

Tenney Jr.

Test Chambers



Tenney's compact junior line of chambers in both bench-top and floor models are capable of simulating a wide range of temperature or temperature and humidity conditions. These chambers are well-suited for use in electronic, military, and pharmaceutical quality assurance and reliability testing, as well as research testing and production processes. In keeping with the needs of today's lab, we specifically designed these chambers to have a compact exterior, yet an ample interior workspace to maximize valuable floor space.



Tenney
ENVIRONMENTAL

ADAPTING TO YOUR ENVIRONMENT

Specifications

Overall dimensions in inches/centimeters

| Model | | TJR | TUJR | THJR |
|-----------|---|------------------------------------|--------|------------------------------------|
| Workspace | W | 15 ⁵ / ₈ /40 | | 16 ¹ / ₂ /42 |
| | D | 11/28 | | 15 ³ / ₄ /40 |
| | H | 11 ³ / ₄ /30 | | 20/51 |
| Exterior | W | 36 ³ / ₄ /93 | 28/71 | 51/130 |
| | D | 22 ¹ / ₂ /57 | 20/51 | 24/61 |
| | H | 30 ¹ / ₂ /78 | 65/165 | 30/76 |

Temperature Range

| | | | |
|------|----|------|-----|
| Low | °C | -75 | -12 |
| High | °C | +200 | +93 |

Change rates in minutes

| | | | |
|--------------------------------------|------|----------|----|
| Ambient to °C to Chamber Empty | 200° | 55° | — |
| | 150° | 30 | — |
| | 100° | 15 | — |
| | 93° | — | 30 |
| | 65° | — | 15 |
| | 2° | — | 20 |
| | -7° | — | 30 |
| | -12° | — | 45 |
| | -40° | 20 | — |
| | -54° | 30 | — |
| | -65° | 40 | — |
| | -73° | 55 | — |
| | -75° | Ultimate | — |

Live load capacity in watts (humidity system off)

| | | | |
|----------------|------|----------|-----|
| Temperature °C | 24° | — | 275 |
| | 10° | — | 170 |
| | -7° | — | 45 |
| | -12° | — | 5 |
| | -40° | 170 | — |
| | -54° | 145 | — |
| | -65° | 105 | — |
| | -73° | 60 | — |
| | -75° | Ultimate | — |

Utilities, etc.

| | | | | |
|-----------------|--------|-----------------|---|----------|
| Refrigeration | | (2) ½ HP + ⅓ HP | | (1) ½ HP |
| Heater Capacity | | 500 W | | 500 W |
| Humidifier | W | — | — | 500 |
| | GPH | — | — | 0.15 |
| AMPS @ 115V, 1Ø | | 18 | | 12 |
| AMPS Fuse | | 20 | | 15 |
| Unit Weight | LBS/Kg | 260/118 | | 275/125 |

Humidity capability: 20% to 98% RH in the dry bulb range of +20°C to +85°C as limited by a 3° dewpoint. Test data based on 24°C ambient, sea level, 60Hz. On 50 Hz or higher than 24°C ambient, performance may be reduced. Consult factory regarding any special cooling requirements. CFC-free refrigerants are used exclusively on all Tenney chambers.

Standard Features

Construction

All models feature vapor-tight, continuously welded stainless steel interiors. Structural reinforcement is used at all critical points. Through-wall ports are continuously welded. A combination of fiberglass and polyurethane insulation surrounds the chamber to maximize insulating characteristics, thus ensuring minimal thermal transfer.

Control System for TH Jr.

Proprietary VersaTenn controller provides complete automatic chamber control through a user-friendly alphanumeric display. The control is bi-directional, proportional for heating, cooling, humidification, and dehumidification. The proportional band and the reset are operator-adjustable. Logic circuits automatically select cooling, heating, and humidity modes as required.

- 99 step programming capability with step-interval length of 99 hours.
- Ability to store up to 10 resident programs.
- Looping and nested-loop capability. Loops can be repeated up to 255 times. Infinite looping is possible.
- Time intervals are programmable in seconds, minutes, and hours.
- Time-of-day start and delayed-start functions up to two weeks.
- Guaranteed soak feature.
- Non-volatile memory for up to 5 years of power-off protection of RAM.
- Digital selection and display of actual conditions.

Control Tolerance

$\pm 0.3^{\circ}\text{C}$ and $\pm 2\%$ RH typical after stabilization.

Control System for Tenney Jr. and TU Jr.

The Watlow 942 controller provides 24-step programming, or may be used as a non-ramping manual controller.

Features include:

- Data output that sends information directly to a serial printer
- Time-proportioned output
- Zero voltage switching

Resolution

Setpoint and chamber temperature are displayed with 0.1°C or 0.1°F resolution, and 0.1% RH on the TH Jr.

Sensors

A platinum RTD sensor measures temperature. Humidity is measured by an electronic, capacitive sensor that requires no wet wick or water supply. The sensors provide excellent control and display accuracy with minimum maintenance.

Refrigeration System

Tenney *Hermeticool*[®] : air-cooled, readily accessible hermetic system uses accurately calibrated capillary tubes rather than mechanical expansion valves. This simplifies the system and reduces the likelihood of leaks.

Humidity System

Tenney *VaporFlo*[®] : the humidity system is constructed of 100% non-corroding parts and is equipped with its own low-water protection system. A transparent Pyrex vessel permits easy inspection and enables easy clean out and maintenance. The system operates at atmospheric pressure and is specially vented to prevent undesired siphoning.

Heating System

Low-mass nichrome, open wire heating elements are used to reduce thermal lag and provide rapid response to instrument demand. The heating elements are isolated from the workspace to reduce radiant influence on the test item.

Electrical

All wiring complies with NEC. Circuit breakers are used throughout the electrical system and are located, along



▲ T-U Jr. temperature test chamber provides maximum performance with a minimum footprint.

with other electrical components, in a readily accessible, integral control panel.

Conditioning System

Uniform conditions are assured through the use of a vertical-down recirculating conditioning stream. The system draws air from the bottom of the workspace, conditions as required, then discharges the air through a grille at the ceiling level. The compact design of the conditioning plenum allows the test chambers to offer a larger proportional area of interior volume to exterior volume than afforded by conventional chambers.

Door

Since the unit's chamber is continuously welded, the door remains as the final sealing surface to maintain atmosphere integrity. All doors are equipped with double gaskets that trap air for the purpose of insulation. On the TH Jr. models, a unique, energy-efficient system circulates hot gas from the refrigeration system to provide automatic defrost for the door gaskets, thus ensuring pliable gasket conditions and extending gasket life.

Tenney Environmental

Quick Facts

Standard Features at a Glance:

S = Standard on all models

H = Units with Humidity

T = Temperature only units

| | |
|---|---|
| Vapor tight interior made of 100% stainless steel | S |
| Non-settling, asbestos-free insulation | S |
| Proprietary VersaTenn control system | H |
| Watlow 942 controller | T |
| Control tolerance of $\pm 0.3^{\circ}\text{C}$ | S |
| Hermetic refrigeration system | S |
| Tenney VaporFlo humidity system | H |
| Low mass nichrome, open wire heating system | S |
| NEC wiring compliance | S |
| Vertical-down recirculating conditioning system | S |
| Double silicon gaskets on doors | S |
| 2" diameter access port with plug | S |
| $\pm 2\%$ RH typical after stabilization | H |

All chambers are available through our Leasing and Rental program.

In line with our policy of continual product improvement, Tenney Environmental reserves the right to incorporate and use material to conform to the latest design of our products in keeping with the specifications of this equipment. Our standard equipment uses 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 specific test and cycling requirements with our sales department.
I25-AP0599



Options:

A = All Tenney Junior models

B = TH Jr. model only

C = Tjr & TU Jr models only

| | |
|---|---|
| IEEE/488 interface | A |
| LinkTenn software for Windows that permits your computer to control up to 10 chambers | A |
| RS422, 423, 232, or 485 interface assemblies | A |
| Upgrade to VersaTenn | A |
| Event relay board | A |
| Water demineralizer | B |
| Water reservoir for humidity system (5 gallon) | B |
| Recirculating system for humidity water | B |
| Viewing window, 6" x 8", thermally insulated and heated (no manual wiper required) | A |
| Interior lighting | A |
| Shelving, adjustable and removable | A |
| Automatic CO ₂ or LN ₂ cooling boost system | A |
| Automating boost heating system | A |
| Additional ports, gloves, etc. | A |
| Thermocouple or electrical feed through terminals | A |
| Special connectors | A |
| GN ₂ purge system | A |
| Refrigeration taps and pressure gauges | A |
| Recording instruments | A |
| Redundant thermal protection and alarm system | A |
| External dryer for obtaining humidity as low as 5% (to 20°C) | B |
| Alternate power supply wiring | A |
| Chamber cart with casters | A |
| Watlow F4 controller with 256 step programming | C |

Tenney Environmental A Lunaire Company

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ISO9001
PJR Cert. No. 99-085