

Rigel Thermal Vacuum Systems

Turnkey thermal vacuum systems to subject your spacecraft, systems, and components to the rigors of space

Dynavac distills forty years of space simulation expertise into our *Rigel* line of thermal vacuum systems optimized for testing larger spacecraft and flight hardware in the mini- to medium satellite classes.

The *Rigel* family of thermal vacuum systems deliver tightly-controlled temperature profiles using our Thermal Control Units (TCUs) to deliver precisely-conditioned gaseous nitrogen to a thermal shroud and platen.

Chambers are available in cylindrical, cubic, and D-shaped geometries to accommodate different test article shapes and make efficient use of facility space. Chambers up to 16 feet in diameter / width are constructed in Dynavac's facilities then integrated and tested as a full system before shipping.

Dynavac is the leader in thermal vacuum systems for space simulation and a trusted partner of aerospace companies, universities, and government agencies.



System specifications

Chamber

- Cylindrical, box, and D-shaped chambers
 - 8 to 16 feet diameter/ width
 - Type 304 stainless steel
- Leak tested to $< 1 \times 10^{-9}$ std/cc/sec
- Full opening door with optional viewport
- Full selection of user ports
 - User port selection and location configured to meet customer access requirements
- Port for dry nitrogen repressurization included

Pressure

- Base pressure $< 1 \times 10^{-6}$ Torr
- Dry mechanical roughing pump
- High vacuum cryopumps
 - Turbomolecular pumps available as option
- Cryopanel options for enhanced water vapor pumping speed

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Thermal

- Thermal Control Unit (TCU) supplies conditioned gaseous nitrogen to thermal shroud and platen
 - Single or multi-zone shrouds
- Temperature range -180 to +150C
- Temperature ramp rate > 1C/minute

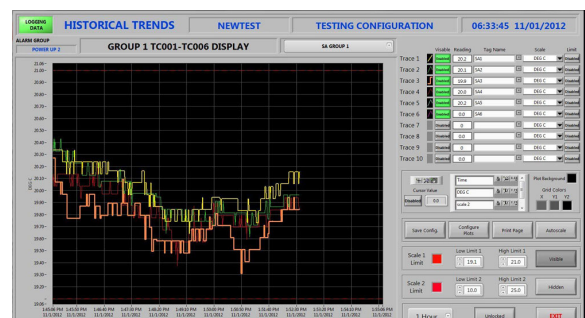
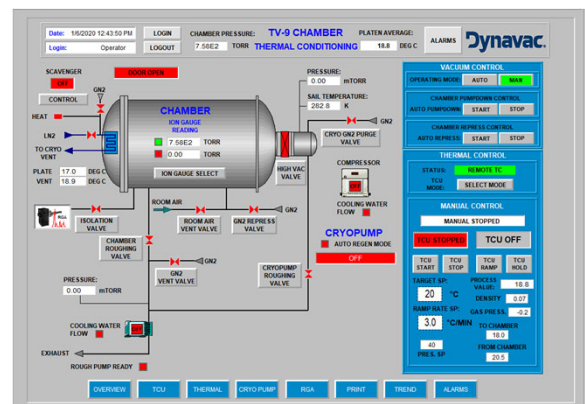
Platen

- Platen is fully integrated into thermal system and actively controlled
- Aluminum construction
- 1/4x20 threaded Nitronic inserts on 4" grid



System control

- Comprehensive and intuitive user interface hosted on PC running LabVIEW
 - 24" HD LCD monitor
- User interface located adjacent to chamber or in remote control room
- User can define and store test profiles
- System and component states displayed and controlled through status screens
- Optional Type-T thermocouples available for user
 - 1 sample/ second minimum sample rate
- Chamber pumping and thermal systems controlled by embedded PLC to protect equipment and operator; provides fail-safe operation on power loss
- Remote diagnostic capability included
- No ongoing license or subscription fees



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Accessories

- A wide range of accessories are available, including:
 - Cryopanels, cold plates, and cold fingers
 - User signal and power feedthrough plates
 - Thermal data acquisition system (TDAS)
 - Auxiliary thermal control system (ATCS) delivers controlled power to test article
 - Test article loading carts
- Contact Dynavac for a full list of accessories

Dynavac support

- Systems are fully tested prior to shipping
- System documentation includes Operation and Maintenance Manual, as-built mechanical drawings, and electrical schematics
- Covered by standard one-year Dynavac warranty
- On-site installation and start-up service available
- Annual maintenance contracts available

