

## PRODUCT DATA SHEET

Standing: 2025-08-27

LAUDA Universa U 1645 M

Cooling thermostat, 200-240 V; 50/60 Hz

Part Number: L003816

### Features

- Bath circulation thermostat with advanced electronics ensures precise control accuracy
- Future-proof thanks to modularity: LAUDA Universa with interchangeable control head and heating/cooling base allows flexible adaptation to current and future requirements.
- Clear overview, intuitive operation: The 5-inch colour TFT display simultaneously shows temperature values with a progression graph, offers clear menu navigation in six languages and clear operating status icons - easily controlled via cursor and soft keys.
- Focus on safety: The dedicated Tmax button provides convenient access to the essential overtemperature protection setting during commissioning.
- Versatile pressure-suction pump: The LAUDA Varioflex pump, a powerful pressure-suction pump, offers eight selectable performance levels, adjustable flow rate distribution for internal/external circulation for optimal volume flow and pressure
- Ball bearing pump for extreme requirements: Guarantees safe operation with highly viscous and dense heat transfer fluids as well as with impurities in the temperature control bath.
- Easily accessible front switch on the control head allows the pump output to be adjusted during operation.
- Highly efficient refrigeration technology: Combination of speed-controlled inverter compressor and capacity control by means of electronic expansion valves and speed-controlled fans - for improved energy efficiency and reduced operating costs,
  - increased service life by avoiding frequent switch-on and switch-off cycles, - dynamic approach to the set temperature and
  - quieter operation.
- Environmentally friendly refrigerants: Use of natural refrigerants for sustainable and environmentally conscious cooling.
- Adaptive bath edge ventilation (patent application): - Prevents icing and condensation - Stops water entering the bath - Blocks vapors to protect electronics. To increase operational safety and extend service life.
- Extensive functionality with programmer, safe mode, calibration options, controller self-adaptation and weekly planner for precise and flexible process control.
- Intelligent remote control and monitoring: Integrated web server allows flexible remote control in the company network via the LAUDA Command app or browser-based, secured by PKI and 2-factor authentication. The connection to LAUDA.LIVE enables global, cloud-based data analysis and remote maintenance.
- Wireless communication: Integrated WLAN enables effortless connection with PC, tablet and smartphone.



Reserve technical changes

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Registergericht Mannheim • HRA 560069

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LAUDA DR. R. WOBSEY Verwaltungs-GmbH  
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Registergericht Mannheim • HRB 560226

Geschäftsführer:  
Dr. Gunther Wobser (Vors.), Dr. Mario Englert,  
Dr. Marc Stricker  
Beirat: Dr. Gerhard Wobser

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- Maximum networking: Comprehensive connectivity for almost any application thanks to standard Ethernet, USB and interface for an external Pt100 as well as eleven optional interface modules.
- Comprehensive safety functions: - Effective over- and under-level protection - Adjustable overtemperature protection with acoustic alarm - Automatic system diagnostics at start-up with alarm and error message display - Smart temperature control media management with automatic limit value adjustment. For reliable operation and improved safety of your valuable samples.



Working temperature min.  
-45 °C



Working temperature max.  
200 °C

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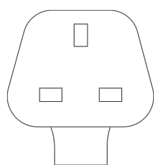
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### Technical Features

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Working temperature range               | -45 ... 200 °C                         |
| Operating temperature range             | -45 ... 200 °C                         |
| Ambient temperature range               | 5 ... 40 °C                            |
| Temperature stability                   | 0.01 ± K                               |
| Heating capacity range                  | 2.6 ... 3.1 kW                         |
| Current max.                            | 13 A                                   |
| Size of bath (W x D x H)                | 200 x 300 x 200 mm                     |
| Bath opening (WxT)                      | 200 x 300 mm                           |
| Bath volume min. / max.                 | 10.5 / 16.5 L                          |
| Pump Pressure max.                      | 0,7 bar                                |
| Pump suction max.                       | 0,4 bar                                |
| Pump flow rate max. (pressure)          | 25 L/min                               |
| Pump Flow rate max. (suction)           | 23 L/min                               |
| In / Outlet connection thread (outside) | M16 x 1                                |
| In / Outlet Ø olives                    | 13 mm                                  |
| Overall dimensions (WxDxH)              | 310 x 610 x 757 mm                     |
| Weight                                  | 49 kg                                  |
| Refrigerant stage 1                     | R-1270 (GWP 3); 0.075 kg; 0.0 t CO2-eq |
| Power supply                            | 200-240 V, 50/60 Hz                    |
| Power plug                              | Power cord with angled plug (BS1363)   |

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Power cord with angled plug (BS1363)

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| Temperature | Pump stage | Heat transfer liquid | Cooling Capacity 50 Hz | Cooling Capacity 60 Hz |
|-------------|------------|----------------------|------------------------|------------------------|
| 200 °C      | 8          | Thermal oil          | 1.6 kW                 | 1.6 kW                 |
| 100 °C      | 8          | Thermal oil          | 1.6 kW                 | 1.6 kW                 |
| 20 °C       | 8          | Ethanol              | 1.6 kW                 | 1.6 kW                 |
| 10 °C       | 8          | Ethanol              | 1.45 kW                | 1.45 kW                |
| 0 °C        | 8          | Ethanol              | 1.2 kW                 | 1.2 kW                 |
| -10 °C      | 8          | Ethanol              | 0.86 kW                | 0.86 kW                |
| -20 °C      | 4          | Ethanol              | 0.58 kW                | 0.58 kW                |
| -30 °C      | 4          | Ethanol              | 0.35 kW                | 0.35 kW                |
| -40 °C      | 4          | Ethanol              | 0.15 kW                | 0.15 kW                |
| -45 °C      | 4          | Ethanol              | 0.07 kW                | 0.07 kW                |

### Standard accessories

- 1 Bath cover
- Pump connection set with M16x1 stainless steel connections
- 2 screw caps, 2 closing plugs
- 2 nipples 13 mm for pump connectors

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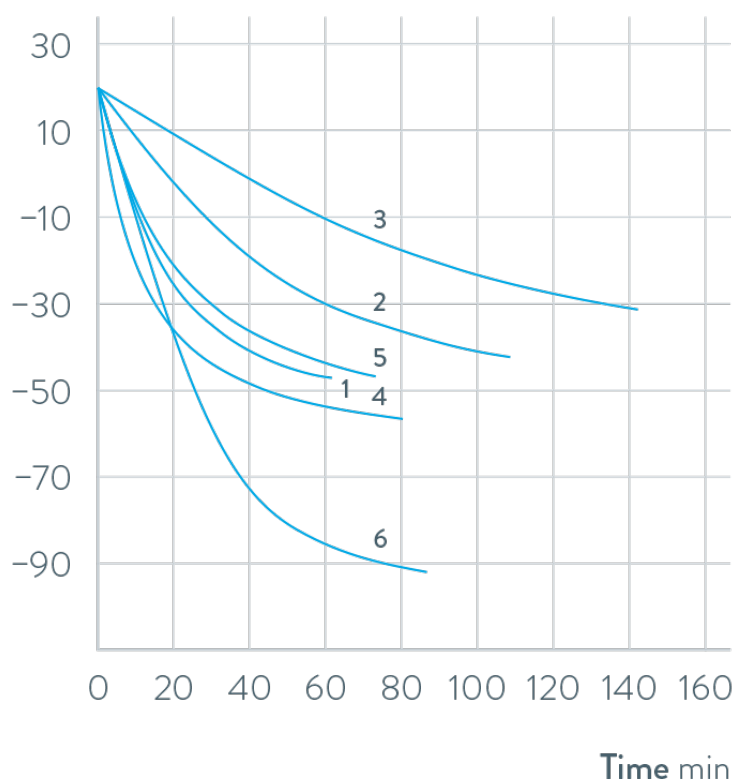
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### COOLING PERFORMANCE Heat transfer liquid: Ethanol, bath closed

Bath temperature °C



- 1 U 845 M
- 2 U 2040 M
- 3 U 4230 M
- 4 U 855 M
- 5 U 1645 M
- 6 U 890 M

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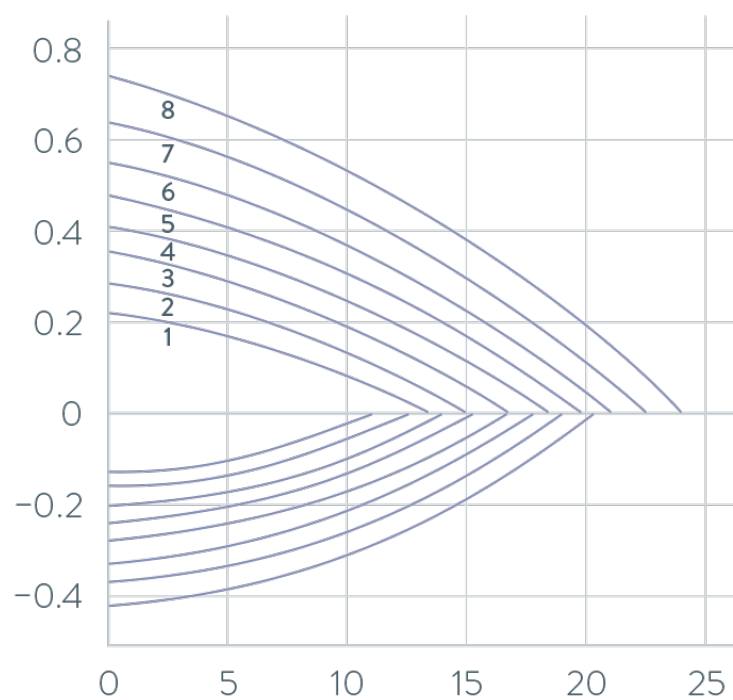
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### PUMP CHARACTERISTIC Heat transfer liquid: Water

Pressure bar



- 1 Stage 1
- 2 Stage 2
- 3 Stage 3
- 4 Stage 4
- 5 Stage 5
- 6 Stage 6
- 7 Stage 7
- 8 Stage 8

Suction

Flow rate L/min

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