Hanse Environmental, Inc.

VTC-36 HALT/HASS System Specification

(Image for representation only)

System Features

HALT/HASS Chamber:

Up to100 Grms with markedly improved Air Consumption/Grms.
U.S. Patentend.

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.

High Rate™ Liquid Nitrogen Cooling 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, proportional control and redundant ball safety valve.

Adjustable Air Flow Plenum:

For directing airflow to product. Total of Twenty-four (24) 3” dia. (75mm) ports. Twelve (12) on each side of chamber for distributed airflow 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 4-20ma	X
SCR heater control and breaker isolated	X
Breakers 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 two 6” vent on top	X
Positive dry air purge in chamber, can be changed to GN2	X
Four 12” x 24” 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 air operated 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:** -100º to +200º C
- **1.1.2 Product Change Rate:** 70º C/min (-65º to +100º C)
- **1.1.3 Stabilization:** ± 1º C after stabilization. (Stabilization < 2 minutes)
- **1.1.4. Cooling:** Liquid Nitrogen (LN2) direct injection
- **1.1.5 Heating:** 198 KW Nichrome wire heaters, SCR controlled
- **1.1.6 Thermocouples:** One (1) air, one (1) for specimen, one (1) safety

1.2 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 Size:** One (1) 70” x 70” (1778mm x 1778mm)
- **1.2.3 Table Mounting:** Two Hundred fifty six (256) 3/8-16 (M10) standoff mounting inserts.
- **1.2.4 Table Pattern:** 4” x 4” (100mm x 100mm) Mounting Pattern
- **1.2.5 Accelerometers:** One (1) Model Dytran 3030B5, 500 GRMS Range with cable and three axes mounting block.
- **1.2.6 Vibration Actuators:** Nine (9) Large and Nine (9) Medium pneumatically actuated. Table vibration, ± 1 GRMS within one (1) minute of settling.
- **1.2.7 Maximum Load:** 500 lbs.(227 kg)

Chamber Construction

2.1 Interior:

- **2.1.1 Upper Position:** 76”W x 76”D x 38”H (1930mm x 1930mm x 965mm)
- **2.1.2** Lower Position: 76”W x 76”D x 50”H (1930mm x 1930mm x 1270mm)

2.2 Exterior: 106”W x 89”D x 107”H (2692mm x 2261mm x 2718mm)

2.3 Doors: Two (2). Bi-Parting opening both front and back.

2.4 Windows: Four (4) Tempered Multi-pane 12” x 24” (279mm x 584mm). One (1) in each door.

2.5 Light: Six (6) lights adjustable

2.6 Ports: Six (6) 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: At 10 GRMS, nominally 68 dBA @ 1 meter.

2.9 Weight: 7000 lbs (3175 kg)

Instrumentation

3.1 Hanse View™ Programmable Temperature and Control: Programmable temperature ramps. Closed loop cascade temperature control of product under test including RS232/485 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 be monitored.

3.5 Serial Ports: RS232/485 MODBUS

Software

4.1 HanseView™: 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 sensor placed in air.

Utilities

6.1 Electric: 480V 3 Ph 245 FLA

6.2 Liquid Nitrogen: One x 1” (25mm) Supply 40/50 psig

6.3 Compressed Air: 1.25” (25 mm) Supply 120 psig, 225(450) SCFM

6.4 Exhaust Ports: Three (3) 6” (150mm) 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 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 sixteen (16). 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: Ethernet TCP/IP.

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 and windows.

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

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Hanse VTC Specifications 2015 (Vibratrion 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.