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QUALITEST™

Cooling and Heating Chiller



STANDARDS

IEC 61010-1

IEC 61326-1

Cooling and Heating Chiller - QualiCHC™ Series

Cooling and Heating Chiller (-40°C to 200°C)

QualiCHC™ Series is a compact Process Thermostat that combines programmable heating and refrigerated cooling in one unit. This Cooling Circulator supports stable temperature control from -40°C up to 200°C (model-dependent) for reactors, condensers, jacketed vessels, and closed-loop process circuits. Built around a program controller, it can run multi-step temperature-time ramps to automate repeatable workflows.

A consistent process temperature often decides whether a reaction is repeatable or wasted. QualiCHC™ Series delivers controlled circulation, precise stabilization, and programmable profiles so temperature changes follow the intended recipe, not the surrounding environment. The system uses a sealed compressor-based cooling system plus electric heating to cover both low and high temperature needs within one controller-driven platform.

Programmable operation supports segmented temperature curves, timer-based runs, and recovery after power interruption (parameter retention). Temperature stability is specified at $\pm 0.1^\circ\text{C}$, helping support method repeatability in R&D and process development labs.

APPLICATIONS

Cooling and Heating Chiller - QualiCHC™ Series Applications

- Chemical synthesis and jacketed reactor temperature control: Maintains setpoint temperature during exothermic or endothermic reactions. Program ramps support step-heating, controlled cooling, and soak steps for process optimization.
- Material testing and conditioning: Controls temperature for viscosity studies, crystallization screening, polymer evaluation, or stability checks where controlled thermal profiles matter.
- Distillation, condensation, and external heat-exchanger loops: Circulates thermal fluid through external coils or heat exchangers to improve thermal consistency during separation processes.
- Method development with temperature-time recipes: Runs repeatable multi-step temperature curves to reduce operator variation and speed up routine workflows.



Standards

- IEC 61010-1 – Safety requirements for electrical equipment for measurement, control, and laboratory use.
- IEC 61326-1 – EMC requirements (immunity and emissions) for electrical equipment used in measurement, control, and laboratory environments.

FEATURES

Cooling and Heating Chiller - QualiCHC™ Series Key Features

- Programmable temperature-time profiles with multi-segment control for automated recipes.
- Wide temperature coverage up to -40°C to 200°C (model-dependent).
- Stable control performance with $\pm 0.1^\circ\text{C}$ temperature stability specification.
- Quiet, sealed compressor cooling design aimed at reliable low-temperature operation.
- Parameter retention after power interruption, supporting recovery and consistent reruns.
- Built-in safety protections for compressor operation such as overload/overheat protection concepts referenced by the manufacturer.

THEORY & METHOD

Theory and Method

QualiCHC™ Series works as a closed-loop temperature control system:

1. Heating stage uses electric heaters to raise thermal fluid temperature.

2. Cooling stage uses a compressor refrigeration circuit to remove heat and drive the bath/process loop to lower temperatures.
3. Circulation stage uses a pump to deliver consistent flow through the external loop (reactor jacket, coil, or fixture), improving temperature uniformity across the process.

The program controller executes segmented temperature–time curves. This enables controlled ramps, dwell/soak steps, and automated sequences for repeatable process control.

TECHNICAL SPECIFICATIONS

Cooling and Heating Chiller - QualiCHC™ Series Technical Specifications

Specification	QualiCHC™ 3	QualiCHC™ 5	QualiCHC™ 7	QualiCHC™ 10
Temperature Range (°C)	-20 to 200	-40 to 200	-40 to 200	-40 to 200
Bath Volume (L)	3	5	7	10
Program Segments	32			
Heating Power (kW)	0.6	1.5	2.1	2.5
Cooling Power @ 20°C (kW)	0.35	0.75	1.24	1.65
Pump Flow (L/min)	15			
Pump Pressure (bar)	0.45			
Total Power (kW)	1.0	2.3	3.1	3.5
Dimensions (W×D×H, mm)	535 × 395 × 750	590 × 435 × 770	615 × 505 × 840	615 × 505 × 890
Voltage	220V/50Hz (110V is also available)			

Specification	QualiCHC™ 3	QualiCHC™ 5	QualiCHC™ 7	QualiCHC™ 10
Temperature Stability	±0.1°C			



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