



Precision Cooling Circulator



STANDARDS

ASTM E230
IEC 61010-1
IEC 61326-1
ISO/IEC 17025

Precision Cooling Circulator - QualiCC™ HCC Series

Precision Cooling Circulator (-25°C to 45°C)

A Cooling Circulator is a compact process thermostat that chills (and stabilizes) a heat-transfer fluid, then pumps it through an external loop or temperature-controlled bath.

QualiCC™ HCC Series units are designed for routine lab and pilot-scale cooling tasks, offering stable setpoints, integrated circulation, and multiple bath volumes for different workloads. The series covers cooling ranges down to -25°C (model-dependent), with consistent 20 L/min circulation flow for fast thermal response in connected equipment.

QualiCC™ HCC Series precision cooling circulators deliver controlled, repeatable cooling for laboratory processes that need steady temperature and continuous fluid circulation. Each unit combines a refrigeration system with a circulating pump to move chilled thermal fluid through an external device, jacket, coil, or instrument.

Models are available with different temperature ranges and reservoir capacities, helping labs match cooling performance to application size. Typical use includes stabilizing temperature during reactions, sample conditioning, or instrument cooling.

APPLICATIONS

Precision Cooling Circulator - QualiCC™ HCC Series Applications

- Jacketed reactors and double-wall vessels: Maintains a stable coolant temperature to control reaction heat removal and improve run-to-run consistency.
- Rotary evaporators and condensers: Provides continuous chilled circulation to support vapor condensation and reduce solvent loss during evaporation steps.
- Analytical and measurement instruments: Supports temperature stabilization for external loops used in viscometers, density/flow setups, or temperature-sensitive test fixtures.
- Material conditioning and sample cooling: Helps bring samples or fixtures to a target low temperature and hold it for test windows or process steps.
- General lab process cooling: Works as a compact process thermostat when a stable, pumped cooling loop is needed for routine R&D and QC workflows.

(Use the reservoir volume and the cooling range as the first filters when selecting a model.)



Standards

- IEC 61010-1 – Safety requirements for electrical equipment for measurement, control, and laboratory use (general requirements).
- IEC 61326-1 – EMC (electromagnetic compatibility) requirements for electrical equipment used in measurement/control/lab environments.
- ISO/IEC 17025 – Competence framework used by calibration/testing labs for temperature verification and traceable reporting.
- ASTM E230 – Thermocouple reference tables used for temperature sensing verification and method documentation (when thermocouples are part of the measurement chain).

FEATURES

Precision Cooling Circulator – QualiCC™ HCC Series Key Features

- Wide model range for different cooling needs with temperature ranges down to -25°C (model-dependent).
- Stable digital control with 0.1°C display resolution and $\pm 2^\circ\text{C}$ temperature accuracy (as listed).
- Continuous circulation performance using an integrated pump rated up to 20 L/min and 1.2 bar maximum pump pressure.
- Multiple reservoir sizes from 0.9 L to 30 L to fit small benchtop tasks through larger loops.
- Standard connection interface using G1/2 internal thread for common lab plumbing integration.
- Operational safety and recovery behavior including compressor protection functions and parameter retention after power loss (as described on the source page).
- Optional high-pressure circulation pump option available for models above QualiCC™ HCC 5007 (high-pressure versions marked with “G”).

THEORY & METHOD

Theory and Method

A cooling circulator controls temperature by removing heat from a circulating thermal fluid using a refrigeration system. A temperature sensor reads the fluid temperature and the controller regulates cooling output to hold the setpoint within the unit's stated accuracy. The circulating pump drives the chilled fluid through the reservoir and out to the external loop, improving heat transfer at the connected equipment. Performance depends on ambient conditions, thermal fluid type, fill volume, insulation, and the heat load introduced by the application.

TECHNICAL SPECIFICATIONS

Precision Cooling Circulator - QualiCC™ HCC Series Technical Specification

Spec	QualiCC™ HCC 5001	QualiCC™ HCC 2002	QualiCC™ HCC 5003	QualiCC™ HCC 2003	QualiCC™ HCC 5007	QualiCC™ HCC 2007	QualiCC™ HCC 5010	QualiCC™ HCC 2010	QualiCC™ HCC 5020	QualiCC™ HCC 2020	QualiCC™ HCC 5030	QualiCC™ HCC 2030
Cooling Temp Range (°C)	-5 to 45	-20 to 45	-5 to 45	-20 to 45	-5 to 45	-25 to 45	-5 to 45	-25 to 45	-5 to 45	-25 to 45	-5 to 45	-25 to 45
Reservoir Volume (L)	0.9	2	3	7	10	20	30					

Spec	QualiCC™ HCC 5001	QualiCC™ HCC 2002	QualiCC™ HCC 5003	QualiCC™ HCC 2003	QualiCC™ HCC 5007	QualiCC™ HCC 2007	QualiCC™ HCC 5010	QualiCC™ HCC 2010	QualiCC™ HCC 5020	QualiCC™ HCC 2020	QualiCC™ HCC 5030	QualiCC™ HCC 2030
Cooling Power @25°C (kW)	0.35	0.55	0.63		1.27		2.10		3.80		5.80	
Max Flow (L/min)	20											
Max Pressure (bar)	1.2											
Connection	G1/2 internal thread											
Noise (dB)	≤55	≤63	≤57	≤57	≤60	≤60	≤62	≤62	≤65	≤65	≤70	≤70
Weight (kg)	18	32	29	29	35.5	35.5	46	46	64	64	122	122
Dimensions L×W×H (mm)	260 × 340 × 300	222 × 450 × 505	390 × 423 × 445	390 × 423 × 445	390 × 410 × 630	390 × 410 × 630	430 × 470 × 820	430 × 470 × 820	447 × 553 × 960	447 × 553 × 960	557 × 675 × 1193	557 × 675 × 1193
Total Power (kW)	0.20	0.43	0.55	0.55	0.65	0.65	0.77	0.77	1.20	1.20	2.40	2.40
Voltage	220V/50Hz~1 (110V) is also available											



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