°LAUDA


# LAUDA ULTRACOOL

The next stage of energy-efficient temperature control

°FAHRENHEIT. °CELSIUS. °LAUDA.

# LAUDA Ultracool

## Process circulation chiller with an outstanding range of functions

−10 °C 35 °C

**Energy-efficient with cost-savings of up to 50 percent**
Developed with a focus on energy efficiency, the LAUDA Ultracool circulation chillers make a pivotal contribution to reducing your operating costs. The devices allow energy costs to be reduced by up to 50 percent, depending on the operating conditions.

**Optimized for Industry 4.0**
Thanks to the innovative operating concept, the LAUDA Ultracool circulation chillers can be conveniently monitored and controlled from a distance – via a connected remote control or the integrated web server on a PC or laptop. A connection to the LAUDA Cloud allows device data to be saved, analyzed and used for remote maintenance.

**Advanced technology for a broad range of applications**
Extensive technical innovation and a significantly expanded range of functions characterize the various LAUDA Ultracool devices and additional equipment options. Custom options and a wide cooling output range make the new generation of LAUDA Ultracool circulation chillers the ideal solution for a broad range of industrial applications.

# Energy efficiency

## High energy saving and a short payback time

Depending on the operating conditions, the new circulation chillers are up to 50 percent more energy-efficient than conventional circulation chillers which are not Ecodesign-compliant.

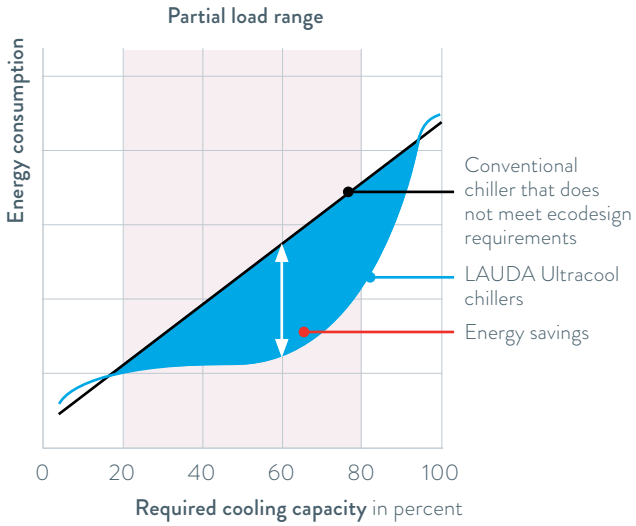
A modern chiller that conforms with the EU Directive has clear advantages over older devices or products still in use and available outside the EU, which are not subject to the Directive. Some chillers exceed the required SEPR values* for energy efficiency by some distance, such as the new generation of LAUDA Ultracool circulation chillers, which meet ecodesign requirements and incorporate a speed-controlled compressor, ventilator fan and electronic expansion valve.

## Compliant with the Ecodesign Directive

The new LAUDA Ultracool circulation chillers comply with the Ecodesign Directive 2009/125/EC. This defines the limit values for energy efficiency that process circulation chillers must fulfill.

## Amortization times

Savings are made due to the reduced power consumption of the respective cooler. The cost savings are a product of the energy savings and electricity costs.




The degree of chiller utilization is decisive in determining the amount of energy saved. The energy savings clearly demonstrate the efficiency of the new Ultracool model types from LAUDA.

**LAUDA Ultracool UC 24**

| Temperature profile (annual average temperatures) | Oslo/Helsinki/Stockholm (10 °C) | Amsterdam/London/Paris (15 °C) | Barcelona/Milan/Athens (20 °C) |
|---|---|---|---|
| Required cooling capacity | 22 kW | 22 kW | 22 kW |
| Outflow temperature | 10 °C | 10 °C | 10 °C |
| Energy costs | 0.18 €/kWh | 0.18 €/kWh | 0.18 €/kWh |
| Working hours per year / day | 12 hrs / 260 days | 12 hrs / 260 days | 12 hrs / 260 days |
| Energy savings | 7913 kWh/year | 5384 kWh/year | 2716 kWh/year |
| Cost saving/year | 1424 € | 969 € | 489 € |

The higher purchase price of an energy-efficient chiller, compared to a conventional device, typically amortizes between 1.5 and 2.5 years, thanks to savings made from reduced energy requirements.

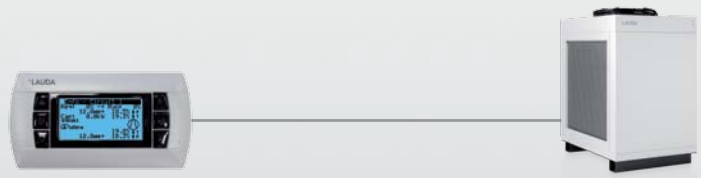
The customer can determine the amortization time of a modern, energy-saving circulation chiller compared to conventional devices already in operation based on calculated energy savings, lower water/glycol costs, a tank content reduced by up to 80 percent and the lower maintenance costs of the new device.

*SEPR = Seasonal Energy Performance Ratio

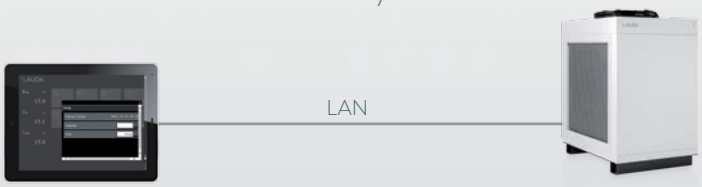
# LAUDA Ultracool
## Connectivity

**Optimized for Industry 4.0**
The process circulation coolers are equipped with an LCD remote control unit as standard (optional for UC 2 and UC 4). An Ethernet interface (Modbus TCP/IP protocol) for connection to a computer or local area network (LAN) is also integrated as standard. In addition, the devices can be controlled via PC using a web server. The LAUDA Cloud enables monitoring and analysis of the device from any computer with an Internet connection – completely independent of location.

**1. LCD remote control**
- Complete function control
- Ergonomic and user-friendly
- Cable connection with a length of 5 m

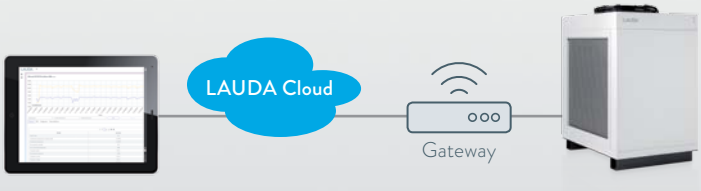


**2. Internal web server**
- Connection to a computer or internal network (LAN)
- Complete function control
- Data logging/export for service and analysis
- Possibility of data acquisition
- No Internet connection necessary





**3. LAUDA Cloud**
- Storage and evaluation of numerous device parameters
- Remote maintenance minimizes costs and maximizes service efficiency
- Flexible connection to the cloud – 4G mobile communication via gateway




# Refrigerants and safety

**Natural refrigerants – safe & environmentally friendly**
All LAUDA Ultracool recirculating chillers use the natural refrigerant propane, which has an extremely low global warming potential (GWP) of 3. This means that it contributes very little to the greenhouse effect and is very environmentally friendly. In addition, the chillers require only a small amount of refrigerant and are highly energy-efficient. Natural refrigerants are the safe choice in the long term and make the use of recirculating chillers future-proof.

Natural Refrigerant
Propane powered

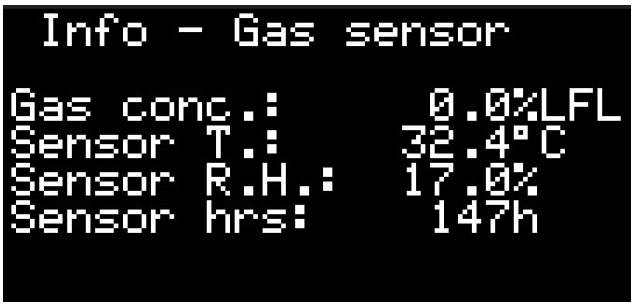
LAUDA Ultracool recirculating chillers with natural refrigerants

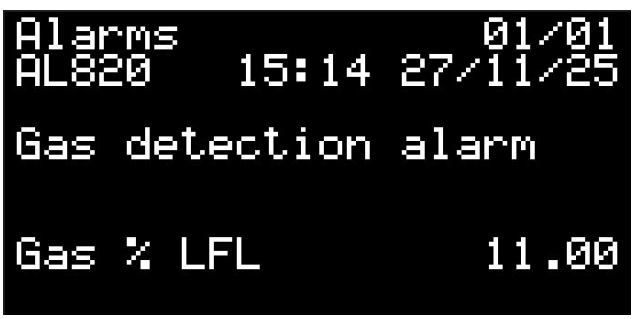
**Safety concept with gas sensor**
All devices contain more than 150 g of natural refrigerant (A3). Therefore, a safety concept with a gas warning sensor is required, which is integrated into the device as standard.

The gas sensor continuously monitors the presence of refrigerant gas in its environment. The sensor functions as long as the device is connected to the power supply, even if the main switch is turned off. The gas warning sensor triggers an automatic shutdown if a predefined threshold value of 15 % of the lower flammability limit is exceeded.

If the gas concentration is between 10 % and 15 % of the lower flammability limit and the main switch is turned on, the cooler switches off immediately if it was in operation, an alarm is triggered, and the fan starts or continues to run to reduce the gas concentration.

The current gas concentration measured by the gas sensor can be checked at any time directly via the controller display and can also be continuously monitored via the Modbus interface.



# LAUDA Ultracool

## Production features and benefits at a glance

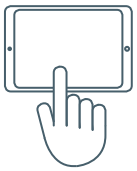
**Highlights of the new generation**

**Improved performance**

- Increased temperature stability of ±0.5 K increases the process security of the cooled system
- Expanded working temperature range from −10 to 35 °C covers a wide range of applications
- Reliable and safe operation, even in extreme conditions and ambient temperatures as low as −20 °C

**Optimal cost balance**

- Reduced tank volume reduces installation and operating costs
- Small footprint compared to comparable previous models
- High energy efficiency results in lower operating costs



**Simpler operation**

- Full connectivity offers complete control via control systems and mobile devices
- Connection to the LAUDA Cloud enables remote maintenance and increases device availability
- Suitable for global use, thanks to various display options: °C or °F, menu in German, English, Spanish and French

**Comprehensive standard equipment with many additional benefits**

- High-quality block pumps for high conveying capacity
- Numerous options and accessories for customer-specific adaptations
- Suitable for outdoor installation, thanks to protection level IP 54

High-quality, service-friendly product design

Fan control as standard allows operation at ambient temperatures as low as −20 °C and reduces noise emissions

# Options and accessories

A wide variety of options and accessories are available for flexible adaptation to specific applications.

## Options

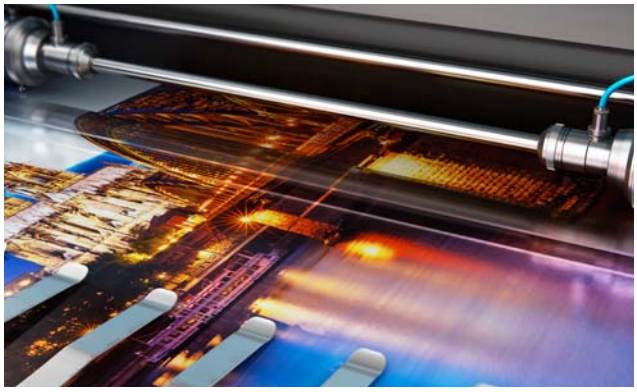
| | | |
|---|---|---|
|  | Reinforced pump (5 bar) | Pump with 5 bar nominal pressure for higher pressure requirements |
|  | Flow meter (FM) | Integrated flow meter to monitor the process flow |
|  | Air filter for condenser (CFM) | Metal air filter for condenser: For protection in dusty environments |
|  | Feet (FT) | Feet for placement on the floor |
|  | Water-cooled version (W) | Cooling of the condenser with water |
|  | Low sound level (LSL) | Sound insulation to reduce the noise level |
|  | Low set point (LSP) | Thermal insulation at set points below 0 °C to reduce thermal losses |
|  | Phase detector (PHD) | Indicates whether the rotating field direction is correct |

## Accessories

| | | |
|---|---|---|
|  | External bypass | Required to prevent possible damage to components if the temperature difference between the inlet and outlet is more than 10 °C. |
|  | Pressure reducing valve | Sets the maximum pressure in pressure sensitive applications |
|  | Installation kits (2 x 10/20/50 m) | Contains two hoses and two connection sets |
|  | Water solenoid valve kit | Prevents liquid from backing up when pump is stopped. Includes a non-return valve and a solenoid valve |
|  | Hose connection set | 2 x hose nozzle 1" or 1½" |

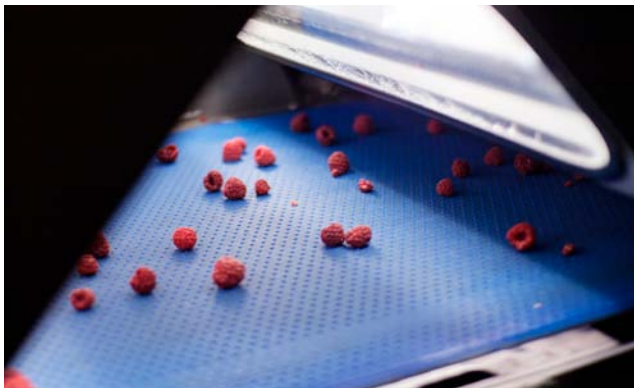
# LAUDA Ultracool
## Fields of application

**Digital printing machines**
Cooling points:
- Inking units
- Waste heat inside the machine



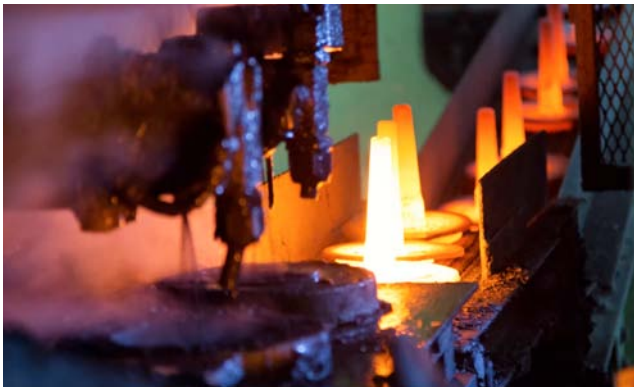
**Laser cutting machines**
Cooling points:
- Laser
- Optics
- Control cabinet

**Laser sorting machines (food and recycling industry)**
Cooling points:
- Laser
- Housing
- Motors

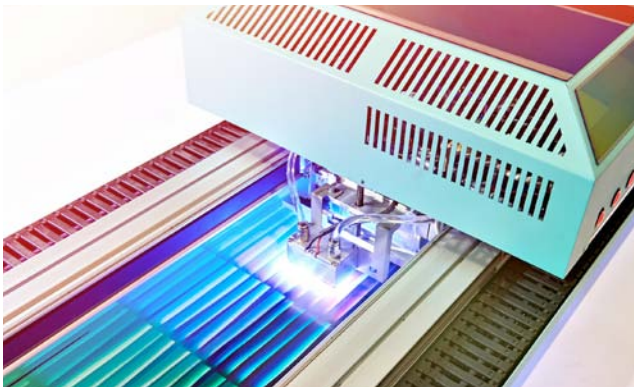


**Spot welding machines, CNC machines**
Cooling points:
- Electrodes
- Electric motors
- Transformers

**Induction heating systems**
Cooling points:
• Working coil
• Working head
• Power supply



**UV coating (printing industry)**
Cooling points:
• Lamp cover



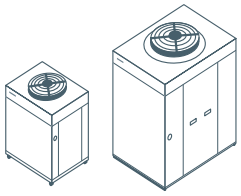
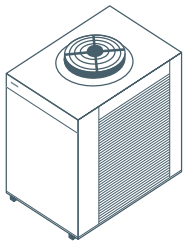
**Packing machines (food industry)**
Cooling points:
• Control cabinet

**Hydrogen generators**
Cooling points:
• Electrolyte
• Gas cooling

# LAUDA Ultracool

## Overview of functions

The new, energy-efficient Ultracool process circulation chillers with natural refrigerant cover the complete range of functions for applications ranging from laboratory applications, all the way through to industrial applications with high cooling capacity demands.

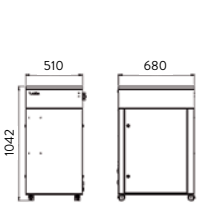
| | Device type | Cooling capacity range |
|---|---|---|
|  | UC 2<br>UC 4 | 2 ... 4 kW |
|  | UC 8<br>UC 14<br>UC 24<br>UC 50<br>UC 65 | 8 ... 65 kW |
|  | UC 80<br>UC 100 | 80 ... 100 kW |

# Technical data

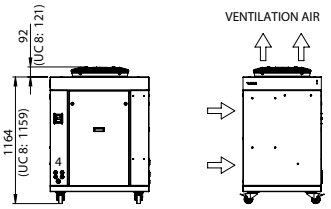
| Device type | Working temperature range °C | Temperature stability ±K | Ambient temperature °C | Cooling capacity at 20 °C water outlet temperature[1] kW | Cooling capacity at 10 °C water outlet temperature[1] kW | Nominal pump pressure bar | Nominal flow rate L/min | Pump connection thread | Water tank volume L | Protection level | Power supply | SEPR* | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LAUDA Ultracool** – specifications at 50 Hz | | | | | | | | | | | | | |
| UC 2 | −10 … 35 | 0.5 | −15 … 50 | 3.1 | 2.6 | 3.3 | 5.6 | Rp ½ | 12 | IP32 | 230 V; 50 Hz | 8.70 | L004586 |
| UC 4 | −10 … 35 | 0.5 | −15 … 50 | 6.1 | 4.7 | 2.8 | 13.8 | Rp ½ | 12 | IP32 | 230 V; 50 Hz | 6.42 | L004588 |
| UC 8 | −10 … 35 | 0.5 | −20 … 50 | 12.7 | 10.1 | 3.5 | 26.6 | Rp 1 | 35 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.80 | L004662 |
| UC 14 | −10 … 35 | 0.5 | −20 … 50 | 19.7 | 15.4 | 3.2 | 43.8 | Rp 1 | 35 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.92 | L004663 |
| UC 24 | −10 … 35 | 0.5 | −20 … 50 | 33.2 | 25.9 | 3.8 | 84.1 | Rp 1 | 35 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.28 | L004590 |
| UC 50 | −10 … 35 | 0.5 | −20 … 50 | 67.0 | 51.2 | 3.1 | 150 | Rp 1 ½ | 125 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.72 | L004664 |
| UC 65 | −10 … 35 | 0.5 | −20 … 50 | 86.0 | 67.9 | 3.3 | 196 | Rp 1 ½ | 125 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.51 | L004591 |
| UC 80 | −10 … 35 | 1.0 | −20 … 50 | 103.6 | 79.8 | 4.6 | 250 | Rp 2 ½ | 125 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.47 | L004665 |
| UC 100 | −10 … 35 | 1.0 | −20 … 50 | 124.7 | 95.3 | 3.8 | 300 | Rp 2 ½ | 125 | IP54 | 400 V; 3/PE; 50 Hz / 460 V; 3/PE; 60 Hz | 5.40 | L004611 |

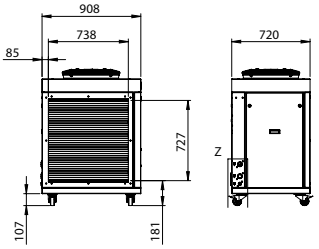
[1] at 25 °C ambient temperature

*SEPR = Seasonal Energy Performance Ratio

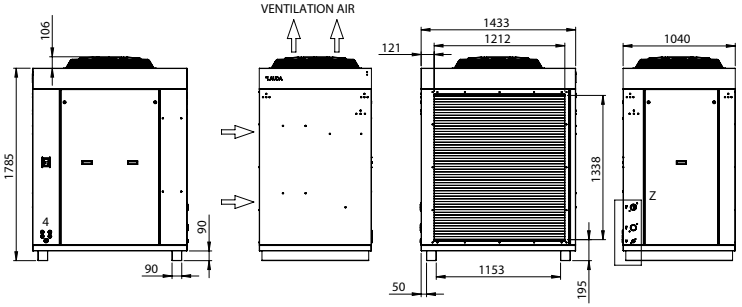



Device types
UC 2, UC 4

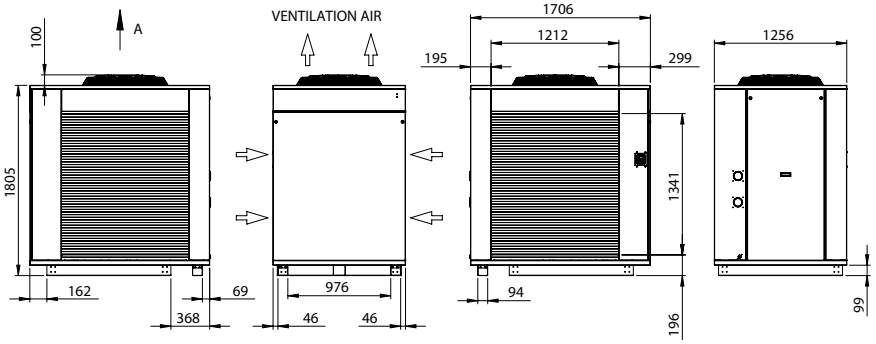



Device types
UC 8, UC 14, UC 24




Device types UC 50, UC 65




Device types UC 80, UC 100

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