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QUALITEST™

Integrated Cooling Circulator



STANDARDS

IEC 61010-1

IEC 61326-1

ISO 9001

Integrated Cooling Circulator - QualiCC™ IC Series

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

QualiCC™ IC Series designed to deliver stable, recirculating coolant for lab instruments and external process loads. It provides a controlled liquid loop for precise temperature conditioning, plus consistent flow and pressure for repeatable thermal performance.

A microcomputer controller with PID logic maintains tight stability across a wide working range. This Process Thermostat can act as a standalone bath chiller or a cold source for external jackets, condensers, and instrument heat exchangers.

The platform supports applications that need steady cooling, minimal temperature drift, and dependable circulation. Component selections and the refrigeration/control architecture are focused on reliability for continuous lab duty cycles.

APPLICATIONS

Integrated Cooling Circulator - QualiCC™ IC Series Applications

- Atomic absorption spectrophotometers (AAS): Maintains a steady coolant loop for heat removal and temperature stability, helping protect instrument performance during extended runs.

- ICP and ICP-MS systems: Provides recirculated cooling for key thermal loads, supporting stable operating conditions and consistent throughput during long sequences.
- Electron microscopy and imaging platforms (example: TEM subsystems): Enables controlled cooling for auxiliary modules and heat exchangers where thermal drift impacts repeatability.
- External reactors and process equipment: Acts as a cold source for jacketed vessels, condensers, and coil loops when a compact Cooling Circulator is preferred over facility water.



Standards

These are widely used international benchmarks for comparable laboratory temperature-control equipment:

- IEC 61010-1 (Electrical safety for measurement, control, and laboratory equipment)
- IEC 61326-1 (EMC requirements for measurement, control, and laboratory equipment)
- ISO 9001 (Quality management system framework for manufacturing and service processes)

FEATURES

Integrated Cooling Circulator - QualiCC™ IC Series Key Features

- Integrated microcomputer + PID temperature control for stable setpoint regulation in recirculating operation.
- Wide operating temperature window suitable for both chilling and controlled warming within the specified range.
- High-pressure circulation capability (model-dependent) to support longer external loops or higher system resistance.
- Stainless-steel evaporator tank and corrosion-resistant wetted path for durability with typical heat-transfer fluids.
- Efficient heat exchanger design intended to improve cooling efficiency and system response.
- Adaptive refrigeration control (electronic expansion control approach) to better match cooling output to external load changes.

THEORY & METHOD

Theory and Method

How the cooling and circulation work

A refrigeration circuit removes heat from a stainless-steel evaporator zone, then transfers that heat to the condenser. The temperature controller measures the process temperature and uses PID control to regulate cooling output for stable setpoint tracking.

How temperature stability is achieved

The circulating pump drives a continuous flow through the internal reservoir and external loop. Stable flow plus PID control helps minimize temperature swings under changing thermal loads. This method supports consistent cooling performance during calibrations, long instrument sequences, and heat-load step changes.

TECHNICAL SPECIFICATIONS

Integrated Cooling Circulator - QualiCC™ IC Series Technical Specification

Specification	QualiCC™ IC 20	QualiCC™ IC 30
Temperature Range (°C)	-25 to 45	-25 to 45
Temperature Stability (°C)	±0.1	±0.1
Rated Cooling Capacity @ 25°C (kW)	0.6	3.0
Max Flow (L/min)	20	30
Max Pump Pressure (bar)	1.2	6.0
Reservoir / Filling Volume (L)	0.7	8-15
Total Power (kW)	0.4	1.6
Dimensions (L×W×H, mm)	220 × 450 × 500	428 × 620 × 890



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Qualitest USA (Corporate Sales Office)

Toll-Free: 1.877.884.TEST (8378) | Fax: 954.697.8211
E-mail: info@qualitest-inc.com
Address: 8201 Peters Rd., #1000,
Plantation, FL 33324, USA.

Qualitest Canada & International

Tel: +1.905.944.9825 | Fax: +1.905.944.0304
E-mail: sales@qualitest-inc.com
Address: 70 East Beaver Creek Rd., #9, Richmond Hill,
Ontario L4B 3B2, Canada.

Qualitest Latin America (Mexico and LATAM Region)

E-mail: ventas@qualitest-inc.com

Qualitest KSA (Regional Office)

Tel: +966 11 500 6659
Address: Level 7, 3.09, District 3, King Abdullah
Financial District, Riyadh, Saudi Arabia

Qualitest Singapore (ASIA PACIFIC Regional Office)

Tel: +65 6393 5480 | E-mail: singapore@qualitest-inc.com
Address: 50 Raffles Place, Singapore Land Tower,
Level 46, Singapore, 048623.

Qualitest Indonesia (Representative Office)

Tel: +62 21 2985 9522 | Fax: +62 21 2985 9889
E-mail: indonesia@qualitest-inc.com
Address: One Pacific Place Level 11, Jl. Jend. Sudirman,
Kav. 52-53, SCBD Area, Jakarta 12190, Indonesia.

Qualitest FZE (Regional GCC/ME Office)

Tel: +971 4 8819252 | Fax: +971 4 8819262
Email: gcc@qualitest-inc.com
Address: Jafza One, BB 1610, Jebel Ali Free Zone,
PO Box 261440, Dubai, UAE.

Qualitest India

E-mail: india@qualitest-inc.com
Address: 15th Floor, Dev Corpora, Pokhran Road No.1,
Eastern Express Highway, Thane, Maharashtra,
Mumbai, 400601, India

