Additional devices
Immersion coolers

LAUDA through-flow coolers and immersion coolers are used as add-on devices to cool heating thermostats or any type of bath below ambient temperature. The preferred use of through-flow coolers is the use in conjunction with heating thermostats and integration into the cooling circuit.

LAUDA immersion coolers provide a quick way to extend the temperature range downwards when used in conjunction with heating thermostats, water baths and cooling traps. The thermostats work on the classical principle of direct evaporation, and the flexible hose connection means that they can be used without any problems. The ETK 50 even has adjustable temperature control.

Cooling using the LAUDA immersion cooler ETK 30

- Compact space-saving construction
- Carrying handles for easy transport
- Cooling coil made from high-grade stainless steel
- Flexible tube connection with special insulation (length 1.5 m)

Temperature range
-50...20 °C

Technical features			ETK 30	ETK 50
Working temperature range (without external heating)		°C	-30...20	-50...20
Operating temperature range (with external heating)		°C	-30...100	-50...100
Temperature probe			–	Pt 100
Control action			–	2-point action
Temperature stability (at -10 °C)		±K	–	0.5
Cooling output at	20 °C	kW	0.15	0.25
	-10 °C	kW	0.13	0.25
	-30 °C	kW	0.04	0.20
	-40 °C	kW	0.01	0.10
	-50 °C	kW	–	0.04
Cooling unit			Air-cooled fully hermetic	Air-cooled fully hermetic
Cooling coil (Ø x L)		mm	42x124	52x166
Dimensions (WxDxH)		mm	250x360x285	460x410x270
Weight		kg	17	33
Power consumption		kW	0.2	0.3
Cat. No. 230 V; 50/60 Hz			LFE 002	LFE 103 (230 V; 50 Hz)

Additional devices
Through-flow coolers

LAUDA through-flow coolers upgrade any type of heating thermostat with pump connections to a high-quality cooling thermostat and thus allow working below ambient temperature. Through-flow coolers replace cooling with tap water that is expensive and ecologically not recommandable. They provide a constant flow and temperature of cooling supply regardless of the variations. Therefore, it is possible to ensure optimum temperature stability over the entire period and allow reproducible temperature conditions at any time.

- Air-cooled, fully hermetic and thus absolutely maintenance-free cooling aggregates with heat exchangers in reasonable dimensions
- Heat exchangers are made from stainless steel.
- All refrigerated parts inside the through-flow cooler are perfectly insulated. Therefore no condensation of water or risk of corrosion.
- Low noise emissions

Temperature range
-40...150 °C

Through-flow cooler DLK 10

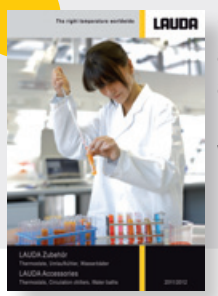
Technical features			DLK 10	DLK 25	DLK 45	DLK 45 LiBus
Working temperature range		°C	-15...150	-30...150	-40...150	-40...150
Cooling output at	20 °C	kW	0.25	0.33	1.1	1.1
	0 °C	kW	0.20	0.28	0.95	0.95
	-10 °C	kW	0.10	0.25	0.85	0.85
	-20 °C	kW	–	0.22	0.75	0.75
	-30 °C	kW	–	0.20	0.55	0.55
	-40 °C	kW	–	–	0.30	0.30
Heat exchanger connections for heat carrier			M16 x 1, nipples Ø 13 mm	M16 x 1, nipples Ø 13 mm	M16 x 1, nipples Ø 13 mm	M16 x 1, nipples Ø 13 mm
Special features			Control connection for mains supply		Proportional cooling: Ultra	Proportional cooling: Proline
Dimensions (WxDxH)		mm	200x400x320	290x540x330	470x560x430	470x560x430
Weight		kg	17	33	63	63
Power consumption		kW	0.2	0.5	0.9	0.9
Cat. No. 230 V; 50 Hz			LFD 010 (230 V; 50/60 Hz)	LFD 108	LFD 109	LFD 111

LAUDA Overview of accessories

Overview of accessories for constant temperature equipment

The operation of constant temperature equipment often requires the use of accessories. Only with the appropriate testing stands, connecting parts, reducers, various tubing/hose connections, distributors or interface modules, etc. the applications can be achieved successfully.

- Match your LAUDA equipment exactly; developed, constructed or programmed specifically for it
- Tested for practicality – your LAUDA contact person knows what works and what is appropriate
- Robust – LAUDA accessories are designed for durability



Order the detailed LAUDA accessories brochure. This and additional product information can also be found at **www.lauda.de**

Additional equipment

Solenoid valve for cooling water control

Proline
shut down valve/reverse flow protection

Level controller

Proline automatic filling device

Alpha accessories

Connecting plugs

Connecting plugs

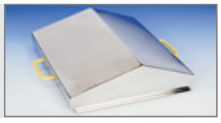
Temperature probes

Platinum resistance thermometers in stainless steel tube

Bath covers

Stainless steel bath covers

Stainless steel gable covers



Connecting cables

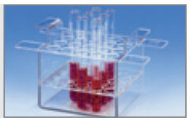
Connecting cables

Cover plates for clear-view thermostats

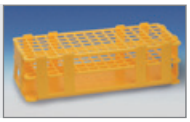
Overview of accessories for constant temperature equipment

Racks, platforms

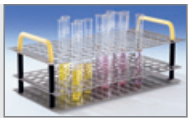
Polycarbonate racks up to 100 °C



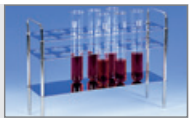
Polypropylene test tube racks, up to 95 °C



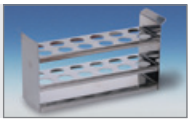
Stainless steel racks up to 100 °C



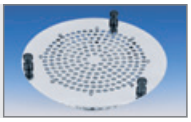
Stainless steel racks up to 300 °C



Stainless steel test tube racks up to 150 °C



Racks for calibration thermostats



Platforms and adjustable platforms

Accessories for notch bending tests

Accessories for pour point determination

Tubing

Polymer tubing

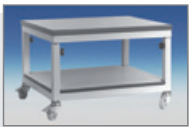
Insulation tubing

Hoses

Metal hoses (stainless steel flexible hose)

Equipment trolley

Equipment trolley and castor base



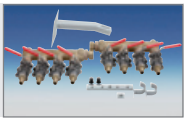
Connectors

Connectors

Screw caps

Manifold for temperature range -10…100 °C, for use with water/glycol

Manifold for temperature range -30…150 °C, for use with silicone oil and water/glycol



Integral XT bypass

Adapters

Double connectors

LAUDA Heat transfer liquids

Heat transfer liquids

Correct selection of the heat transfer liquid is of crucial importance for the safe and reliable operation of your thermostats. It must be suitable for the temperature range. In addition you should always use suitable tubing/ hoses. More details can be found in our special brochure “Heat transfer liquids”. Additional accessories are listed in the accessories brochure. Safety data sheets with the physical properties can be found on our website at: www.lauda.de.

Thanks to our decades of experience and continual tests we can offer you optimum heat transfer liquids for all LAUDA thermostats. Heat transfer liquids are available in three packing units: 5, 10 and 20 liters. When calculating the amount to be ordered, please consider the volume of the thermostat and the external circulation in addition to the bath volume.

In the table below, you can see precisely which heat transfer liquids are suitable for which temperature ranges. Please note that these details always relate to the temperature range of the heat transfer liquid, which is the limiting factor.

- Highly accurate thermostating, even at extreme temperatures
- Durability
- Simple and safe handling
- Reliability, suitable for long-term operation
- Optimal for long thermostat life
- Best possible compatibility with the environment
- Safety data sheets available upon request

Order the detailed LAUDA brochure heat transfer liquids free of charge. This and additional product information can also be found at **www.lauda.de**

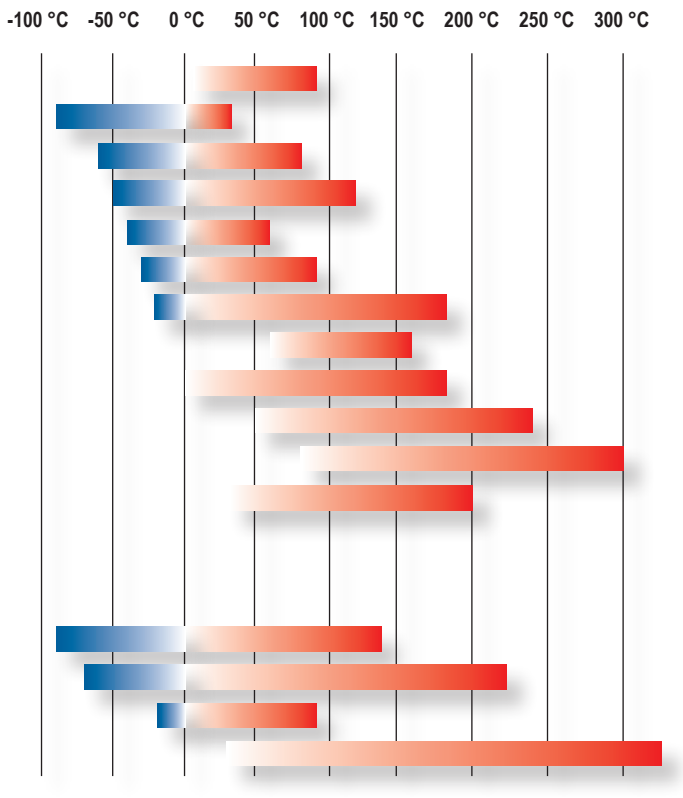
Open/half-open systems

Designation		Temp. range	5 L	Cat. No.: 10 L	20 L
Aqua 90		5…90 °C	LZB 120	LZB 220	LZB 320
Kryo 90	Ⓢ	-90…30 °C	LZB 128	LZB 228	LZB 328
Kryo 60	Ⓢ	-60…80 °C	LZB 102	LZB 202	LZB 302
Kryo 51	Ⓢ	-50…120 °C	LZB 121	LZB 221	LZB 321
Kryo 40		-40…60 °C	LZB 119	LZB 219	LZB 319
Kryo 30		-30…90 °C	LZB 109	LZB 209	LZB 309
Kryo 20	Ⓢ	-20…180 °C	LZB 116	LZB 216	LZB 316
Therm 160		60…160 °C	LZB 106	LZB 206	LZB 306
Therm 180	Ⓢ	0…180 °C	LZB 114	LZB 214	LZB 314
Therm 240	Ⓢ	50…240 °C	LZB 122	LZB 222	LZB 322
Ultra 300	Ⓢ	80…300 °C	LZB 108	LZB 208	LZB 308
Ultra 350		30…200 °C	LZB 107	LZB 207	LZB 307

Closed systems flooded with cold oil (USH 400, Integral XT)

Designation		Temp. range	5 L	Cat. No.: 10 L	20 L
Kryo 90	Ⓢ	-90…140 °C	LZB 128	LZB 228	LZB 328
Kryo 70	Ⓢ	-70…220 °C	LZB 127	LZB 227	LZB 327
Kryo 30		-30…90 °C	LZB 109	LZB 209	LZB 309
Ultra 350		30…350 °C	LZB 107	LZB 207	LZB 307

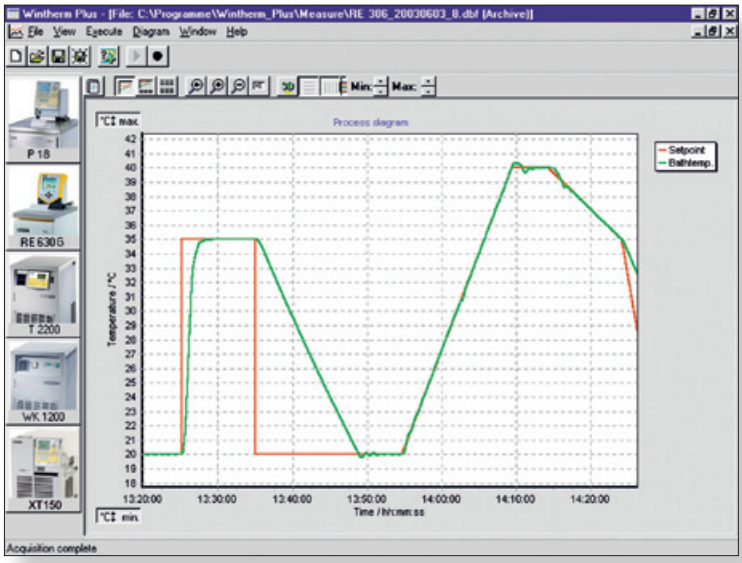
Ⓢ = Silicone oil

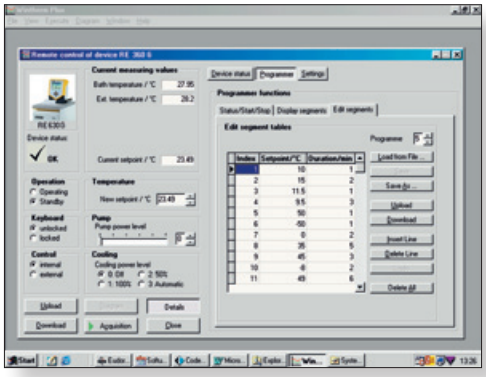


LAUDA Software

Wintherm Plus software

All LAUDA ECO Silver and ECO Gold thermostats, all Ecoline Staredition thermostats with control heads E 200 and E 300, all Proline thermostats and Proline Kryomats, all Ultra-thermostats, all circulation chillers Variocool, Microcool and WK/WKL with interface, and all LAUDA Integral process thermostats can be controlled from any PC with the LAUDA Wintherm Plus software. Requirements of the PC: at least 64 MB RAM, serial interface or USB interface or Ethernet interface.





Wintherm Plus features

- Remote setting of temperature set-point and live observance of actual bath temperature
- Monitoring of external temperature values
- Online graphic display of all values with a readily selectable time window to reduce the amount of data or to increase resolution
- Temperature program editor to create and archive temperature profiles and ramps
- Complete control of all thermostat functions such as control parameters, temperature range and pump capacity*
- Each measuring graph can be imported as an ASCII file or D-Base database into spreadsheet programs such as Microsoft Excel.
- A separate read and display software makes it possible to view and print out existing graphs in parallel and independently of the controller sections.
- Read-out of the data logger for devices with remote control Command or ECO Gold thermostats or Variocool
- Every measuring curve can be imported directly as bitmap or metafile into all graphic programs and Microsoft Word.
- Simultaneous control of up to 16 thermostats
- Serial interfaces of the PC can be addressed as RS 232 or RS 485.
- Driving of the thermostats via USB for ECO and Variocool as well as per Ethernet
- Automatic recognition of connected thermostats
- Operating languages: German and English
- Supported operation systems: Windows XP, Windows VISTA, Windows 7 (32 and 64 Bit), Windows 8 (32 und 64 Bit)

* Pump capacity not controllable with Wintherm Plus on LAUDA USH, WK/WKL, Microcool, Variocool and Integral T