

# RPP Test Device

- Evaluates the potential for skin burns associated with a fabric's ability to block radiant heat penetration.
- Automatic or manual test operation.
- Two snap-on, snap-off sample assemblies for fast and easy test setup.
- Supports up to two copper disk calorimeter sensor assemblies.
- Integrated air-cooled sensor stand quickly prepares calorimeter sensor for next test.
- Water-cooled shutter is pneumatically actuated for precise exposure control.
- System includes Burn Algorithm to predict the time to second degree burn following exposure.
- Burn results shown as a real-time numerical and graphical display of sample performance compared to Stoll curve.
- Full system operating manual and one year limited warrantee.

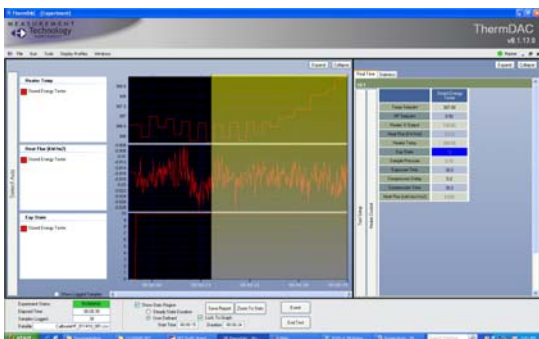


The Radiant Protective Performance (RPP) Test Device was developed to measure the time elapsed for a controlled radiant heat source to penetrate through a protective composite fabric system - resulting in damage to human skin.

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

System includes PC computer with ThermDAC data acquisition and control system, plus burn prediction algorithm.

During testing, ThermDAC control software will continuously record and display a real-time graph of the average temperature rise, depicted as a curved line representing higher and higher temperatures as heat penetrates through the composite fabric materials to the sensor. After the test is completed, the results are automatically compared to Stoll's curve, which represents the blister point of 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.



Instruments for Textile  
and Biophysical Testing

# RPP Test Device

## Standard Specifications

Radiant heat panel with 5 quartz (500W) infrared lamps  
Water-cooled pneumatic shutter  
(2) Sample holder assemblies included  
(2) Calorimeter sensor assemblies (Test, Calibration)  
Integrated sensor cooling stand (air cooled)  
Up to 10" x 4" (25 x 10cm) sample size  
Software safety interlocks monitor cooling water flow and power to lamps.

## System Includes

Dell PC and ThermDAC software w/Burn Algorithm  
Signal conditioning electronics and serial interface  
Power and control cabling, Operators manual  
One year warranty

## Lab Requirements

Requires a well-ventilated location with hood, a dry compressed air source, and cooling water supply line. Hood shutoff capability is recommended for air intake.

## Measurement Range

$\pm 0.75^{\circ}\text{C}$  temperature measurement  
 $\pm 3\%$  radiant heat flux measurement

**This RPP Test Device fully complies with the ASTM F1939 and F2702 test standards.**



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## Model Information

Device Dimensions: 16"x16"x15" H (41x41x38cm H)  
Space Requirements: 24"x24"x24" H (61x61x61cm H)  
Power Requirements: 210-265 VAC, 50/60Hz, Single-phase  
Maximum nominal current 10 Amps  
Compressed Air: Clean/dry air at 50-90 PSI, (100 PSI max)  
Cooling Water: Cooling water required, chiller or tap water source is acceptable

## ThermDAC™ Control Software

ThermDAC was developed by Measurement Technology NW specifically for our line of thermal testing instruments. It is a user-friendly, intuitive, Windows-based application that provides full thermal control, fault detection, and data logging capabilities. RPP system configuration and burn prediction calculations are also contained within ThermDAC.

User-defined tests allow operators to define non-standard test conditions and custom tolerance criteria. Multiple graph displays can be viewed, with zooming to view specific conditions in detail. Real-time statistical functions can be applied to the test data over any user-selected time range.

Measurement Technology NW's biophysical instrumentation systems have been sold worldwide to testing/certification agencies, commercial labs, research universities, and military/government institutions. Our systems offer proven performance, cutting-edge features, innovative design, and the industry's best "total package" value.



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