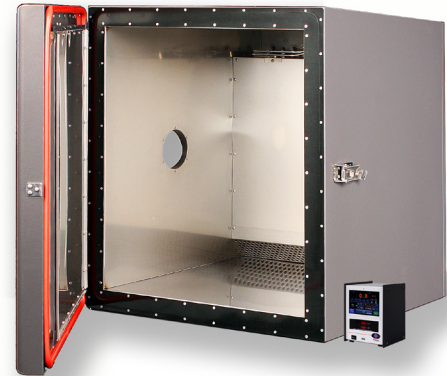


M170 Cryogenic Temperature Chamber

The **Sigma Systems Cryogenically Cooled Chamber** provides an optimal test environment that can be configured as required.

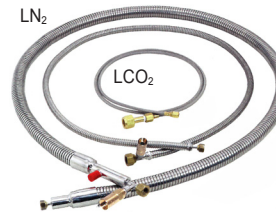
Features

- Wide Temperature Range: -100°C to 200°C (options: -185°C to 400°C) with typical transition rates of 25°C per minute or greater
- Industry's smallest footprint for given interior workspace
- Basic Sytem includes one Aperture or Notch and Controller - Configurable with many options (*see below*)
- Thermal shock in a single chamber and MIL-STD testing
- High air flow promotes fast cycling and low gradients
- Touch Screen Programmable Controller; supports Remote Capable Communications

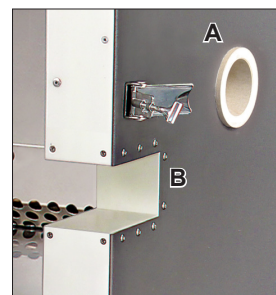


Chamber Specifications

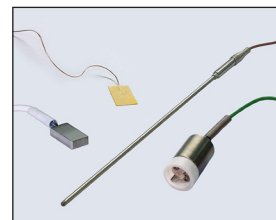
Temperature Range	-100°C to 200°C Extended low temperature options down to: -185°C Extended high temperature options up to: +400°C
Temperature Transition Rate	Heating: 13°C to 20°C/min. (Voltage/Current dependent) Cooling: 15°C to 60°C/min.
Workspace Dimensions	25.1"H x 20.5"W x 19.6"D (63.8cm x 52.1cm x 49.8cm)
Internal Volume	5.8 ft ³ (165 liters)
External Dimensions: Extended Temp. Dims:	57.6"H x 24.5"W x 33.8"D (146.3cm x 62.2cm x 85.9cm) 61.6"H x 28.5"W x 38.0"D (156.5cm x 72.4cm x 96.5cm) Includes Cart; Excludes latches, hinges, and controller
Mounting Style	Benchtop / Optional: Floor Standing or Rack Mounting
Coolant Type	LN ₂ (LCO ₂ optional reduced low end temp)
Power Requirements (can be configured for CE)	100-120V / 50HZ-60HZ / 1PH / 20-30A 200-240V / 50HZ-60HZ / 1PH / 13-30A
Options	<ul style="list-style-type: none"> • Delivery Hoses: Vacuum Jacketed; others (<i>see right</i>) • Independent Failsafe Module (IFM) (<i>on Controller, see Page 2</i>) with Redundant Solenoid Valves (RSV) <i>Shuts off coolant to prevent runaway cold condition</i> • Shelves / Interior Lights / Windows / Pull-off Doors • Additional Apertures / Notches • Dry Nitrogen Purge for Moisture Control • Dewar Accessories <i>Distribution Manifolds, Pressure Regulators</i> • Benchtop, Rack Mount, and Castered Stand Configurations



Vacuum Jacketed, Armored Stainless, and Braided Superflex Coolant Delivery Hoses connect temperature chamber to coolant source
All LN₂ hoses include a Safety Pressure Relief Valve



Apertures (A) and Notches (B) available in optimal location and size for maximum Test Access efficiency



Wide range of RTD Probes and Thermocouples available: Tubular, Block, Kapton Tape and Drop sensors, appropriate for temperature chamber or platform and compatible with TS Series Controllers

Chamber Temperature Controller

The TS Series Controller is the programmable controller for Sigma Systems' cryogenically cooled thermal chambers and thermal platforms. The TS Controller provides touch-screen and remote interfacing to set up and transfer thermal profiles, view data and trends, and log diagnostics.

Features

- Optimize test time – Precisely control and monitor UUT temperature, even during UUT power cycling
- Fast Setup Time – Intuitive touch-screen programming
- Display Test Status – Real-time data and graphing
- Built-in Diagnostics – Valve counts, ambient temp, equipment runtimes
- Protect UUT from thermal damage with optional Independent Fail Safe Modules



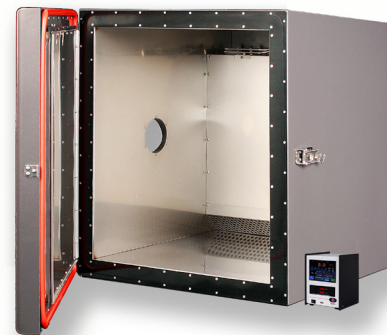
TS Shown with Failsafe Module option

Controller Specifications

Temperature Measurement	Range: -210°C to 680°C Accuracy: ±1.0°C Resolution: 0.1°C full scale
User Interface	5.7" color touch-screen with temperature graphing and charting
Control Safety	Independent Fail-Safe Module (IFM) (optional) high and low temperature limits
Compliance	CE / RoHS / Designed to meet UL 61010
Diagnostics	Controller, chiller, & blower runtime hours Valve activation counts Controller enclosure temperature System performance log
Operating Environment	Temperature: 10°C to 50°C Humidity: 10% to 50%
Temperature Inputs	RTD (500 Ohm/2Wire) (100 Ohm/3 Wire) Thermocouple (type K)
Control Algorithms	Primary loop PID Dual loop, settable DUT control
Communication Interfaces	Ethernet 10/100 / Telnet / HTML Web Server / USB-2.0 Optional: RS232 and IEEE-488 GPIB
Power Requirements	Voltage: 100 to 250 VAC Frequency: 50/60 Hz Current: up to 30A (application based)
Physical Dimensions	(TS1-4) 8.5"H x 6"W x 11.6"D (21.6cm x 15.2cm x 29.5cm) (TS5-8) 8.5"H x 8.0"W x 11.6"D (21.6cm x 20.3cm x 29.5cm)
Program Compatibility	Supports Sigma C, CC3, CC3.5, C4, and C5 functionality & command set



Optional Dry Nitrogen Purge Systems eliminate moisture and/or oxygen from the test environment.
TS Shown with purge and failsafe module options



M10 with TS Controller

The inTEST Thermal family includes three temperature-related corporations: Tempronic, Sigma Systems, and Thermonics. Products include [thermal chambers](#) and [plates, portable temperature environments](#), and [process chillers](#).