# RPP Test Device


**Thermetrics compact Radiant Protective Performance (RPP) Test Device measures and predicts the time to second degree burns following radiant heat exposure to composite fabric systems.**

The RPP device includes a 5-bulb quartz infrared heat lamp assembly, a pneumatically actuated water-cooled shutter, two thermocouple inputs, software safety interlocks, and an integrated sensor cooling stand for improved test throughput, rates.

System includes PC laptop computer installed with ThermDAC data acquisition and control system, and automatic second degree burn determination.

During testing, our ThermDAC control software continuously records and displays a real-time graph of the average temperature rise, depicted as a curved line representing increasing temperatures as heat moves through the composite fabric materials to the sensor.

After the test is completed, the results are automatically compared to the Empirical Performance Curve (Stoll's Curve), which predicts a second degree burn damage to human skin as a function of heat and time. The point of intersection between these two curves provides the composite fabric's RHR/RPP rating.

## ASSOCIATED TEST METHODS

- ASTM F1939
- ASTM F2702
- NFPA 1971
- NFPA 2112

## FEATURES AT A GLANCE

- Evaluates the potential for second degree skin burns associated with a fabric's ability to block the penetration of radiant heat energy
- Automatic or manual test operation
- Includes two snap-on, snap-off sample assemblies for fast and easy test setup
- Connections for up to two copper disk calorimeter sensors (ASTM)
- Integrated air-cooled sensor stand quickly prepares calorimeter sensor for next test
- Pneumatically actuated water-cooled shutter for precise exposure control
- System automatically predicts the time to second degree burn following exposure
- Small and portable, the RPP test device fits in most standard fume hoods

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206-456-9119 • www.thermetrics.com

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## Specifications

### Standard

- Radiant panel with 5 quartz (500W) infrared lamps
- Water-cooled pneumatic shutter
- Two removable sample holders
- Two calorimeter sensor inputs (Test, Calibration)
- Integrated sensor cooling stand (air cooled)
- Up to 5.5 x 9.5 inch (14 x 24cm) sample size
- Maximum sample thickness: 0.375"
- Software safety interlocks monitoring cooling water flow and power to lamps
- Protective cover on backside of bulbs
- Signal conditioning electronics and USB interface
- Power and control cabling
- Dell Laptop installed with ThermDAC software

### Additions

- Copper-slug calorimeter sensors (ASTM)
- Heat flux transducer
- Chiller

### Range / Performance / Accuracy

- ± 0.75°C temperature measurement
- ± 3% radiant heat flux measurement

## An ISO version of the RPP is also available

## Model Information

- Device Dimensions: 16"x16"x15" H (41x41x38cm H)
- Space Requirements: 24"x24"x24" H (61x61x61cm H)
- Power Requirements: 208-265 VAC, 50/60Hz, Single-phase. Maximum nominal current 10 Amps
- Two calorimeter sensor inputs (Test, Calibration)
- Cooling Water: Cooling water required, chiller or tap water source is acceptable

## ThermDAC Control Software

ThermDAC is a Windows-based application providing full device control, fault detection, data logging and analysis capabilities: RPP system configuration and burn prediction calculations are also contained within ThermDAC.

- Define non-standard test conditions and custom tolerance criteria
- View multiple device and ambient variables on a single graph screen
- Apply real-time statistical functions to test data over any user-selected time range

## Service

All systems come with a one year warranty.
Please ask about these service options:

- Startup installation and training
- Extended warranty
- Annual Service Care Package—a periodic maintenance and service contract designed to keep your Thermetrics equipment calibrated and in top operating condition

RPP Device with sample tray in place (left) and with sensor in place (right)

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4220 – 24th Avenue West, Seattle, WA 98199
Phone: **206.456.9119** / Fax: **206.634.1309**
**www.thermetrics.com**