

## PRODUCT DATA SHEET

Standing: 2025-08-27

LAUDA Universa U 1645 M

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

Part Number: L004163

### 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
- 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.
- 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.



Reserve technical changes

LAUDA DR. R. WOBSEY GMBH & CO. KG  
Laudaplatz 1 • 97922 Lauda-Königshofen • DE

T + 49 (0) 9343 503-0  
info@lauda.de • www.lauda.de  
WEEE-Reg.-Nr.: DE 66 42 40 57

Kommanditgesellschaft: Sitz Lauda-Königshofen  
Registergericht Mannheim • HRA 560069

Persönlich haftende Gesellschafterin:  
LAUDA DR. R. WOBSEY Verwaltungs-GmbH  
Sitz Lauda-Königshofen  
Registergericht Mannheim • HRB 560226

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

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- 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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### 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                  | 2.8 ... 3.7 kW                         |
| Current max.                            | 16 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 plug (NEMA 6-20P)      |

Reserve technical changes



Power cord with plug (NEMA 6-20P)

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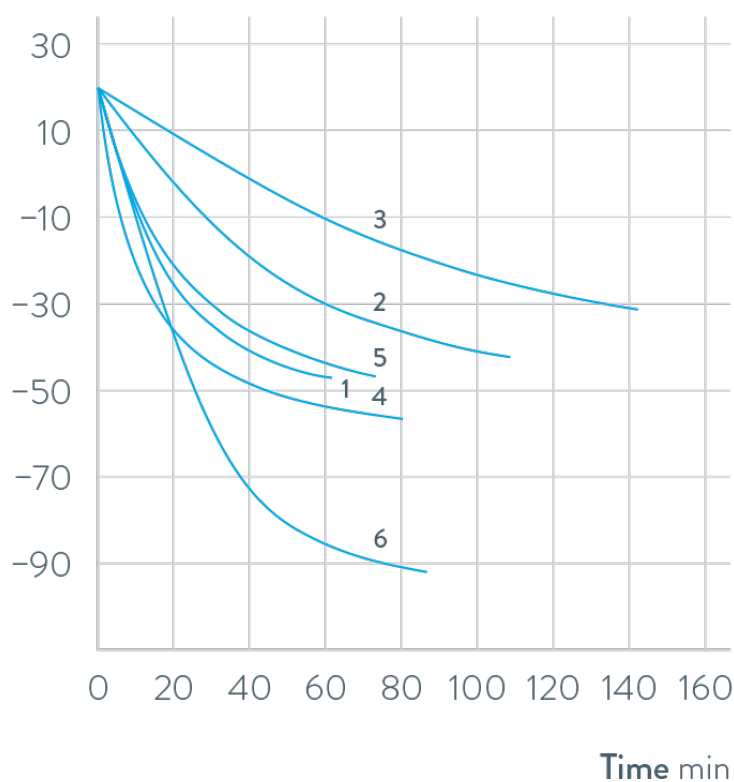
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### COOLING PERFORMANCE Heat transfer liquid: Ethanol, bath closed

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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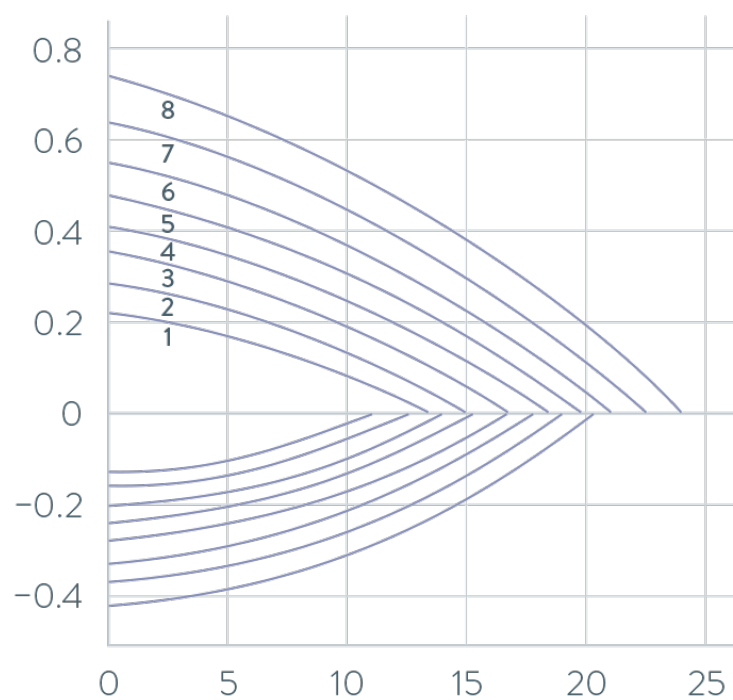
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### PUMP CHARACTERISTIC Heat transfer liquid: Water

Pressure bar



Suction

Flow rate L/min

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

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