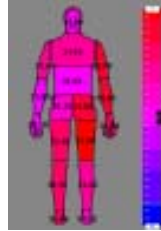




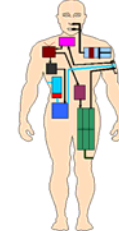
All-new STAN manikin for seat testing.



ThermDAC Version 8.0 has arrived.



A 13-zone "Simon" and a PCM tester!



Our latest installations, and more.

Measurement Technology NeWs

Newsletter published by Measurement Technology NW

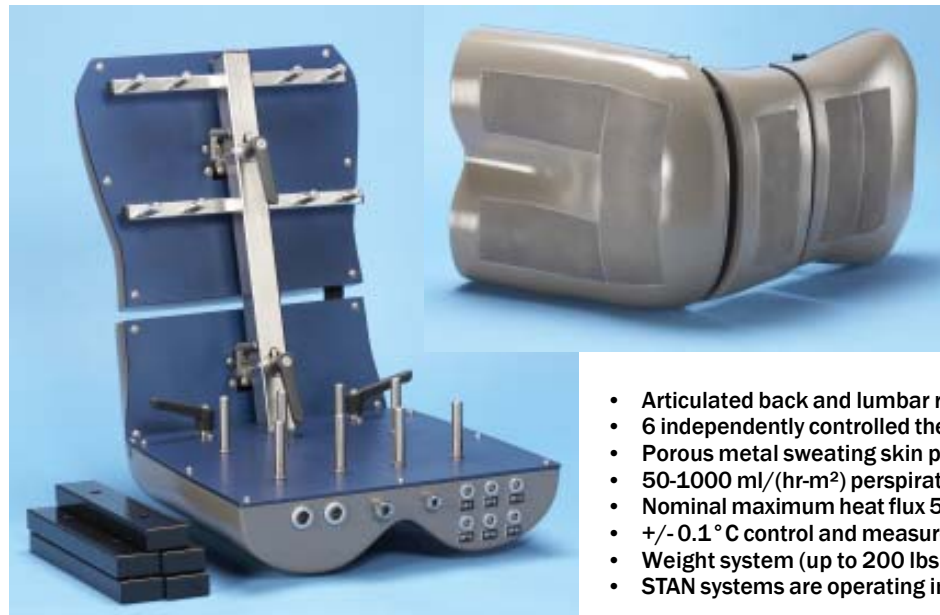
Winter/Spring 2009

Measurement Technology NW (Seattle, Washington) developed STAN to help researchers evaluate the thermal properties of auto, truck, train, and aircraft seats. Seating technology has made significant advances since STAN was introduced in 1998, and to meet the specialized testing requirements of today's fabrics and seat construction methods, STAN has evolved! Our **new STAN manikin** is a 50th percentile Western Male back and buttocks, modified to match the human form when seated. This anatomical test device is now based on body contours derived from the widely accepted SAE J826 HPM-II model, with features that include enhanced articulation in the lower-back region and integrated cooling capability for testing heated seats.

STAN contains six independently controlled thermal zones, optional porous metal sweating skin panels, and integrated fluid supply system for simulating metabolic heat and perspiration levels. A variable weighting system is also included to simulate seat compression.

Each thermal zone on STAN is equipped with an integrated cooling function, that operates in a way similar to blood flow in a human. This internal circulation system carries away excess heat from zones exposed to elevated temperatures, such as with a heated seat. In addition to maintaining accurate skin temperatures while in-use, STAN's innovative cooling system allows the energy transfer rates from a heated seat to be measured.

Our advanced STAN technology lets researchers characterize the insulative and moisture exchange values of passive, ventilated, and heated seats. Properties such as thermal resistance, evaporation limit, maximum heating power, and transient heatup time can be accurately evaluated. By providing a benchmarking capability for functional seat specifications, STAN offers researchers a path toward standardization and more comparative seat testing results.



- Articulated back and lumbar region for improved seat contact
- 6 independently controlled thermal zones
- Porous metal sweating skin panels placed at back (3) and buttocks (3)
- 50-1000 ml/(hr-m²) perspiration rate
- Nominal maximum heat flux 500 W/m²
- +/- 0.1 °C control and measurement of skin temperature
- Weight system (up to 200 lbs / 90kg) for realistic seat compression
- STAN systems are operating in Italy, Spain, Germany, Japan, and the USA



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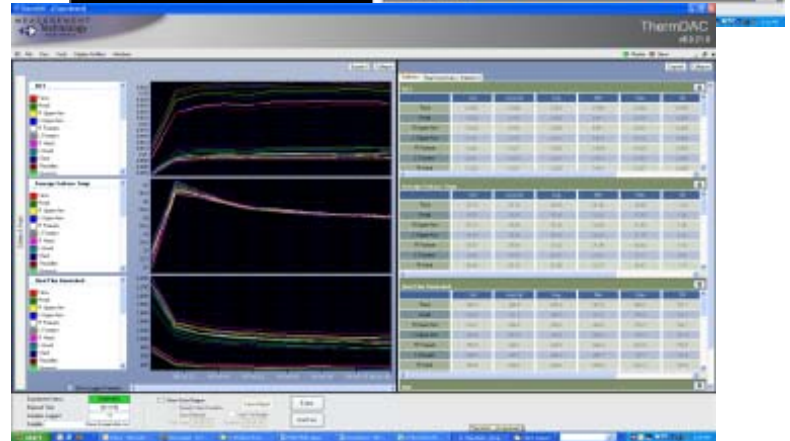
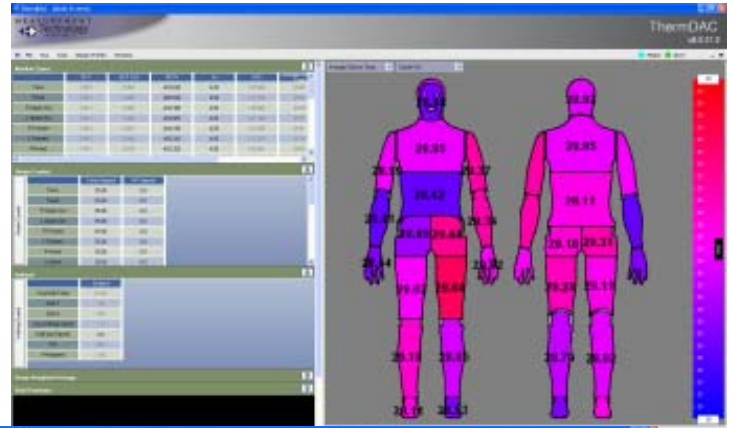
Measurement Technology NW manufactures a wide range of precision instruments for measuring and evaluating the thermal comfort of textiles, garments, and dynamic thermal environments such as aircraft, truck, and automobile interiors. Our complete line of thermal manikins and guarded hotplate systems are designed to support all current industry test standards for thermal insulation and moisture permeability.

ThermDAC 8 adds Power & Features

MTNW's thermal comfort testing systems have become the industry standard for a number of reasons... advanced engineering, top-quality construction, and lifetime product support are just a few of the attributes that come to mind. But based on customer feedback the feature that's most appreciated is our ThermDAC Manikin & Hotplate Control Software. ThermDAC has long been recognized as the most sophisticated software available for manikin control and data analysis, and the introduction of **ThermDAC Version 8** proves we have raised the bar again.

ThermDAC is a Windows-based application that provides full thermal control, fault detection, data logging/analysis functions, and real-time displays of hotplate or manikin zone temperatures. It is included with all MTNW thermal testing systems, and the new Version 8 offers even more power, flexibility, and ease-of-use features.

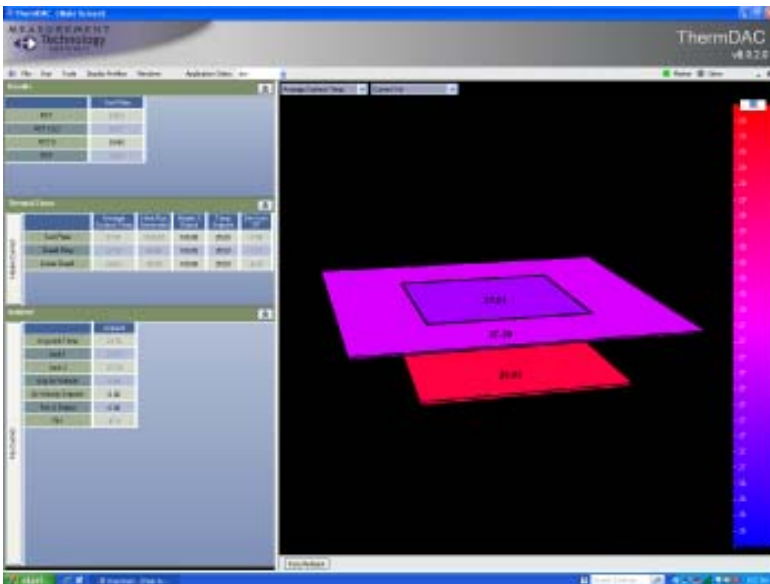
Pre-defined and user-defined tests allow operators to specify test conditions and custom tolerance criteria. Hotplate bare plate values can be recalled for simplified test calculations. New steady-state reports and real-time graphs with enhanced zoom functions let the operator view device or ambient conditions in detail. ThermDAC makes the testing process as easy as clicking "start" and walking away.



For manikin systems such as MTNW's Newton, Nemo, or Adam, individual thermal zones or regions can be controlled using a skin temperature setpoint, heat flux setpoint, work cycle, or comfort equation (Madsen) output. ThermDAC's automated data analysis functions include Dry Thermal Resistance (SI or Clo units), Evaporative Resistance, Nude Resistance, Clothing Factor (nude resistance value automatically applied), Permeability Index, Vapor Pressure, Cooling Rate (for the evaluation of cooling vests and other heat-removal technologies), Area Weighted Averages, and Teq - Equivalent Temperature.

Real-time graphic displays of the ongoing test and a time history graph of zones or zone combinations helps put all relevant variables into an intuitive visual context. Color-coded screen displays can be adjusted to provide a clear indication of critical test parameters such as temperature, heat flux, or thermal resistance. Graphs can be defined by the user prior to starting a test in order to focus on particular body segments, garments, or specific environments. And while all this is going on in the foreground, ThermDAC is quietly logging a full set of test data in the background.

ThermDAC handles the complex job of data collection and analysis, with pre-formatted reports tailored to the exact test being run. Simultaneous multiple-region calculations and on-the-fly zone grouping help eliminate the need for post-processing of test results. ThermDAC does it all.



If your tests need to be logged, graphed, calculated, averaged, timed, analyzed, diagnosed, adjusted, generated, or automated, Measurement Technology NW's intuitive new ThermDAC 8.0 is your ticket to clear, precise, repeatable thermal testing results.

Recent thermal installations and other good news.

MTNW thermal manikin and guarded hotplate systems can be found across the globe, with new installations springing up in Europe, North America, Asia, and Australia. A few special highlights from this past year's activities include...

Newton thermal manikins were delivered to **3M Shanghai (China), Toray Textile (Japan), Centexbel (Belgium), North Carolina State University (USA), Formosa Taffeta (Taiwan), CeNTI (Portugal), DSTO (Australia), and Inha University (Korea)**. Several of these systems required customization to meet specific customer needs, and in all cases MTNW engineers were able to find solutions that allowed Newton's performance to exceed expectations.

SGHP sweating guarded hotplates have been delivered to **North Carolina State University (USA), University of Lodz (Poland), LEITAT (Spain), AWTA (Australia), University of Victoria (Canada), CTA and 3M Beijing (China), and CETELOR (France)**. While all this activity was going on our SGHP models received a bit of a redesign - including an improved plate leveling system and new test sample hold-down tabs. Control electronics were updated, and our new ThermDAC 8 brought enhanced test automation and more test calculation power.

Even more good news came as 2008 was ending, when MTNW learned that it and a group that includes Midwest Research Institute, Boston Dynamics, Smith Carter CUH2A, and HHI Corporation had been selected by the US Army to construct the **IPE Mannequin System**, which includes state-of-the-art chemical testing facilities and **PETMAN (Protective Ensemble Test MANikin)**, a first-of-its-kind robotic manikin system that will perform high-resolution testing on individual protective clothing and equipment under live chemical exposure conditions.

"PETMAN" will be a free-standing, self-balancing robotic manikin that simulates human physiology for realistic tests of protective equipment in a controlled environment. Measurement Technology NW is responsible for PETMAN's thermal control systems. Boston Dynamics will handle the robotic manikin design and fabrication. Smith Carter CUH2A will be responsible for the Containment Chamber design, and HHI Corporation is responsible for Exposure Chamber construction and installation. Midwest Research Institute is the project's prime contractor and overall systems integrator. IPE Mannequin System completion (estimated) is April 2011.

IFAI Expo 2008

The IFAI (Industrial Fabrics Association International) recently held its annual conference for the specialty fabrics industry at the Charlotte Convention Center (North Carolina, USA), from October 21-23, 2008. Measurement Technology NW was there, showing a sweating/walking/breathing "Newton" thermal manikin system, a new Phase Change Material test device, and a SGHP-8.2 sweating guarded hotplate.



IFAI Expo 2008 drew 8,210 registered participants from 58 countries, and passersby couldn't help but notice Newton as he walked (and sweat) throughout the day.

Expo attendees who were familiar with the ASTM, ISO, and ENV thermal testing standards used for clothing/environmental testing were quite impressed with the ease of use, high rate of throughput, and advanced features built into MTNW's hotplate and thermal manikin products. Many others were amazed to learn how thermal clothing values are calculated, and yes, there were a few who just thought Newton was creepy-looking. Overall, a good show!

New Walking Motion Stand



MTNW engineers have redesigned the Newton Motorized Walking Motion Stand as a more compact unit that's easier to move through low doorways and tight spaces. Newton's up-front mounting point maintains the integrity of ambient airflow around the manikin. Mounting is now accomplished via an integrated head post for minimal interference and easier manikin dressing.

www.mtnw-usa.com

Measurement Technology NW has established relationships with top thermal instrumentation companies around the world. These representatives help us provide ongoing consultation, project coordination, installation assistance and service support.

In South Korea: Technox, Inc., (Mr. Her, Young-Chul), E-mail: tni@technox.co.kr

In Taiwan: Tien Shiang Scientific Instruments Company LTD, (Mr. C. S. Yao), E-mail: tinshing@ms16.hinet.net

In Turkey: Kontrol LTD, (Mr. Serhan Tozar), E-mail: kontroltest@ttnet.net.tr

In Japan: IDS-ENV, (Mr. Masahiro Kajioka), E-mail: kajioka@ids-env.co.jp

In China: Test International, (Mr. David Pan), Email: davidpan@test-tech.com.cn

13-zone "Simon" and a new Phase Change Test Device join the MTNW product line

New 13-zone "Simon" thermal manikin

For lab tests and research projects that do not require the higher zone resolution found in our 20, 26, and 34-zone Newton models, MTNW now has an 13-zone model we call Simon. Our newest manikin wraps sophisticated ThermDAC testing capabilities into an economical, high-value package suitable for sleeping bag tests, general garment or protective apparel evaluation, and environmental assessment. Testing labs trying to justify purchase of their first thermal manikin, or labs with testing backlogs that are considering the pros/cons of a second thermal manikin system will find that Simon is a great choice for handling many common test applications.

Available as either a 50th percentile Western Male or Asian Male, both Simon models feature a simplified hand & foot and poseable friction joints at the hips and shoulders only.



As shown in the CAD model images above, the 13-zone Simon format includes independent thermal zones at the Head, Torso (front/back), Arm (left/right), Hand (left/right), Leg (Front left/right, Back left/right), and Foot (left/right). This design helps maximize production efficiencies while yielding a thermal manikin that retains all of the advanced measurement and control features that have made MTNW systems the most popular thermal manikins available today.

Contact MTNW for full system specifications and pricing.



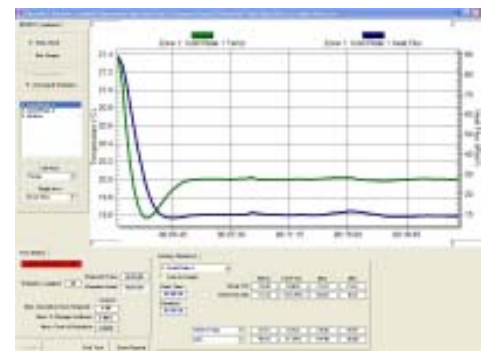
MTNW is the exclusive licensee and supplier for a new Phase-Change Material (PCM) test device.

Garments constructed from textiles containing phase change materials are becoming more commonplace in performance and protective clothing applications. What makes PCM fabrics so desirable for these markets is their ability to absorb, store, and release heat when the phase change material transitions from solid to liquid and back to solid.

MTNW's new Phase Change Material Tester is designed to comply with ASTM standard D7024-04, which was created to measure the total amount of latent energy in phase change materials. It does so by using controlled temperature changes to quantify the thermal buffering properties of PCM's in a dynamic environment - thus measuring the effect of changing temperature on its ability to absorb, store and release energy.

Our PCM Test Device consists of a heated central test plate with two-sided sample holder and pneumatically-actuated cold plates that are chilled and pressed against the sample at a constant pressure. Sensors measure the energy input, and temperatures are continuously recorded until a steady state condition is reached. The device can test samples up to 2" (5cm) thick within the phase change temperature range specified by the ASTM standard.

ThermDAC control software provides real-time data display, graphing, automatic logging of test data, and it also handles all the calculations necessary to determine Thermal Resistance and Thermal Regulating Factor values. ThermDAC Version 8 and our exclusive PCM Test Device are a high-performance pairing available only at Measurement Technology NW.



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