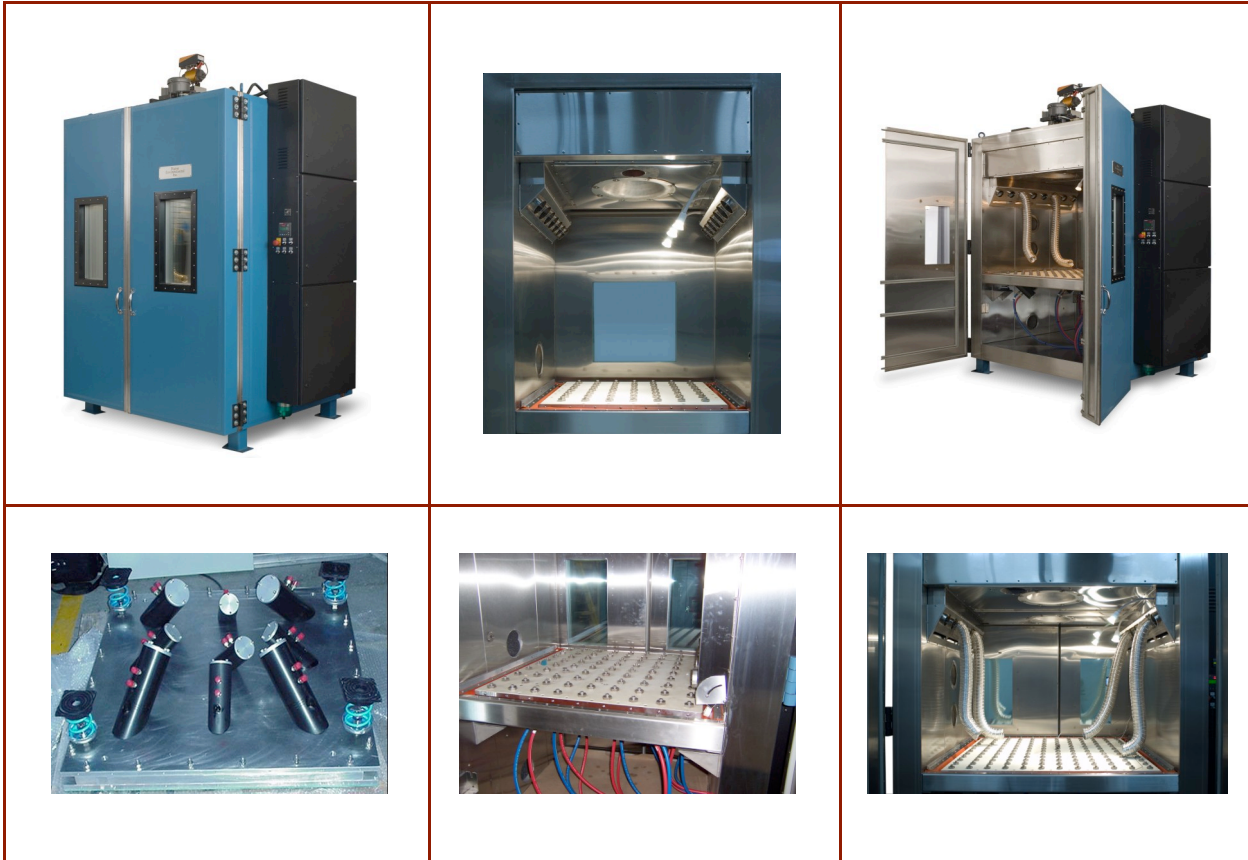


# HANSE Environmental



## Product Catalogue



**Hanse Environmental** has been a leading global supplier of HALT/HASS, Environmental Stress Systems, specialized Environmental chambers, environmental processing systems, and six-degree-of-freedom vibration systems. As a leader of innovation in the industry, Hanse has now introduced the 100Grms vibration system, which has once again placed Hanse above and beyond the competition. Our liquid nitrogen consumption is already 20% less than the industry standard, and our new patented system will be over 50% more efficient than our competitors' systems. Please feel free to contact us to discuss how Hanse Environmental can meet and exceed all of your expectations.

Sincerely,  
John K. Hanse

Hanse Environmental offers engineering test solutions along with unique and customized environmental test equipment and systems designed to ensure product quality and reliability. Hanse offers a complete line of advanced Highly Accelerated Lift Test (HALT) and Highly Accelerated Stress Screening (HASS) chamber systems.

## Our Products



**Environmental Stimulation** of products for improved quality and life utilizing HALT and HASS typically utilize vibration, temperature, and optional humidity either singularly or in combination to precipitate product latent defects. Hanse features the industry's widest range of environmental stimulation chambers, including:



**Highly Accelerated Life Test (HALT)** The HALT test is utilized during product development to determine initial weaknesses in the product by incrementally increasing stress levels to reach component destruct levels and using the results to replace weaker components, thereby increasing product reliability. Improved product life can also be accomplished using HALT.



**Highly Accelerated Stress Screening (HASS)** The HASS Process is a production screen that helps to assure that weak components can be discovered and eliminated during the production process. HALT experience and step stress empirical evaluation can be implemented to establish a good screen. This process must be evaluated over time to assure that it is effective.



**Environmental Simulation** of natural and induced environments have been the traditional test applications for product design evaluation and development. Simulation of product transportation, storage, and use environments typically include temperature, thermal shock, humidity, vibration, shock, salt spray, and altitude. Hanse is a leader in the design and construction of specialized environmental equipment solutions.



**Environmental Processing** is utilized in certain manufacturing applications requiring environmental conditioning and typically require special and uniquely customized solutions. Hanse is an innovation leader in finding such solutions.



# HANSE Environmental HALT/HASS Specifications



## Performance

- **Temperature Range:** -100 to +200°C
- **Temperature Change Rate:** 70° C/min (-65 to +100°C with 50 lb Aluminum Fin Coil Load)
- **Temperature Control:** ± 1°C after stabilization.
- **Tri-Axial Vibration:** Six-Degree-of-Freedom (6DoF) Vibration, non-coherent broadband vibration dc-10,000Hz **100 Grms.** 90% of vibration energy in 5-4000Hz for maximum low energy in low frequency range. Ultra-Hi performance option in Models VTC-16 and 25.



## System Features

- **HighRate™ Heating System:** 3 phase solid-state Infitrol™ proportional control of open nichrome heater wire balanced system.
- **HighRate™ Liquid Nitrogen Cooling System:** Direct atomization in control plenum, Infitrol™ proportional control valve for Models VTC-4 and up (Optional for VTC 1.5) and redundant solenoid safety valve.
- **Adjustable Air Flow Plenum:** For directing airflow to product. Minimum (4) 3” diameter ports for distributed airflow to product — Models VTC-4 and up.
- **Vibration Exciters:** 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.



## Instrumentation

- **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. Optional IEEE 488 GPIB and optional Ethernet TCP/IP are also available.
- **Programmable Vibration Control:** Programmable vibration ramps, gRMS level, and test duration all synchronized with the temperature controller. Four (4) accelerometers can be monitored simultaneously.



## Options

- **Humidity:** Direct injection, 10 to 85% RH from 25 to 65°C , Capacitance sensor.
- **HanseView™:** PSystem control of temperature and vibration. Control, Control/Analyzer, and Control/Analyzer/Data Logger options.
- **Vibration Fixtures:** Specially designed for HALT/HASS applications.
- **LN<sub>2</sub> System:** PSystem control of temperature and vibration. Control, Control/Analyzer, and Control/Analyzer/Data Logger options.

Model	VTC-1	VTC-1.5	VTC-4	VTC-6	VTC-9	VTC-16	VTC-25
Table	12"x12"	18"x18"	24"x24"	30"x30"	36"x36"	48"x48"	60"x60"
Internal	12"x12"x12"	24"x24"x23"	30"x30"x36"	36"x36"x38"	42"x42"x38" 42"x42"x50"	54"x54"x38" 54"x54"x50"	66"x66"x38" 66"x66"x50"
External	28"x30"x70"	40"x42"x81"	60"x44"x95"	66"x49"x107"	72"x55"x107"	84"x67"x107"	96"x79"x107"
Max. Load lbs	100	250	700	700	700	500	500
Doors	1	1	2	2	2 Dual	2 Dual	2 Dual
Windows	1	1	2	2	2	2	2
Ports	2	2	2	2	4	4	4
Nitrogen 40/50 psig	3/8" supply	3/8" supply	1" supply	1" supply	1" supply	1" supply	1" supply
Compressed Air 100 psig	3/8" Supply 30 CFM	3/8" Supply 30 CFM	3/4" Supply 50 CFM	3/4" Supply 60 CFM	3/4" Supply 65 CFM	3/4" Supply 80CFM	3/4" Supply 105(208)CFM
FLA Amps 480V 3 PH	30	75	150	150	150	150	175
Weight lbs	650	750	1900	3000	4000	5000	6000



## Environmental Chambers



We have the largest line of standard **HALT/HASS Chambers** in the industry and we are an innovation leader in providing unique solutions to the particular requirements of our clients.

Our **PHEONIX PROGRAM** allows us to **upgrade your old chambers** (even non-Hanse Chambers) with new vibration systems, new controllers and LN<sub>2</sub>.



## Vibration Fixtures



Our customized and optimized vibration fixtures carry the best warranty in the industry, with a **three year warranty on our vibrators and vibration tables**. Many of our satisfied customers have had our tables running 24 hours per day for years at a time! Many of those customers are more than willing to provide **testimonials** as to the reliability of the Hanse Vibration Fixtures and Systems.



## Instrumentation



Our **HanseView™** system allows for temperature/humidity, vibration, and event control of your chamber. Centralized Command and Control can also be designed for any number of chambers, and you can install HanseView™ for both new and existing installations.



## Liquid Nitrogen Tanks



LN<sub>2</sub> systems, including tanks, vacuum-jacketed piping, and safety controls can be supplied by Hanse as an integral part of your complete test system. **Hanse can install your LN<sub>2</sub> system anywhere in the world**. Tours of completed installations can be taken at your request.



## Seminars and Consulting



As an industry leader, Hanse has been conducting **worldwide seminars** on environmental testing and HALT/HASS in the early 1990's. Contact us for a list of upcoming seminars or for inquiries regarding the possibility of conducting a seminar for your company or institution.



## Warranty and Support



We offer a **3-year unconditional warranty** on our vibrators and vibration tables! This is the best warranty in the industry and is backed up by our **worldwide support organization** that has service centers in **North America, Europe, South Korea, Taiwan, and China**.



## Seven Questions You should ask before you decide to buy your HALT/HASS System



### As a Pioneer/Industry Leader in HALT/HASS, are you cost competitive?

**Absolutely.** Our constant emphasis on technological and manufacturing advancements have made us not only the leader in product innovation, but the leader in lower cost products and services. Not only can we offer lower pricing on chambers, but our chambers save on energy and LN<sub>2</sub> costs as well!



### Do you guarantee the life of your Vibration Tables and Exciters?

**Yes.** We offer the best vibrator warranty in the industry and guarantee our vibrators and tables unconditionally for **3 years!** Our vibrators reliably impart repetitive shock impulses to a vibration table and provides a six-degree-of-freedom vibration up to and exceeding 100 Grms!



### Do you have a limited range of HALT/HASS chamber models?

**Not at all.** We offer the largest standard line of HALT/HASS chamber systems in the industry. We have 8 energy efficient models that can accept vibration tables from 12" x 12" to 70" x 70". Compare this to some of our competitors who offer 2 to 4 standard models.



### Can you provide customized HALT/HASS chamber systems?

**Without question.** Hanse has long been known for its unparalleled ability to design and produce chambers that meet unique and unusual customer requirements. When our customers present us with specialized testing needs, we respond with customized solutions! Call us with your specialized needs!



### Are all HALT/HASS chambers energy efficient?

**Ours are!** Our systems typically provide 50% or more savings on energy consumption over that of our competitors. Save on liquid nitrogen, electricity, and air costs by making the choice to purchase Hanse chambers.



### What is your latest HALT/HASS technological development?

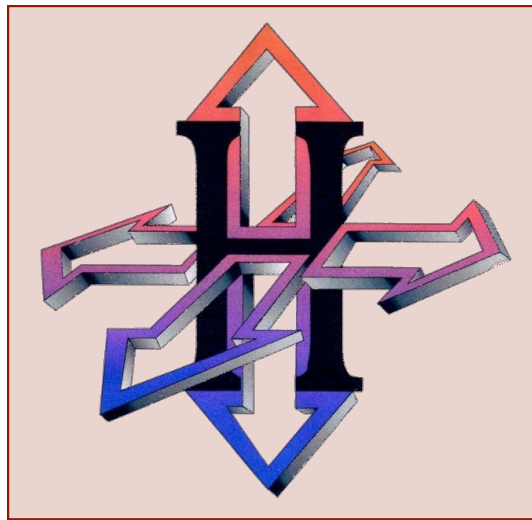
**100 Grms!** Our latest proprietary vibration table uses a ceramic coating and an advanced design that provides a 6dof vibration spectrum that concentrates 90% of vibratory energy in the 5-4000Hz range! Vibration on these tables is essentially equal in the x, y, and z axis, assuring optimized excitation of the product.



### Can you provide a total turnkey HALT/HASS system?

**Absolutely.** We have 15 years of experience as a system integration company. We can provide your company or institution with HALT/HASS chambers, vibration tables and fixtures, LN<sub>2</sub> tank, vacuum jacket lines, regulators, and all industry safeguards. We are a one-stop shop for all of your testing needs.





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