

# Laboratory freezers

## Application

- long-term storage of samples and biological material for research
- storing easily decomposing material (e.g. solid state)
- freeze resistance tests (e.g. of building materials: concrete, wood etc.)
- pre-freezing



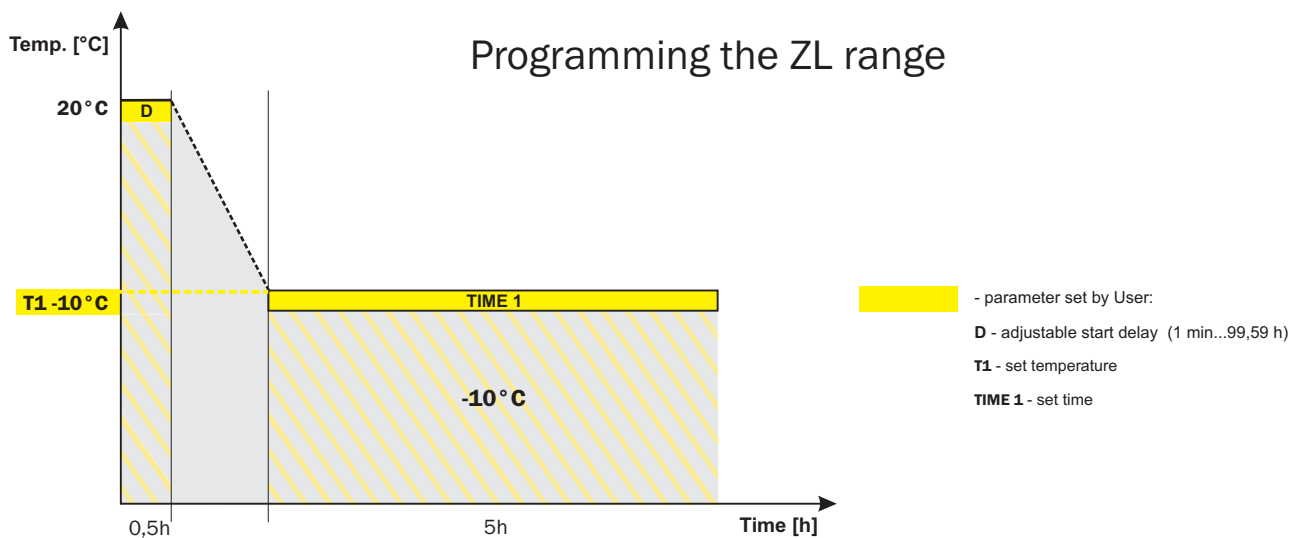
# Laboratory freezers

## Advantages

- single chamber models
- plastic or stainless steel interior (depending on model)
- housing, depending on model: powder coated sheet, stainless steel linen finish (**INOX/G**) or polished (**INOX/S**)
- two temperature ranges depending on the model:
  - -25...0 °C
  - -35...0 °C
- thermal insulation - polyurethane foam
- cooling system
- natural air convection
- LED time and temperature display
- microprocessor temperature and time control
- temperature sensor fail alarm
- power failure control system
- real time clock
- sound alarm
- defrosting function
- self-check function (auto control)

## Program possibilities

- single segment temperature-time profile
- temperature program priority
- adjustable start delay feature (from 1 min to 99,59 h)
- adjustable time of holding the set temperature (from 1 min to 99,59 h), or continuous operating
- overview of set parameters during operating time
- over temperature sound alarm



All POL-EKO-APARATURA products can be provided with IQ, OQ, PQ qualifications.



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.pol-eko.eu](http://www.pol-eko.eu)

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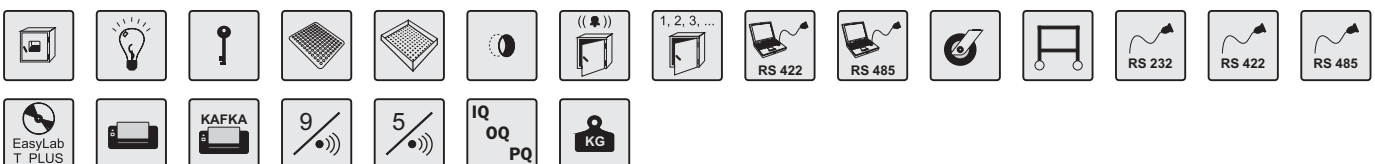


**Stainless steel interior**  
 Stainless steel interior and perforated shelves are standard equipment of ZLN 125, 200, 300.

## Standard equipment

- solid door
- RS 232 interface; RS 232 cable must be purchased additionally (RSK)
- glass shelves in models ZLN 75, 145, 180, wire INOX in model ZLN 85+ and perforated shelves in models ZLN 125, 200, 300
- access port for external sensor in models ZLN 85+, 125, 200, 300
- manufacturer's test certificate at -10°C
- operation manual in English and English menu (other languages on request)

## Options and accessories










# Laboratory freezers



## Available options

- \***/A** - door with viewing window
- \***/W** - reinforced version
- \***/PW** - reinforced shelf
- QLK/\*** - wheels

Parameter		Model	ZLN 75	ZLN 145	ZLN 180	ZLN 85+	ZLN 125	ZLN 200	ZLN 300	
										
air convection			natural							
chamber capacity <sup>1</sup>	[l]		85	160	196	86	127	200	299	
	[cu ft]		3,0	5,6	6,9	3,0	4,4	7,0	10,5	
door type			solid / glass (option)							
temperature range	[°C]		-25...0				-35...0			
	[°F]		-13...+32				-31...+32			
controller			microprocessor with external display							
interior			plastic			stainless steel				
housing			powder coated sheet			powder coated sheet / stainless steel (INOX/G or INOX/S)				
overall dims [mm]	width		560	600	600	600	580	680	680	
	height		850	1250	1455	885	1150	1320	1680	
	depth		610	650	650	635	720	720	720	
internal dims [mm]	width		410	450	450	420	400	500	500	
	height		630	970	1160	590	600	770	1150	
	depth		390	420	420	395	530	520	520	
nominal power [W]			120	96	100	200	450	450	450	
weight [kg]			34	48	55	60	90	120	185	
temperature accuracy [°C]			every 1,0							
temperature fluctuation <sup>2</sup> at -10°C [°C]			±0,4	±0,6	±0,7	±0,4	±0,7	±0,7	±1,0	
voltage	50 Hz [V]		220-240	220-240	220-240	110-120/220-240				
	60 Hz [V]		-	-	-					
shelves fitted / max			2/2	4/4	5/5	2/4	2/3	2/4	3/6	
warranty			24 months							
manufacturer			POL-EKO-APARATURA							

1 - working capacity of chamber can be smaller  
 2 - fluctuation measured in centre of the chamber

## Parameters list

# Parameters list

Features		
interior	plastic (ZLN 75, 145, 180)	1.
	aluminum	2.
	stainless steel (ST/CHL 500, 700, 1200 INOX ; ZLN 125, 200, 300)	3.
housing	powder coated sheet	4.
	stainless steel (ST/CHL 500, 700, 1200 INOX ; ZLN 125, 200, 300 INOX)	5.
air convection	natural	6.
	forced	7.
fan speed regulation	0...100%	8.
	10...100% (CL/SL/SR 400/750/1000)	9.
automatic fan shut down after completing the program		10.
air-flap control (flap diameter 37 mm)	manual	11.
	automatic	12.
system	heating	13.
	cooling (ST/CHL/IL/KK)	14.
defrosting function		15.
automatic defrosting function		16.
external display	(CL/SL 15 , 32) LED	17.
	LCD	18.
	5.7" LCD touch screen	19.
microprocessor control of time and temperature (and humidity in KK; light with FIT option)		20.
temperature-time profile (and humidity in KK)	1 segment	21.
	6 segment	22.
	9 segment	23.
program priority	temperature	24.
	time (ST and IL in STD with FOT/FIT option)	25.
cycle run of the program		26.
user programs memory	1	27.
	3	28.
	20	29.
start delay	1 min...99,59 h	30.
	date/time	31.
adjustable heating up time	1 min...99,59 h	32.
adjustable hold at set point (temperature; humidity in KK)	1 min...99,59 h	33.
	1 min...999,59 h	34.
overview of parameters during operating time		35.
recording the min, average and max temperature (and humidity in KK) value for each segment		36.
over/under temperature and humidity sound alarm (humidity in KK)		37.
over temperature protection 1.0 class according to DIN 12880		38.
over/under temperature protection according to DIN 12880	class:	39.
temperature sensor fail alarm (and humidity sensor fail alarm in KK)		40.
power failure control system		41.
real time clock		42.
sound alarm		43.
interface	RS 232	44.
Ethernet connection and remote control via Internet		45.
measurement memory		46.
self-check function (auto control)		47.
Administrator function		48.
access control via login		49.
manufacturer's test certificate	at -10 °C	50.
	at +4 °C	51.
	at +25 °C and 60% rH	52.
	at +37 °C	53.
	at +105 °C	54.
	at +170 °C	55.
24 months warranty		56.
CE mark		57.
manufacturer's certificates PN-EN ISO 9001, PN-N 18001		58.

Parameters list  
**Parameters list**

	ST		CHL	ZL	CL			IL		SL			SR	KK	
	P*	TOP+			ECO	STD	TOP+	STD	TOP+	ECO	STD	TOP+	STD	STD	TOP+
1.				•											
2.	•	•	•												
3.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
4.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
5.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
6.				•	•	•	•			•	•	•	•		
7.	•	•	•		•	•	•	•	•	•	•	•	•	•	•
8.						•	•				•	•	•	•	•
9.		•				•	•	•	•		•	•	•		
10.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11.					•	•				•	•				
12.							•					•	•		
13.	•	•			•	•	•	•	•	•	•	•	•	•	•
14.	•	•	•	•				•	•					•	•
15.	•		•												
16.														•	•
17.				•	•					•					
18.	•		•		•	•		•		•	•		•	•	
19.		•					•		•			•			•
20.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
21.			•	•	•					•					
22.	•					•		•			•		•	•	
23.		•					•		•			•			•
24.	•	•	•	•	•	•	•	•	•	•	•	•	•		•
25.	•	•					•	•	•			•		•	•
26.	•	•				•	•	•	•		•	•	•	•	•
27.			•	•	•					•					
28.	•					•		•			•			•	
29.		•					•		•			•	•		•
30.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
31.		•				•	•	•	•		•	•	•	•	•
32.		•				•	•	•	•		•	•	•	•	•
33.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
34.						•	•	•			•	•	•	•	•
35.				•	•	•	•	•		•	•	•	•	•	•
36.	•	•	•			•	•	•	•		•	•	•	•	•
37.	•	•	•	•		•	•	•	•	•		•	•	•	•
38.	•	•	•		•	•	•	•	•	•	•	•	•	•	•
39.		3.3				2.0	3.1	2.0	3.3		2.0	3.1	2.0	3.3	3.3
40.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
41.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
42.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
43.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
44.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
45.		•					•		•			•			•
46.		•					•		•			•			•
47.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
48.		•					•		•			•			•
49.		•					•		•			•			•
50.				•											
51.			•												
52.														•	•
53.	•	•			•	•	•	•	•						
54.										•	•	•			
55.													•		
56.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
57.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
58.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

\* - basic version of thermostatic cabinets

## Options and accessories

Options and accessories	ST		CHL	ZL	CL			IL		SL			SR	KK		Order no.
	P <sub>6</sub>	TOP+			ECO	STD	TOP+	STD	TOP+	ECO	STD	TOP+	STD	STD	TOP+	
internal glass door <sup>1,5</sup>	•	•			•	•	•	•	•					•	•	*/C
external glass door <sup>1</sup>	•		•											•	•	*/A
door with viewing window <sup>4</sup>		•		•	•	•	•	•	•	•	•	•	•			*/A
internal socket <sup>1</sup>	•	•	•			•	•	•	•							GNZ
interior lighting <sup>1,4,5</sup>	•	•	•	•		•	•	•	•		•	•	•	•	•	OWW
door lock <sup>1</sup>	•	•	•	•		•	•	•	•		•	•	•	•	•	ZKL
wire shelf <sup>1</sup>	•		•											•	•	*/P
stainless steel wire shelf <sup>1</sup>	•	•	•		•	•	•	•	•	•	•	•	•	•	•	*/P INOX
perforated shelf <sup>1</sup>		•			•	•	•	•	•	•	•	•	•	•	•	*/PP
glass shelf <sup>3</sup>				•												*/PL
reinforced shelf	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	*/PW
extended temperature range to +50 °C <sup>1</sup>	•															ST/50
extended temperature range to +60 °C <sup>1</sup>	•															ST/60
extended temperature range to +70 °C <sup>1</sup>	•															ST/70
reinforced version		•		•		•	•	•	•		•	•	•			*/W
low temperature version <sup>1</sup>			•					•	•							*/T
photoperiodic system - FOT <sup>1</sup>	•							•	•							FOT
phytotron system - FIT	•							•	•					•	•	FIT
automatic defrosting function	•		•					•	•							PLUS
over temperature protection system according to DIN 12880 <sup>1</sup>	2.0 3.1 3.2 3.3		3.2		3.1			3.1 3.2 3.3			3.1		3.1			*/**
stainless steel cuvettes	•	•	•		•	•	•	•	•	•	•	•	•	•	•	KUW
stainless steel drawers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	*/SW
access port for external sensor <sup>1</sup>	•	•	•	•	•	•	•	•	•		•	•	•	•	•	OCZ
humidity measurement <sup>5</sup>		•			•	•	•	•	•							PHR
open door alarm <sup>1</sup>	•	•	•	•	•	•	•	•	•		•	•	•	•	•	SOD
door openings counter <sup>1</sup>	•	•	•	•	•	•	•	•	•		•	•	•	•	•	LOD
additional Pt 100 temperature sensor		•			•	•	•	•	•		•	•	•	•	•	*/Pt100
HEPA - fresh air filter		•			•	•					•	•	•			*/HEPA
RS 422 interface (instead of RS 232) <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	*/RS422
RS 485 interface (instead of RS 232) <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	*/RS485
wheels	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	QLK/*
table with wheels <sup>2</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	*/S
RS 232 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK
RS 422 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/422
RS 485 cable <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	RSK/485
EasyLab-T PLUS software	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	EasyLab-T
dot printer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	TM-U210D
"Kafka" thermal printer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	KAFKA
calibration in 9 points <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/9
chamber calibration in 5 points on shelf <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	BRT/5
IQ, OQ, PQ qualification <sup>1</sup>	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	IQ/OQ/PQ
SMS Info <sup>1</sup>	•	•	•		•	•	•	•	•		•	•	•	•	•	SMS INFO
container for deionized water														•	•	KK/Z
container for waste water														•	•	KK/K
test's results memory <sup>1</sup>	•		•		•		•			•		•	•			PWP
FIT shelves independent control	•													•	•	FIT/R2

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

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

1 - for double chamber units, the function 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

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

6 - basic version of thermostatic cabinets