



# High Performanced Cooling Temperature Control System



## STANDARDS

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IEC 61010-1

IEC 61326-1

ISO 5149

# High Performanced Cooling Temperature Control System - QualiCool™ HPC Series

## High Performanced Cooling Temperature Control System (-60°C to -20°C)

Cooling Temperature Control System performance matters most when a process cannot tolerate temperature drift. The Process Thermostat in the QualiCool™ HPC Series is designed for stable, closed-loop circulation of a thermal fluid to external reactors, jacketed vessels, condensers, or process tools.

This Cooling Temperature Control System covers -60°C to -20°C operation and focuses on dependable cooling capacity, flow, and pressure for continuous duty. The system integrates refrigeration, circulation, and safety monitoring in a single cabinet for cleaner installation and repeatable results.

QualiCool™ HPC Series is a recirculating low-temperature Process Thermostat that delivers controlled cooling to an external load through a circulating thermal medium. It is suited for lab-scale and pilot-scale thermal conditioning where temperature stability and flow repeatability drive product quality.

The platform supports multiple cooling power levels and cabinet sizes, allowing selection based on load, piping distance, and required circulation rate. Typical integration includes reactor jackets, heat exchangers, or instrument chill points that need controlled sub-zero operation.

## APPLICATIONS

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# High Performanced Cooling Temperature Control System - QualiCool™ HPC Series Applications

- Jacketed reactor cooling (chemistry and biotech): Maintains steady sub-zero jacket temperature to control reaction rate, selectivity, or crystallization behavior.
- Condenser and cold-trap support: Provides stable coolant temperature to improve condensation efficiency and reduce solvent loss during continuous operation.
- Thermal conditioning for process equipment: Feeds a controlled thermal loop to external tools that require consistent cooling, such as pilot skids and test stands.
- Material and component temperature cycling (non-chamber): Enables controlled low-temperature fluid circulation through fixtures or plates for repeatable cooling steps.



QUALITEST

QualiCool<sup>TM</sup> HPC Series  
High Performance Cooling  
Temperature Control System

Ex

STOP

12.1

## Standards

- IEC 61010-1 – Safety requirements for electrical equipment for measurement, control, and laboratory use.
- IEC 61326-1 – EMC requirements for electrical equipment for measurement, control, and laboratory use.
- ISO 5149 (all parts) – Refrigerating systems and heat pumps: safety and environmental requirements.

## FEATURES

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### **High Performanced Cooling Temperature Control System - QualiCool™ HPC Series Key Features**

- -60°C to -20°C operating range for dedicated low-temperature circulation.
- Multiple capacity/flow selections to match different loop sizes and process loads.
- Integrated cabinet design that combines refrigeration, circulation, and controls for straightforward installation.
- Process-oriented circulation performance (flow and pressure rated by model) for external equipment support.
- Industrial power options aligned to the selected model size.

## THEORY & METHOD

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### **Theory and Method**

QualiCool™ HPC Series uses a closed-loop recirculation method:

1. Reservoir + heat-transfer fluid stores the thermal medium (typically compatible low-temperature fluids).
2. A circulation pump moves fluid from the tank to the external load and back.

3. A mechanical refrigeration circuit (compressor → condenser → expansion valve → evaporator) removes heat from the circulating fluid to achieve and maintain low setpoints.
4. A feedback control loop (temperature sensor + controller) continuously regulates cooling output to stabilize the process temperature.

## TECHNICAL SPECIFICATIONS

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# High Performanced Cooling Temperature Control System - QualiCool™ HPC Series Technical Specification

Specification	QualiCool™ HPC 4	QualiCool™ HPC 6	QualiCool™ HPC 12	QualiCool™ HPC 16	QualiCool™ HPC 20	QualiCool™ HPC 30
Temp range (°C)	-60 to -20					
Cooling power @ 20°C (kW)	0.4	0.6	1.2	1.6	2.0	3.0
Max flow (L/min)	20	20	35	35	75	75
Max pressure (bar)	0.7	0.7	1.0	1.0	1.0	1.0
Dimensions L×W×H (mm)	400 × 600 × 1150	500 × 680 × 1350	500 × 680 × 1450	650 × 700 × 1650	650 × 700 × 1650	750 × 750 × 1800
Voltage	220V/50Hz~1 (110V is also available)		380V/50Hz~3			



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

