

Varian, Inc.
Vacuum Technologies

The Turbo-V 3K-G System

An Advanced Solution
for Thin Film Applications



NOTICE: This document contains references to Varian. Please note that Varian, Inc. is now part of Agilent Technologies. For more information, go to www.agilent.com/chem.

Inspiring Excellence



Agilent Technologies

The Turbo-V 3K-G System: An Advanced Solution for Thin Film Applications

Best Turbo
Solution for
Thin Film
Deposition

The Only Truly "Integrated" System in the Market

- Fully integrated system with on board power supply
- Vent/purge valves control capability
- Integrated diagnostics
- Multiple interface capability
- Lowest power absorption

Oil-free, Robust and Reliable

- Maintenance-free design:
 - no oil refill
 - no preventive maintenance
- MTTF > 200,000 hrs
- More compact electrical motor design reduces rotor diameter (-20%) and improves electrical efficiency (+15%)
- State-of-the-art rotor design reduces weight and mechanical stress (-20%)
- Varian's new rotor-shaft fitting (Patent pending) eliminates rotor tensile stress



Best Footprint to Performance Ratio

- The Turbo-V 3K-G is an optimized solution dedicated to the Thin Film Deposition application
- The highest Argon pumping speed (2050 l/s) for its size allows uniform deposition rates at high substrate throughput
- Highest pumping speed in its class: 2200 l/s for Nitrogen
- Throughput: over 1400 sccm for Nitrogen
- Ramp Up time < 6 mins
- The all-turbo, more compact rotor design delivers highest performance with the smallest footprint

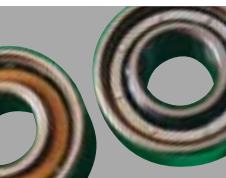
Thermal Efficiency

- New double loop SST cooling channel doubles the heat exchange surface
- Less power consumption (~25%) resulting in lower operating temperature
- Reduced bearing operating temperature extends bearing life

Applications

- TFD processes like:
 - PVD Coating systems
 - Evaporative sputtering applications
 - Glass-coating systems
 - Flat Panel Display substrate processing
 - Thin Film Photovoltaics manufacturing
 - Data Storage
 - Optical Coating
 - Large Area Coating
- Other applications like:
 - Vacuum furnaces
 - Ion Implanters
 - MBE systems

Features and Benefits



Completely Maintenance Free thanks to Varian's dry system lubricant

- No oil
- No risk of system contamination
- No preventive maintenance
- Designed to allow mounting in any position without compromises



Optimized Temperature Monitoring System

- Integrated double loop cooling channel
- Active control and management of pump operating parameters for the highest thermal efficiency
- Assures pumping system operates within specifications for maximum operating life



Integrated Purge and Vent Valve

- Both purge and vent valves are integrated into the pump body
- Valves are managed by the integrated electronics
- Protects suspension from contamination
- Manages for optimum pump slow down



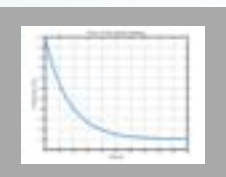
MoniTor & Remote Assist

- Integrated MoniTor card (optional) allows 24/7 monitoring of all pump parameters
- A proprietary Varian Software Package collects all data
- Allows virtual presence of Varian Support Engineers at the user site



Integrated, Waterproof Electronics (IP54)

- Microprocessor based architecture
- Electronics are completely protected in the pump body
- Simplifies pump installation in the system
- Compact design reduces overall footprint and volume



Stop Speed Reading (SSR)

- Continued pump speed reading after the STOP command
- Allows management of pump slow down and shut down time
- Allows controlled venting procedure in combination with integrated purge/vent device (Patent Pending)



Multiple Interface

- Proprietary Varian Profibus® communication card and specific GSD file (optional)
- Serial interface or remote I/O provide communication between the pump and system controls
- Enables the pump to be operated via a PC using T-Plus Software



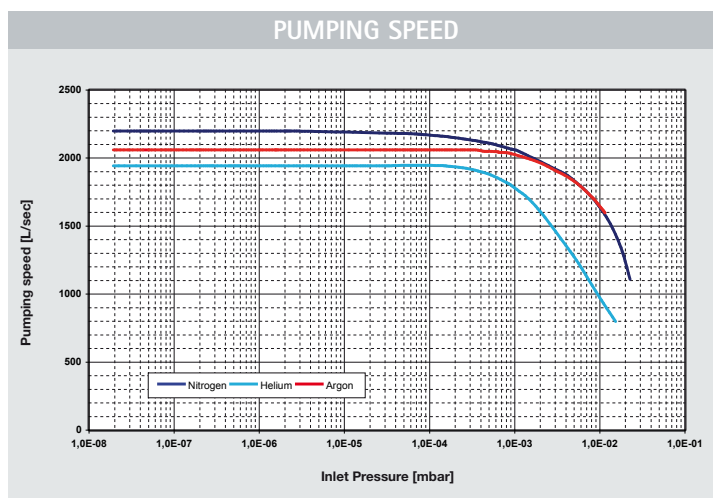
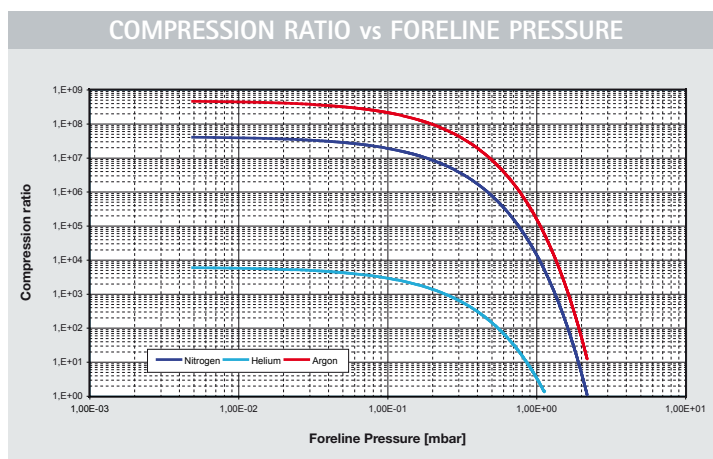
Remote Control Panel

- Enables control of the pump from a rack mounted panel
- Allows manual user interface
- LC Display shows immediate pump status information



Service Capability Worldwide

- 24h Advance Exchange, Factory Repair and Upgrade Programs allow the global coverage of pre- and post-sales support needs



TECHNICAL SPECIFICATIONS

Pumping speed With ISO 250F:

N ₂ :	2200 l/s
Ar:	2050 l/s
He:	1900 l/s

Compression ratio:

N ₂ :	> 1 x 10 ⁷
Ar:	> 1 x 10 ⁸
He:	6 x 10 ³

Throughput (sccm) >1400 for Nitrogen

Base pressure (mbar) <10⁻⁸

Inlet flange ISO 250F

Foreline flange KF40 NW

Rotational speed 31800 RPM

Start-up time < 6 minutes

Foreline pressure < 0.5 mbar

Recommended forepump > 60m³/h (depending on gas flow requirements)

Operating position Any

Cooling methods Water

Weight 52Kg

- Comparisons referred to published competitors' specifications

15-20%
higher
pumping
speed

20-25%
more gas
throughput
capacity

15%
smaller
size
(height)

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ORDERING INFORMATION

PUMPING SYSTEMS (*)

Part Number

Turbo-V 3K-G ISO 250 F System with MoniTorr and integrated purge/vent device	969-8888
Turbo-V 3K-G ISO 250 F System with MoniTorr and Profibus and integrated purge/vent device	969-8889

(*) Pumping Systems include Pump with 230V Integrated Electronics, Inlet Screen installed on the pump, separate center-ring and pre-installed IP54 Mating Connectors.
Both standard models are equipped with Varian's MoniTorr device.
120VAC units available on request

ACCESSORIES

Part Number

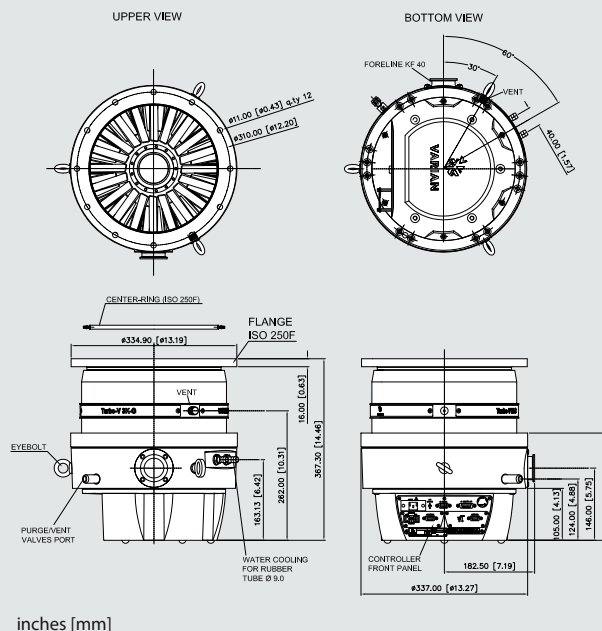
Mains cable NEMA Plug, 3m long	969-9958
Mains cable European Plug, 3m long	969-9957
T-Plus Software and serial cable	969-9883
Water cooling kit for 6x8 (IDxOD) flexible tube	969-9348
Water cooling kit for 3/8 in.ID flexible tube	969-9338

SPARE PARTS

Part Number

IP54 proof mating connectors	969-8960
Inlet screen ISO 250	969-9350
Centering ISO250	969-9144

OUTLINE DRAWING



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