CSZ
Cincinnati Sub-Zero

THERMAL SHOCK CHAMBERS

DTS-16

VTS-1

VTS-11

Vertical Thermal Shock Chambers

Detect product defects before they get to your customer

Thermal Shock Chambers are designed to perform tailored environmental stress screening of component and board level electronic assemblies. The return on investment in both actual savings and customer confidence adds greatly to the value of electronic assemblies screened in a CSZ thermal shock system.

The induced thermal stresses can reveal hidden manufacturing defects in electronic sub-assemblies and other components by the expansion and contraction of critical parts. Design meets MIL-STD 883L, 1010.9 along with a variety of other thermal shock test specifications.

The lower chamber also contains both heating/cooling and may be operated as a separate temperature cycling chamber for greater return on investment.

| Standard Features |
|---|
| The EZT-570S controller provides flexibility and a full range of user-friendly features that combine to simplify programming along with built-in safeties to protect your chamber and product under test. |
| The product transfer carriage provides smooth, steady transfer of your product between the hot/cold chambers. |
| Door safey interlocks/limit switches to prevent door from being opened during operation. |
| Emergency stop button shuts down power to chamber. |
| Traveling cable port for routing cables and wires from the product under test to an external device. |
| Hinged panel doors provide easy access to all components for ease of servicing. |
| Compact size and casters provide mobility with leveling legs to secure and level your chamber [1]. |
| Rapid airflow through the workspace to facilitate fast part temperature change rates. |
| Environmentally safe, zero ozone depletion potential refrigerants are used to protect the environment. |
| Dry air purge for prolonged temperature cycles |
| Dual purpose cold chamber may be used for for temperature cycling and defrost |

Optional Accessories

- Additional Basket/Shelf
- Chart Recorders
- Digital High/Low Limit & Alarm
- Run Time Meter
- IEEE-488 Interface
- EZ-View Software
- GN2 Purge
- Customer Event Option

- Customer Analog Outputs
- Digital Input Option
- Main Power Disconnect Switch
- LN2 Boost
- Window[1]
- Preventative Maintenance
- Start Up & Training

[1] VTS-1 & VTS-3 only
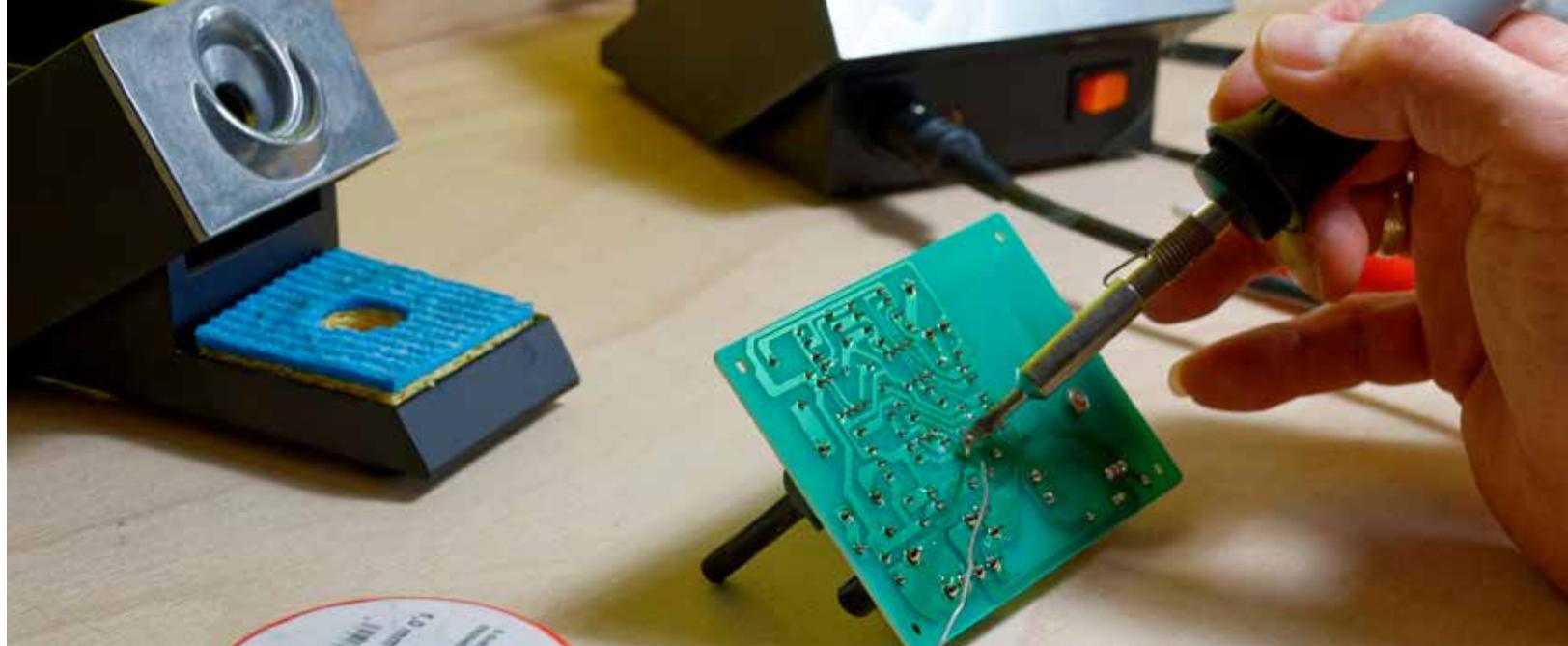
VTS-Compact Series

Compact Thermal Shock Chambers consist of a hot/cold zone. Product is transferred between these zones for rapid product temperature changes.

These chambers offer 1-11 ft³ of interior workspace volume, superior performance, and small footprint coupled with many standard features to provide exceptional value.

Model	VTS-1 Inches (mm)	VTS-3 Inches (mm)	
Workspace Volume	1 cu. ft. (28L)	3 cu. ft. (85L)	
Product Carrier Dimensions	15"W x 10.5"D x 11"H (381 x 266 x 279)	20"W x 16"D x 16"H (508 x 406 x 406)	
Exterior Dimensions	34"W x 62"D x 82"H ³ (863 x 1574 x 2082)	40"W x 79"D x 98"H ³ (1016 x 2006 x 2489)	
Temperature Range	Hot Chamber: +50°C to +210°C Cold Chamber: -75°C to + 190°C		
Product Load (Based on Mill-Std 883L Method 1010.8 Test Condition C)	8 lbs (4 kg)	17 lbs (8 kg)	
Maximum Product Load	20 lbs (9 kg)	66 lbs (30 kg)	
Recommended Minimum Service Amps⁴	200/208-230V, 50/60 Hz 1 Ph 3 Ph 100 Amps 80 Amps	200/208-230V, 50/60 Hz 3 Ph 125 Amps	380/460V 50/60 Hz, 3 Ph 60 Amps

[1] Custom size chambers are also available.

[2] Subject to change, actual values will be furnished with order

[3] Height with travelling cable port in up position

[4] Amperage calculations based on 60Hz operation

Our unique chamber design passes equal volumes of high velocity conditioned air over the product, resulting in rapid product temperature changes.

Vertical Thermal Shock Chambers

VTS-Large Series

Vertical Thermal Shock chambers consist of two separately controlled hot and cold zones. Product is transferred between these zones for rapid product temperature changes. These chambers offer 9 to 11ft³ of interior workspace supporting larger product loads.

Model	VTS-9 Inches (mm)	VTS-11 Inches (mm)
Workspace Volume	9 cu. ft. (255L)	11 cu. ft. (311L)
Product Carrier Dimensions	25"W x 25"D x 25"H (635 x 635 x 635)	30"W x 25"D x 25"H (762 x 635 x 635)
Exterior Dimensions	119"W x 99"D x 121"H ³ (3022 x 2514 x 3073)	89"W x 167"D x 134"H ³ (2260 x 4241 x 3403)
Temperature Range	Hot Chamber: +115°C to +210°C Cold Chamber: -75°C to + 190°C	Hot Chamber: +85°C to +210°C Cold Chamber: -75°C to + Ambient
Product Load (Based on Mill-Std 883L, Method 1010.8 Test Condition C)	50 lbs (23 kg)	61 lbs (27 kg)
Maximum Product Load	190 lbs (86 kg)	125 lbs (56 kg)
Recommended Minimum ⁴ Service Amps	380/460V, 50/60 Hz 3 PH 125 Amps	

¹ Custom size chambers are also available.
² Subject to change, actual values will be furnished with order
³ Height with travelling cable port in up position
⁴ Amperage calculations based on 60Hz operation

VTS-11 offers optional hot zone humidity control

VTS-11

VTS-9

Horizontal Thermal Shock Chambers

HTS Series

Our horizontal thermal shock chambers are the ideal choice for batch testing and larger test loads. The carrier basket transfers the load between the hot and cold zones. In the horizontal three zone, the products travel via a carrier basket between the cold and ambient zones, and the hot zone travels to envelop the carrier basket.

Model	HTS-16 Inches (mm)	HTS-27 Inches (mm)	HTS-45 Inches (mm)
Workspace Volume	16 cu. ft. (453L)	27 cu. ft. (765L)	45 cu. ft. (1274L)
Product Carrier Dimensions	30"W x 30"D x 30"H (762 x 762 x 762)	36"W x 36"D x 36"H (914 x 914 x 914)	60"W x 36"D x 36"H (1524 x 914 x 914)
Exterior Dimensions	155"W x 80"D x 106"H (3937 x 2032 x 2692)	171"W x 86"D x 114"H (4343 x 2184 x 2895)	234"W x 90"D x 108"H (5943 x 2286 x 2743)
Temperature Range	-73°C to +200°C		

Horizontal Thermal Shock Chambers

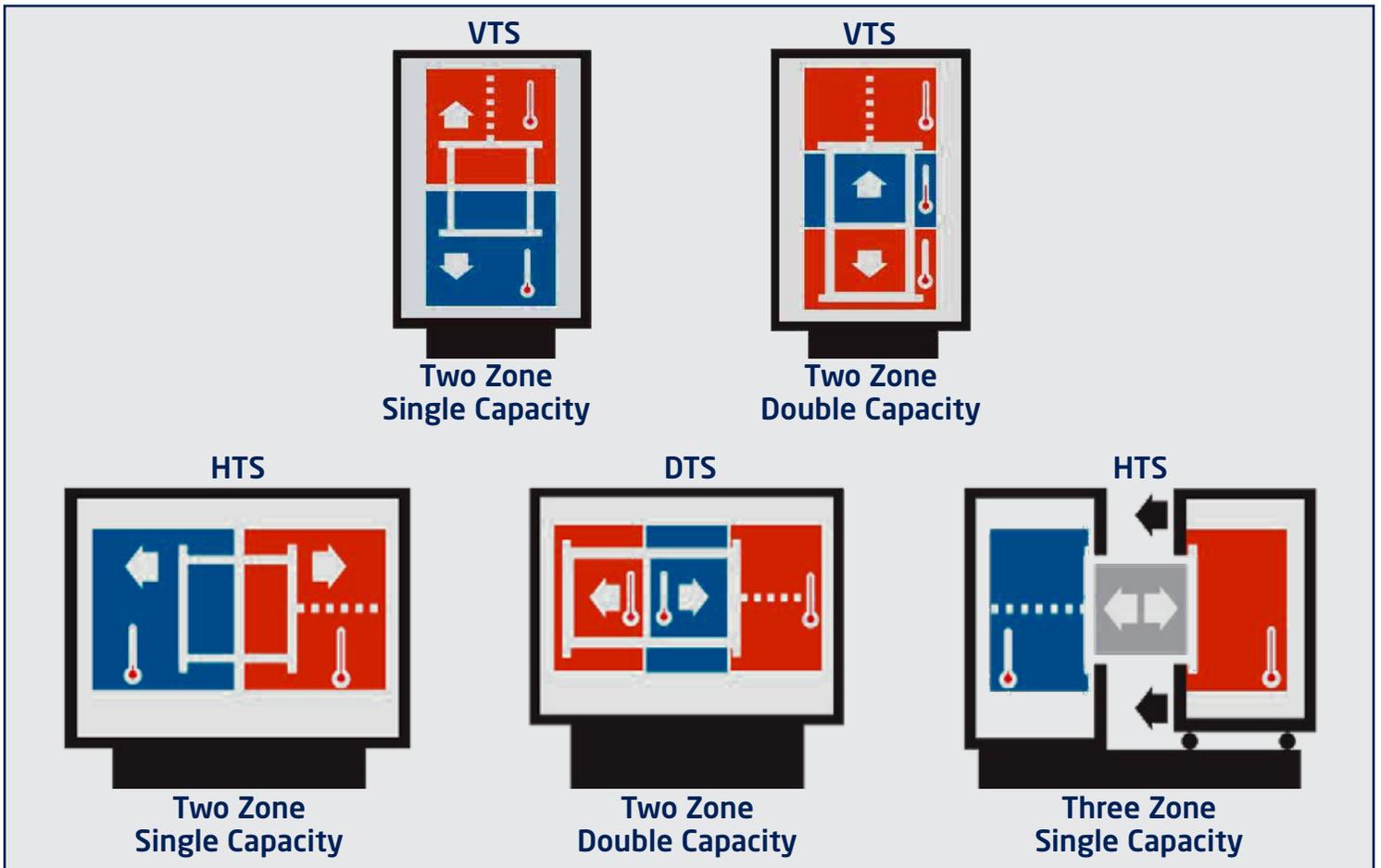| Standard Features |
| --- |
| The EZT-570 controller provides flexibility and a full range of user-friendly features that combine to simplify programming along with built-in safeties to protect your chamber and product under test. |
| Internal electrical overload protection |
| The product transfer carriage provides smooth, steady transfer of your product between the hot/cold chambers. |
| Door safey interlocks/limit switches to prevent door from being opened during operation. |
| Emergency stop button shuts down power to chamber. |
| Guaranteed part temperature recovery/soak monitors the worst case part thermocouple and allows transfer only when the set-point temperature has been reached. |
| Thermal heat sinks in each zone for peak demand of heating and cooling. |
| Provides extra thermal energy to efficiently meet the MIL-STD 833L requirements. |
| Supply/return air control selection switch |
| Environmentally safe, zero ozone depletion potential refrigerants are used to protect the environment. |
| Transfer alarm/jam alarm |
| Factory set over temperature controls |
| Over temperature protection (hot zone) |
| Basket automatically stops when door are opened |

Thermal Shock Configuration Options

VTS
Two Zone Single Capacity

VTS
Two Zone Double Capacity

HTS
Two Zone Single Capacity

DTS
Two Zone Double Capacity

HTS
Three Zone Single Capacity

Double-Duty Thermal Shock Chambers

Test twice as much product at the same time!

The DTS Air-to-Air Thermal Shock Chambers are designed to perform tailored environmental stress screening of component and board level electronic assemblies. This system is designed for large components/loads and ideal for manufacturing environments.

DTS chambers consist of three zones: a hot chamber on each end with a cold chamber in the middle. This design allows product to be moved between the zones simultaneously with two product baskets - exposing twice as much product in one system to maximize your investment.

Standard Features
The EZT-570 controller provides flexibility and a full range of user-friendly features that combine to simplify programming along with built-in safeties to protect your chamber and product under test.
Smooth carriage transfer via a pneumatic air cylinder designed with multiple safeties. The air cylinder is protected from the environment to insure long life.
Door safety interlocks prevent the door from being opened during operation.
Removable panels provides easy access to all systems for maintenance purposes.
Rapid airflow through the workspace to facilitate fast part temperature change rates.
Environmentally safe, zero ozone depletion potential refrigerants are used to protect the environment.

Double-Duty Thermal Shock Chambers

Specifications	DTS-16-22-22 Inches (mm)	DTS-27-30-30 Inches (mm)
Workspace Volume	16 cu. ft. (453L)	27 cu. ft. (765L)
Product Test Area Dimensions	30"W x 30" D x 30"H (762 x 762 x 762)	36"W x 36"D x 36"H (914 x 914 x 914)
Exterior Dimensions	200"W x 88"D x 94"H (5080 x 2235 x 2387)	218"W x 94"D x 100"H (5537 x 2387 x 2540)
Temperature Range	Hot Chamber : +70°C to +210°C (+158°F to +410°F) Cold Chamber: -75°C to + 190°C (-103°F to +375°F)	
Product Load (Based on Mill-Std 883G, Method 1010.8 Test Condition C)	50 lbs each (23 kg)	100 lbs each (45 kg)
Maximum Product Load	200 lbs (90 kg)	200 lbs (90 kg)
Recommended Minimum Service Amps[1]	230V, 3 Ph 460V, 3 Ph 400 Amps 225 Amps	230V, 3 Ph 460V, 3 Ph 500 Amps 275 Amps

[1] Amperage calculations based on 60 Hz operation

Optional Accessories

- Additional Basket/Shelf
- Chart Recorders
- Digital High/Low Limit & Alarm
- Run Time Meter
- IEEE-488 Interface
- EZ-View Software
- Digital Output Option
- Digital Input Option
- Main Power Disconnect Switch
- Dry Air Purge
- LN2 Boost

VTS-Custom Designed Thermal Shock Chambers

In addition to our standard thermal shock series, CSZ also designs and builds custom sized chambers to meet specific test requirements. One example is a 144 cubic foot, vertical thermal shock chamber designed to accomodate a customer's large and delicate product load.This chamber was rated for a 600 lb. product load and had a transfer speed of 12 seconds. The design included a large 4' x 4' x 8' transfer basket containing multiple shelves for product placement, while maintaining adequate air flow around the product.

This custom chamber was designed with a wide temperature range of -75°C to Ambient in the cold zone, and +70°C to +210°C in the hot zone.

This chamber includes a large window, internal lights, door safety interlocks, dry air purge, automatic machine and transfer motion control, interlocking, timing and cycle counting.

Custom VTS-144

EZT-570 Touchscreen Controller

The Next Generation Controller with Smartphone Technology

All features are built into the controller interface so no additional software or internet is required for access to all the features the controller has to offer.

Communications & Connectivity

- Monitor and/or Control the chamber remotely for anytime, anywhere access from any device using LAN VNC
- Alarm notification sends email and/or text messages
- Email built-in to send data, alarm, audit trail files directly from controller
- Ethernet TCP/IP, EIA-232, EIA-485 communications

Save valuable time with the ease of use of the EZT-570 featuring fewer steps to accomplish your daily testing needs while incorporating simplified operation and programming to test faster.

Profiling

- Profiling includes up to 99 steps and 1000 cycles
- Program ramp steps entering time or °C/min
- Programs may be written using product control function
- Easily review profile using trend chart or review list of steps before running profile
- Profile status view displays current step, estimated start/stop date and time and more
- Profiles may be transferred to different chambers via USB or optional EZ-View software
- Automated delay profile start

Data Logging

- Configurable log interval, data file length, filename, operator entered batch & lot information as well as an unlimited number of operator notes saved to the data file
- Access data files directly from controller or PC
- Easily download profiles, alarm files, audit trail files and data files using USB or email from controller in a compatible .csv file format for ease of use. Also import profiles to other chambers saving valuable profile entry time
- Files may also be automatically backed up daily for hassle-free file management using FTP. FTP/FileWeb/DataWeb (LAN/WAN)

User Convenience & Flexibility

- Controller may be configured in 28 languages
- Selectable power failure/recovery options
- Full system security allows up to 30 different users with four different levels of security
- Audit trail files track changes in settings by each user
- Configure alarm setting and maintenance alerts

Graphing Technology

- Real-time trend display graph with adjustable time and min/max values
- Up to eight configurable trend graphs with left & right axis
- Graph historical data files
- Zoom in/out of graphs for a closer look
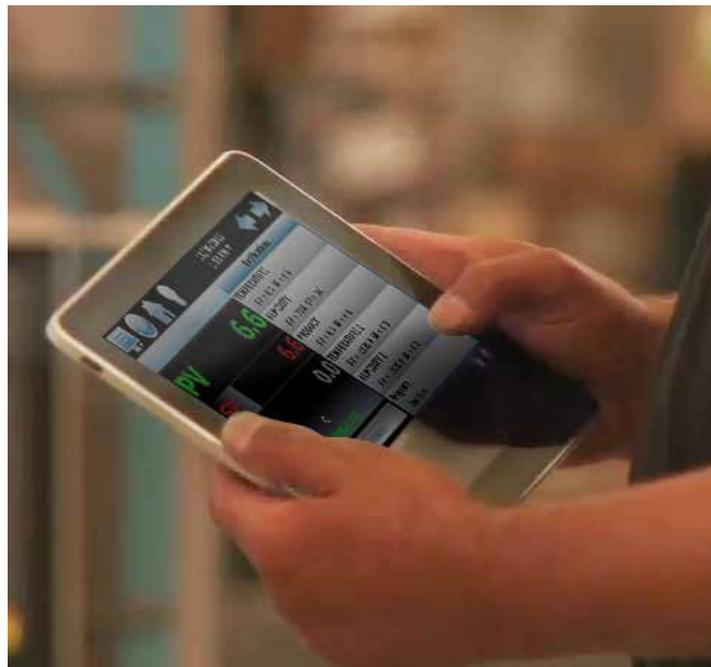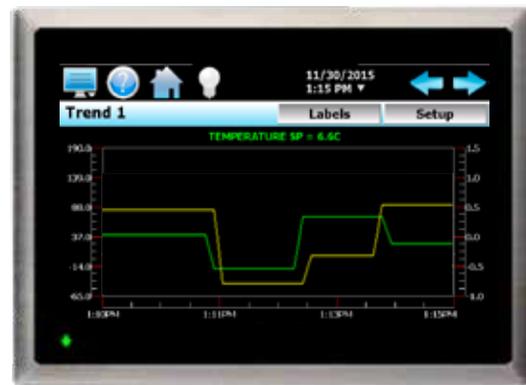
Enhanced Communications & Control Options

- Digital input option provides 8 inputs that can be configured for various control functions including starting, stopping and pausing a profile. "Wait for" function allows the user to pause a profile during a particular step of the profile until a specific digital input is turned on or off
- Digital output "customer event" feature provides 15 programmable outputs. Each output can be configured to perform other operations including alarm or profile status indicators for more control over your testing
- Optional refrigeration monitor package displays and data logs temperatures and refrigeration system compressor suction/discharge pressures
- Condensation control option helps prevent condensation from collecting on the part by automatically managing the air dewpoint
- Bar code option allows user to scan barcode to start profile and to add notes to current data file when datalogging

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Cincinnati Sub-Zero is a product brand of Weiss Technik North America, Inc. Weiss Technik North America is a member of the Weiss Technik group of companies, a division of the Schunk Group with its headquarters in Heuchelheim, Germany. Weiss Technik is the world's largest manufacturer of environmental simulation systems and employs more than 2,900 people in 18 group companies in 15 countries.

Request Information

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The Testing Standard.

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