Hanse Environmental, Inc.

VTC- 1 HALT/HASS Chamber Specifications
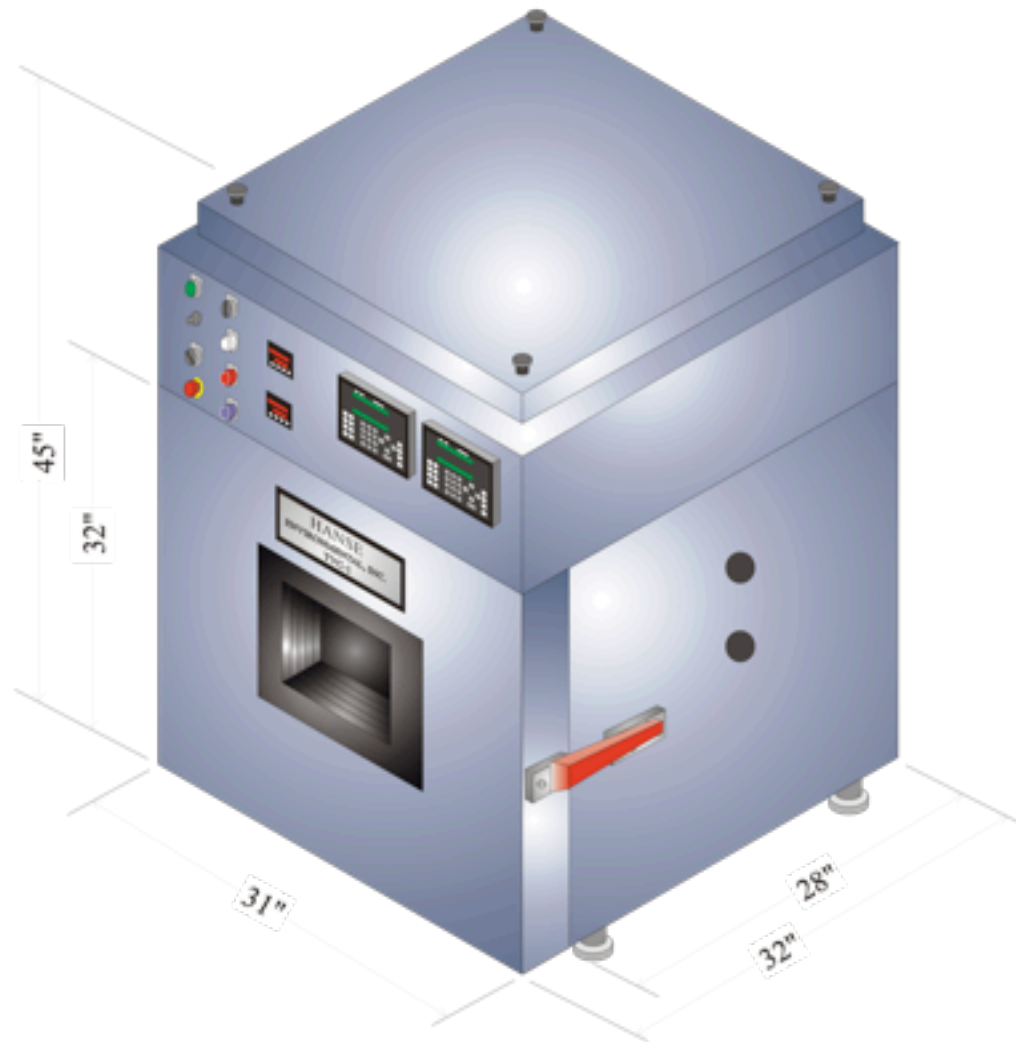
SUMMARY FEATURES	
CHAMBER FEATURES	**Hanse**
Pressurized plenum	X
Proportional heating , cooling, and vibration 4-20ma	X
SCR heater control fused and breaker isolated	X
Breakers on all 240v 3 phase lines	X
All instruments and related boards fused	X
Watch Dog circuit available on request	X
Front panel display	X
Programmable maintenance display optional	X
Interlocked safeties doors, fans, heat, cool, vibration	X
Balanced heater system	X
3 phase legs monitored for voltage and phase	X
Fans monitored for running	X
Heaters interlocked with fans	X
Timer to hold heat off until fans are on full	X
Electrical UL labeled and CSA components	X
Chamber vented by one 4" vent on top	X
Positive dry air purge kept in chamber	X
One 12" x 12" Windows	X
Optional window on side	X
Halogen 120VAC lights (2)	X
FM approved High limit on/off control limit user set able	X
Manual door latch standard	X
Galvanized External Liner	X
Oversized hinges for door stability	X
All terminals and wires clearly labeled	X
2# charcoal polyester port plugs: noise/thermal isolation	X
Full set of wiring schematics	X
Manuals that included manufacturers data sheets	X

VIBRATION FEATURES	Hanse
Range of vibration 0 to 100 g's (25-30ºC).	X
Easy self starting vibrators	X
Self oiling vibrator system	X
High temp hose with bulk head	X
Easy removable hose [SAE flare]	X
Ball valve control on each vibrator	X
Harden piston for long life and low wear	X
Low air consumption vibrator	X
Vibrators work in -100 to +200 deg C environment	X
Normal shop air acceptable	X
Balanced vibrators for load size	X
Vibrators retrofit able to other systems	X
Three (3) size vibrators available	X
Precision air control regulators	X
Insulted vibration table	X
Stainless steel mounting insert 3/8-16	X
Full table surface no restrictions	X
Ceramic cover for insulation	X
Gasket around table from environmental compartment	X
3 year unconditional warranty on table & vibrators	X

SYSTEM FEATURES

HALT/HASS Chamber: Up to100 Grms with markedly improved Air Consumption/Grms. U.S. Patent Pending

This new and improved system is based on15 years of continuous development and combines rapid thermal cycling of products under test   with six-degree-of freedom (6DoF), singularly, or in combination.

HighRate™ Heating System: 3 phase solid-state Infitrol™ proportional control of balanced electric heaters wire balanced system.

▶Optional Solid Rod Heaters for extended High Temperature testing

HighRate™ Liquid Nitrogen Cooling System: Direct atomization in control plenum, Infitrol™ proportional control and redundant solenoid safety valve.

Vibration Table and Vibrators:

▶Vibration Table with ceramic surface thermally insulates table surface from vibration table base for improved temperature cycling and vibrator life.

▶Vibration enhancing mounting standoffs for improved vibration energy transfer and air circulation under test specimen.

▶LubeMist™ lubricated vibrators with adjustable ball valves, one for each pneumatic vibrator for low G-level performance using fewer vibrators. SoftStart™ designed vibrators minimize starting shock to products.

▶Three (3) year unconditional warranty for Vibration Table and Vibrators.

1. PERFORMANCE

1.1. Temperature:

1.1.1.Range: -75° to +175° C (-100° to +200° C Optional)

1.1.2.Product Change Rate: 50° C/min (100° C/min Optional)

1.1.3.Stabilization: ± 1° C after stabilization. (Stabilization < 2 minutes).

1.1.4.Cooling: Liquid Nitrogen (LN2) direct injection.

1.1.5.Heating: 10 KW Nichrome wire heaters, SSR controlled.

1.1.6.Thermocouples: One (1) air, one (1) for specimen.

1.2. Vibration:

1.2.1.Tri-Axial: Six-Degree-of-Freedom (6DoF) Vibration, non-coherent broadband vibration 10-10,000Hz, up to 70 Grms (100 GRMS Optional) , at 25° to 30°C with unloaded table. 90% of vibration energy in 5-4000Hz for maximum low energy in low frequency range.

1.2.2.Table: 12" x 12" (305mm x 305mm) with nine (9) 3/8-16 (M10) standoff mounting inserts.

1.2.3.Accelerometers: One (1) Model Dytran 3030B5, 500 Grms Range with cable and three axes mounting block.

1.2.4.Vibration Actuators: Two (2) Medium pneumatically actuated. Table vibration, ± 1 Grms within one (1) minute of settling.

1.2.5.Maximum Load: 100 lbs.(45 kg)

2. Chamber Construction

2.1. Interior: 18"W x 18"D x 18"H (457mm x 457mm x 457mm)

2.2. Exterior: 31"W x 32"D x 45"H (787mm x 813mm x 1143mm)

2.3. Doors: One (1). One full opening

2.4. Windows: One (1) Tempered Multi-pane. 10" x 10" (254mm x 254mm) in door.

2.5. Light: One (1) lights

2.6. Ports: Two (2) 4"dia. (100mm) for customer use.

2.7. Insulation: Hanse's exclusive multilayer staggered insulation for superior thermal and noise insulation.

2.8. Sound Level: Nominal 73 dbA @ 1 meter

2.9. Weight: 650 lbs (295 kg)

3. Instrumentation

3.1. Hanse ViewTM Programmable Temperature and Control: Programmable temperature ramps. Closed loop cascade temperature control of product under test including RS232/422/485 serial interface. HALT step-stress templates included for easy HALT chamber programming.

3.2. Thermocouples: One (1) for temperature control and one (1) for product response.

3.3. Programmable Vibration Control: Programmable vibration ramps, Grms level, and test duration all synchronized with the temperature controller.

3.4. Accelerometers: One (1) accelerometer, cable and 3 axes mounting block provided. Four (4) channel GRMS meter capability to allow a total of four (4) accelerometers to be monitored simultaneously. Optional analysis package allows up to 12 accelerometers to monitored.

3.5. Serial Ports: RS232/485 MODBUS

4. Software

4.1. HanseView™: For temperature and vibration programming and control.

5. Safety

5.1. Door Interlocks: Door Interlocks shut off system operation.

5.2. Emergency Power Off (EPO): EPO activation shuts off system operation

5.3. Over/Under Limit: FM approved limit with stand-alone sensor placed in air.

6. Utilities

6.1. Electric: 240V 3 Ph 30 FLA

6.2. Liquid Nitrogen: 3/8" (9mm) Supply 40/50 psig

6.3. Compressed Air: 3/8" (9mm) Supply 120 psig, 11 SCFM

6.4. Exhaust Ports: One (1) 2" (50mm) dia. vented to outside.

7. Installation

7.1. The customer is responsible for unloading system and rigging into place.

7.2. Utilities and services necessary for system operation, electrical, LN2, compressed air, exhausts, etc. shall be provided by customer and connected to the system.

7.3. Any leasehold improvements or building alterations are the responsibility of the customer.

8. Options

8.1. Humidity: Direct Injection, 10 to 85% RH from 25º to 65º C, Capacitance Sensor.

8.2. HanseView TM Vibration Analyzer: Control/Analyzer/Data Logger with 4 Accelerometer channels.

8.2.1.Additional Accelerometer Channels: Additional four (4) Accelerometer channels up to a total of eight (12). Includes Current Source.

8.2.2.Additional 14 thermocouples: Total of 16 monitored (1 dedicated plenum air, 1 specimen). Data is integrated into HanseViewTM Control or Analyzer.

8.3. Additional Accelerometer: Model Dytran 3030B5, 500 Grms Range with cable.

8.4. Additional Mounting Block: Three axes.

8.5. Communication Ports: IEEE 488 GPIB and optional Ethernet TCP/IP.

8.6. Vibration Fixtures: Specially designed for HALT/HASS applications.

8.7. LN2 System: Complete installation, piping and controls.

8.8. Stand-Alone:

8.8.1. Temperature Cycling Chambers

8.8.2. Six- degree-of-vibration (6dof) Vibration Tables

Note: Specifications are subject to change without notice.