

# Industrial cooling systems LT



INDUSTRIAL COOLING AND HEATING



# Industrial cooling and heating.

## Partner of the industry for over 50 years.

Since 1971 DELTATHERM® has belonged to Hirmer GmbH, a family business with its headquarters in Much near Cologne, one of the leading German manufacturers of cooling and temperature control systems.

Thanks to our broadly diversified product portfolio, we can react individually to the specific requirements of our customers from a wide range of industries. We manufacture chillers, heat exchanger systems, temperature control units, heaters as well as cooling systems and cooling components – from individual units to series production. In close cooperation with our customers, our engineers meet every challenge and develop customised solutions and individual designs.

An expanding worldwide network of service partners supports our factory customer service in 60 countries on six continents. We always have 95% of all replacement parts in stock, ready for dispatch within 24 hours. Quality, process safety, ease of maintenance and user-friendliness are our top priorities.

The safety of your production plants and of the production process are, to a large extent, dependent upon how well and how reliably your processes are temperature-controlled or cooled.

At DELTATHERM®, qualified specialists - from trained tradespeople to master craftsmen and engineers - ensure the optimal mixture of planning, project engineering, diligent manufacturing methods and thorough quality control.

Thanks to an in-house planning and design department, software development, control system construction, including an on-premises paint shop, we cover almost the entire vertical range of manufacture for cooling and temperature control units.

Purchased components such as pumps, valves, relays etc. are acquired from market-leading or renowned manufacturers.

All devices and systems are subject to a comprehensive functional test before dispatch. Because we are fully aware of what a plant standstill and the resulting production downtimes can cost our customers, we offer:

- Global plant service
- Service hotline to our experts, in German and English
- All standard components in stock and available globally in the shortest time by express mail
- Replacement part availability > 95%
- An expanding worldwide network of service partners with locations on 6 continents – in Europe, North America, South America, Africa, Asia and Australia
- Online service, through which we can check and maintain your systems
- Ensuring the productivity of your DELTATHERM® machines

■ Made  
■ in  
■ Germany

# LT series

## Compact cooling units and cooling systems for low capacities.

This model series was developed on the basis of comprehensive research and many years of practical experience by DELTATHERM® and further improved upon. Through a series of measures cooling capacity, efficiency and operational reliability were further improved and in this way a trend-setting cold water heat exchanger generation was designed.

The DELTATHERM® industrial cooling systems of the LT series consist of the following components: cold water circuit, water circuit and electrical technology, completely fitted in one housing. The cooling of the circulation medium (normally water, optionally also antifreeze, oil or deionised water) is carried out by a heat exchanger, which is known as the evaporator.

The DELTATHERM® industrial coolers, which are ready for connection and have been tested by our in-house performance testing equipment are already completely equipped in the basic version. For customer-specific requirements a comprehensive option package is available, with which we are able to fulfil all of our customers' technically feasible wishes.

## The functional principle

### The cooling circuit

The cold fluid circuit mainly consists of a compressor, an air-cooled condenser, expansion valve and evaporator. In accordance with the process requirements, also radial condensers (for the air duct connection), split condensers (outer/inner unit) and a water-cooled condenser version are available. We only use CFC-free coolants such as e.g. R134a and R407C. All cooling components are made by renowned brand manufacturers and guarantee reliability, long service life and global availability. The entire cold fluid circuit is designed for the optimal and most economic function of the industrial cooler and corresponds to the most recent Standards of the CE directive and of DIN EN 378.

### The electronics circuit

The entire electronics circuit is designed for the optimal function of the industrial cooler and corresponds to the most recent Standards of the CE directive and of DIN EN 60204. In all models of the LT series, precise temperature control is carried out by a microprocessor-controlled digital temperature controller. All LT industrial coolers are suitable for indoor installation and can optionally also be installed outside.

### The water circuit

The components of the water circuit are made as standard from stainless material and completely fitted in the stable industrial housing. The water tank is made from very stable and water-neutral plastic with tank cover (stainless steel tank as an option). The hydraulic decoupling of the water circuit from the cooling circuit ensures endless areas of application in industry. The complete water circuit is fitted in the device with a circulation pump, pump manometer, pump overflow valve for pump protection, complete pipework as well as a diffusion-proof and highly efficient insulation. The water circuit (piping, evaporator and pumps) is designed for a defined flow and pressure. Different pumps are available for special requests (more pressure and/or higher flow volume). Circulation media other than water (e.g. oil) are, of course, also feasible. The design as a through-flow cooler (without tank, possibly without pump) is also feasible.

### Short specification of the standard equipment

- Compact device tested by us in-house, in test run lasting several hours
- Compact industrial housing for indoor installation
- Device standing on wheels (LT 4.5 LC - LT 6.5 LC)
- Painted in RAL 7012
- Air-cooled condenser with copper pipes and aluminium lamellae, extremely efficient
- Axial fan, extremely low-noise and maintenance-free, with contact protection
- CFC-free coolant
- Hermetic compressor, 100% suction gas-cooled
- Evaporator as a plate heat exchanger or pipe coil heat exchanger
- Thermostatic expansion valve for optimum coolant injection
- High and low-pressure pressure switch
- Water circuit with tank, pump, pump bypass valve
- Water filling via tank
- Water circuit piping made from stainless material (iron-free)
- Water tank made from plastic, heat-insulated
- Pumps made from bronze or stainless steel
- Digital controller with target and actual value display
- Switching and control elements completely wired
- Automatic power adjustment
- CE-compliant
- Refrigeration technology designed according to DIN EN 378, part 2
- Electronics designed according to DIN EN 60204
- RoHS and REACH-compliant

**Available options**

- Outdoor installation
- Air filter mat
- Radial fans
- Split design
- Water-cooled condenser
- Low-noise design
- Refrigeration gauge for high and low-pressure sides
- Temperature stability  $\pm 0,5\text{ K} / 0,1\text{ K} / 0,02\text{ K}$  (0 - 100%)
- Cold fluid outlet temperature  $< +8\text{ }^\circ\text{C}$
- Overflow valve
- Fixed bypass
- Multi-circuit system
- Heat recovery
- Flow monitor with analog or digital signal
- Water filter
- Gate valves in flow and return
- Check valves and solenoid valves for the water circuit (consumers higher than coolers)
- Reinforced pump
- Tank filling, pressureless, from outside
- Automatic water replenishment
- Water temperatures up to  $40\text{ }^\circ\text{C}$
- Tank heating for temperature control
- Pump switch-off
- Water circuit made from stainless steel or PVC for deionised water
- Conductance monitoring
- Air filter mat monitoring
- Continuously variable speed regulation of the fans
- Wire marking
- External on/off switch
- Heavy-duty connector (e.g. Harting)
- 24V AC/DC control voltage
- Special voltages and frequencies (50/60 Hz)
- Limit temperature monitoring
- Differential temperature regulation
- External temperature sensor
- Cabinet heating
- Cabinet fan
- Bus connection, e.g. Profibus DP
- Individual fault indicators (in the plain text display or as bit technology)
- RAL special colours upon request
- Mobile version (LT Mini / LTK)

Series type LT mini / LTK / LT	LT Mini 09.5	LTK 1.4	LTK 2.4	LTK 3.4	LT 4.5 LC	LT 5.5 LC	LT 6.5 LC	
<b>Cooling capacity at water inflow</b>								
temperature	W							
+10 °C	800	1200	1800	2200	3500	4900	5000	
+15 °C	1000	1600	2300	3000	4200	6000	6500	
+20 °C	1050	1800	2400	3200	5100	7200	7500	
<b>Compressor drive</b>	W	480	700	990	1090	940	1300	1650
<b>Number of fans</b>		1	1	1	1	1	1	1
<b>Air capacity</b>	m <sup>3</sup> /h	500	410	410	410	2600	2600	2600
<b>Pump capacity</b>	l/min	2	18	18	18	20	20	20
<b>Pump drive capacity</b>	kW	0,15	0,65	0,65	0,65	0,65	0,65	0,65
<b>Pump pressure</b>	bar	3,2	3,0	3,0	3,0	3,0	3,0	3,0
<b>Connection capacity</b>	kW	0,69	1,5	1,8	2,1	2,2	2,3	2,5
<b>Tank contents</b>	l	6	30	30	30	30	30	30
<b>Water connections DN</b>	Inches	1/2	1/2	1/2	1/2	1	1	1
<b>Width (W)</b>	mm	443	650	650	650	600	600	600
<b>Length (L)</b>	mm	555	650	650	650	600	600	600
<b>Total height (H)</b>	mm	350	550	550	550	1296	1296	1296
<b>Weight when empty: about</b>	kg	42	80	90	90	110	110	110

**Water temperature range:** from  $+8\text{ }^\circ\text{C}$  to  $+25\text{ }^\circ\text{C}$  (other ranges on request).

**Type of cooling:** air-cooled with axial fan (water-cooled or with radial fan on request).

**Electrical connection:** LT mini, LTK in 230 V/50 Hz, LT 4.5 LC, LT 5.5 LC, LT 6.5 LC in 400 V N PE 50 Hz (other voltages and frequencies on request).

**Designed ambient temperature:**  $+32\text{ }^\circ\text{C}$  (higher and lower temperatures on request).

**Application range of the industrial cooler:** from  $+8\text{ }^\circ\text{C}$  to  $+42\text{ }^\circ\text{C}$  ambient temperature (higher and lower temperatures on request).

**Circulation medium:** drinking water (according to specification) with a spread of about 5 K between water inlet and outlet (other ranges on request).



*„We focus on only one thing: customer satisfaction. We achieve satisfaction through our high product quality, permanently available service and the highest level of flexibility, through which we find individual solutions for all requirements. And we live out this claim - every day, for over 50 years.“*

Sascha and Mario Hirmer  
Managing Directors

## **DELTATHERM® Hirmer GmbH**

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## Further products from our product range



Industrial series cooling towers  
with open or closed circuits from  
80 to 18,000 kW cooling capacity



Dry and hybrid coolers for water, oil  
or emulsion from 0.5 to 15,000 kW  
cooling capacity



Rack chillers in the power range from  
0.15 to 3 kW cooling capacity; as  
heat exchanger up to 10 kW



Industrial cooling machines for water,  
oil and emulsion from 0.2 to 5,000 kW  
cooling capacity



Temperature control systems for water  
up to 160 °C and oil up to 350 °C



Immersion chillers for water, oil  
and emulsion from 1.7 to 115 kW  
cooling capacity

Technical modifications and errors reserved.

