment includes a large, full colour LCD touch screen, Windows CE system and remote control via Ethernet. The temperature values can be displayed on the screen in a tabular or graphic form. There are also adjustable ramps and hold at set point times, individually for each program segment. The TOP+ version can store up to 20 user programs, each of up to 100 temperature-time segments. The Admin function allows to manage Users and set up access policy. Additionally, for ST units in standard, maximum temperature is +70°C. Moreover, the units in TOP+ version are equipped with temperature protection class 3.3 for ST and 3.2 for CHL to DIN 12880 (see page 67).

model	interior	housing
PREM TOP+	stainless steel to DIN 1.4301	powder coated sheet
PREM/S TOP+	stainless steel to DIN 1.4301	polished stainless steel

-10/0...+15°C

Laboratory refrigerators

Application

- storage of water and sewage samples, piezometer leachate
- storage of AAS, GC or HPLC calibration standards
- storage of reagents
- chemical storage
- storage of medicines and vaccines

Laboratory refrigerators are equipped with a cooling system and can provide a stable temperature lower than ambient.

Calibration

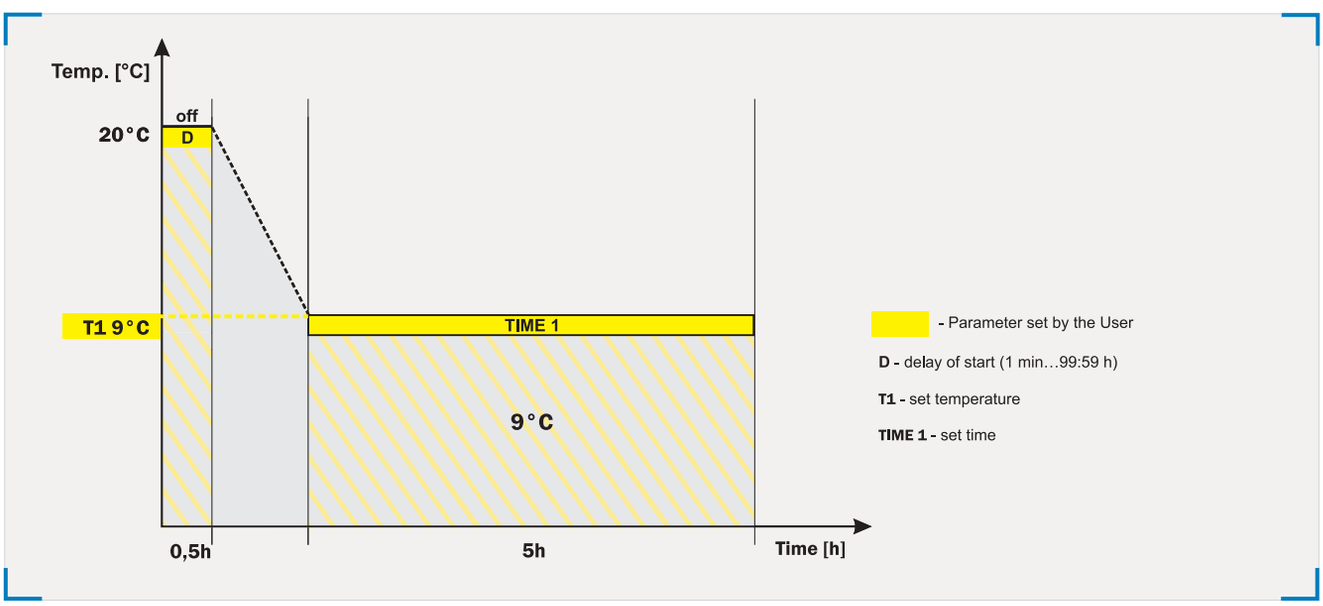
All thermostatic equipment manufactured by POL-EKO-APARATURA can be provided with Calibration Certificate issued by accredited Measurement Laboratory. Detailed information on accreditation of POL-EKO Laboratorium Pomiarowe is available on website: www.polekolab.pl.

BASIC, COMFORT, PREMIUM models are equipped with a PID microprocessor controller with an LCD graphic display and illuminated touch buttons.

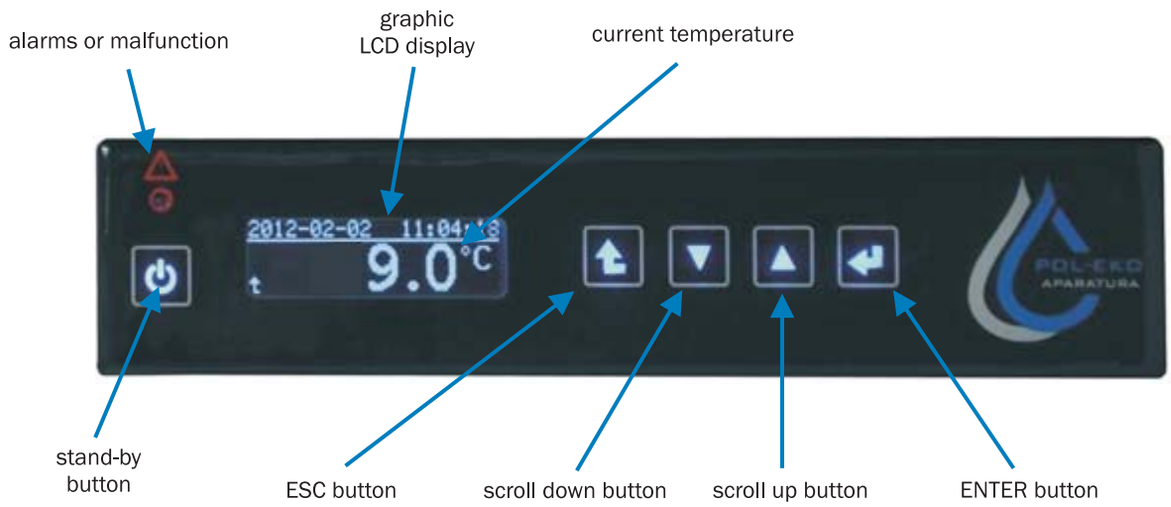
Controller advantages

- temperature control
- loop function up to 99 times or endless
- adjustable start delay feature (1 min...99:59 h)
- overview of set and current parameters while operating
- recording of min, average and max temperature value for each segment
- defrosting function
- audible and visual temperature alarm
- operating with temperature priority mode
- temperature sensor fail alarm
- power failure control system (program continued after restoring power)
- real-time clock
- auto-diagnostic function
- internal memory to store up to 2046 data records
- forced air convection with optional fan speed control (50-100%)
- automatic fan shut-down after completing the program

Detailed description of parameters on page 56.



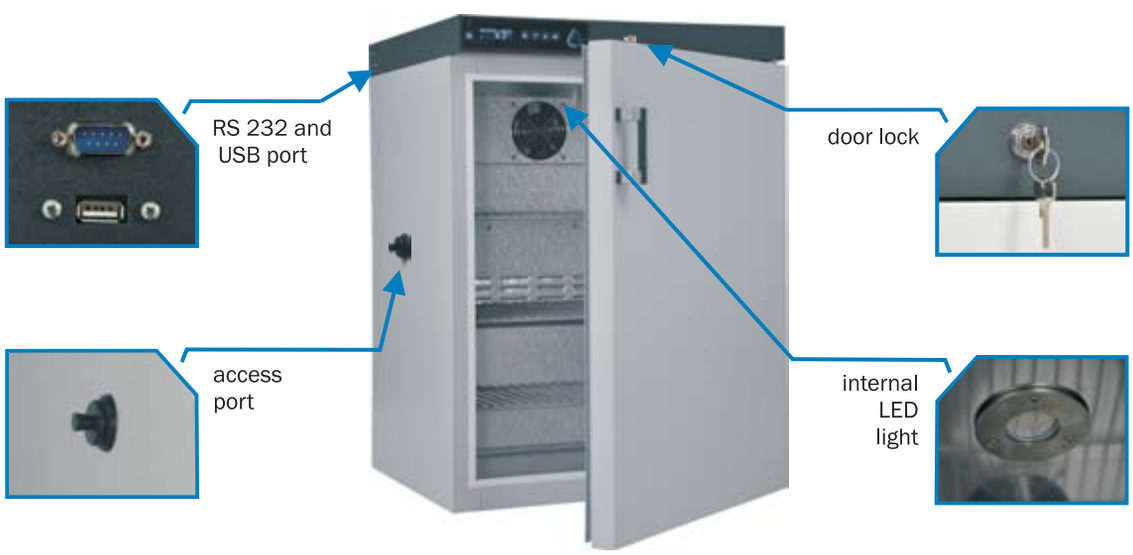
Control panel



Standard features:

- solid door
- temperature range 0...+15°C
- RS 232 and USB interface allow to download relevant program data with the free EasyLab Basic software available on the website or with the EasyLab Professional software (see page 68); cables to be ordered separately (RSK or USBK option)
- wire shelves with slides set for BASIC and stainless steel wire shelves for COMFORT and PREMIUM models
- operation manual in English quality control protocol
- available menu languages: Czech, English, Estonian, French, German, Italian, Latvian, Polish, Portuguese, Russian, Spanish
- over temperature protection 1.0 class for BASIC and COMFORT units and 2.0 for PREMIUM units according to DIN 12880
- door lock
- open door alarm
- access port: Ø30 mm
- internal LED light
- test results memory
- wheels in standard for models CHL 1200 and 1450

Detailed description of parameters on page 56.



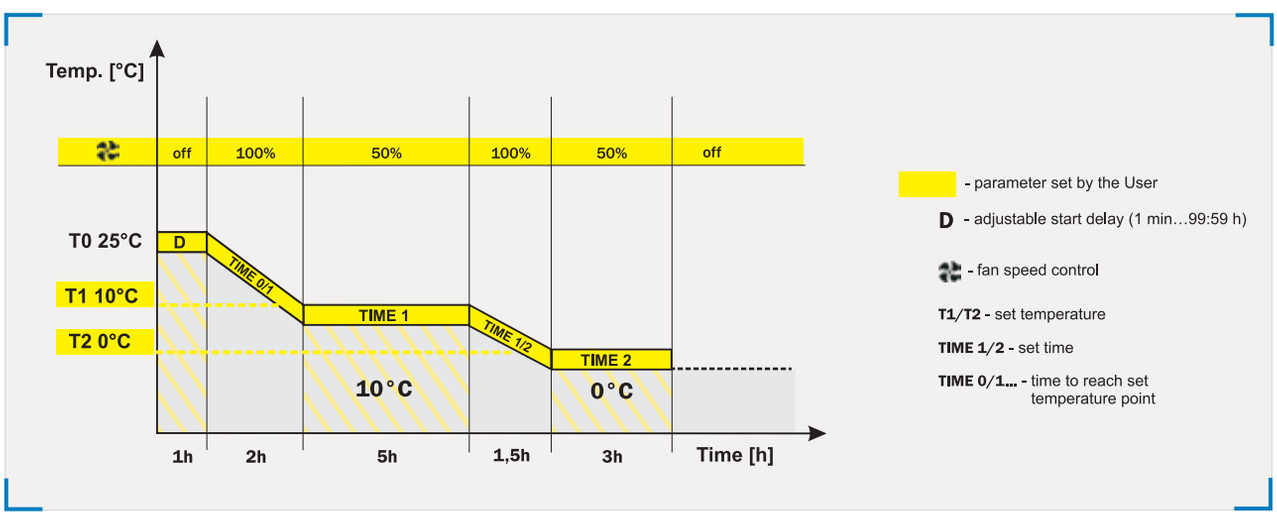
All the units in TOP+ version are equipped with a PID microprocessor controller with a large (5,7”) full colour touch screen, intuitive menu and user friendly software. They can be connected to Ethernet network for remote control from any computer, being one of the greatest advantages.

Controller advantages

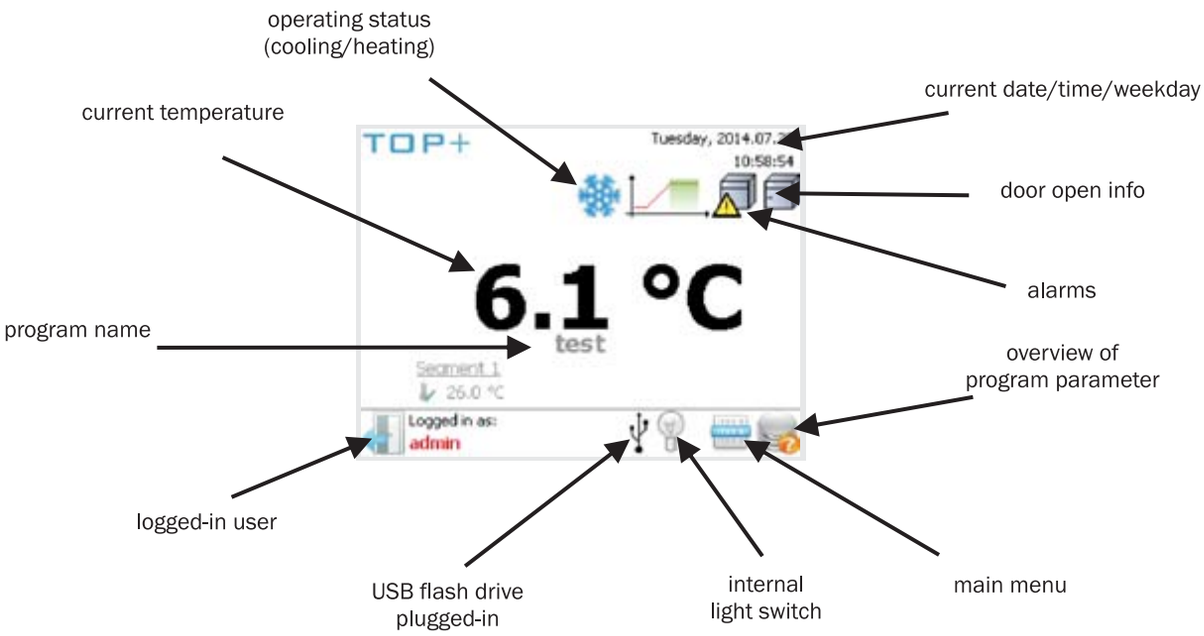
- Administrator function to manage User accounts
- access control via login
- 7-days programming
- multi-segment temperature-time profile (up to 100)
- loop function up to 99 times or endless
- adjustable start delay feature (from 1 min to 99:59 h or date/time)
- adjustable hold at set point time for temperature from 1 min to 999:59 h or continuous operating
- adjustable ramps
- overview of set and current parameters while operating
- recording of min, average and max temperature value for each segment
- possibility of temperature calibration by the User
- audible and visual temperature alarm
- operating in temperature or time priority mode
- defrosting function
- temperature sensor fail alarm
- power failure control system (program continued after restoring power)
- digital timer
- real-time clock
- auto-diagnostic function
- forced air convection with fan speed control (50-100%)
- automatic fan shut-down after completing the program

GLP supporting functions

- password protected settings
- 20 user programs memory
- internal memory to store up to 4100 data records for each User, possibility to overview the values on the display or a PC computer in tabular or graphic form
- USB port to allow direct data recording or transfer into a flash drive
- events registry
- TOP+ control software (see page 69)



Control panel



Standard features

- solid door
- temperature range 0...+15 °C
- RS232 interface, USB port to allow direct recording and data transfer onto a flash drive; data can also be downloaded with the free TOP+ Control software (see page 69) or the EasyLab Professional software (see page 68); cables to be ordered separately (RSK or USBK)
- Ethernet port for remote control; Ethernet cable
- TOP+ Control software
- stainless steel wire shelves
- quality control protocol
- English instruction manual
- available menu languages: English, Estonian, French, German, Hungarian, Italian, Latvian, Polish, Portuguese, Romanian, Russian, Spanish
- temperature protection 3.2 class to DIN 12880
- door lock
- open door alarm
- access port: Ø30 mm
- internal LED light
- wheels in standard for models CHL 1200 and 1450

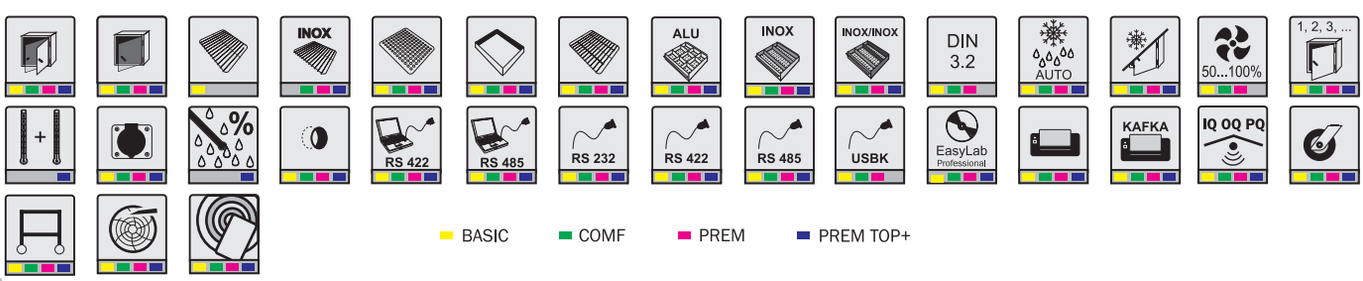
Detailed description of parameters on page 56.

Laboratory refrigerators

Parameter \ Model		CHL 1	CHL 2	CHL 3	CHL4	CHL 5	CHL 500	CHL 700	CHL 1200	CHL 1450
air convection		forced								
chamber capacity[1] [l]		68	150	200	250	300	493	625	1365	1460
door type		solid / glass or double[2] (option)								
temperature range [°C]		0...+15°C					0...+15°C / -10...+15°C (option)			
controller		microprocessor with external LCD graphic display								
interior	BASIC	aluminum								
	COMF	stainless steel to DIN 1.4016								
	COMF/S	stainless steel to DIN 1.4016								
	PREM (TOP+)	stainless steel to DIN 1.4301								
	PREM/S (TOP+)	stainless steel to DIN 1.4301								
housing	BASIC	powder coated sheet								
	COMF	powder coated sheet								
	COMF/S	stainless steel polished								
	PREM (TOP+)	powder coated sheet								
	PREM/S (TOP+)	stainless steel polished								
overall dims[3] [mm]	width	570	620	620	620	620	645	735	1440	1450
	height	600	860	1060	1260	1460	2025	2025	2045	1970
	depth	670	640	640	640	640	820	870	860	950
internal dims[4] [mm]	width	470	520	520	520	520	510	600	1310	1340
	height	430	660	860	1060	1260	1510	1510	1510	1460
	depth	300	420	420	420	420	640	690	690	750
max shelf workload[5] [kg]	-	10	10	10	10	10	20	30	30	30
	PW[6] version	on request					100	100	100	100
max unit workload [kg]	-	20	30	40	50	60	100	150	300	300
	W[7] version	on request								
nominal power [W]		160	170	170	330	330	400	400	550	550
weight[8] [kg]		32	54	59	69	75	105	115	185	200
temperature resolution [°C]		every 0,1								
temperature fluctuation[9] at +4°C [°C]		±0,5	±0,5	±0,5	±0,5	±0,5	±0,5	±0,5	±0,5	±0,5
temperature variation[10] at +4°C [°C]		±0,6	±0,8	±0,8	±0,9	±1,0	±1,0	±1,0	±1,0	±1,0
over temperature protection		class 1.0 to DIN 12880 / class 3.2 (option) / class 3.2 in PREM TOP+								
voltage		230V 50Hz								
shelves fitted*		2	3	3	4	4	3	3	2 x 3[11]	2 x 3[11]
warranty		24 months								
manufacturer		POL-EKO-APARATURA								

* 230V 60Hz, 115V 60Hz also available
1 - working capacity of chamber can be smaller
2 - additional internal glass door
3 - CHL 1-5 in TOP+ version are 60 mm higher, depth doesn't include 50 mm of power cable
4 - dims of units with double door can be smaller
5 - on uniformly loaded surface
6 - reinforced shelf
7 - reinforced version
8 - for units in BASIC version with solid door
9 - fluctuation measured in centre of chamber
10 - in space
11 - two columns with 3 shelves each

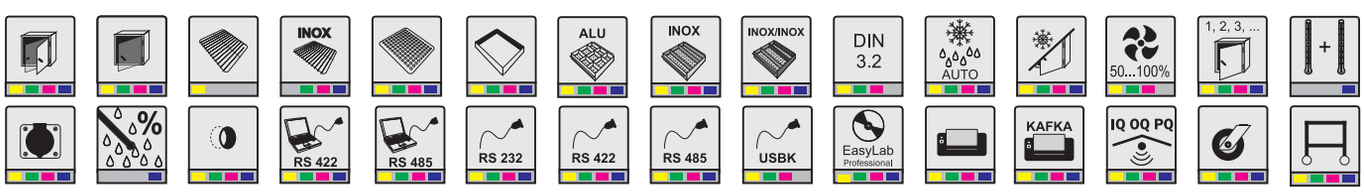
Options and accesories (icon description see page 55)



Parameter \ Model		CHL 1/1	CHL 1/1/1	CHL 2/2	CHL 2/3	CHL 2/4	CHL 3/3	CHL 350/350
								
air convection		forced						
chamber capacity[1] upper/lower [l]		68/68	68/68/68	150/150	150/200	150/250	200/200	294/294
door type		solid / glass or double[2] (option)						
temperature range		0...+15°C / -10...+15°C (option for CHL 350/350)						
controller		microprocessor with external LCD graphic display						
interior	BASIC	aluminum						
	COMF	stainless steel to DIN 1.4016						
	COMF/S	stainless steel to DIN 1.4016						
	PREM (TOP+)	stainless steel to DIN 1.4301						
	PREM/S (TOP+)	stainless steel to DIN 1.4301						
housing	BASIC	powder coated sheet						
	COMF	powder coated sheet						
	COMF/S	stainless steel polished						
	PREM (TOP+)	powder coated sheet						
	PREM/S (TOP+)	stainless steel polished						
overall dims[3] [mm]	width	570	570	620	620	620	620	720
	height	1170	1740	1680	1875	2080	2080	2045
	depth	670	670	640	640	640	640	860
internal dims[4] [mm]	width	470	470	520	520	520	520	600
	height	430	430	660	660/860	660/1060	860	700
	depth	300	300	420	420	420	420	700
max shelf workload[5] [kg]	-	10	10	10	10	10	10	30
	PW[6] version	on request						
max unit workload [kg]	-	20/20	20/20/20	30/30	30/40	30/50	40/40	75/75
	W[7] version	on request						
nominal power [W]		320	480	350	350	350	350	800
weight[8] [kg]		65	98	109	114	124	119	175
temperature resolution [°C]		every 0,1						
temperature fluctuation[9] at +4°C [°C]		see table of single chamber units						0,3
temperature variation[10] at +4°C [°C]		see table of single chamber units						0,5
over temperature protection		class 1.0 to DIN 12880 / class 3.2 (option) / class 3.2 in PREM TOP+						
voltage		230V 50Hz						
shelves fitted		see table of single chamber units						2/2
warranty		24 months						
manufacturer		POL-EKO-APARATURA						

1 - working capacity of chamber can be smaller
2 - additional internal glass door
3 - depth doesn't include 50 mm of power cable
4 - dims of unit with double door can be smaller
5 - on uniformly loaded surface
6 - reinforced shelf
7- reinforced version
8 - for units in BASIC version with solid door
9 - fluctuation measured in centre of chamber
10 - in space

Options and accesories (icon description see page 55)



BASIC COMF PREM PREM TOP+

Options and accessories

Options and accesories	CHL		Order number
	P[6]	TOP+	
internal glass door[1]	•	•	*/C
external glass door[1, 8]	•	•	*/A
door with viewing window[4, 7]			*/A
internal socket[1, 5]	•	•	GNZ
internal lighting[4, 5]	s	s	OWW/OWW LED
wire shelf[1,3]	•		*/P
stainless steel wire shelf[1, 9]	•	•	*/P INOX
perforated shelf[1]	•	•	*/PP
reinforced shelf	•	•	*/PW
extended temperature range to +70°C[1]			ST/70
reinforced version			*/W
low temperature version[1, 10]	•	•	*/T
photoperiodic system - FOT[1]			*/FOT
phytotron system - FIT[11]			*/FIT
automatic defrosting function	•	•	*PLUS
over temperature protection system to DIN 12880[1]	3.2	s (3.2)	*/**
stainless steel cuvettes	•	•	KUW GN */*
aluminum drawer with powder coated slides	•	•	*/SWP ALU
stainless steel drawer with powder coated slides	•	•	*/SWP INOX
stainless steel drawer with stainless steel slides	•	•	*/SWPN INOX
humidity measurement[5]		•	PHR
door openings counter[1]	•	•	LOD
fan speed control	•	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 Professional software	•	•	EasyLab Profess.
dot printer[1]	•	•	EPSON
thermal printer[1]	•	•	KAFKA
chamber calibration[1]	•	•	BRT/L
IQ, OQ, PQ qualification[1]	•	•	IQ/OQ/PQ
container for deionized water			KK/Z
container for waste water			KK/K
water level sensor			KK/CP
FIT panels independent control[11]			FIT/R3
magnetic door lock[12]	•	•	*/ZKM
chart recorder[12]	•	•	*/RK

* - model (e.g. ST1, IL 53)
** - 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 BASIC models
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 - models BASIC, COMFORT and PREMIUM
7 - for KK 115, 240, 400, 750
8 - for KK 500, 700, 1200, 1450
9 - for ZLN 85
10 - for CHL 500, 700, 1200, 1450, 350/350
11 - thermostatic cabinets ST 500, 700, 1200, 1450
12 - for ST/CHL 500, 700, 1200, 1450
s - standard equipment
• - available option