

INSTRUMENTS FOR TEXTILE AND BIOPHYSICAL TESTING

FLAME TEST MANIKIN

MALE (BURNIE) / FEMALE (BURNADETTE)

The World's Most Advanced Thermal Manikins

Thermetrics' advanced Flame Test Manikin system is a complete turn-key package, with male or female manikin form, control electronics, modular burn chamber, PC computer and burn prediction software, allowing the operator to characterize the performance of garments or protective clothing ensembles in a simulated flash fire environment having controlled heat flux, flame distribution, and duration.

A modular burn chamber is also available, featuring fire-proof construction, a computer controlled gas delivery and burner network, as well as ventilation, fire suppression, and safety systems. Chamber design includes large viewing windows and a safety window in the access door.

Test Methods Supported

- ASTM F1930
- ISO 13506





Standard Specifications

- Male body form: 5 ft. 11 in./181 cm
 - Chest: 40.8 in./104 cm
 - Waist: 33.7 in./85.6 cm
 - Hip: 39.7 in./101 cm
- Female body form: 5 ft. 5 in./164 cm
 - Bust: 37.6 in./95.5 cm
 - Waist: 32.3 in./82 cm
 - Hip: 40.2 in./102 cm

Site Requirements

- Contact Thermetrics for a site feasibility assessment. We will review your available space, electrical power, gas supply, and ventilation options.
- Customer will be responsible for connection of system to their building, including intake duct, exhaust duct, electrical, gas service, and video monitoring.
- Local compliance with applicable regulations and codes is the ultimate responsibility of the customer



Base Products Include

- Manikin body form 134 sensors preinstalled
- Internal data acquisition system
- Modular flame chamber with grated floor
- Fuel regulation and control unit
- Electric intake dampers and variable speed exhaust fan
- 6 Torch stands with 2 adjustable torches each
- Safety and monitoring sensors (pressure, temperature, propane LEL)
- Control system and Flat Panel interface for flame chamber
- User Interface PC with ThermDAC software
- System Installation and commissioning



Feature Highlights & Benefits

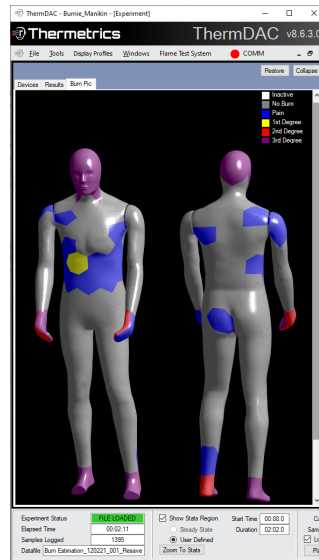
- Manikin shell is constructed from a non-degrading ceramic composite material that is completely fireproof and will not combust or char
- Friction joints at the shoulders allow range of motion above the head and behind the back for manikin dressing
- Standard mounting support and cable pass-thru located at the back of the neck for minimum influence on garment fit and flame exposure
- 134 precision calorimeter heat sensors measure the incident heat flux over a range from 0.0 to 4.0 cal/cm²•s (167 kW/m²)
- Copper guarded disc calorimeters are robust and proven technology for years of continuous service
- Data acquisition components are located within the manikin body to digitize signals near their source for highest accuracy measurements
- A hand-held radiant heat source with NIST traceable reference sensor is provided for in-situ calibration of the manikin's sensors
- All metal burn chamber features large viewing windows for unobstructed frontal view of manikin flame exposure
- Chamber size is larger than the ASTM F1930 minimum dimensions to provide better combustion and ventilation, more uniform flame exposure, and sufficient space for safe movement around the manikin.
- Chamber includes a gas distribution system and 12 torch array to apply a uniform flame front onto the manikin
- Chambers feature a pre-engineered ventilation system to supply fresh air for combustion, and to exhaust the chamber through mesh filter screens after completing a burn exposure
- Torch array is adjustable for position, horizontal and vertical angle, and per-torch gas flow to deliver a uniform heat flux of at least 2.0 cal/cm²•s (84 kW/m²)
- NFPA86 compliant fuel train with redundant electronic and manual gas shutoff valves provides stable fuel flow and protects the system and operators.



ThermDAC Software

ThermDAC Burn Manikin software incorporates data logging, real time statistics and data analysis, plus diagnostic and calibration functions. Software processes sensor data, calculates the degree and total area of predicted burn injury, and generates test reports. Features include:

- Pre-defined test modes for nude or clothed exposure tests
- Color-coded manikin pictorial displays, selectable for any manikin variable
- Zoomable time-history graph of measured and computed results for individual sensors, groups of sensors, and environment variables
- Logging of raw data, statistical analysis, user-reports
- Real-time statistical analysis over any user-selected time range
- Automated calibration function applies curve-fit to each sensor based on measured reference heat flux



4D

BURN MODEL INTEGRATION

Estimate burn injury through a multi-node skin tissue model; Thermetrics Burn Model

- **Reported skin damage levels:**
Pain, 1st, 2nd, 3rd degree burn
- **Computes percent body burn for any clothing configuration**
- **Can post-analyze by reloading prior data files**

510 - Burnie	Description	Product Name	Item #
Base Product	Burnie, Flame Test Manikin, Unjointed - Male	510.M	19-51001
	Burnadette, Flame Test Manikin, Unjointed - Female	510.F	19-51002
Installation Site Options	Manikin Motion System (Traverse and Rotate)	—	20-01297
	Chamber (Includes: Control panel, Torches & Fuel Skid)	—	20-01293



Don't see what you need above? Contact Thermetrics to customize your perfect system.

Keep your Burnie and/or Burnadette in tip-top shape. Discuss service plan options and point-of-sale discounts with us at sales@thermetrics.com.

