

VTC-6 HALT/HASS Chamber Specifications





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System Features

HALT/HASS Chamber:

Up to 100 Grms with markedly improved Air Consumption/Grms.

U.S. Patentend.

This new and improved system is based on 15 years of continuous development and combines rapid thermal cycling of products under test with six-degree-of freedom (6DoF), singularly, or in combination.

High Rate™ Liquid Nitrogen Cooling System:

3 Phase Solid-State Infitrol™ proportional control of balanced electric heaters wire balanced system.

HighRate™ Liquid Nitrogen Cooling System:

Direct atomization in control plenum, proportional control and redundant ball safety valve.

Adjustable Air Flow Plenum:

For directing airflow to product. Multiple 3" round ports on each side of the chamber for distributed air flow to product.

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. .

System Warranty:

Three (3) year warranty for Vibration Table, Vibrators, Controller, and Heater SCR.

Summery of Hanse Chamber Features

| CHAMBER FEATURES | Hanse |
|--|-------|
| Pressurized plenum | X |
| Proportional heating, Cooling, and vibration | X |
| SCR heater control and breaker isolated | X |
| Breakers or Fuses on all 3 phases lines | X |
| All instruments and related board on breakers | X |
| Watch Dog circuit available on request | X |
| Front Panel Display and manual control | X |
| Programable maintenance PLC optional | X |
| Interlocked safeties doors, fans, heat, cool, vibration | X |
| Balanced heater system | X |
| 3 Phase monitored for phase loss and balance | X |
| Fans monitored and interlocked for running | X |
| Heaters and LN2 interlocked to fans running | X |
| Timer to hold heat, cool, and vibration until fans running | X |
| Electrical meets all NEC code with UL / CE marked components | X |
| Chamber vented by one 4" vent on top | X |
| Positive dry air purge in chamber, can be changed to GN2 | X |
| Two 20" x 20" Windows | X |
| Optional window on side | X |
| Halogen 120VAC adjustable lights | X |
| FM approved High/Low Limit control with user set able | X |
| Multi point manual door latch points | X |
| Galvanneal Paintlok™ external liner | X |
| Over sized hinges for door stability | X |
| All wires and terminals clearly labeled | X |
| Full set of wiring and air schematics | X |

Summery of Hanse Vibration Features

| VIBRATION FEATURES | Hanse |
|--|----------|
| Range of vibration 0 to 100 GRMS (25-30° C) | X |
| Easy Self starting vibrators | X |
| Self oiling vibrator system | X |
| High tempter hose with bulk head fittings | X |
| Easy removable hose (JIC fitting) | 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° C environment | X |
| Requires clean dry air | X |
| Balanced vibrators for load size | X |
| Vibrators able to be retrofit to other systems | X |
| Three (3) size vibrators available | X |
| Precision air control regulators | X |
| insulated vibration table | X |
| Stainless steel mounting insert 3/8-16 or M10 | X |
| Full table surface no restrictions | X |
| Ceramic cover insulation | X |
| Gasket around table from environmental compartment | X |
| 3 Year warranty on table and vibrators | X |

PERFORMANCE

1.1 Temperature:

- 1.1.1 **Range:** -100° to +200° C
- 1.1.2 **Product Change Rate:** 70° C/min (-65° to +100° C).
- 1.1.3 **Stabilization:** ± 1° C after stabilization. (Stabilization < 2 minutes).
- 1.1.4 **Cooling:** Liquid Nitrogen (LN2) direct injection.
- 1.1.5 **Heating:** 48 KW Nichrome wire heaters, SCR controlled.
- 1.1.6 **Thermocouples:** One (1) air, one (1) for specimen.

Vibration

- 1.2.1 **Tri-Axial:** Six-Degree-of-Freedom (6DoF) Vibration, non-coherent broadband vibration 10-10,000Hz, up to 100 Grms, 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:** 30" x 30" (762mm x 762mm) with forty nine (49) 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) Large and Three (3) Medium pneumatically actuated. Table vibration, ± 1 Grms within one (1) minute of settling.
- 1.2.5 **Maximum Load:** 700 lbs (317 kg)

Chamber Construction

- 2.1 **Interior:** 36"W x 36"D x 36"H (914mm x 914mm x 914mm)
- 2.2 **Exterior:** 60"W x 49"D x 97.5"H (1524mm x 1245mm x 2477mm)
- 2.3 **Doors:** Two (2). One full opening both front and back.
- 2.4 **Windows:** Two (2) Tempered Multi-pane 20" x 20". One (1) in each door. Heated to prevent condensation
- 2.5 **Light:** Two (2) lights
- 2.6 **Ports:** Two (2) 6" dia. (150mm) 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:** 2,500 lbs (1,133 kg)

Instrumentation

- 3.1 Programmable Temperature and Control:** Programmable temperature ramps. Closed loop cascade temperature control of product under test including Ethernet 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. Optional analysis package allows up to 12 accelerometers monitored.
- 3.5 Com Ports:** Ethernet

Software

- 4.1 ProcessView HV:** For temperature and vibration programming and control.

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 air sensor.

Utilities

- 6.1 Electric:** 480V 3 Ph 65 FLA
- 6.2. Liquid Nitrogen:** 1/2" (13mm) Supply 40/50 psig
- 6.3 Compressed Air:** 3/4" (19 mm) Supply 120 psig, 55 SCFM
- 6.4 Exhaust Ports:** One (1) 4" (100mm) Dia. vented to outside.

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.



Options

- 8.1 Humidity:** Direct Injection, 10 to 85% RH from 25° to 65° C, Capacitance Sensor.
- 8.2 WebDaq 504:** Vibration Analyzer Data Logger with 4 Accelerometer channels.
- 8.3 Additional Universal Inputs:** Up to 24 monitored and data logged universal inputs. Thermal Couple, RTD, Voltage, mA.
- 8.4 Additional Accelerometer:** Model Dytran 3030B5, 500 Grms Range with cable.
- 8.5 Additional Mounting Block:** Three axis.
- 8.6 Vibration Fixtures:** Specially designed for HALT/HASS applications.
- 8.7 LN2 System:** Complete installation, piping and controls.
- 8.8 Anti Condensate:** Heaters to assist in frost or condensation on door and external surface of chamber.
- 8.9 Stand-Alone:**
 - 8.9.1** Temperature Cycling Chambers
 - 8.9.2** Six- degree-of-vibration (6dof) Vibration Tables
- 9.0 Caster wheels:** Caster with leveling foot, one person operated

Note: Specifications are subject to change without notice.
Any Hanse chamber can be modified to fit your requirements.



Hanse VTC Series Stander Chambers Offerings

WWW.HanseEnv.com

+1-269-673-8638

Contact sales@hanseenv.com

HANSE VTC SPECIFICATIONS 2015 (VIBRATION THERMAL CHAMBERS)

| | VTC-1 | VTC-1.5 | VTC-4 | VTC-6 | VTC-9 | VTC-9 Eco | VTC-16 | VTC-18 | VTC-25 | VTC-32 | VTC-36 |
|-------------------------------|---------------------|----------------------|---------------------|---------------------|---------------------------|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Table Size Inch | 12x12 | 20x20 | 24x24 | 30x30 | 36x36 | 36x36 | 48x48 | 36x78 | 60x60 | 48x102 | 70x70 |
| Internal Workspace WxDxH Inch | 18x18x18 | 24x24x23 24x24x34 | 30x30x36 | 36x36x36 | 42x42x38 42x42x50 | 42x42x38 | 54x54x38 54x54x50 | 42x84x36 42x84x50 | 66x66x38 66x66x50 | 54x108x38 54x108x50 | 76x76x38 76x76x50 |
| External Inch WxDxH | 28x30x70 | 40x42x81 | 60x44x95 | 66x49x96 | 72x55x107 | 72x55x96 | 84x67x107 | 72x110x107 | 96x79x107 | 84x134x107 | 106x89x107 |
| Temperature Range | -60° to 175° C | -75° to 175° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C | -100° to 200° C |
| Change Rate | 60° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min | 70° C/Min |
| Max Load lbs. | 100 | 250 | 700 | 700 | 700 | 700 | 500 | 500 | 500 | 500 | 500 |
| Doors | Front | Front | Front and Rear | Front and Rear | Front and rear Bi Parting | Front and Rear | Front and rear Bi Parting | Front and rear Bi Parting | Front and rear Bi Parting | Front and rear Bi Parting | Front and rear Bi Parting |
| Windows | 1 | 1 | 2 | 2 | 4 | 2 | 4 | 4 | 4 | 4 | 4 |
| Ports | 2 x 4" | 1 x 6 1 x 1" | 2 x 6" 1 x 1" | 2 x 6" 1 x 1" | 3 x 6" 1 x 1" | 2 x 6" 1 x 1" | 3 x 6" 1 x 1" | 6 x 6" 2 x 1" | 3 x 6" 1 x 1" | 6 x 6" 2 x 1" | 3 x 6" 1 x 1" |
| Liquid Nitrogen 40-50 psig | 3/8" NPT | 3/8" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT | 1" NPT |
| Compressed Air*** | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar | 120 psig 8.3 Bar |
| Compressed Air Inlet NPT*** | 1/2" | 1/2" | 3/4" | 3/4" | 1" | 1" | 1" | 2 x 1" | 1.25" (1.5") | 2 x 1" | 1.25" (1.5") |
| Air Flow SCFM*** | 15 | 25 | 45 | 55 | 120 | 120 | 100 (200*) | 120 (240*) | 150 (300*) | 200 (400) | 225 (450*) |
| FLA-480V 3 PH | 30** | 50 | 60 | 125 | 125 | 125 | 125 | 150 | 175 | 250 | 245 |
| FLA-380V 3 PH | 20 | 65 | 75 | 160 | 160 | 160 | 160 | 190 | 220 | 315 | 310 |
| Weight lbs. | 650 | 1,000 | 1,900 | 2,500 | 4,000 | 3,500 | 4,250 | 7,000 | 6,000 | 8,500 | 7,000 |

Note:

- * Ultra High Requires 1/4" added to Supply Size
- ** 240V 3 Phase
- *** TC models Compressed air Inlet is 1/2" NPT 100 PSI 10 SCFM
- All Specifications subject to change.