

Industrial continuous flow coolers  
LT\_DK

**DELTAHERM**

INDUSTRIAL COOLING AND HEATING



# Industrial cooling and heating.

**Partner of the industry for over 45 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. In three plants, 120 employees produce and distribute about 10,000 chillers, temperature control units, heating and cooling equipment and cooling components per year. All plants are located in the greater Cologne area. **DELTATHERM®** has a plant of its own for manufacturing casings and cabinets. We also have our own software development and build our own control electronics. Working closely together with our customers, our engineers are happy to develop special solutions and individual designs. 120 service partners support our plant customer service in 60 countries on 6 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. Our planning and construction department, the building of our own control electronics and software development as well as our own plant for metal working all ensure that we have almost the entire vertical range of manufacture for temperature control units in-house. 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%
- More than 120 service partners with locations on 6 continents – in Europe, North America, South America, Africa, Asia and Australia
- 24-hour online service, through which we can check and maintain your systems
- Ensuring the productivity of your **DELTATHERM®** machines

■ Made  
■ in  
■ Germany

# LT\_DK 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 continuous flow cooler generation was designed.

The DELTATHERM® industrial cooling systems of the LT\_DK series consist of the following components: cold water circuit, medium circuit and electrical technology, completely fitted in one housing. The cooling of the circulation medium 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\_DK series, precise temperature control is carried out by a microprocessor-controlled digital temperature controller. All LT\_DK industrial continuous flow coolers are suitable for indoor installation and can optionally also be installed outside.

### The medium circuit

The components of the medium circuit are made as standard from stainless material and completely fitted in the stable industrial housing. The complete medium circuit is fitted in the device with a complete pipework as well as a diffusion-proof and highly efficient insulation. The continuous flow cooler is optionally available with circulation pump, pump manometer, pump overflow valve for pump protection. The medium 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.

### 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\_DK 4.5 - 6.5)
- 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 optionally as pipe coil heat exchanger
- Thermostatic expansion valve for optimum coolant injection
- High and low-pressure pressure switch
- Piping of the medium circuit made from stainless material (iron-free)
- 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  $\pm 0.2$  K
- Temperature stability  $\pm 0.02$  K
- Cold fluid outlet temperature  $< +8$  °C
- Overflow valve
- Fixed bypass
- Multi-circuit system
- Heat recovery
- Flow monitor with analog or digital signal
- Medium filter
- Gate valves in flow and return
- Medium temperatures up to 40 °C
- Heating for temperature control
- Pump made from bronze or optionally stainless steel
- Pump switch-off
- 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\_DK / LTK\_DK)

**Continuous flow cooler with optional pump for water / emulsion up to 8% and oil up to 32cSt**

Series type LT mini_DK / LTK_DK / LT_DK	LT Mini 09.5_DK	LTK 1.4_DK	LTK 2.4_DK	LTK 3.4_DK	LT 4.5_DK	LT 5.5_DK	LT 6.5_DK
Cooling capacity at medium inflow temp. 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
Compressor drive W	480	700	990	1090	940	1300	1650
Number of fans	1	1	1	1	1	1	1
Air capacity m³/h	500	1150	1150	1150	2600	2600	2600
required flow rate for water l/min	5	10	10	10	20	20	20
required flow rate for emulsion min. 8% l/min	5	10	10	10	20	20	20
required flow rate for oil l/min	10	20	20	20	50	50	50
Pressure loss in flow cooler approx. bar	1	1	1	1	1	1	1
Particle size max.* µm	50	50	50	50	50	50	50
Water connections DN Zoll	1/2	3/4	3/4	3/4	1	1	1
Width (W) mm	443	650	650	650	600	600	600
Length (L) mm	555	650	650	650	600	600	600
Total height (H) mm	360	500	500	500	1165	1165	1165
Weight when empty approx. kg	42	80	90	90	110	110	110

Medium temperature range: from +8 °C to +25 °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\_DK, LTK\_DK in 230 V/50 Hz, LT\_DK 4.5 - LT 6.5 in 400 V N PE 50 Hz (other voltages and frequencies on request).

Designed ambient temperature: +32 °C (higher and lower temperatures on request).

Application range of the industrial cooler: from +8 °C to +42 °C ambient temperature (higher and lower temperatures on request).

Circulation medium: Drinking water / emulsion up to 8% / oil up to 32cSt (sulphur-free) with a spread of approx. 5 K between medium inlet and outlet (other ranges on request).

\* depending on degree of pollution



*„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 45 years.“*

Sascha and Mario Hirmer  
Managing Directors

## DELTATHERM® Hirmer GmbH

Gewerbegebiet Bövingen 122 · 53804 Much · Germany  
Phone +49 (0)2245 6107-0 · Fax +49 (0)2245 6107-10

## 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.

