TVC 590-650 RC

Rectangular Thermal Vacuum Chamber for Advanced Aerospace Testing

Nanovac AB

The Galaxy TVAC TVC590-650 RC is a versatile rectangular thermal vacuum chamber designed for rigorous aerospace testing. Manufactured in stainless steel, it provides robust construction and accommodates a wide range of applications—ranging from component outgassing to propulsion subsystem tests. A slide-out thermal plate (configured as an option) simplifies loading and positioning of DUTs, while an optional thermal shroud can be integrated for enhanced temperature control.
A front-swinging door (left- or right-mounted) ensures easy access, and the system is supported by a powerful vacuum subsystem for stable, repeatable test conditions and the system can be configured for ballroom installation or thru-wall.



Equipped with our award-winning SpaceSoft™ automation software and on-board industrial PC, the TVC590-650RC offers advanced data logging, recipe-based operations, and real-time monitoring. For teams requiring precise environmental control, custom flange configurations, and integrated partial-pressure analysis, this chamber delivers a flexible platform that can evolve alongside your testing needs.

Key Features & Highlights

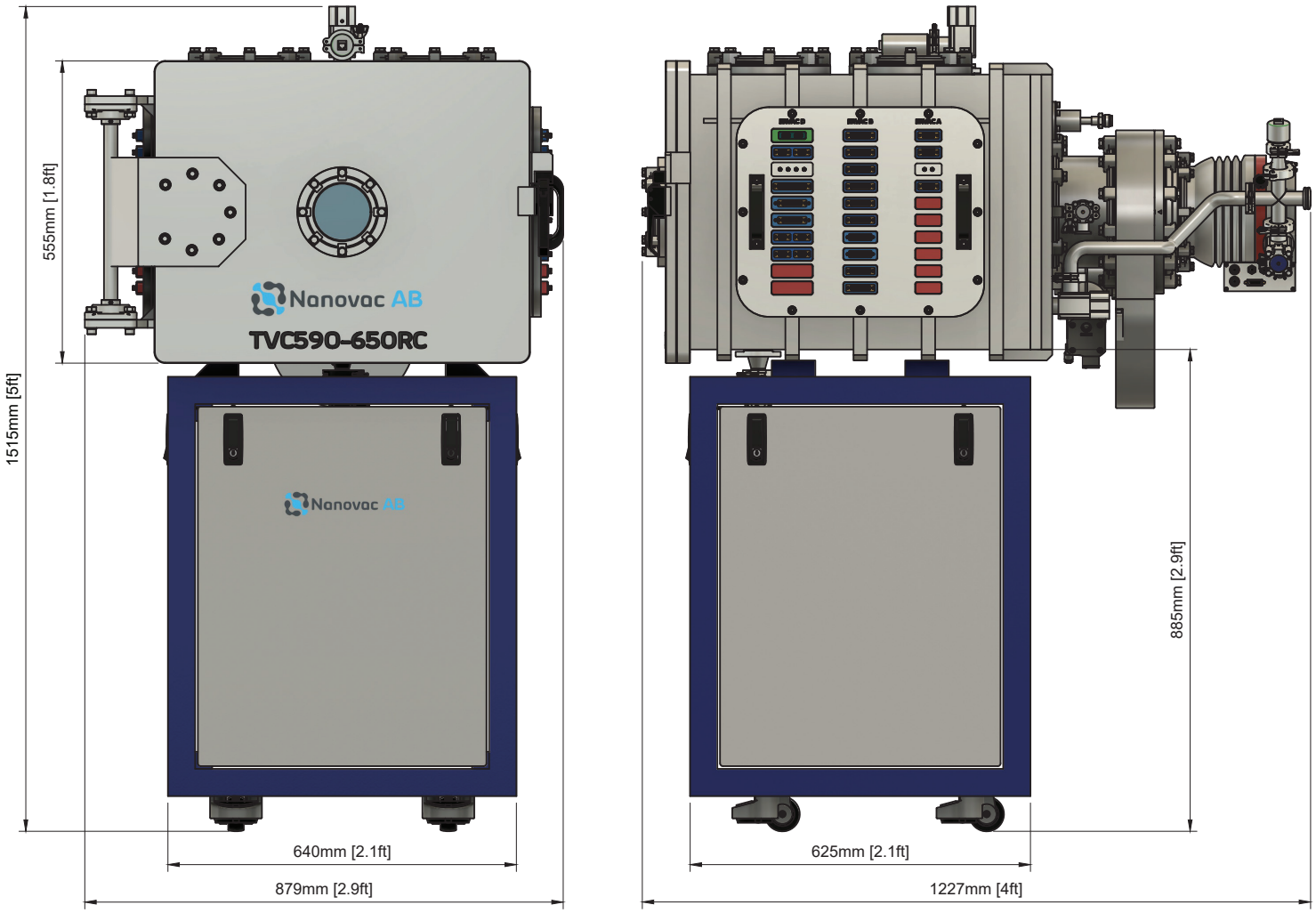
- **Robust Vacuum Performance**
  – 650 l/s turbo molecular pump with 15 m³/h dry backing pump
  – Integrated wide-range vacuum gauge and two Pirani gauges for foreline/backing

- **Modular, Customizable Design**
  – Rectangular stainless-steel chamber with default 4×ISO160 flanges (door with ISO100 viewport), ISO200 high-vacuum port, 2xCF35 facility flanges, and two Nanovac rectangular ports
  – Door mount can be swapped (left/right) to suit your lab layout

- **Award-Winning Space-Soft™ Software**
  – Windows 11 on an industrial PC; advanced cycle programming adhering to ANSI/ISA 88
  – Patent-pending Quick-Trend™ algorithm for partial pressure monitoring (requires RGA option)
  – Full API for real-time DUT interaction and data synchronization

- **Automation & Safety**
  – On-board PLC ensures all safety interlocks meet EN ISO 13849-1
  – Distributed I/O architecture reduces wiring and simplifies future upgrades

- **Remote Connectivity**
  – Industrial VPN router for remote monitoring, system updates, and email alerts
  – Secure remote access for real-time supervision and support



Category	Specification
Internal Dimensions	600mm (W) x 465mm (H) x 650mm (D) Thermal table default dimension 500mm x 500mm Capable of handling up to 1x16U cubesat (without solar panel assembly)
Door	Front swinging door (left/right mounting possible)
Chamber Material	Stainless Steel (SS304) - other materials on request
Vacuum Pumping	650 l/s turbo molecular pump (gate valve option) (smaller turbo available) 15 m^3/h dry backing pump (larger pump available)
Vacuum Level	<1e^{-6} mbar (empty, clean chamber)
Pressure Measurement	1 x Wide Range Gauge (Chamber Pressure) 2 x Pirani Gauges (Foreline/Backing)
Temperature Sensors	4 independent TC channels (Type K) by default (can be upgraded to accomodate more channels if required)
Temperature Range	-70°C to +120°C (default) (~600W cooling capacity at -60°C) Other temperatures available - contact us for details LN_2 available as option
Flange Configuration	4 x ISO160 ports, 1 x ISO100 front viewport, 1 x ISO200 high vacuum port, 2 x CF35 Nanovac Vacuum Interface Port, 1 x CF35 (RGA option), 2 x NW25KF, 2 x Rectangular Nanovac Flange (Usable dimension 375mm (W) x 305mm (H))
Thermal Shroud	Prepared interface (option) LN_2 or other cooling solutions available (daisy chain)
Software & Controls	SpaceSoft™ suite under Windows 11 On-board PLC with EN ISO 13849-1 compliance Touch Screen (low cost) option Integrated ANSI ISA 88 database structure + API for advanced DUT control/integration Remote Access through onboard industrial VPN (allows for configurable e-mail notificiations)
Power Requirements	200-230VAC 50/60Hz / 380-415VAC 50/60Hz (current requirement depends on final configuration)

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