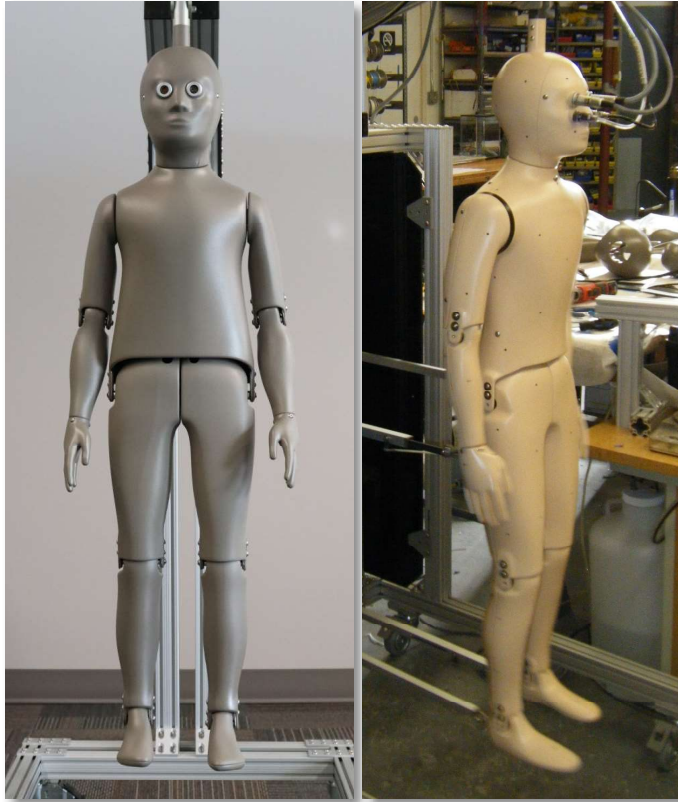# Child Thermal Manikin

Testing labs now have the ability to test children's clothing to the same thermal comfort standards currently used for adult garment evaluation.

Thermetrics' 15-zone sweating and walking Child Manikin is constructed of a thermally conductive carbon-fiber epoxy shell with embedded heating and sensor wire elements. The manikin was developed using advanced CAD digital modeling to meet the average body dimensions of an 8-year old **or** 10 year old child.

The Child Manikin is fully jointed, providing motion at the shoulders, elbows, hips, knees, and ankles to allow virtually any possible body pose. Joints feature adjustable friction, with ball bearing joints in the hips and shoulders for walking tests.

Walking motion for EN 342 testing is provided by an optional compact motorized walking stand that also serves as a dressing, hanging storage, and roll-around transportation device.

ASSOCIATED TEST METHODS

- **ASTM F1290, ASTM F1720**
- **ENV 342 (with walking stand)**
- **ISO 15831**
- **EN 13537**

FEATURES AT A GLANCE

- **Complete turn-key system for clothing/ environmental thermal testing**
- **Two models are available:**
  A - at 50" (127cm) tall, approximates the dimensions of an 8-year old child
  B - at 55" (140cm) tall, approximates the dimensions of a 10-year old child
- **15 thermal zones (both models)**
- **Available in dry or sweating skin configuration, with computerized fluid delivery and wicking fabric skin layer**
- **Same features and functionality as our adult "Newton" thermal manikin system**
- **Ultra-stable resistance wire heating provides uniform heat flux**
- **Sensor wire elements are distributed within each zone and protected by an epoxy coating**
- **Optional roll around support stand and motorized walking system**
- **System includes a Dell laptop computer installed with ThermDAC control software**

Thermetrics

206-456-9119 • www.thermetrics.com

Child Thermal Manikin

Specifications

Standard

- Thermally conductive carbon-epoxy shell
- 15 independent thermal zones
- Ultra-stable resistance wire heating
- Distributed wire sensors for each zone
- Dell laptop computer pre-installed with ThermDAC control software
- Two ambient temperature sensors
- One RH sensor and Windspeed sensor
- Signal conditioning electronics
- Power and control cabling (via eye openings)

Options

- Optional removable fabric sweating skin with fluid distribution pumps, reservoir, and tubing
- Roll around support stand
- Motorized walking stand for EN 342 testing that also serves as a convenient roll-around device for test preparation and transportation

Call for a quote on custom sizes

Range / Performance / Accuracy

- -20°C to +50°C operating range
- 0 to 100% R.H. including condensation
- ± 0.1°C temperature measurement and setpoint control
- ± 3% relative humidity measurement
- 600 W/m² maximum power output

Newton < > Child size perspectives
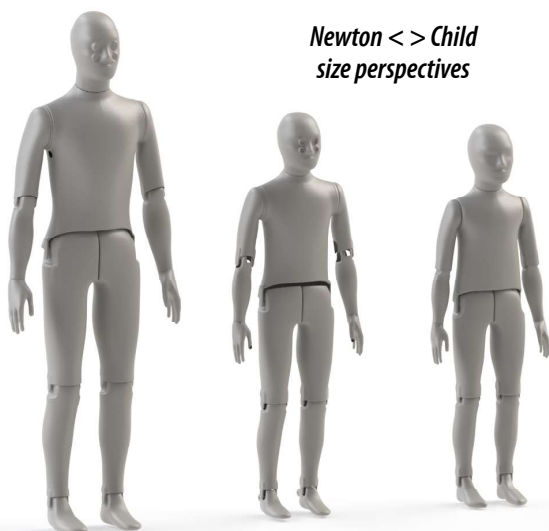
"Child" Manikin Size

- *8-year old body form:*
- Height 50" (127cm)
  Surface area 10.7 sq/ft (0.99 sq/m)
- *10-year old body form:*
- Height 55" (140cm)
  Surface area 11.8 sq/ft (1.12 sq/m)
- Base weight: 40-45 lbs (18-20 kg)

ThermDAC Control Software

ThermDAC is a Windows-based application providing full device control, fault detection, data logging and analysis capabilities. Manikin system configuration and calibration can be carried out 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
- Color coded manikin pictorial displays, selectable for any manikin variable (temperature, heat flux, resistance, etc.)
- Automatic steady state detection
- Manikin control modes: constant temperature, constant heat flux, and comfort equation

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