



TESCOR

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Radiator Calorimeter

Model #CRADR0020



Tescor's Radiator Calorimeters are designed to provide the customer with extreme accuracy, repeatability and flexibility in the determination of heat exchanger thermal capacities in accordance with [*ASHRAE Standard 33*](#). We offer a complete line of surface calorimeters for automotive and commercial air conditioning applications. Surface Calorimeters are used to determine the capacities of such components as: *Radiators, Condensers, Evaporators, Heater Cores, and Oil Coolers, Charge Air Coolers, Tube Surfaces, Chilled Water Coils, etc.* The surface calorimeters utilize temperature controlled chambers for the control of air temperature over the heat exchangers. These ambient conditions are precisely controlled and recorded. Tescor uses Code Testers to determine system air-flows and the psychrometric conditions of the air as it exits the test piece. The code testers include AMCA nozzles with a bypass system to allow a wide range of system air-flows without sacrificing system accuracy. The calorimeter offers control over such parameters as ambient temperature and humidity, test piece air flow, Charge Air Inlet pressure, Charge Air inlet temperature, glycol/water inlet temperature, charge air and glycol/water pressures and flows, etc. The calorimeter is supplied with a fully automated computer data acquisition and control system and is designed for heat balances of $\pm 2\%$ when compared to the average heat exchanger capacity as defined by [*ASHRAE Standard 33*](#) with a repeatability of $\pm 1\%$.



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Performance Specifications for Model #CRADR0020

| PARAMETER | CONTROL RANGE | STABILITY |
|-----------------------------|------------------|-----------|
| Ambient Chamber Temperature | 15 to 50 °C | ± 0.2°C |
| Code Tester Air Flow | 200 to 4,000 L/s | ±0.5% |
| Glycol Flow | 20 to 200 LPM | ±0.2 LPM |
| Glycol Temperature | 50 to 95°C | ±0.2°C |

CALORIMETER ROOM SPECIFICATIONS

| | |
|-------------------------------------|-------------------------------|
| Overall Room Outside Dimensions | 12'0" W x 28' 0" L x 11' 6" H |
| Room Air Circulation Rate | 15,000 CFM |
| Radiator Test System Equipment Skid | 7' W x 12' 0" L x 7' 6" H |
| Refrigeration System | 102,000 KCAL Total |
| Max. Test Part Core Size (Radiator) | 1200 mm x 1200 mm face area |

CODE TESTER SPECIFICATIONS

| | |
|--|---------------------|
| Air Flow Code Tester Push Through Type | 200 to 4,000 L/s |
| Blower, variable speed | 4,000 L/s @ 7" W.G. |
| ASHRAE Nozzles | (4) Automated |
| UUT Differential Pressure | 0 to 50 mm Aq. |
| Inlet Air Temperature | 20 – 50°C. |
| Repeatability of Air Flow Tests | ±1% |

UNIT UNDER TEST GLYCOL/WATER SUPPLY SYSTEM SPECIFICATIONS

UUT Size (mm): Maximum:1200 x 1200 (H x W); Minimum: 300 x 300

| | |
|---|--------------------------------|
| Glycol/water Flow Rate | 20 to 200 l/min. |
| Coolant Density | 0.9 to 1.1 kg/l |
| Measuring Accuracy | ± 0.25 % Reading (Micromotion) |
| Inlet Glycol/water Temperature | 50 to 95°C |
| Measurement Accuracy | ±0.1°C |
| Inlet maximum Pressure | 280 kPa |
| Differential Pressure Range | Max. 100 kPa |
| Measuring Accuracy | ± 0.20 % |
| Glycol/water Flow Control Device | Electronic Control Valves |
| Glycol/water Pump | Pulse free Pump. |
| Maximum Heating Capacity of UUT(Radiator) | 100 kW |



TESCOR

- **New Computer and DAS Hardware**
 - Dell Pentium-based Computer
 - 3.00 GHz Pentium 4 Processor or better
 - 1 GB RAM
 - 120 GB Hard Drive
 - 17" Color Monitor, Super VGA Flat Screen
 - CD RW Drive
 - 101 Key Enhanced Keyboard with dust cover
 - Mouse with pad
 - Ethernet board with driver
 - Windows XP Professional Operating System English Version
 - Microsoft Office, Professional Edition
 - Agilent High Speed Data Acquisition Units Model 34970A

- **New Software**
 - Creates Tests And Sequences for Automatic Operation
 - User configurable data acquisition channels
 - User configurable calculation channels
 - Loop Calibration Utility
 - Dedicated hardware checkout routine
 - Color coded stability status indicators
 - Stability tolerance adjustment on the fly
 - Time-history graphing capability
 - Automatic Test Report Generation
 - Data File Management and Search Tools

- **Performance Measurement**
 - $\pm 3\%$ Heat Balance agreement with the average capacity compared to fluid side or air side
 - 1% repeatability of test results at identical conditions run in sequence

Tescor manufactures a full line of Climate Control Test Equipment for the Automotive and HVAC marketplace including the following: *A/C System Calorimeters, Compressor Endurance Test Stands, Compressor Calorimeters, Clutch Test Stands, Compressor Noise Test Benches, Compressor Audit Benches, Psychrometric Test Rooms, Balanced Ambient Calorimeters, Compressor Slug Test Benches, Air Flow Code Testers, and Environmental Test Chambers.*