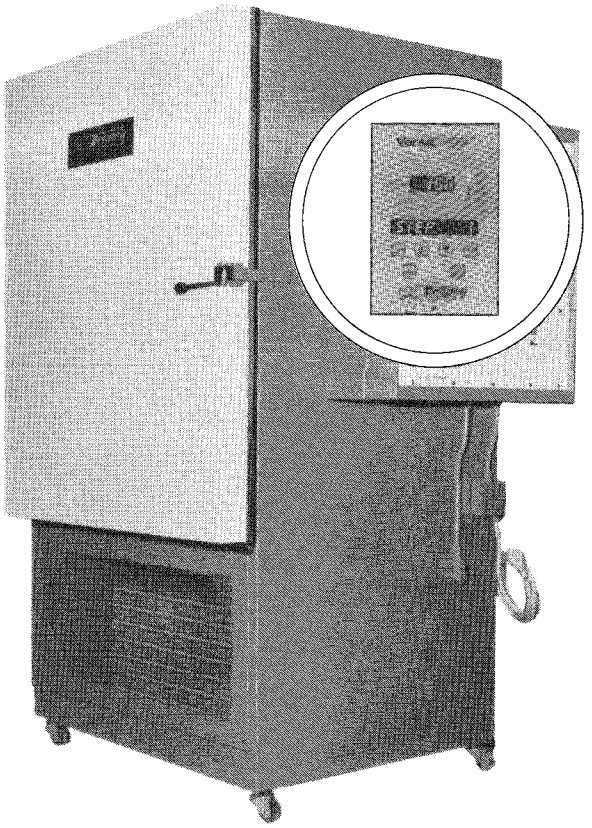
TH27-2, TH27-3 & TH65

Temperature/Humidity test chambers with NEW VersaTenn™ Microprocessor Based Programmer Control System

The Tenney TH27 and TH65 series of temperature/humidity test chambers is widely used in product development, quality assurance, military specification, research and other test applications to determine product resistance to various levels of exposure to temperature/humidity. The chambers provide precise control of simulated environments and their reliability of performance has been proven by decades of field use.

They feature single stage mechanical refrigeration and a large workspace volume in a compact self-contained package, occupying a minimum of floorspace.

DIGITAL PROGRAMMING INSTRUMENT IS STANDARD.
All models are equipped for total programming capabilities of temperature and humidity versus time using the new VersaTenn programmer control system.



TENNEY 27 & 65
Temperature/Humidity
Test Chambers

CONSTRUCTION

All models utilize heavy gauge stainless steel reinforced Vapor-Weld interior walls for strength, durability and impermeability to moisture. The workspace is insulated with mass type fiber glass for low heat transfer.

The heavy gauge exterior provides an attractive two-tone blue washable finish. All units feature a 2" (5cm) diameter accessory port with plug and a full opening lap-type door, with double-concentric gaskets for tight sealing.

STANDARD FEATURES

- VersaTenn™ — a microprocessor based digital programmer controller provides fully automatic chamber control.
  - Programming or manual setpoint modes of operation can be selected.
  - User friendly alphanumeric display with simple English language prompts for program entry.
  - 51 step programming capability. Each step allows a programmable interval length to 99 hours.
  - Looping and nested loop capability. Loops can be repeated to 999 times. Infinite looping is possible.
  - Time intervals are programmable in seconds, minutes and hours.
  - Time of day start and delayed start functions (to 2 weeks) are included.
  - "Guaranteed Soak" featured is standard.
  - Non-volatile memory. Programs are retained in lithium battery backed RAM for 5 years of power off conditions.
  - Digital selection and indication of actual conditions. Temperature in °C and humidity in %RH.
  - Setpoint and display resolution to 0.1°C and 1%RH.
  - Bi-directional proportional control for temperature heating and cooling and humidity and dehumidification functions. The proportional band integral time (auto reset) and cycle time functions are programmable.
  - State-of-the-Art logic circuits are built-in which automatically select refrigeration, heating, humidity and dehumidify operating modes, as required, to achieve the desired chamber environment.
  - Compensation for humidity operation in locations above sea level. Selectable for 2,500 feet and 5,000 feet altitude.
  - Sensors include a platinum RTD for temperature control and a dual thermocouple sensor system for true wet bulb differential measurement of the humidity parameter, providing maximum control and display accuracy.
  - Programmable high and low temperature safety shutdown circuits are standard.
  - 6 event output circuits are available.
  - RS422/423 computer interface capability.
- Vapor-Flo® — a humidification system which precisely regulates moisture in the chamber by controlling vapor migration between the humidity generator and the cabinet.
- Tenney Hermeticool® refrigeration system. An accessible hermetic system incorporating accurately calibrated capillary tubes in lieu of mechanical expansion valves. The system is air cooled.
- Air heating is provided by electric heaters isolated from the workspace preventing direct radiation to the test item. Low mass nichrome open wire heating elements are used to minimize thermal lags and provide rapid response to instrument demand. The chamber is protected via a fusible link for heater shutdown in the event of high temperature runaway.
- Tenneyairesweep, a system which uniformly conditions the environment within the insulated enclosure. The system draws air from near the bottom of the workspace and conditions it to the proper temperature. The air is discharged through a grille work at ceiling level of the chamber and a uniform air flow pattern is achieved throughout the chamber.
- 2" (5 cm) diameter access port with plug.
- Door mullion is heated through a unique circuiting of hot gas from the refrigeration system. This provides automatic defrost for the door gaskets.
- 2" (5 cm) recessed heavy duty steel casters.
- Circuit breakers are used throughout the electrical system. These and all other electrical components are located in an easily accessible, integral, control panel.
- All wiring is numbered and in accordance with NEC.
- Tenney one year warranty.

OPTIONAL FEATURES

- IEEE 488 computer interface.
- 6 event solid state relay board.
- Visual and audible alarms for high and low temperature safety shutdown circuits.
- Water deionizer assembly.
- Water reservoirs, 1 and 5 gallon, for humidity system.
- Recirculating humidity water system.
- Dry air system for humidity conditions to 5%RH (to 20°C).
- Dry element sensor system in lieu of wet bulb sensors for low humidity control and indication at reduced dewpoint temperatures.
- VideoTenn® touch screen, color display programming, control, monitoring system.
- TempGard®III redundant thermal protection alarm system. Protects chamber and test specimen against out-of-tolerance temperature.
- Recording instruments.
- Thermal pane, heated viewing windows.
- Manual window wiper.
- Interior light.
- Thermocouple or electrical feedthru terminals.
- Special connectors.
- Additional and/or larger ports, hand ports.
- Adjustable, removable shelves.
- Automatic CO_2 or LN_2 cooling boost system.
- GN_2 purge system.
- 5" (13 cm) or 6" (15 cm) rubber tire casters, 2" (5 cm) steel casters standard.
- Remote console for instrumentation.
- Refrigeration taps and pressure gauges.
- Wiring for alternate power sources (230V, 1 Ph, 60 Hz standard).

SAFETY FEATURES

- Concealed air circulating fan.
- High temperature cutout.
- Freeze protection on wet wick pan and wet wick controls.
- Refrigeration system pressure relief.
- Low water protection for Vapor-Flow® system.
- Humidifier fail safe.
- Grounded electrical plug and cord (TH27 models only)

All Tenney chambers are available on a direct leasing basis

SPECIFICATIONS AND PERFORMANCE DATA

MODEL	TH27-2	TH27-3		TH65
Temperature Range	-18°C to +93°C			-18°C to +93°C
Humidity Range	20% to 98% in the dry bulb range +20°C to +85°C limited by a +3°C dewpoint			20% to 98% in the dry bulb range +20°C to +85°C limited by a +3°C dewpoint
Control Tolerance	Temperature ±0.2°C/Relative Humidity ±2.0%			Temperature ±0.2°C/Relative Humidity ±2.0%
Refrigeration Size (Horse Power)		1	1.5	1.5
Temperature pulldown from (24°C) ambient (time in minutes)	24°C to 10°C	10	8	10
	24°C to 4°C	25	10	20
	24°C to -9°C	45	15	50
	24°C to -18°C	80	40	90
Capacity for holding live loads during temperature performance (dissipation in watts)	10°C	900	2000	820
	2°C	700	1500	630
	-9°C	400	1000	380
	-18°C	200	750	200
Temperature heat-up from (24°C) ambient (time in minutes)	24°C to 66°C	15		20
	24°C to 93°C	45		40
Exterior Dimensions	57¾"W x 82⅞"H x 50¼"D (147 cm x 211 cm x 128 cm)			63¾"W x 88⅞"H x 71¾"D (162 cm x 226 cm x 182 cm)
Interior Dimensions	38"W x 48"H x 26"D (94 cm x 122 cm x 66 cm)			44"W x 54"H x 47½"D (112 cm x 137 cm x 121 cm)
Shipping Weight uncrated (approx.)	1500 lbs. (680 kg)			1600 lbs. (726 kg)
Power requirements	230-1-60 30 amp fuse recommended (Other voltages optional)			230-1-60 30 amp fuse recommended (Other voltages optional)

Control of conditions is as indicated on instrumentation furnished with chamber. Minor performance variations with window and accessories. Performance data is based on ambient temperature of +24°C at sea level, on 60 Hertz operation. For 50 Hz operation, performance will be reduced. Consult factory for your specific pulldown or dissipation requirements.

In line with our policy of continual product improvement, Tenney Engineering, Inc. reserves the right to incorporate and use equipment and material to conform with the latest design of its products, and in keeping with the specifications of this equipment. Tenney chambers are designed to meet MIL-SPEC humidity tests. Our standard equipment utilizes a dewpoint coil (low surface temperature) to obtain low relative humidities. This approach can lead to time-limited performance at low relative humidities. Please discuss low humidity requirements and non-MIL-SPEC standard programming with our Sales Dept.

Printed in U.S.A. Made in our NJ Plant