Heating and cooling thermostats

Economical thermostating in the laboratory
from -50 up to 200 °C











Application examples

- Precise temperature regulation in quality assurance and analytics
- Sample preparation in chemistry and pharmacy
- Temperature control in electronics and life sciences
- Cooling in material tests

Precise, economical, flexible

The LAUDA **ECO** stands out due to its range of functionality and ease of use. A menu navigation in plain text allows easy operation of the devices. Both control heads are equipped with a mini-USB interface as standard. Further interfaces are available as modules. Another innovation is the practical allocation of a flow-rate switch at the front on the control

head. This means that individual adjustment of the flow between internal and external circulation is possible even during operation. Variants in 230 V; 50 Hz are also available with natural refrigerants. The most powerful units are equipped with the energy-saving LAUDA SmartCool system. All cooling thermostats are available as air-cooled or water-cooled variants.

Your advantages at a glance



The ECO advantages

Your benefits



- Menu navigation via monochrome LCD (Silver) or colored TFT display (Gold)
- Programer with both models
- Easy and clear operation
- Parameters are clearly readable
- Automation of temperature variations and test series



- Cooling outputs of 180, 200, 300 and 700 W and minimal temperature ranges from -15 up to -50 °C
- All cooling thermostats available as air and water cooled versions
- Also with natural refrigerants
- Energy-saving SmartCool System with 700 W cooling output
- Application related temperature control
- Choice of models regarding ambient conditions
- Very low global warming potential (GWP)
- Energy and cost savings with digital cooling management



- Strong circulation pump with six levels; flow rate switch placed at the front of the control head for internal or external circulation
- Pump connections as standard with cooling thermostats
- Cooling coil as standard with heating thermostats
- Adaptation of pump power to applications and different bath sizes
- Convenient working even at ambient temperature, without cooling
- Temperature control of external applications
- Connection of cooling water or external cooling for work below ambient temperature



- Mini-USB interface as standard
- Upper module slot: Analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT module, to insert as an accessory
- Lower module slot: Pt100/LiBus module as accessory
- Computer connection and easy software updates
- Provides user with flexible control options
- Precise control of external applications
- Command remote control via LiBus



- Drain valves standard on all heating and cooling thermostats with stainless steel baths at the back of the devices
- Easy and safe changing of heat transfer liquids

ECO Control head Silver

The control heads Silver with 2.0 kW heater power (230 V) are now perfectly suited for thermostating tasks up to 200 °C. They are fitted with a monochrome LCD display.



ECO Control head Gold

The control heads Gold with a heating power of 2,6 kW (230 V) have a working temperature range of up to 200 °C. They are provided with a larger colored TFT display. Temperature profiles can be displayed graphically. A comprehensive programer with five programs and 150 temperature-time segments is a further distinctive feature compared to Silver.





- 2.0 kW heater power (230 V), working temperature range up to 200 °C
- LCD display, resolution of indication 0.01 °C
- Operation via cursor and softkeys
- Simultaneous display of set and actual temperature, navigation in plain text
- Selectable operating temperature range and additional button for overtemperature protection setting
- Safety class III, FL for flammable liquids
- 1-point calibration by the user
- Programer with one program and 20 segments
- Vario pump with six levels, flow rate switch for internal or external circulation
- Mini-USB interface as standard



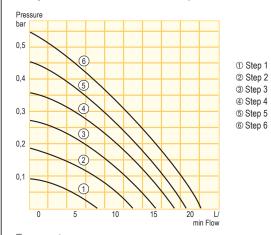
- 2.6 kW heater power (230 V), working temperature range up to 200 °C
- Colored TFT display, resolution of indication 0.01 °C
- Operation via cursor and softkeys
- Simultaneous display of set and actual temperature, navigation in plain text
- Selectable operating temperature range and additional button for overtemperature protection setting
- Safety class III, FL for flammable liquids
- 1-point calibration by the user
- Graphical display of temperature profiles
- Programer with five programs and 150 segments
- Vario pump with six levels, flow rate switch for internal or external circulation
- Mini-USB interface as standard

ECO Immersion thermostats

The ECO immersion thermostats can be used for any bath with a wall thickness of up to 30 mm and a bath depth of at least 150 mm by means of the screw clamp included in the scope of delivery.



Pump characteristics Heat transfer liquid: Water



Temperature range 20...200 °C

Included accessories

Screw clamp

Additional accessories

Baths \cdot cooling coil \cdot pump connection set \cdot Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module



All technical data on page 82 and following Other power supply variants on page 94







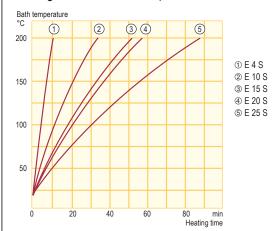
Technical features		Silver	Gold
Working temperature range	°C	20200	20200
Temperature stability	±K	0.01	0.01
Heater power	kW	2.0	2.6
Pump pressure max.	bar	0.55	0.55
Pump flow max.	L/min	22	22
Bath depth	mm	Min. 150	Min. 150
Cat. No. 230 V; 50/60 Hz		LCE 0227	LCE 0228

ECO Heating thermostats with stainless steel bath and control head Silver

The heating thermostats with control head Silver are suitable for a temperature range of up to 200 $^{\circ}$ C. All heating thermostats are equipped with a cooling coil as standard. The E 4 S is fitted with a bath cover and pump connections for external applications with nipples made from plastic.



Heating curves Heat transfer liquid: Therm 240, bath closed



Pump characteristics on page 23

Temperature range 20...200 °C

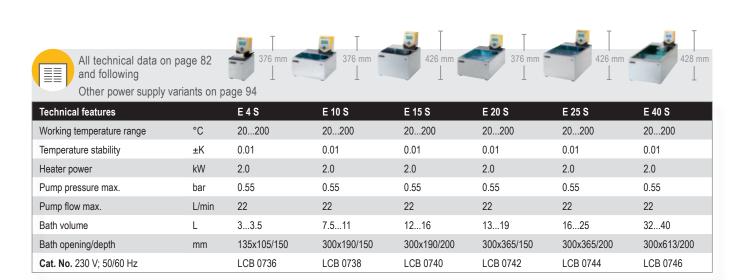
Included accessories

Cooling coil · bath cover and pump connections with 13 mm plastic nipples and closing plugs (E 4 S only)

Additional accessories

Hoses · bath covers · pump circulation set · Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module · Command remote control

Heating thermostat E 4 S

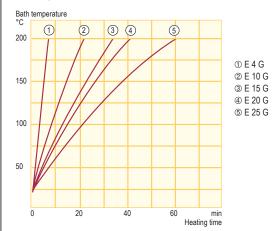


ECO Heating thermostats with stainless steel bath and control head Gold

The heating thermostats with control head Gold can be used in a temperature range of up to 200 $^{\circ}$ C. All heating thermostats are equipped with a cooling coil as standard. The E 4 G is fitted with a bath cover and pump connections for external applications with M16 x 1 threads.



Heating curves Heat transfer liquid: Therm 240, bath closed



Pump characteristics on page 23

Temperature range

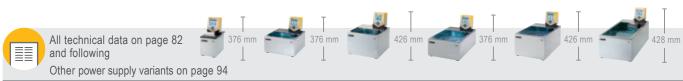
20...200 °C

Included accessories

Cooling coil \cdot bath cover and pump connection set with M16 x 1 thread (E 4 G only)

Additional accessories

Hoses \cdot bath covers \cdot pump circulation set \cdot Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module \cdot Command remote control



Technical features		E4G	E 10 G	E 15 G	E 20 G	E 25 G	E 40 G
Working temperature range	°C	20200	20200	20200	20200	20200	20200
Temperature stability	±Κ	0.01	0.01	0.01	0.01	0.01	0.01
Heater power	kW	2.6	2.6	2.6	2.6	2.6	2.6
Pump pressure max.	bar	0.55	0.55	0.55	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22	22	22	22
Bath volume	L	33.5	7.511	1216	1319	1625	3240
Bath opening/depth	mm	135x105/150	300x190/150	300x190/200	300x365/150	300x365/200	300x613/200
Cat. No. 230 V; 50/60 Hz		LCB 0737	LCB 0739	LCB 0741	LCB 0743	LCB 0745	LCB 0747

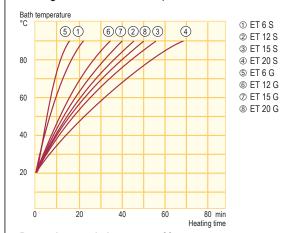
ECO

Heating thermostats with transparent bath and control head Silver and Gold

LAUDA ECO units with transparent plastic baths provide the necessary visibility in all cases where test samples need to be observed during thermostating. The thermostats with baths made from polycarbonate can be used in the temperature range of up to 100 $^{\circ}\text{C}$. They have a filling volume of 5 up to 20 liters.



Heating curves Heat transfer liquid: Water, bath closed



Pump characteristics on page 23

Temperature range 20...100 °C

Included accessories
Cooling coil · closing plugs

Additional accessories

Hoses · Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module · Command remote control



Heating thermostat ET 12 S



All technical data on page 82 and following Other power supply variants on page 94







Technical features		ET 6 S	ET 12 S	ET 20 S
Working temperature range	°C	20100	20100	20100
Temperature stability	±K	0.01	0.01	0.01
Heater power	kW	2.0	2.0	2.0
Pump pressure max.	bar	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22
Bath volume	L	56	9.512	1520
Bath opening/depth	mm	130x285/160	300x175/160	300x350/160
Cat. No. 230 V; 50/60 Hz		LCM 0096	LCD 0286	LCD 0290

Technical features		ET 6 G	ET 12 G	ET 20 G
Working temperature range	°C	20100	20100	20100
Temperature stability	±K	0.01	0.01	0.01
Heater power	kW	2.6	2.6	2.6
Pump pressure max.	bar	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22
Bath volume	L	56	9.512	1520
Bath opening/depth	mm	130x285/160	300x175/160	300x350/160
Cat. No. 230 V; 50/60 Hz		LCM 0097	LCD 0287	LCD 0291

Viscocool and Viscotemp Viscothermostats with transparent bath and Silver and Gold control heads

The tried-and-tested ET 15 baths made from polycarbonate provide space for immersion of a maximum of three glass capillary viscometers for manual measurement using the stop watch or for up to two automatic measuring stations for iVisc or S 5 (PVS). If required, when using dilution viscometers for example, up to two magnetic stirrers can be added to the thermostat.

Specifically for applications near room temperature (15 to 30 °C), the ET range was expanded upon with the inclusion of the extremely compact, electronic Viscocool 6 version which is cooled using Peltier technology. It can provide cooling without a cooling water connection or any additional devices. The similarly new round solid glass bath Viscotemp 18 is used particularly for temperatures around 100 °C for operation with silicone oils and with aggressive samples. Outstanding insights in the smallest space can be achieved thanks to up to five stop watch measuring stands. Alternatively, it can be equipped with an iVisc or PVS measuring stand and thermostating position.



Viscothermostat Viscocool 6



Special features

- Baths made from polycarbonate or glass with 6 to 18 liters bath volume
- Ideal for operation between 20 and 40 °C
- For up to two automatic or five stop watch measuring stations
- Optionally with the control head ECO Silver or ECO Gold (except for Viscocool 6)
- Simple design makes quick cleaning possible
- Variopump with six pumping levels and pump flow distribution for perfect homogeneity
- Display with standards-compliant resolution of
- Can be combined with LAUDA through-flow coolers
- Intuitive operation via cursor and softkeys
- Polycarbonate bath Viscocool 6 with integrated Peltier cooling and double chamber system

Temperature range 15...105 °C

Included accessories

Pump connection set with 13 mm plastic nipples (ET 15 S, Viscotemp 18 S) or M16 x 1 thread (ET 15 G, Viscotemp 18 G) · plugs · bath cover (only Viscocool 6)

Additional accessories

Cooling coil · tubing · cover plates · Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module · Command remote control



All technical data on page 82 and following Other power supply variants on page 94







Technical features		ET 15 S/G	Viscocool 6	Viscotemp 18 S/G
Working temperature range	°C	20*100	15**90	0*105
Temperature stability	±Κ	0.01	0.01	0.01
Heater power 230 V (115 V)	kW	2.0/2.6 (1.3/1.3)	2.0 (1.3)	2.0/2.6 (1.3/1.3)
Pump pressure max.	bar	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22
Bath volume	L	15	6.5	18.5
Bath opening/depth	mm	275x130/310	188x128/330	ø290/320
Dimensions	mm	428x130x532	206x415x530	ø310x510
Cat. No. Silver 230 V; 50/60 Hz		LCD 0288	LCD 0292	LCD 0294
Cat. No. Gold 230 V; 50/60 Hz		LCD 0289	-	LCD 0295

^{*} Possible with external cooling ** 60 W cooling output at 20 °C

Viscotemp Viscothermostats with stainless steel bath and control head Silver and Gold

The new Viscotemp 15, 24, and 40 viscothermostats with high-quality stainless steel baths and glass windows can be used in the most common temperature range from 0 up to 105 °C. The clearly designed singlechamber systems with optional background lighting provide a glass-clear view and can be easily cleaned. They are ideal for determining, for example, the viscosity index of motor oils or the solution viscosity of plastics. The Viscotemp 15 type offers space for up to four manual maesuring stations or two automatic measuring stands, iVisc or S 5 (PVS). Viscotemp 24 has space for seven viscometers or up to four automatic measuring stands. Both versions can be fitted with cleaning modules. Viscotemp 40 was designed exclusively for manual measurements with twelve measuring stations. With the Therm 180 heat transfer liquid, the thermostats can be operated as a corrosion-resistant thermostating bath for aggressive samples, e.g. for polyamides dissolved in sulfuric acid.

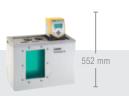


Viscothermostat Viscotemp 24 G with cover plate 24 K

- Cover plates not included in delivery -



All technical data on page 82 and following Other power supply variants on page 94









Technical features		Viscotemp 15 S/G	Viscotemp 24 S/G	Viscotemp 40 S/G
Working temperature range	°C	0*105	0*105	0*105
Temperature stability	±Κ	0.01	0.01	0.01
Heater power 230 V (115 V)	kW	2.0 /2.6 (1.3/1.3)	2.0 /2.6 (1.3/1.3)	2.0 /2.6 (1.3/1.3)
Pump pressure max.	bar	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22
Bath volume	L	19	27	44
Bath opening/depth	mm	252x145x320	430x145x320	430x250x320
Glass pane size	mm	152x233	329x233	329x233
Dimensions	mm	532x233x552	708x233x552	708x328x552
Cat. No. Silver 230 V; 50/60 Hz		LCD 0296	LCD 0298	LCD 0300
Cat. No. Gold 230 V; 50/60 Hz		LCD 0297	LCD 0299	LCD 0301

^{*} Possible with external cooling

Special features

- Corrosion-resistant stainless steel bath with 19 to 44 liter bath volumes
- For up to four automatic or 12 stop watch (manual) measuring stations
- Optionally with control head ECO Silver or ECO Gold
- Clear design makes quick cleaning possible
- Variopump with six pumping levels and pump flow distribution for perfect homogeneity
- Display with standards-compliant resolution of 0.01 K
- Can be combined with LAUDA through-flow coolers
- Intuitive operation via cursor and softkeys

Temperature range

0...105 °C

Included accessories

Pump connection set with 13 mm plastic nipples (Silver) or M16 x 1 thread (Gold) · plugs

Additional accessories

Cooling coil · tubing · cover plates** · Pt100/LiBus module · Command remote control

^{**} The cover plates/bath bridge necessary for operation need to be ordered separately.

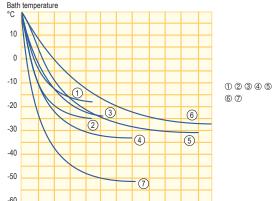
ECO Air-cooled cooling thermostats with control head Silver

The cooling thermostats with control head Silver are available in the temperature range from -50 up to 200 °C. They are equipped with a bath cover and pump connections for external applications as standard. The pump connections are nipples made of high-quality plastic with an outer diameter of 13 mm. The RE 415 S is the basic model with minimised foot print. The RE 1050 S with SmartCool digital cooling management can be used down to -50 °C and provides a cooling capacity of 700 W at 20 °C. Thanks to the larger baths, both models RE 1225 S and RE 2025 S are excellently suited to applications inside the bath.

Variants in 230 V; 50 Hz are also available with natural refrigerants throughout the EU and Switzerland (except RE 415). Cat. No. for models with natural refrigerants see page 87.



Cooling curves Heat transfer liquid: Ethanol, bath closed



Pump characteristics on page 23

Temperature range -50...200 °C

Included accessories

Bath cover · pump connections with 13 mm plastic nipples · closing plugs

Additional accessories

Hoses · Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module · Command remote control



Cooling thermostat RE 1050 S



Technical features		RE 415 S	RE 420 S	RE 620 S	RE 630 S	RE 1050 S	RE 1225 S	RE 2025 S
Working temperature range*	°C	-15200	-20200	-20200	-30200	-50200	-25200	-25200
Temperature stability	±Κ	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heater power	kW	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cooling output at 20 °C	kW	0.18	0.2	0.2	0.3	0.7	0.3	0.3
Pump pressure max.	bar	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22	22	22	22	22
Bath volume	L	3.34	3.34	4.65.7	4.65.7	810	9.312	1420
Bath opening/depth	mm	130x105/160	130x105/160	150x130/160	150x130/160	200x200/160	200x200/200	300x350/160
Cat. No. 230 V; 50 Hz**		LCK 1910	LCK 1912	LCK 1914	LCK 1916	LCK 1918	LCK 1920	LCK 1922

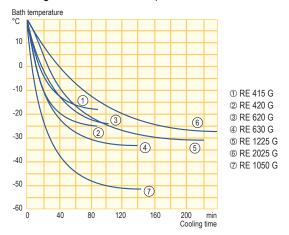
ECO Air-cooled cooling thermostats with control head Gold

The cooling thermostats with control head Gold work up to 200 °C. Included as standard is a bath cover and pump connections made of stainless steel with M16 x 1 threads. The RE 1050 G has an especially high cooling capacity and reaches temperatures down to -50 °C. The integrated SmartCool system ensures remarkable energy and cost savings. The RE 415 G with small foot print saves valuable laboratory space.

Variants in 230 V; 50 Hz are also available with natural refrigerants throughout the EU and Switzerland (except RE 415). Cat. No. for models with natural refrigerants see page 87.



Cooling curves Heat transfer liquid: Ethanol, bath closed



Pump characteristics on page 23

Temperature range -50...200 °C

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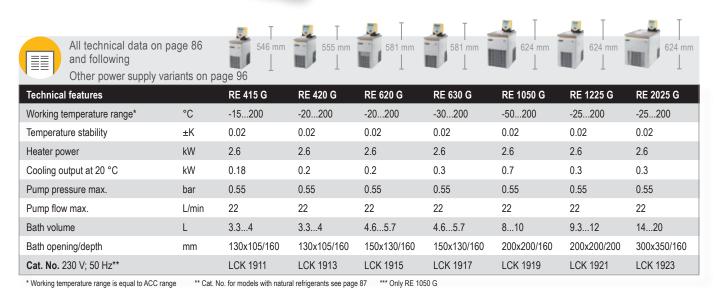
Included accessories

Bath cover \cdot pump connections with M16 x 1 thread \cdot closing plugs

Additional accessories

Hoses · Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module · Command remote control

Cooling thermostat RE 1050 G



ECO Water-cooled cooling thermostats with control head Silver and Gold

The cooling thermostats with control heads Silver and Gold are also available as water cooled models. By discharging process heat to the cooling water, heating-up of the environment will be reduced. This is an advantage when using several devices or at high ambient temperatures.

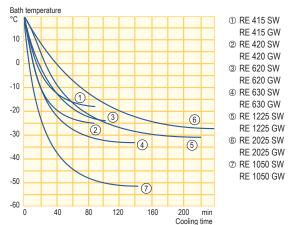
Variants in 230 V; 50 Hz are also available with natural refrigerants throughout the EU and Switzerland (except RE 415). Cat. No. for models with natural refrigerants see page 89.



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Cooling thermostat RE 1050 GW

Cooling curves Heat transfer liquid: Ethanol, bath closed



Pump characteristics on page 23

Temperature range -50...200 °C

Included accessories

Bath cover · pump connections with 13 mm plastic nipples (Silver) or M16 x 1 thread (Gold) and 13 mm nipples · closing plugs

Additional accessories

Hoses \cdot Interface modules: analog, RS 232/485, contact, Profibus, Ethernet, EtherCAT, Pt100/LiBus module \cdot Command remote control



All technical data on page 86 and following Other power supply variants on page 96

Technical features		RE 415 SW	RE 420 SW	RE 620 SW	RE 630 SW	RE 1050 SW	RE 1225 SW	RE 2025 SW
Working temperature range*	°C	-15200	-20200	-20200	-30200	-50200	-25200	-25200
Temperature stability	±Κ	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heater power	kW	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Cooling output at 20 °C	kW	0.18	0.2	0.2	0.3	0.7	0.3	0.3
Pump pressure max.	bar	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22	22	22	22	22
Bath volume	L	3.34	3.34	4.65.7	4.65.7	810	9.312	1420
Bath opening/depth	mm	130x105/160	130x105/160	150x130/160	150x130/160	200x200/160	200x200/200	300x350/160
Cat. No. 230 V; 50 Hz**		LCK 1924	LCK 1926	LCK 1928	LCK 1930	LCK 1932	LCK 1934	LCK 1936

Technical features		RE 415 GW	RE 420 GW	RE 620 GW	RE 630 GW	RE 1050 GW	RE 1225 GW	RE 2025 GW
Working temperature range*	°C	-15200	-20200	-20200	-30200	-50200	-25200	-25200
Temperature stability	±Κ	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heater power	kW	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Cooling output at 20 °C	kW	0.18	0.2	0.2	0.3	0.7	0.3	0.3
Pump pressure max.	bar	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Pump flow max.	L/min	22	22	22	22	22	22	22
Bath volume	L	3.34	3.34	4.65.7	4.65.7	810	9.312	1420
Bath opening/depth	mm	130x105/160	130x105/160	150x130/160	150x130/160	200x200/160	200x200/200	300x350/160
Cat. No. 230 V; 50 Hz**		LCK 1925	LCK 1927	LCK 1929	LCK 1931	LCK 1933	LCK 1935	LCK 1937

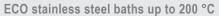
^{*} Working temperature range is equal to ACC range ** Cat. No. for models with natural refrigerants see page 89 *** Only RE 1050 SW and RE 1050 GW

ECO accessories (excerpt)

ECO transparent baths up to 100 °C

Transparent baths made of polycarbonate in order to view the objects being subjected to thermostating

Cat. No.	Description	Volume max. L	Int. dimensions (WxDxH)
LCZ 0703	6 T	6	130x420x160
LCZ 0704	12 T	12	300x315x160
LCZ 0705	15 T	15	416x130x310
LCZ 0706	20 T	20	300x490x160



The insulated baths made from stainless steel can be used up to 200 $^{\circ}$ C. All stainless steel baths are equipped with a built in drain tap. The outer jacket is made of powder-coated sheet steel.

Cat. No.	Description	Volume max. L	Int. dimensions (WxDxH)
LCZ 0707	B 4	3,5	135x240x150
LCZ 0708	B 10	11	300x329x150
LCZ 0709	B 15	16	300x329x200
LCZ 0710	B 20	19	300x505x150
LCZ 0711	B 25	25	300x505x200
LCZ 0712	B 40	40	300x750x200

Cooling coil set

For cooling of any heating baths

Cat. No.	Description	Suitable for
LCZ 0719	Cooling coil set ET 15, connectors to the right side	ET 15 S, ET 15 G, Viscotemp 15 S/G, Viscotemp 24 S/G, Viscotemp 40 S/G

Bath covers

Cat. No.	Description	Suitable for
HDQ 133	Bath cover, stainless steel	E 10 S, E 10 G, E 15 S, E 15 G
HDQ 134	Bath cover, stainless steel	E 20 S, E 20 G, E 25 S, E 25 G
LCZ 0718	Bath cover, stainless steel	E 40 S, E 40 G (three pieces)

Pump connection sets

For thermostating of external applications. Both pump connection sets are usable with ECO Silver and ECO Gold.

Cat. No.	Description
LCZ 0716	With 13 mm plastic nipples
LCZ 0717	With M16 x 1 stainless steel connections, screw caps and 13 mm nipples









HDQ 133



ECO accessories (excerpt)

Interface modules

Cat. No.	Description	Suitable for
LRZ 912	Analog module	Upper module slot
LRZ 913	RS 232/485 interface	Upper module slot
LRZ 914	Contact module with 1 input and 1 output	Upper module slot
LRZ 915	Contact module with 3 inputs and 3 outputs	Upper module slot
LRZ 917	Profibus module	Upper module slot
LRZ 918	Pt100/LiBus module	Lower module slot
LRZ 921	Ethernet module	Upper module slot
LRZ 922	EtherCAT module with M8 connection	Upper module slot
LRZ 923	EtherCAT module with RJ45 connection	Upper module slot
LCZ 9727	Module box with LiBus for 2 modules	LiBus module







Cat. No.	Description
LRT 914	Command remote control with graphic LCD for remote control via LiBus. Only possible in combination with Pt100/LiBus module (LRZ 918)

Solenoid valve for cooling water control Water-conscious cooling of heating thermostats

Cat. No.	Description	Temperature range
LCZ 9664	Solenoid valve with LiBus-connector	-10155 °C



LRT 914



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