

Technical Specification
HRKK-Delta-L 28/24 230V



Product type: HRKK-Delta-L 28/24 230V
 DBK part no.: 373218,01

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Issue	Revision information	Date	Author	Approved
a	First release	18.01.2018	Jülch F.	Samenfink F.

1. Product description

PTC Finned Resistor Heater with delta-shaped fins for airflow heating / convective heat transfer

Design and performance characteristics:

- Compact frame allows for easy screw installation according to clearance and creepage distances
- Thermic insulation of the heating elements through frame
- Self-regulating PTC heating elements provide high safety through temperature limiting characteristic
- Great performance at minimum pressure drop due to delta-shaped fins
- 4 heating circuits that can be operated separately
- Flammability: UL94V-0

Accessories:

- Temperature limiter (e.g. TEXAS INSTRUMENTS, type: TH10)
- Enclosure with finger guard and connection cable

Applications:

- Air dryers & dehumidifiers
- Pre-heaters & re-heaters for HVAC & ventilation systems with heat recovery (low-energy buildings)
- Passenger compartment heater for special-purpose vehicles
- Cockpit heaters (e.g. electric vehicles)

2. Technical data

Manufacturer	DBK David + Baader GmbH	
Product name	PTC Delta Shape Finned Resistor Heater	
DBK part number	373218,01	
Type	HRKK-Delta 28/24 230V	
Protection class	achieved through proper installation	
Rated voltage	230V	AC/DC
Rated Power	1500W (+/-10%)	Measured in air channel at 300m ³ /h and 20°C inlet air temperature
Typical inrush current	13,5A	Nominal Value at 230V
Max. inrush current	A	Highest possible value at 230V

Electrical connection	Spade terminals 6.3 x 0.8mm, steel nickel-plated	
Max. surface temperature	approx. 240°C	non-operating state, max. PTC surface temperature
Dimensions	see section 3	
Fixings	see section 3	
Weight	approx. 295g	
Ambient temperature	-25°C to +65°C	
Humidity	Max. 85% relative humidity	

Life Time Durability

PTC Finned Resistor Heaters of the HRKK-Delta series come in several power and voltage versions. Power and voltage can be varied by making use of different PTC heating element widths and by the amount of heating elements per heater.

PTC heating elements combine the function of heating with self-regulating temperature control, resulting in high safety and long-term stability of the heater.

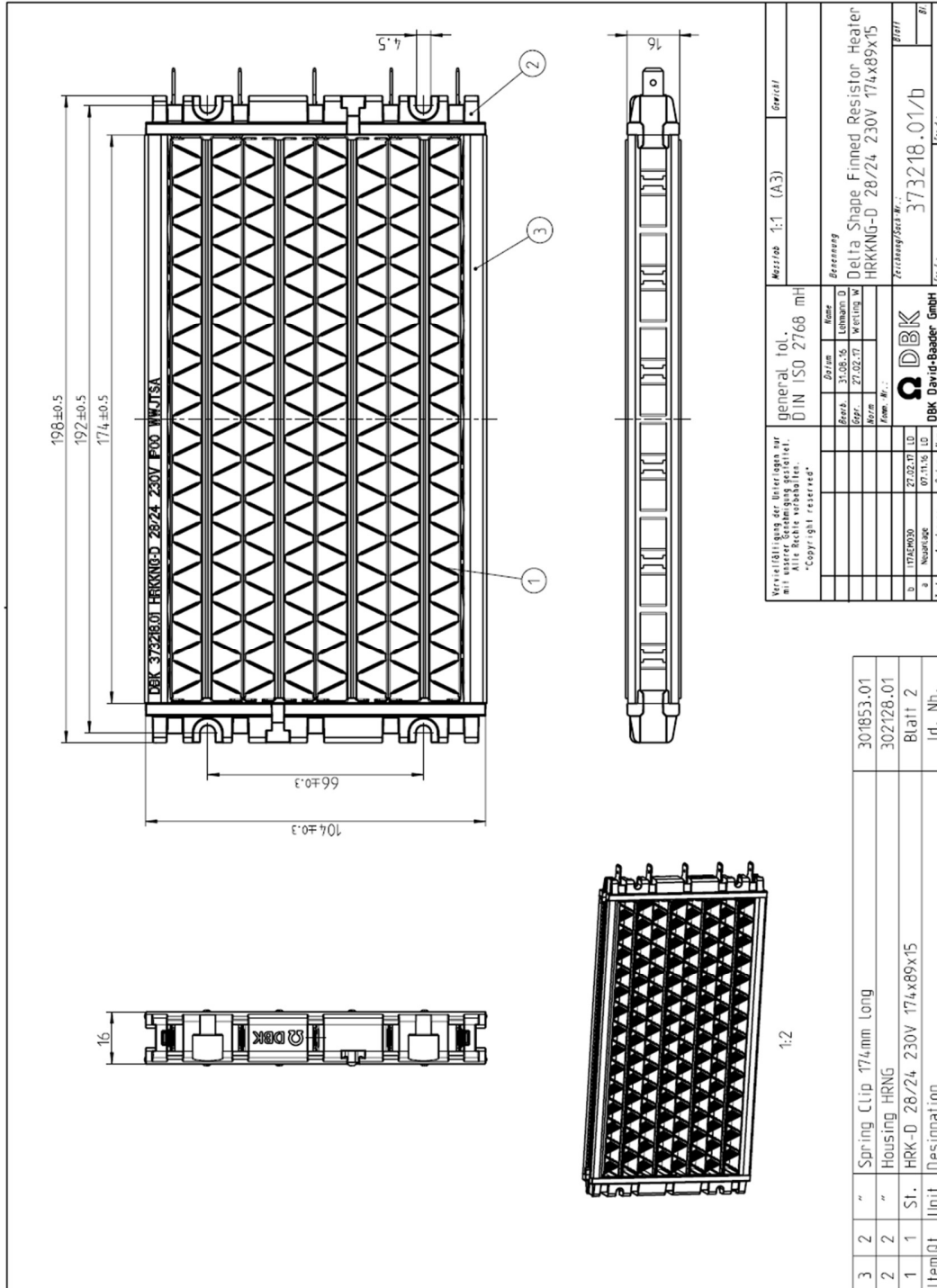
The core part of each heating element is a PTC ceramic with high-quality electrodes. The PTC element is clamped between aluminium fins which ensures optimum heat transfer. The aluminium fins are made of corrosion resistant aluminium alloy with very high thermal conductivity.

The HRKK-Delta assembly features symmetrical heat output on both sides of the PTC ceramic. A special clamping system prevents damages to the heater and ensures long-term stability.

Several laboratory tests have been conducted to measure long term stability, including tests with low and high airflows. After 10.000 cycles, cold resistance slightly increased as result of natural ageing. No extraordinary change of power during operation has been found.

Long term stability can only be guaranteed with proper operation of the heater. DBK heaters have proven to function without failure in several customer applications for a duration of 10+ years.

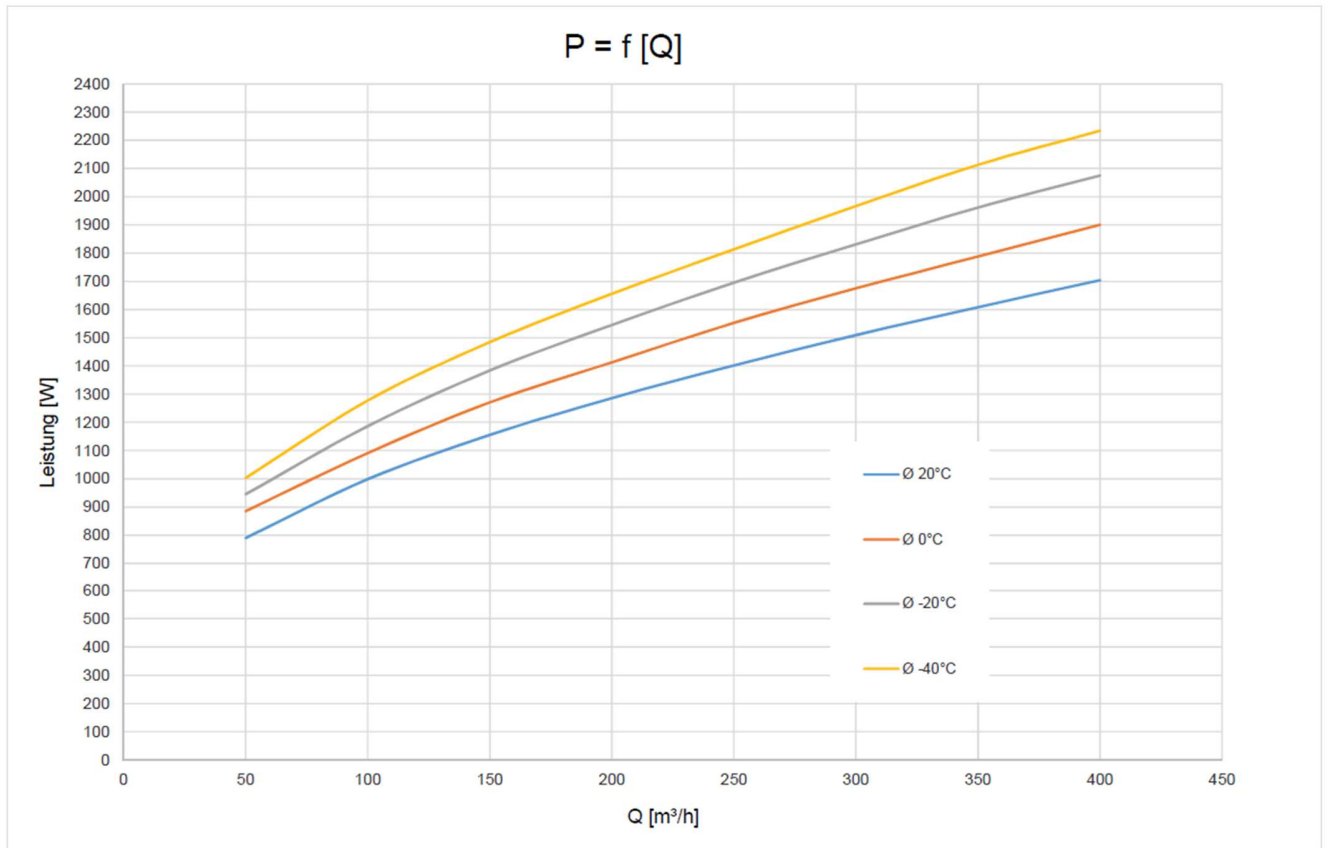
3. Drawing with bill of material



Drawing is not subject to the updating!

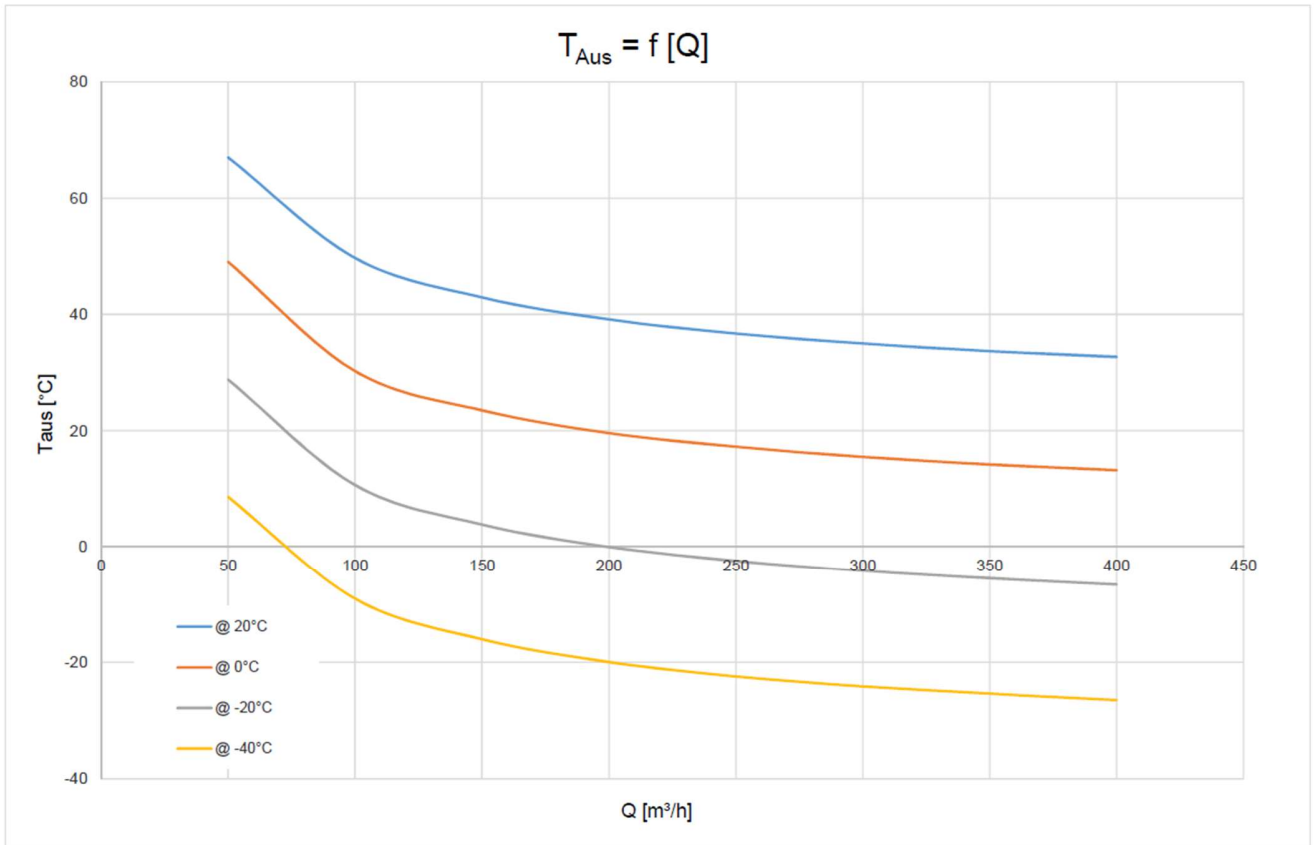
4. Characteristic curves

Power vs. Air Flow



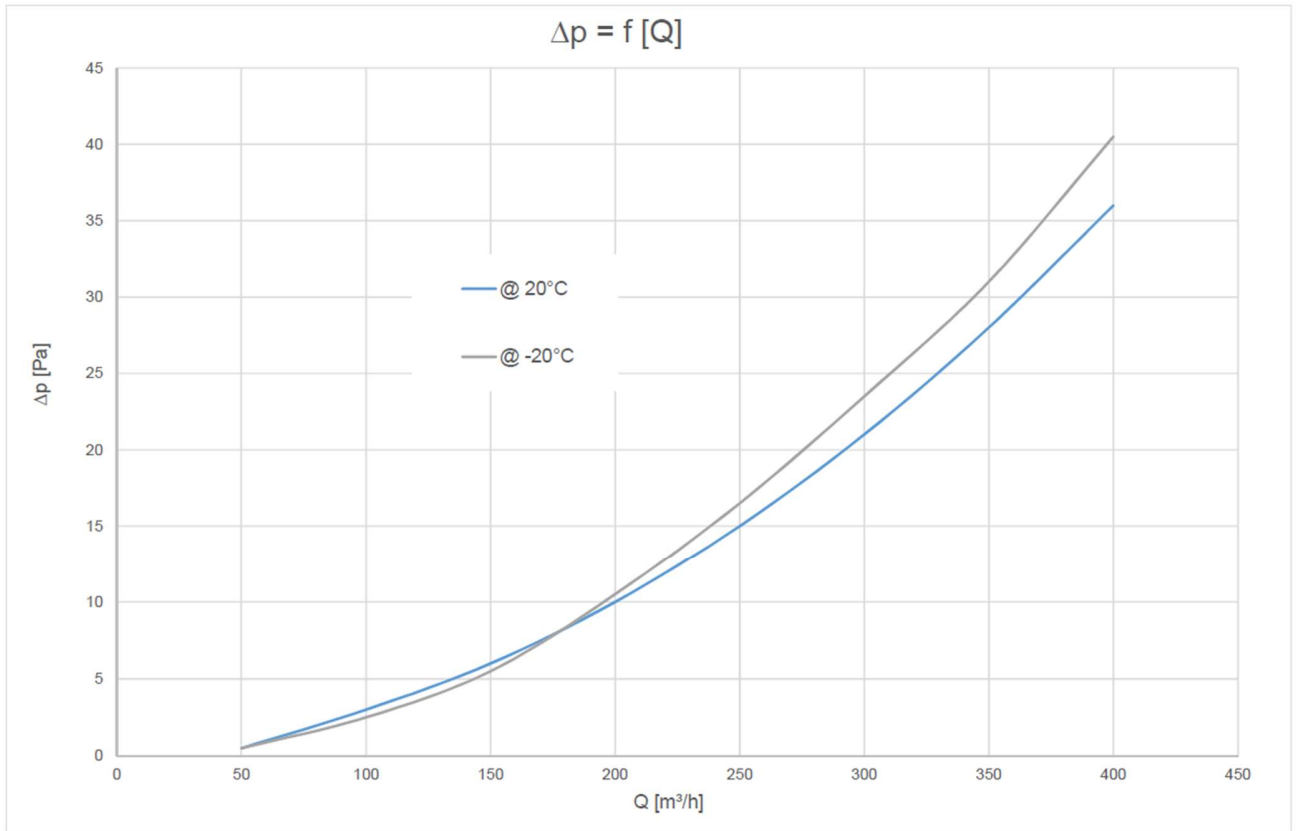
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Output Temperature vs. Air Flow



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Differential Pressure vs. Air Flow



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5. Safety information

DBK David + Baader GmbH is certified according to:

- DIN EN ISO 9001
- ISO/TS 16949

Product safety information:

- All metal parts are live parts. Touch protection must be guaranteed through appropriate installation
- Operation with insufficient air flow leads to impairment of function and life time
- Operation in aggressive environments is inadmissible
- Finned Resistor Heaters shall only be used to heat moving air
- Minimum clearance distances must be respected in compliance with applicable national laws and regulations

6. Electrical connection

Connection drawing:		Note:	
	1	L	+
	2	N	-
	3	L	+
	4	N	-
	5	L	+
* = depending on type		- single heating circuits only to be connected in parallel - note increased inrush current	

This information does not release the customer from independent application tests. Apart from meeting the validation provisions, the installation must comply with relevant local regulations, technical directives and recognized standards.

This specification is not subject to a periodic update management.

We reserve the right to change the technical specification without prior notice.