

## Sirius-LN2 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 Sirius line of thermal vacuum systems optimized for testing micro and mini class spacecraft and flight hardware.

Dynavac's Sirius-LN2 thermal vacuum systems deliver tightly-controlled temperatures using a direct-injection liquid nitrogen with a cooled thermal shroud and platen, and an electrically-heated platen.

These standard platforms are highly configurable with a range of options. Dynavac also offers fully custom systems to meet unique test requirements.

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 chambers
  - 3 to 8 feet diameter; 3 to 8 foot lengths
- Type 304 stainless steel; #4 finish
- Leak tested to  $< 1 \times 10^{-9}$  std/cc/sec
- Full opening door with optional 6" viewport
- Standard selection of user ports (see chart below)
  - Custom port selection and locations available as option
- Port for dry nitrogen repressurization included

#### Pressure

- Base pressure  $< 1 \times 10^{-6}$  Torr
- Pumping system fully integrated into operator controls
- High vacuum cryopump(s)
  - Turbomolecular pump available as option
- Cryopanel options for enhanced water vapor pumping speed

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## Thermal

- Temperature range -180 to +150C
- Temperature ramp rate > 1C/minute
- Liquid nitrogen flow rates depend on thermal load; contact Dynavac for estimated requirement
- Thermal shroud standard; coated with optically dense paint

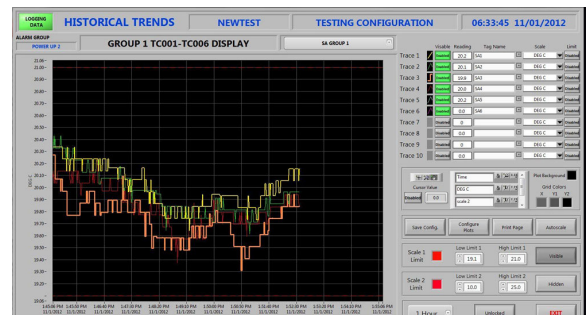
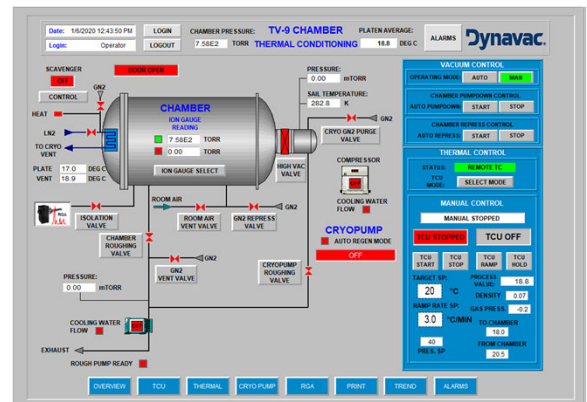
## Platen

- Actively controlled platen is fully integrated into thermal system
- Aluminum construction
- Platen mounted on sliding rails to aid test article loading and unloading
- 1/4x20 threaded Nitronic inserts on 4" grid



## System control

- Comprehensive and intuitive user interface hosted on PC running LabVIEW with 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 samples/ 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



# Sirius-LN2 Thermal Vacuum Systems

## Standard User Ports

		Chamber length (feet)					
		3	4	5	6	7	8
Chamber diameter (feet)	3	CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 4x				
	4		CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 4x		
	5		CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 6x		
	6			CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 4x	CF2.75 3x NW50 2x ISO320 6x	
	7				CF2.75 3x NW50 2x ISO320 6x	CF2.75 3x NW50 2x ISO320 6x	CF2.75 3x NW50 2x ISO320 8x
	8					CF2.75 3x NW50 2x ISO320 8x	CF2.75 3x NW50 2x ISO320 8x

- User port selection and location can be configured to meet customer requirements
- Port for dry nitrogen repressurization included

### Accessories

- A wide range of accessories are available, including:
  - Cryopanel, 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
- 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

**Custom sizes, configurations, and performance available on request**

***Dynavac- creating the environment for your mission success***