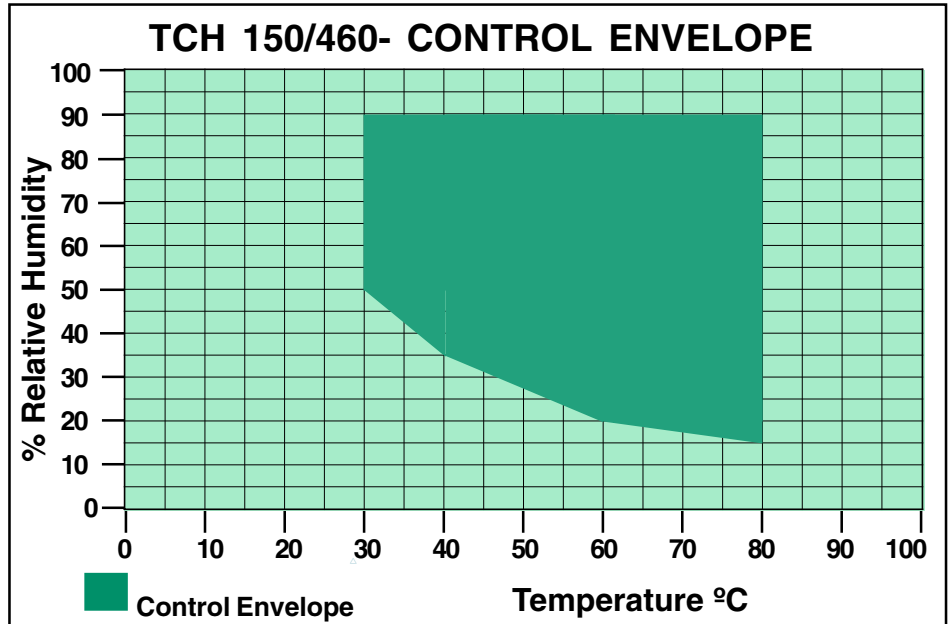


Temperature and Humidity Cabinets (Ambient +5°C to +80°C & 30% to 90% RH)

AUSTRALIAN MADE



TCH-460-SD



FEATURES

The Thermoline TCH-series of temperature and humidity cabinets is manufactured to perform precise control of Temperature and Relative Humidity. Internal conditions can be correctly maintained between ambient +5°C to +80°C and 30% to 90% humidity, an ideal Laboratory testing chamber for the scientific research industry, available in 150Lt and 460Lt capacities.

Thermoline also manufactures chambers with the wider temperature range from +2°C to +80°C or -40°C to +100°C in our S-series environmental chambers.

- Non refrigerated control of temperatures and humidity between Ambient +5°C and +80°C
- Humidity Range between 30% and 90% RH
- Fresh air inlet and Exhaust Vents provides dehumidification {reliant on ambient conditions}
- Temporal accuracy control of Temperature $\pm 0.25^\circ\text{C}$ at set point
- Temporal accuracy control of Humidity $\pm 1\%$ at set point
- 316 Stainless steel internal liner fully sealed
- Powder coated steel outer case
- Microprocessor controllers for both Temperature and Humidity incorporating electronic outputs
- Digital display for internal conditions and user set values
- Insulated solid access door
- Fan forced air supply via long life self cooling motors delivers conditioned air throughout for precise internal conditions
- Open wire stainless steel fully adjustable shelves
- Easy installation with optional gravity feed water tank
- Lockable sturdy casters allows mobility if required
- Power supply 240VAC 10Amp general purpose outlet
- 50mm cable port

Safety Devices

- ✓ Auto over temperature safety (Failsafe)
- ✓ Reinforced water tank support
- ✓ Over current protection
- ✓ Control Error codes

Optional Accessories

- Cyclic programmer with communications*
- Retransmit of control conditions*
- Out of range alarms*
- Alarm contacts*

ORDER CODE	DIM. INT HxWxD cm	LITRES CAPACITY	DIM. EXT HxWxD cm	SHELVES	ELECTRICAL 240V 50Hz	APPROX WEIGHT Kg
TCH-150-SD	60x50x52	150	94x63x67	2	10A	80
TCH-460-SD	110x65x65	460	168x78x82	4	15A	148

Temperature and Humidity Cabinets, Refrigerated (+10°C to +60°C & 10% to 95% RH)

AUSTRALIAN MADE

FEATURES

The TRH-Series of cabinets manufactured by Thermoline are a leader in the market place for accurate precise control of Temperature and Humidity. The ability to perform heat, cool, humidification and dehumidify functions makes the Thermoline TRH ideal for Pharmaceutical, Food Technology, Electronic, Bio-science and Life Science Research just to name a few. Complete in four standard capacities from 150Lt to 850Lt internal. Thermoline also has the ability to customise units to meet your application.



TRH-850
(Shown with optional Programmable control)



Standard Controller

Eurotherm Controller



TRH-460

- Precise control of Temperatures and Humidity between +10°C and +60°C and 10% to 95% Humidity {temperature dependant}
- Digital indication of internal conditions and set values
- Microprocessor controlled with heat/cool outputs
- Internal construction of 304 stainless steel fully sealed for high humidity conditions
- Attractive PVC coated steel external surface
- Built in quiet running CFC free refrigeration system
- Fully insulated with friendly fibreglass and styrene ensures energy efficiency
- Choose between solid or glass access door/s
- Built in condensate drain system
- Fan forced air supply via long life self cooling motors delivers conditioned air throughout for precise internal conditions
- Temporal accuracy at set point better than $\pm 0.2^{\circ}\text{C}$ & 1%Rh {unloaded chamber}
- Spatial accuracy measured to be better than 1°C & 3%Rh {unloaded chamber}
- Humidification via inbuilt vapour generating water trough with automatic water level detection and low water safety cut off

- Dehumidification via purpose built refrigeration system with air cooled condenser and electronic pulsed hot-gas by pass injection
- Heating and humidification provided through electric stainless steel heating element
- Cooling provided via evaporator coils with in air handling system and electronic switching of solenoid valves
- High grade electronic Temperature and Humidity sensor
- 50mm Monitoring or cable port access point {additional ports available}
- Open wire stainless steel fully adjustable shelves
- Convenient manual or log book holder on side of cabinet
- Easy installation with optional gravity feed water tank
- Built in condensate drain system to single exit point-allows easy cleaning of internal trough generator
- Optional ramp to set point functions
- Control error codes



TRH-150

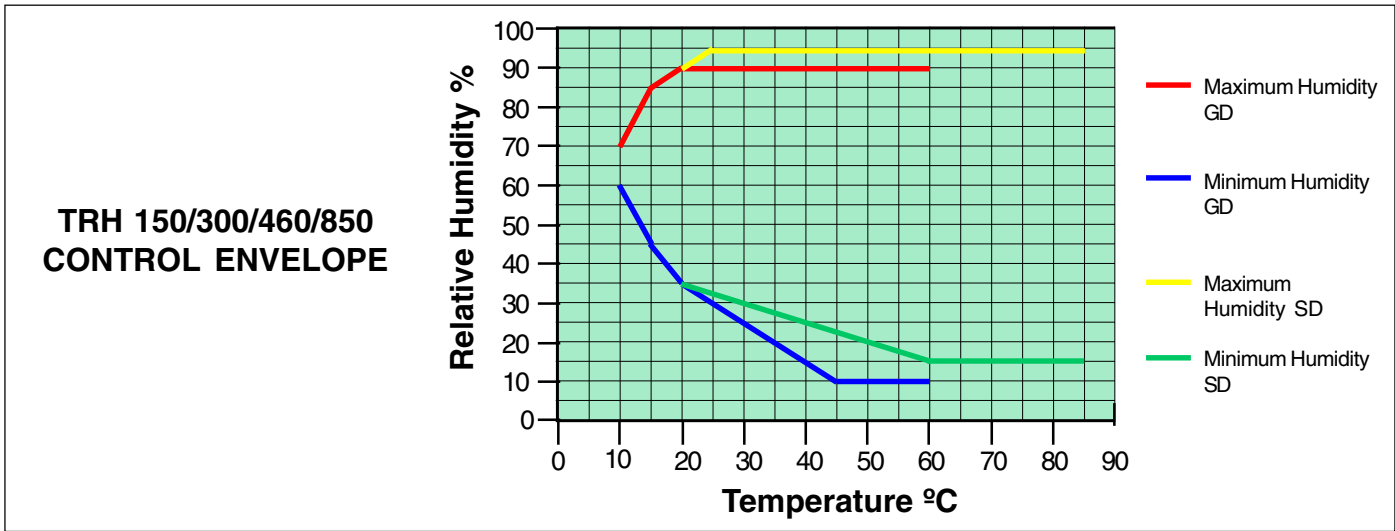
Temperature and Humidity Cabinets, Refrigerated (+10°C to +60°C & 10% to 95% RH)

AUSTRALIAN MADE

- Thermoline TRH-Series Safety Devices**
- ✓ Over Current protection
 - ✓ User adjustable safety temperature cut out
 - ✓ Built in electric element safety cut out
 - ✓ Positive door closure
 - ✓ Lockable sturdy casters

- Thermoline TRH-Series Optional Accessories**
- Solid Doors or Glass doors*
 - Extended temperature range +10°C to +80°C (solid doors only) - Code: 80DEG*
 - Programmable controllers with Computer interface*
 - Retransmission of process variables*
 - Deviation alarms with remote contacts*
 - Solid viewing door over glass door (inspect product without disturbing internal conditions)*
 - Additional cable entry port holes*

Example: TRH -150-SD-HT
 Temperature Range: +10.0°C to +80.0°C
 Humidity Range: 20%RH to 95%RH



Order Code	Temperature Range °C	Humidity Range %	Internal Dims. (HxWxD) cm	Capacity Ltrs.	External Dims. (HxWxD) cm
TRH-150	10 to 60	10 to 90	64 x 50 x 50	150	135 x 66 x 76
TRH-300	10 to 60	10 to 90	99 x 60 x 50	300	175 x 76 x 76
TRH-460	10 to 60	10 to 90	114 x 65 x 65	460	190 x 81 x 91
TRH-850	10 to 60	10 to 90	114 x 117 x 65	850	190 x 133 x 91
Order Code	Nº. Shelf Positions	Nº. Shelves Supplied	Approx. Unpacked Weight Kg.	Approx. Packed Dims. (HxWxD) cm	Approx. Packed Weight Kg.
TRH-150	Multiple	2	90	157 x 87 x 91	140
TRH-300	Multiple	3	120	198 x 96 x 91	210
TRH-460	Multiple	4	150	210 x 105 x 110	230
TRH-850	Multiple	8	200	210 x 154 x 110	290
Order Code	Electrical Supply			Temperature	Humidity
TRH-150	10A 240V 50Hz			¹ Control Stability	±0.1 °C
TRH-300	15A 240V 50Hz			² Spatial Variation	±1.0 °C
TRH-460	15A 240V 50Hz				
TRH-850	15A 240V 50Hz				

Temperature and Humidity Cabinets, Refrigerated (+5°C to +45°C & 10% to 95% RH)

AUSTRALIAN MADE

FEATURES

As well as the standard range of temperature and humidity controlled cabinets, Thermoline also has a range which includes fluorescent lighting affixed to the outside of the triple glazed door/s. These cabinets are suitable for applications where illumination of the interior is required.

The fluorescent lights are fixed to a hinged light panel which allows the light to shine through the glass door/s. This prevents any heat from the lamps affecting the conditions inside the workspace, extends the lifespan of the lamps and also allows users to easily change the lamps if required.

Conditions can also be controlled on a diurnal cycle with timers fitted as standard.



TRHL-460



Hinged door allows users to easily change the lamps if required.

Thermoline TRHL-Series Safety Devices

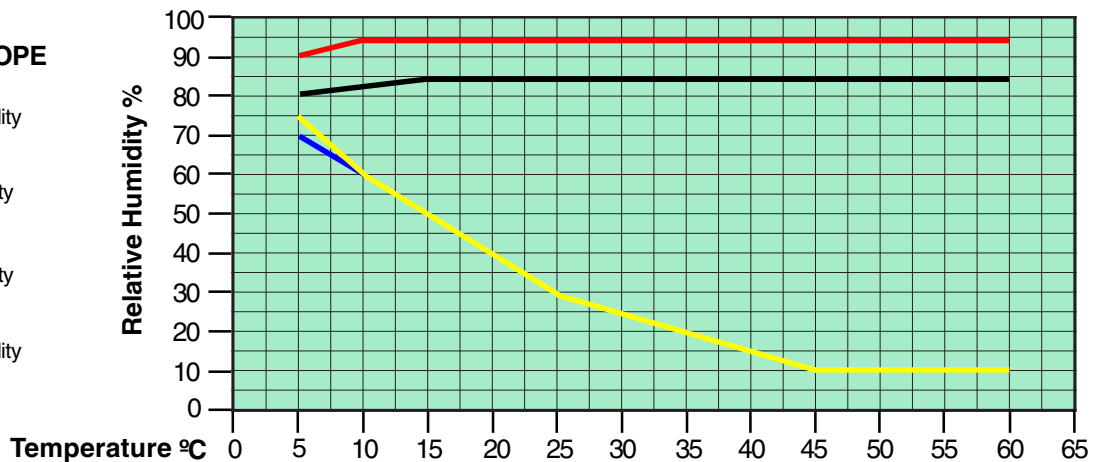
- ✓ Over Current protection
- ✓ Auto over temperature safety (Failsafe)
- ✓ Built in electric element safety cut out
- ✓ Positive door closure
- ✓ Lockable sturdy casters

Thermoline TRHL Series Optional Accessories

- Programmable controllers with Computer interface*
- Deviation alarms with remote contacts*
- Additional cable entry port holes*
- Extended temperature range to 60°C*
- CO2 to 3000 PPM*

TRH 460 & 850 CONTROL ENVELOPE

- Maximum Humidity Lights off
- Minimum Humidity Lights off
- Minimum Humidity Lights On
- Maximum Humidity Lights On



Order Code	Temperature Range °C	Humidity Range %	Internal Dims. (HxWxD) cm	Capacity Ltrs.	External Dims. (HxWxD) cm
TRHL-460	5 to 45	10 to 95	114 x 65 x 65	460	190 x 81 x 91
TRHL-850	5 to 45	10 to 95	114 x 117 x 65	850	190 x 133 x 91
Order Code	Nº. Shelf Positions	Nº. Shelves Supplied	Approx. Unpacked Weight Kg.	Approx. Packed Dims. (HxWxD) cm	Approx. Packed Weight Kg.
TRHL-460	Multiple	4	150	210 x 105 x 110	230
TRHL-850	Multiple	8	200	210 x 154 x 110	290
Order Code	Electrical Supply	Light Intensity	Temperature		Humidity
TRHL-460	15A 240V 50Hz		¹ Control Stability		±0.1 °C
TRHL-850	15A 240V 50Hz		² Spatial Variation		±1.0 °C
					±1%RH
					±3%RH

Temperature and Humidity Cabinets, Refrigerated (+10°C to +60°C & 20% to 90% RH)

AUSTRALIAN MADE



Glass view windows

Rear perforated Air Duct

FEATURES

Thermoline's large capacity Temperature and Humidity cabinets differ from the standard TRH-Series being designed for the long-term storage of samples where high volume capacity are needed along with precise control of all parameters.

- Two sizes 1250Lt and 2000Lt internal volume
- Precise control of Temperatures and Humidity between +10°C and +60°C and 20% to 90% Humidity {temperature dependant}
- Digital indication of internal conditions and set values
- Microprocessor controlled with heat/cool outputs
- Internal construction of 304 stainless steel fully sealed for high humidity conditions
- Attractive powder coated steel external surface
- Built in quiet running refrigeration system built below floor area

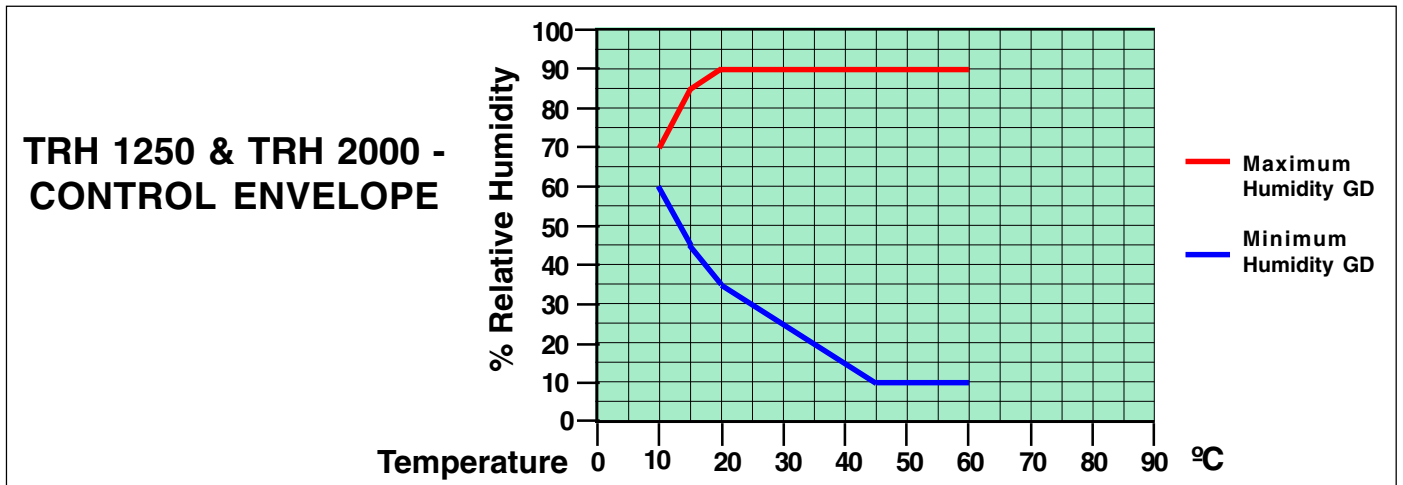


- Control error codes built in
- Fully insulated with fibreglass and styrene ensures energy efficiency
- Solid lockable access doors with internal glass viewing door
- Built in condensate drain system
- Fan forced air supply via long life self cooling motors delivers conditioned air throughout for precise internal conditions
- Temporal accuracy at set point better than $\pm 0.2^{\circ}\text{C}$ & 1%RH (unloaded chamber)
- Spatial accuracy measured to be better than 1°C & 3%RH (unloaded chamber)
- Humidification via steam generator externally mounted under cabinet with automatic water level detection and low water safety cut off
- Dehumidification via purpose built refrigeration system with air cooled condenser and electronic pulsed hot-gas by pass injection
- Heating provided through electric stainless steel heating element and electronic pulse injection of hot gas
- Cooling provided via evaporator coils with in air handling system and electronic switching of solenoid valves
- High grade electronic Temperature and Humidity sensor
- 50mm Monitoring or cable port access point {additional ports available}
- Open wire fully adjustable stainless steel shelves
- Convenient manual or log book holder on side of cabinet
- Easy installation with optional gravity feed water tank
- Optional in ramp to set point functions

Temperature and Humidity Cabinets, Refrigerated (+10°C to +60°C & 20% to 90% RH)

AUSTRALIAN MADE

Order Code	Temperature Range °C	Humidity Range %	Internal Dims. (HxWxD) cm	Capacity Ltrs.	External Dims. (HxWxD) cm
TRH-1250	10 to 60	10 to 95	130 x 152 x 65	1250	202 x 170 x 82
TRH-2000	10 to 60	10 to 95	160 x 152 x 82	2000	232 x 170 x 99
Order Code	Nº. Shelf Positions	Nº. Shelves Supplied	Approx. Unpacked Weight Kg.	Approx. Packed Dims. (HxWxD) cm	Approx. Packed Weight Kg.
TRH-1250	Multiple	6	300	222 x 194 x 102	400
TRH-2000	Multiple	6	400	253 x 194 x 120	520
Order Code	Electrical Supply			Temperature	Humidity
TRH-1250	15A 240V 50Hz			¹ Control Stability	±0.1 °C
TRH-2000	15A 240V 50Hz			² Spatial Variation	±1.0 °C
					±1%RH
					±3%RH



Safety Devices

- ✓ Over Current protection
- ✓ Auto over temperature safety (Failsafe)
- ✓ Built in electric element safety cut out
- ✓ Positive door closure
- ✓ Lockable sturdy casters

Thermoline TRH-Series Optional Accessories

- Programmable controllers with Computer interface*
- Retransmission of process variables*
- Deviation alarms with remote contacts*
- Additional cable entry port holes*

Test Chambers, Envirotherm 'S' Series (-40°C to +100°C & 20% to 90% RH)

AUSTRALIAN MADE



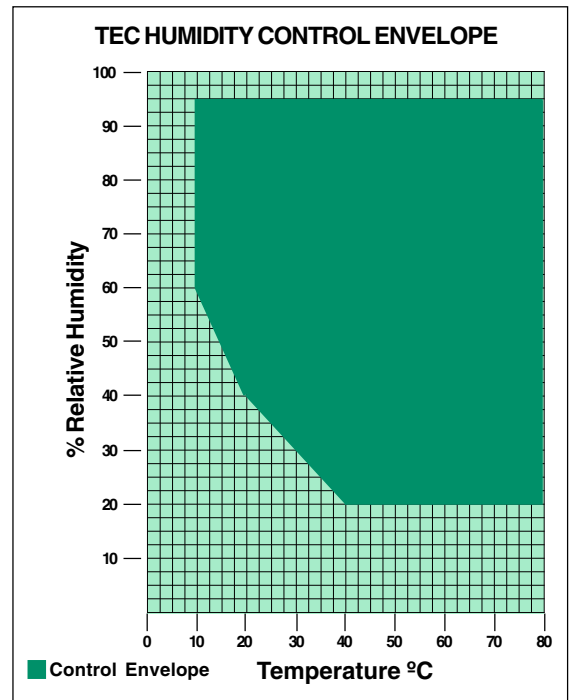
TEC-430



FEATURES

The Thermoline Series of Environmental Chambers offers accelerated testing of your products in an easy to use, reach in chamber. Over the last 30 years Thermoline have developed these environmental chambers to be user friendly while embracing modern technology in engineering concepts, refrigeration, programming, software, and electronic control to offer you exceptional performance and reliability.

Within the environmental chamber, you will find advanced design with stainless steel internal construction, dynamic refrigeration by use of regulating valves that allow cooling or dehumidification according to demand and heat control via pulsed stainless steel electric heating elements, internal humidity generator system that requires less water while actively achieving faster response times. Standard capacities available from 220Lt to 2000Lt configuration. Thermoline Scientific can also custom build chambers to meet your requirements.



ORDER CODE. Temperature & RH.	ORDER CODE. Temperature Only	Internal Dimns. HxWxD cm	Capacity (litres)	Temperature Range
TEC-220-TH	TEC-220-TO	80x55x50	220	-40°C to +100°C
TEC-430-TH	TEC-430-TO	80x90x60	430	-40°C to +100°C
TEC-960-TH	TEC-960-TO	98x98x101	870	-40°C to +100°C
TEC-2000-TH	TEC-2000-TO	180x98x115	2000	-40°C to +100°C
TEC-3200-TH	TEC-3200-TO	180x98x181	3200	-40°C to +100°C

Test Chambers, Envirotherm 'S' Series (-40°C to +100°C & 20% to 90% RH)

AUSTRALIAN MADE

TEC FEATURES CONTINUED

Internal Finish:	Temperature only chambers have 304 grade stainless steel, whilst humidity chambers have 316 grade stainless steel, corrosion resistant interiors with all seams fully welded
Standard Capacities:	The Envirotherm chambers are available in 220, 430, 960, 2 000 and 3 200 litre capacities.
External Finish:	'Versiclad' PVC coated steel, for high resistance to mechanical and chemical degradation.
Insulation:	Composites of high density rockwool and polystyrene foams. Single side opening, with positive mechanical latch and extruded silicone gasket seal.
Cable Port:	All chambers have a 50mm diameter cable port through the side wall.
Internal Visibility:	A multi-glazed viewing window in main access door with a shrouded fluorescent lamp for internal illumination is fitted as standard to temperature & humidity chambers. Humidity chambers also have an internal window wiper as standard.
Refrigeration:	Envirotherm chambers use refrigerants which conform to the latest environmental protocols. Systems are fitted with a full complement of electrical, pressure and temperature protection devices and are designed to operate in ambient temperatures up to 32°C. Smaller chambers have integral air cooled refrigeration but in the larger/higher performance chambers optional remote air cooled or water cooled systems are available.
Heating:	Heating elements are corrosion resistant, sheathed resistance type (not open wire type).
Safety Controls:	Independent, operator settable, digital high & low temperature controls are fitted to all chambers.
Humidity Sensing:	High grade, temperature compensated humidity transmitter and a Pt100 sensor for temperature.
Controllers:	Chambers are all fitted with a microprocessor programmer/controller with multiple program/cycle storage and computer interface. Graphical software for operation, monitoring and logging by an external PC is provided as standard. (PC not provided)
Control Technique:	All microprocessor controllers use a three term (PID), dual (heat/cool) output, control algorithm to minimise power consumption and increase operating flexibility.
Temperature Range:	Standard range is between -40°C and +100°C. (Maximum Ambient 32°C)
Excursion Rates:	Temperature Excursion Rates are variable and dependant upon temperature ranges.
Humidity:	Standard range 20% to 95% RH (temperature dependant). Low humidity values are based on a dew point temperature of +2°C.

Temperature and Humidity, Cooling Units for Environmental Rooms

AUSTRALIAN MADE



Typical installation in prefabricated rooms.



Push up unit assembly
or Drop in assemblies
available



Control Panel
fits to front of
room

Other ranges available on application.

FEATURES

Thermoline offer a range of 'Room Conditioning Units' which can be fitted into suitable insulated room/s (cool room structure) to provide temperature only or temperature and humidity conditions within the room/s. This is the most economical method to provide precise temperature/humidity conditions to an existing or new room for laboratory testing of products or for actual production.

The conditioning unit is supplied as a 'ready assembled' plug system that fits up through a hole provided in the ceiling of the room. A control box that fits to the front of the room is also supplied 'ready assembled' with the instruments, electrical components and wiring ready for connection. One or more units can be fitted to a room depending on the room size.

Four models are available to suit room sizes 20 to 30m³.

Model TCU-1-TO is a conditioning unit without refrigeration to heat only. Temperature range is from 5°C above ambient to +50°C.

Model TCU-2-TH is a conditioning unit without refrigeration to heat and humidify. Temperature range is from 5°C above ambient to 50°C with a humidity range of 20% to 90% RH temperature dependent.

Model TCU-3-TOR is a conditioning unit with refrigeration to provide temperature of +10°C to 50°C depending on the room size and insulation.

Model TCU-4-THR is a conditioning unit with refrigeration and a steam humidifier. Temperature range of +10°C to +50°C and humidity range of 20% to 90% RH depending on the temperature, room size and insulation.

Industries requiring this equipment include: Pharmaceutical, Packaging, Paper, Construction materials, Electronics, Microbiology, Botanical and Horticultural Institutions.

MODEL	REFRIGERATION	HEATING	HUMIDIFIER	ELECTRICAL RATING	PLUG SIZE (HxWxD)	PACKED WEIGHT
TCU-1-TO	-	1.5 KW	-	10A 1HP	50x90x90	50
TCU-2-TH	-	1.5 KW	Steam	10A 1HP	75x90x90	55
TCU-3-TOR	5/8 HP	1.5 KW	-	15A 1HP	60x90x90	60
TCU-4-THR	5/8 HP	1.5 KW	Steam	15A 1HP	75x90x90	65

Temperature and Humidity Cabinets, Cement Shrinkage (+10°C to +60°C & 20% to 90% RH)

AUSTRALIAN MADE



FEATURES

The Thermoline Cement Shrinkage Test Chamber was designed for, and in conjunction with, the Cement and Concrete Testing Association of Australia to form part of the range of equipment necessary to perform a Australian test procedure, Australian Standard AS2350.13 - 1995. It is well recognized that the evaporation of water from test samples is influenced by the following factors.

- a) Surrounding Air Temperature.
- b) Surrounding Air Relative Humidity
- c) Air velocity over the surface of samples.
- d) The surface area to volume ratio of test samples.

The Thermoline Shrinkage Testing Chamber has been designed to ensure uniformity of temperature, humidity and air flow velocity over samples placed on up to eleven shelf levels.



• Perforated stainless steel shelves with wire grid support to easily separate cement test samples.

Model:	TCSTC-280-1-GD
Interior:	304 grade stainless steel.
Exterior:	Attractive grey PVC steel.
Castors:	Cabinet formed on a structural angle steel base, fitted with 4x swivel casters for ease of installation, maintenance and cleaning.
Access Door:	Triple glazed to allow view of samples.
Shelves:	11 Off. Perforated stainless steel at 75mm. centres. (Removable)
Support Racks:	11 Off. stainless steel grid support, 6mm, dia. Rods on 100mm, centres.
Heating:	By 'calrod' sheathed resistance elements.
Air Flow:	Horizontal forwards through workspace from a perforated distribution plenum at the rear of the chamber.
Humidification:	By evaporation from the surface of a temperature controlled dew point trough from the base of the chamber.
Refrigeration:	An air cooled, hermetically sealed condensing unit using R134a refrigerant.
Control:	Temperature and Humidity Controllers are both digital set point and indicating values.
Safety Thermostats:	Operator settable, fitted as over temperature and low temperature protection.

ORDER CODE	DIM. INT HxWxD cm	LITRES CAPACITY	DIM. EXT HxWxD cm	HUMIDITY	APPROX WEIGHT Kg
TCSTC-280-1-GD	90x58x55	280	172x69x72	50% RH	160
	SHELVES	S/S GRIDS	ELECTRICAL	TEMP	PACKED Dims HxWxD cm
	11	11	240V 50Hz 10A	23°C	193x88x97