

Varian, Inc.
Vacuum Technologies

High performance
Turbo-V 81-M



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**

High performance Turbo-V 81-M

High
Vacuum
Performance
in a Little
Big Pump

Turbo-V 81-M

- Varian's Turbo-V 81-M is a high performance turbo-drag pump in the 80 l/s class.
- Compact package design, wide selection of inlet flanges, and on board or remote driver options make this pump ideal for new vacuum system design or for easy retrofit of existing systems.
- The Turbo-V 81-M is suitable for demanding vacuum applications including high foreline pressure, high throughput, and UHV requirements.

Improved Mechanical Design

Lighter, more rigid rotor, optimized balancing system, and enhanced ceramic bearing suspension deliver:

- Higher nominal rotational speed
- Longer life in any working position

Better Vacuum Performance

Higher nominal rotational speed, optimized rotor blades sequence and New Macrotorr stages provide:

- Higher foreline pressure tolerance
- Higher pumping speed and throughput
- Lower power requirements
- Excellent compression ratio

Controllers

New capabilities enhance pump system control and communication:

- Rack, on board and PCB versions
- 24 Vdc and 100-240 V 50/60Hz versions
- I/O and serial communications
- T-Plus Navigator software
- Pressure gauge reading capability

Applications

- Mass Spectrometers
- Electron Microscopes
- Surface Analysis
- Leak Detection
- Research Laboratories

Worldwide Support

- International network of professional sales and application engineers
- Toll free telephone lines with native language representatives will assist you with Technical / Application / Order Processing / Engineering support



Features and Benefits



MacroTorr Stages*

Optimized to deliver better vacuum performance in a smaller package:

- Increase foreline pressure tolerance by 100 %
- Reduce power requirements by 50 %
- Increase maximum throughput by 300 %

(*) This pump is also available without MacroTorr stages, as Turbo-V 81-T



Permanent bearing lubrication

Varian's unique dry lubricant technology combined with ceramic bearings assures:

- Clean vacuum, no system contamination
- Any working position without compromising performance or operating life
- Maintenance-free pump, re-lubrication not required



Enhanced Electronic Controllers

New innovative features are now available:

- Universal voltages
- Integrated Vent valve command, adjustable valve delay and opening time
- "Stop Speed Reading" command allows monitoring of pump slow down time during the venting phase
- Pressure gauge reading
- Integrated Profibus



T-Plus Navigator Software

In a Windows™ based environment T-Plus software simplifies pump operation and control via computer, allowing simultaneous drive of one or more Turbo pumps using either RS232 or RS485 ports. Monitoring, data logging and chart representation of pump parameters is now easily done with a click of the mouse.



Pressure gauge reading capability

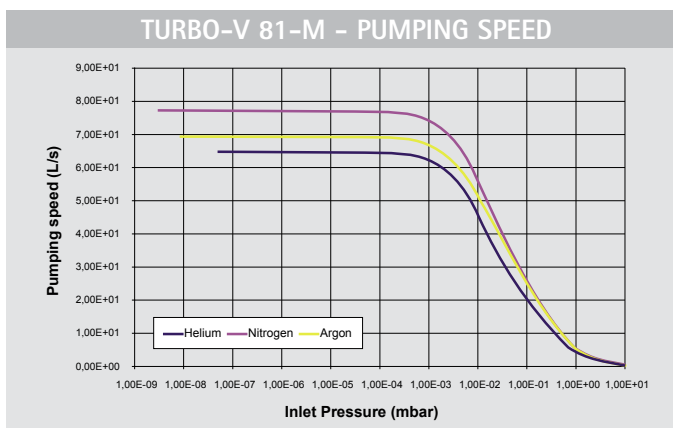
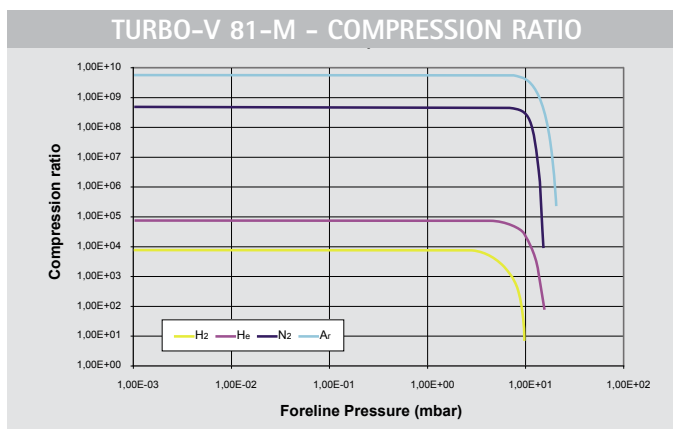
EyeSys Mini-IMG active gauge available as option.



Three levels of Product Support

Support programs for Pumps and Controllers are designed to meet your needs.

- Advance Exchange
- Factory repair
- Upgrade Program



TECHNICAL SPECIFICATIONS

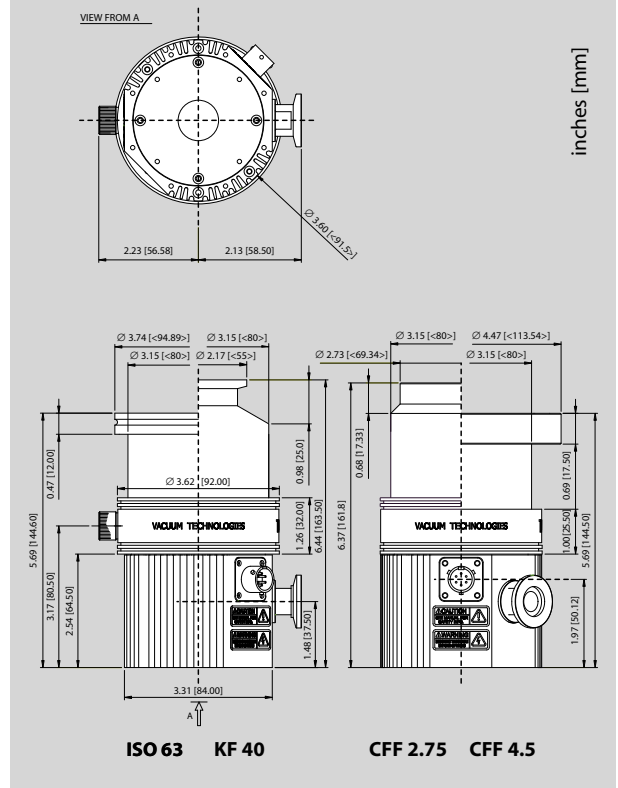
Pumping speed:			
With CF 4 1/2" or ISO 63:	N ₂ : 77 l/s	He: 65 l/s	H ₂ : 50 l/s
With CF 2 3/4" or KF 40:	N ₂ : 50 l/s	He: 56 l/s	H ₂ : 46 l/s
Compression ratio	N ₂ : 5 x 10 ⁸	He: 8 x 10 ⁴	H ₂ : 7 x 10 ³
Foreline Tolerance	12 mbar	10 mbar	8 mbar
Base Pressure	< 5 x 10 ⁻¹⁰ mbar (3,8 x 10 ⁻¹⁰ Torr) according to PNEUROF 5608		
Inlet flange	CF 4 1/2" CF 2 3/4"	ISO 63 KF 40	
Foreline flange	KF 16		
Nominal rotational speed	80.000 rpm		
Start up time	< 60 sec		
Recommended forepump	Mechanical pump: Varian DS102, Varian DS42 Dry Scroll: Varian SH-110		
Operating position	Any		
Cooling requirements	Natural air convection Forced air or water optional		
Bakeout temperature	120°C at inlet flange max (CF flange) 80°C at inlet flange max (ISO flange)		
Vibration Level (displacement)	< 0,01 micron at inlet flange		
Weight kg (lbs)	CFF: 2,98 (6,57) ISO: 2,00 (4,40)		

Ordering Information and Outline Drawing

ORDERING INFORMATION

PUMPS		Part Number
Turbo V81-M with ISO 63 flange		969-8901
Turbo V81-M with CF 4 1/2" flange		969-8903
Turbo V81-M with KF 40 flange		969-8902
Turbo V81-M with CF 2 3/4" flange		969-8904
CONTROLLERS		Part Number
Turbo V81-AG 1/4 Rack controller, 110 / 220 V basic version		969-8988
Turbo V81-AG 1/4 Rack controller, 110 / 220 V; RS232/485		969-8989
Turbo V81-AG 1/4 Rack controller, 110 / 220 V; Profibus		969-8990
Turbo V81-M PCB controller, 24 Vdc		969-9538
T-Plus Navigator Software (RS232/RS485 required)		969-9883
ACCESSORIES		Part Number
Air cooling kit (0,5 m cable)		969-9290
Air cooling kit extension cable (5 m cable)		969-9940
Metal connection water cooling kit		969-9823
Plastic connection water cooling kit		969-9824
Pump extension cable (5 m)		969-9942
Turbo V81-AG Rack controller N.O. Vent valve (0,5 m cable)		969-9844
Vent valve extension cable (5 m cable)		969-9941
EyeSys Mini-IMG NW25		R1400301
EyeSys Mini-IMG cable (1 meter)		969-9943
Gauge extension cable (5 meters)		969-9944
Vibration damper, DN 63 ISO		969-9375
Vibration damper, 4 1/2" CFF		969-9376
Heater band, 120 V		969-8902
Heater band, 220 V		969-8901
Inlet screen, DN 63		969-9300
Inlet screen, DN 40		969-9309
Inlet screen, CF 2 3/4"		969-9328

OUTLINE DRAWING



Varian, Inc. Vacuum Technologies

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