



**ZETATEK®**  
Committed to Excellence



**Thermal Shock Chambers**





## Introduction

Environmental conditions widely impact the performance and reliability of components and products. Performing a normal temperature test may not fully qualify a product's performance and reliability. A thermal shock test helps in detecting inherent weaknesses in the product without subjecting it to the extreme mechanical and thermal stress limits. Life time of products can be determined by performing only a few cycles. Effects of sudden temperature changes on the operation and functionality of a product can also be tested.

Thermal Shock chambers from Zetatek are a revolution in environmental testing and can simulate fast temperature shocks between  $-70^{\circ}\text{C}$  and  $+220^{\circ}\text{C}$ . It consists of two chambers placed on top of each other, a hot chamber on top and cold chamber on the bottom. Test specimen is placed in a basket which rapidly moves with the help of a motor drive between the hot and cold chambers.

## Areas of Application

Thermal Shock Chambers can be used anywhere from research and development to production and quality testing. Circuit boards, satellites and missiles, mechanical components can all be tested and qualified under various thermal shock conditions. These chambers are of paramount importance in key industries such as defence, aerospace, automotive and electronics.

**Simulating Environments since 1990.**



# Salient Features

- 1

**Light Weight**  
The chamber body is made entirely out of sheet metal making it light weight.
- 2

**Mesh Protection**  
A removable mesh is provided all around the basket in order to protect the specimen from getting caught on the chamber walls during basket movement.
- 3

**Basket Movement**  
The basket movement is achieved with the help of a bevel gear driven by an electric motor. This ensures smooth and steady transfer of the specimen between the hot and cold chambers.
- 4

**Insulation**  
Multilayer insulation with glass wool provides resistance against high and low temperature with just 100mm insulation thickness.

- 5

**Latch**  
The door can be easily engaged and disengaged with an elegant rotary latch.
- 6

**Traveling Port Hole**  
A travelling port connects external cables to the test specimen inside the basket during testing. These ports are sealed with soft silicon to avoid thermal leakages.
- 7

**Exterior**  
The outer panels are powder coated for corrosion-resistance and aesthetic appeal.
- 8

**Interior**  
The test space made from stainless steel 304 provides excellent resistance to corrosion. The aesthetic look is elevated by a mirror finish. The inner tank is welded airtight ensuring that moisture does not leak into the insulation.

- Compact design with small foot print
- Large inspection window on hot chamber, with multi-layer vacuum sealed toughened glass and heating system for clear visibility of test specimen.
- Heavy duty castor wheels with levelling pads make it convenient to move the chamber around.
- Illuminated test space
- Isolated electrical compartment with IP 54 protection for safety
- The cold chamber can be operated independently to perform temperature cycling tests.



Bad weather seems better through a window..

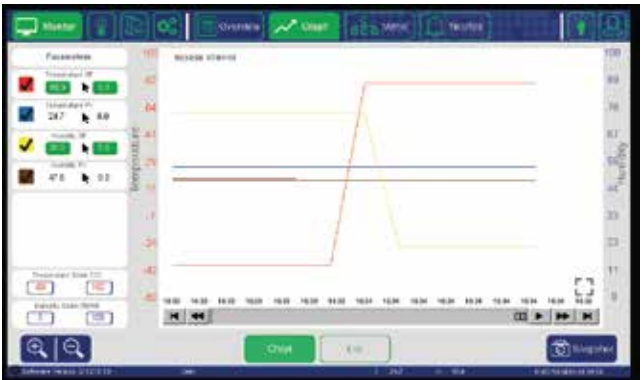
## CONNECTIVITY

- Connectable to chamber through Ethernet or Wi-Fi
- Accessible from anywhere over the internet.
- Remote troubleshooting for immediate and efficient service and maintenance.



## DATA LOGGING

- Recording of unlimited test data
- Transfer of test data through a USB pen drive
- Exportable to CSV file for easy analysis and graphing in Excel.



## TOUCHSCREEN

- Multiple touchscreen options: 7", 10" and 15"
- 800 X 480 or 1024 x 600 resolution colour displays
- TFT widescreen display with 16.7M colours



## SAFETY, NOTIFICATION AND ALARMS

- Automatic and periodic system maintenance notifications.
- Cut-off for High and Low temperatures
- System malfunction alarms such as door open, compressor trip, heater trip, fan motor trip, etc
- Alarm log feature for troubleshooting.

## PROGRAMS

- Capability to create upto 99 programs
- Each program can have upto 999 cycles which ultimately results in unlimited segments
- Numerical entry of profile parameters
- Delayed or scheduled start of programs



## MULTI-PLATFORM SUPPORT

- Klima Controller can be fully operated from multiple platforms such as a smartphone, tablet or a PC.



# Thermal Shock Chamber Specifications

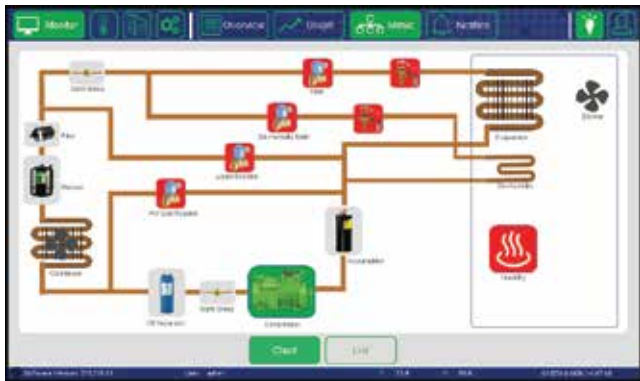


## SECURE ACCESS

- Safe access through personalised passcode.
- Multiple user levels
  - User:** Access to run tests and change set points
  - Supervisor:** Access to change settings and system parameters
  - Admin:** Access to service modules

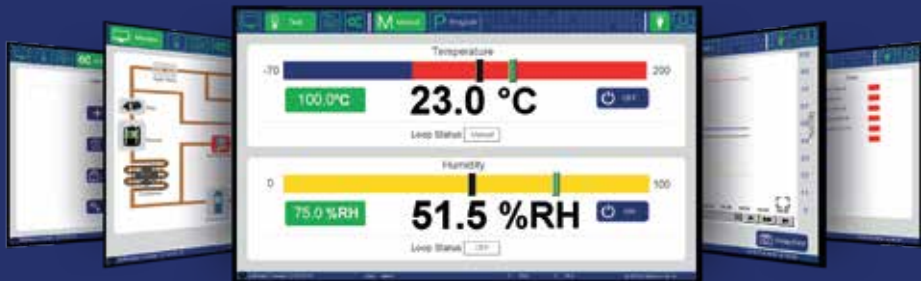
## SOFTWARE

- Numerical and graphical visualization of test parameters
- Synoptic chart for status monitoring
- Program and manual mode of chamber operation
- Report generation for analysis and evaluation
- Zoom in, zoom out and scroll of graphs.
- Standard Pre-Loaded Profiles (Example: MIL STD 810)
- Multizone PID for effective control.



Parameters/Models	ZSF	6C	12C	30C
Dimensions				
Test Space Volume (l)		64	125	300
Basket Dimensions (mm)	w	400	500	670
	d	400	500	670
	h	400	500	670
External Dimensions (mm)	W	775	875	1045
	D	2162	2260	2430
	H	2230	2330	2500
Temperature Performance				
Temperature Range in Cold Chamber (°C)	- 70 to + 100			
Temperature Range in Hot Chamber(°C)	+ 50 to + 220			
Temperature Stability (°C) <sup>3</sup>	± 0.5 to ± 1			
Temperature Homogeneity (°C)	± 1			
Recovery time(min)	<12	<12	<12	
Condenser	air-cooled / water-cooled			
Basket Parameter				
Basket Movement Time (sec)	<10			
Specimen Weight (kg)	15.0	20.0	30.0	
Electrical				
Supply Voltage	415V ±10% / 50Hz ± 3% / 3+N+G			

\*some of the features mentioned above are optional



### Note

1. The performance data refer to +35°C ambient temperature, 400V nominal voltage, without specimen, with water cooling at flow temperature of 28°C (for water cooled condenser)
2. After reaching a steady state at the given set point, when test space is empty.

\*We reserve the right to make any technical changes.

## Options

- Multi-level wire shelves
- Water cooled system for better performance
- Test specimen temperature measurement and control
- Multiple Independent sensors for temperature measurement
- Compressed air purging for faster cooling of hot chamber
- Dry nitrogen purging for long duration tests without using the defrost cycles
- External electrical terminals
- Multiple portholes of 75mm or 125 mm diameter for static chamber
- Liquid Nitrogen boost to provide higher rate of cooling or faster recovery
- Test space made from stainless steel 316
- External panels made from stainless steel

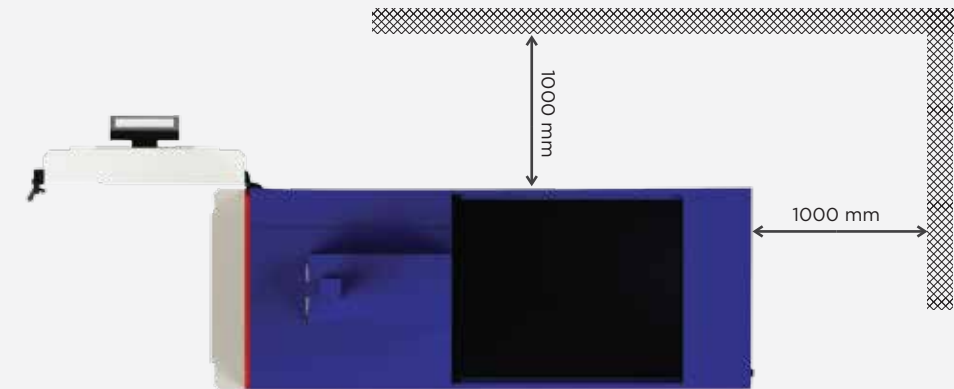
\*Customization of options and accessories on request.

## Test Standards

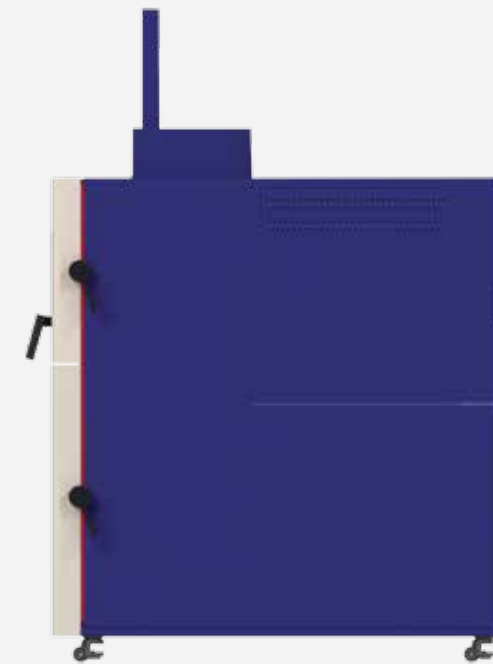
- MIL-STD-883H, method 1010.8, A, B, C, D, F
- MIL-STD-810G, method 503.5, I-B, I-C, I-D
- IEC 60068-2 -14
- JIS C 60068-8-14
- JESD22-A104D
- MIL-202G Method 107G
- JASO D 014-4
- EIAJ ED-2531A



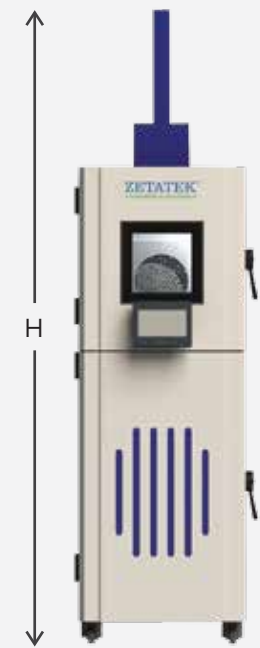
## Chamber Views



Top View (With Doors Open)



Side View



Front View

The wall between art and engineering exists only in the mind..



# About Zetatek

A pioneer in the environmental test chamber industry, Zetatek has a proven track record of over 3 decades, dedicated to the development of a highly competitive range of environmental chambers with multiple applications.

Our all-encompassing product range includes:

- Ovens
- Temperature chambers
- Climatic chambers
- Thermal shock chambers
- Walk-in chambers
- Thermal mechanical chambers
- Environmental stress screening chambers
- Vacuum Chambers
- Customised chambers to meet client requirements

Zetatek is an ISO 9001, 14001 and 18001 company which caters to a niche segment of customers who value high quality products conforming to International standards.

Zetatek chambers are omnipresent both in India and countries across the world and our highly experienced service team ensures continuous customer support to the best satisfaction of our clients.

We, at Zetatek believe in delivering quality products and forging lasting relationships, while continuing our quest for excellence.



Plot No. 31, Technocrats Industrial Estate, Balanagar,  
Hyderabad, Telangana, India. 500037



Office: +91 40 2372 1000  
Fax: +91 40 2372 0305



[www.zetatek.in](http://www.zetatek.in)



[sales@zetatekindia.com](mailto:sales@zetatekindia.com)  
[info@zetatekindia.com](mailto:info@zetatekindia.com)