

Water as a data carrier via DeltaQS



DeltaQS: Your monitoring system for cooling circuit data

Increase the quality assurance and process stability of your production process.

How? By integrating and exploiting previously invisible parameters in the cooling circuit of your production processes.

Cooling circuit parameters have a direct effect on processing and product quality.



High process stability with DeltaQS



Water: simultaneously a cooling medium & information carrier

Ask your cooling water!

Prevent a technical partial blind flight in your process.

This is the case when a significant part of the process cannot be monitored.

The acquisition of the cooling circuit data by the **DELTA THERM® monitoring system DeltaQS**

as well as the integration of the data collected into the machine control system, ends the partial blind flight in the respective process.

Water is not only a good cooling medium - it also provides important information about the process, such as:

Real(time) cooling capacity:

- Automatic calculation of the cooling capacity from the available parameters of the cooling circuit data

Warning about leakage or other malfunction:

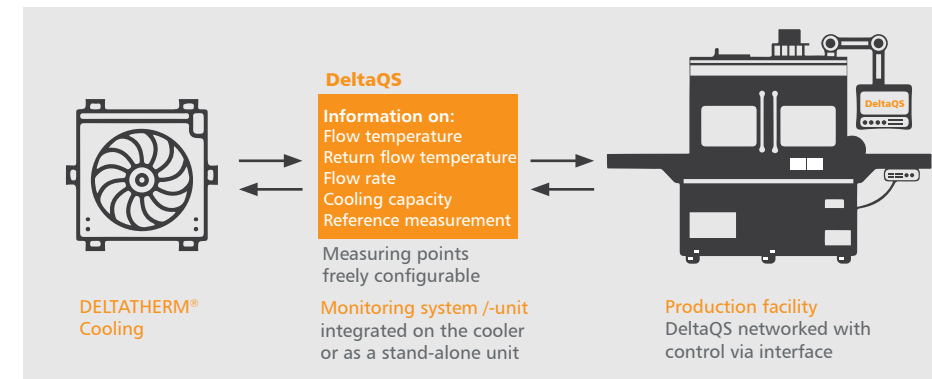
- A sudden increase in the flow volume and/or a sudden drop in pressure in the circuit indicates a leakage
- Increase in pressure in the cooling circuit can be caused by a kinked hose or by contamination in the feed system

Undersizing of the heat exchanger:

- If the actual temperature is permanently above the target temperature, this indicates that the heat exchanger is undersized.

The data is read out via an analogue or bus interface, such as Profibus, Profinet or Ethernet. For advanced information processing, it is advantageous to implement the DeltaQS parameters in the control systems of the production plants in analogue or bus form in order to be able to process them further for the production process, for the purpose of

CONTROL, MONITORING, EVALUATION AND DOCUMENTATION



Data acquisition

The DeltaQS DELTATHERM® monitoring system is either integrated into the cooler or works as a stand-alone unit with already existing coolers.

This unit contains sensors that measure volume flow, temperature and pressure and display them on the display:

- Flow sensor mounted in the return flow to the cooler
- Measuring water temperature on
- Measuring water temperature off
- Measuring pressure on as pressure sensor
- Measuring pressure off as pressure sensor
- Circulating medium water

In the image on the right, the DeltaQS monitoring unit is attached to the back of a DELTATHERM® cooler.



Advantages of DeltaQS

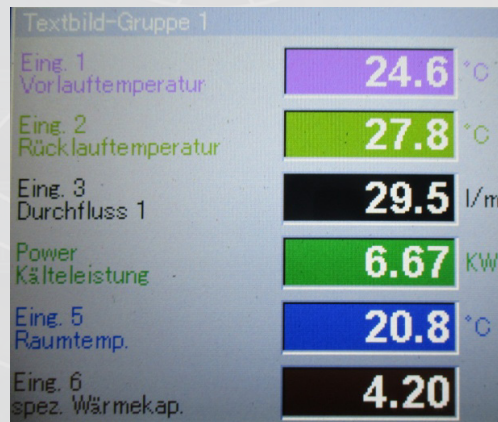
Monitoring system for cooling circuit data

- Data transfer via analogue signals or bus interface possible, such as Profibus, Profinet or Ethernet
- Integration of the data into the control system of machine manufacturers for further processing - for control and documentation
- Further processing of the data during the entire process with implementation in the machine control
- The measuring points are freely configurable
- Enables output of fault messages
- Seamless monitoring & documentation of the processes
- Efficient analysis and fault localisation/diagnosis
- DeltaQS can be connected to any cooler
- DeltaQS can also be operated with DELTATHERM® heat exchanger groups

Data acquisition representation - exemplary

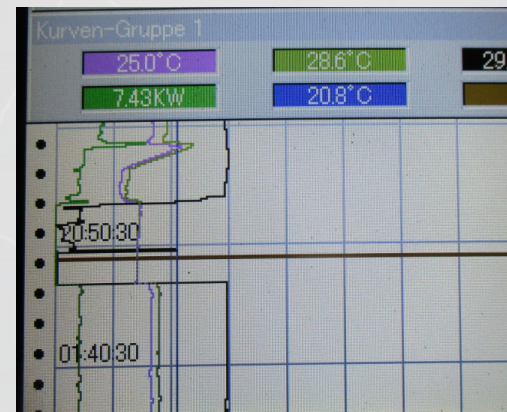
The following screen shows the visualised values in a data logger.

The cooling capacity is automatically determined on the basis of the parameters of supply and return temperature and flow rate.



In this example, the following are also recorded:

- Room temperature
- Specific heat capacity of the cooling medium in kJ/kgK

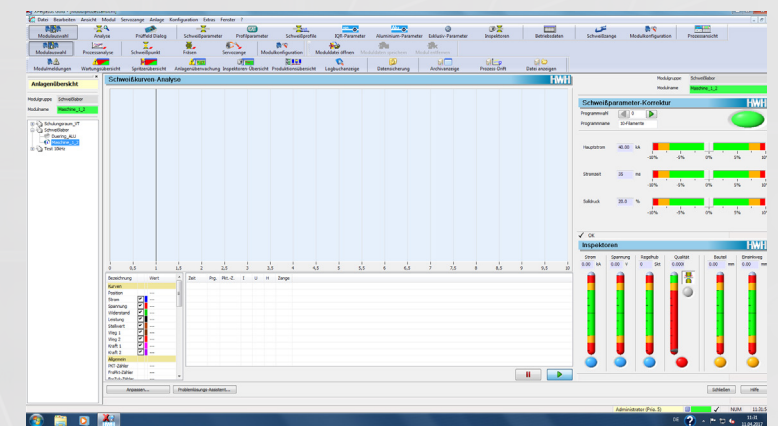


Information processing

The previous example shows the readout of the data using a simple data logger.

During data processing, the recorded data from the cooling circuit can be transferred either analogue or via bus.

The following figure shows integration into a welding control system for a resistance welding process.



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