

Varian, Inc.
Vacuum Technologies

The New Unique Varian
Dry Turbo Pumping System:
TPS-compact



Inspiring Excellence



VARIAN

NEW DRY TPS-compact

Plug and pump
with dry scroll
reliability

The new dry TPS-compact is a portable, fully integrated turbo pumping system powered by the Turbo-V 81 MacroTorr or Turbo-V 301 Navigator pumps, backed by the Varian 60 l/min IDP-3 Dry Scroll new generation primary pump. The TPS-compact is the most innovative product of the new TPS Turbo Pumping Systems product family.

Improved Vacuum Performance

Thanks to the combination of high performance turbo drag pumps and the unique IDP-3 dry scroll pump, the system achieves:

- Very high foreline pressure tolerance
- Very high pumping speed and throughput
- Excellent compression ratio

Unique IDP-3 Dry Scroll Pump

- The most compact and light scroll pump on the market
- Innovative hermetic design, with motor and bearings outside the vacuum space
- Robust pumping speed of 60 l/min
- Cost effective and easy tip-seal replacement

Unique Varian Turbo Pump Technology

- No maintenance required: Varian Turbo Pumps don't need oil refills
- Orientation in any position
- Reduced power absorption thanks to the superior scroll pump performance



On board direct pressure reading

- Large Pressure Reading Display
- 110 or 220 V, 50/60 Hz
- I/O and serial interface
- T-Plus Navigator Software to connect to your PC

Active Gauge Capability

- IM-500 Active Inverted Magnetron Transducer 1×10^{-3} Torr to 2×10^{-9} Torr; 1.3×10^{-3} mbar to 2.6×10^{-9} mbar.
- FRG-700 Active Full Range combined gauge: Pirani and Cold Cathode from atmosphere to 5×10^{-9} mbar (7×10^{-9} Torr)
- Gauge Operating Temperature Tolerance from 5°C to 50°C (41°-122°F)
- Pressure data available on three independent channels:
 - On-board display in Torr, Pascal and mbar options
 - Serial communication
 - Analog output
- Pressure gauge can be connected/disconnected from the TPS-compact during normal operation

World-wide Service and Support

- Global network of professional sales and application engineers
- Toll free telephone lines with native language representatives
- Technical/Application/Order Processing/Engineering Support
- Worldwide Repair, Advance Exchange and Upgrade programs available

Features and Benefits

Features

- New Generation Turbomolecular Pump Turbo-V 81-M and TV301 Navigator
- Compact, Light, Dry, Clean and Robust System
- Voltage 110-220 V - CE/CSA certified
- RS-232 or Analogical Communication
- Large pressure data display on board
- Pressure driven set point, Analog set point
- IDP-3 Dry Scroll backing pump
- This product can be offered with wheels



Benefits

- Designed for demanding applications
- Cost-effective pumping solution
- Can be used world-wide
- Easy to use: plug and play system
- Complies with world-wide safety standards
- Easy system pressure measurement
- Easy Tip-seal replacement
- Excellent base pressure up to 10^{-9} mbar
- Easy to be moved in small space



Active Gauges

IM-500 Active Inverted Magnetron Transducer
 1×10^{-3} Torr to 2×10^{-9} Torr; 1.3×10^{-3} mbar to 2.6×10^{-9} mbar.

FRG-700 Active Full Range combined gauge: Pirani and Cold Cathode from atmosphere to 5×10^{-9} mbar (7×10^{-9} Torr)

- Compact, stand-alone transducers
- Simple, rugged electronics with metal enclosure
- LED status indicator
- CSA/UL and CE certified

DIY Active Gauge Kit

This accessory can be ordered separately, and includes:

- Active Gauge IM-500 or FRG-700
- Cable for gauge connection
- Vacuum Tee and Connecting Hardware (Flanges according to the System inlet flange)

Technical Specifications and Ordering Information

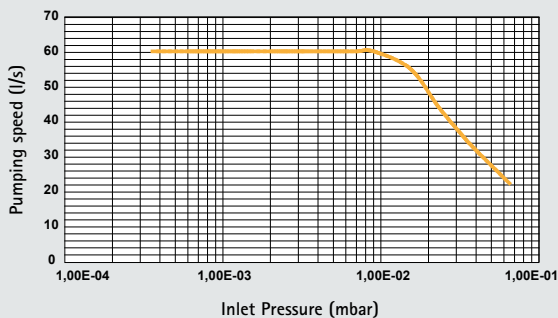
TECHNICAL SPECIFICATIONS

	Equipped with TV81M	Equipped with TV301
Base Pressure	1x10 ⁻⁹ mbar(*) [CFF Flanges] - 1x10 ⁻⁸ mbar [ISO Flanges]	1x10 ⁻⁹ mbar(*) [CFF Flanges] - 1x10 ⁻⁸ mbar [ISO Flanges]
Pumpdown Time (14 lt volume)	80 sec (100 mbar); 110 sec (1 mbar); 155 sec (1 ⁻⁴ mbar); 400 sec (1 ⁻⁵ mbar)	80 sec (100 mbar);110 sec (1 mbar); 155 sec (1 ⁻⁴ mbar); 230 sec (1 ⁻⁵ mbar)
Start-up Time	15 sec.	15 sec.
Operating Position	Any	Any
Operating Ambient Temperature	5°C to 35°C	5°C to 35°C
Input Voltage and Frequency	115 Vac 60Hz or 220-240 Vac 50/60 hz	115 Vac 60Hz or 220-240 Vac 50/60 hz
Maximum Input Power	260 VA	310 VA
Bakeout Temperature	120°C at inlet [CFF Flanges] - 80°C at inlet [KF/ISO Flanges]	120°C at inlet [CFF Flanges]- 80°C at inlet [ISO Flanges]
Communication	RS232 - Analogical I/O	RS232 - Analogical I/O
Weight	16.7Kg [36.8 lbs]	19.1Kg [42.1 lbs]

*According to standard DIN 28 428

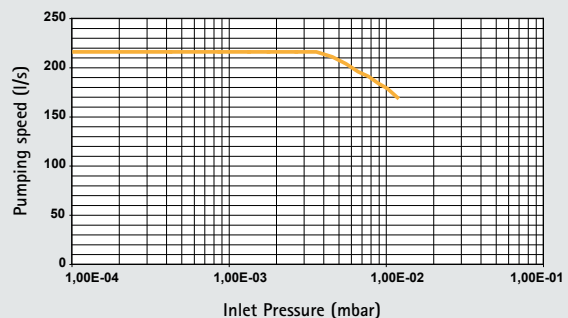
Pumping Speed vs Inlet Pressure

TPS-compact with TV81M



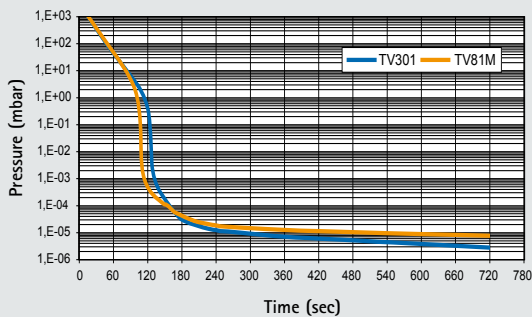
Pumping Speed vs Inlet Pressure

TPS-compact with TV301



Pressure vs Time

TV301/TV81M - 14 lt Pump Down



ORDERING INFORMATION

Wheels accessory kit	9698233
EU Power cable [2m]	9499396
US Power cable [2m]	9499397
UK Power cable [2m]	9499398
EU Power Cord [5m]	9698450
US Power Cord [5m]	9698452
UK Power Cord [5m]	9698451
Serial Cable and T-Plus Navigator Software	9699883

ORDERING INFORMATION

TPS-compact	TV81M KF40	TV81M CFF 2.75"	TV81M ISO 63	TV81M CFF 4.5"	TV301 ISO 100	TV301 CFF 6"	TV301 ISO 160	TV301 CFF 8"
120 V	9698217	9698218	9698219	9698220	9698221	9698222	9698223	9698224
220 V	9698225	9698226	9698227	9698228	9698229	9698230	9698231	9698232

Accessories

DIY EyeSys Gauge Kit	9699185	9699196	9699186	9699187	9699188	9699197	9699189	9699198
DIY Full Range Gauge Kit	9699190	9699199	9699192	9699193	9699194	9699201	9699195	9699202

Applications



Courtesy: NASA

Electron Microscopy and Mass Spectrometry

The new dry TPS-compact Integrated Turbo Pumping System is the perfect tool to keep the column of an electron microscope under vacuum during maintenance or repair on the device.

The oil-free pumps eliminate the risk of contamination of the column.



Courtesy: AXTRON

Industrial Applications

The dry TPS-compact Turbo Pumping System can create and maintain the required vacuum level in separate chamber of an industrial system during maintenance or repair. It can be mounted in any position, making it suitable for most system configurations.

Furthermore, the new unique dry TPS-compact is the most compact, light, complete and with the lowest cost of ownership pumping system solution capable to create and monitor clean vacuum even for general industrial applications.



Courtesy: OXONICS

Semiconductor Manufacturing

The dry TPS-compact is particularly well suited for evacuating load-lock chambers. Its oil-free design ensures the purity of the process.

The TPS-compact may be mounted in any position, making it suitable for most system configurations.



Courtesy: CERN

High Energy Physics Research & Labs

The new unique dry TPS compact is the perfect solution to reach and maintain clean high vacuum in experimental chambers. Additionally, the TPS-compact is the most suitable dry solution for fast pump down of sections of larger machines or beam lines where cleanliness is a must.

The built in capability to operate and read the Inverted Magnetron and Full Range gauges makes the TPS-compact the most cost-effective dry-turbo-pumping system able to monitor and thus manage the operating vacuum conditions. This feature makes the TPS the ideal pumping solution as a roughing for ion and/or NEG pumped UHV systems too.

The new unique dry TPS-compact is the most compact, complete and cost effective solution to create and monitor clean vacuum for High Energy Physics Research & Labs and other multi purposes end-users.