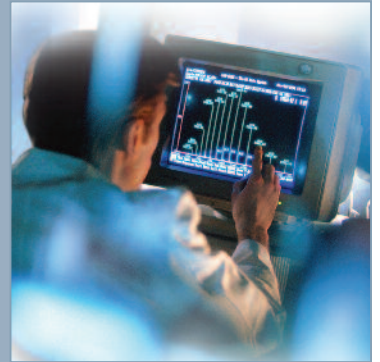


Variable Speed Dry Pumps for Mass Spectrometers



The Measure of Confidence



Agilent Technologies

Variable Speed Pumps for Mass Spectrometers

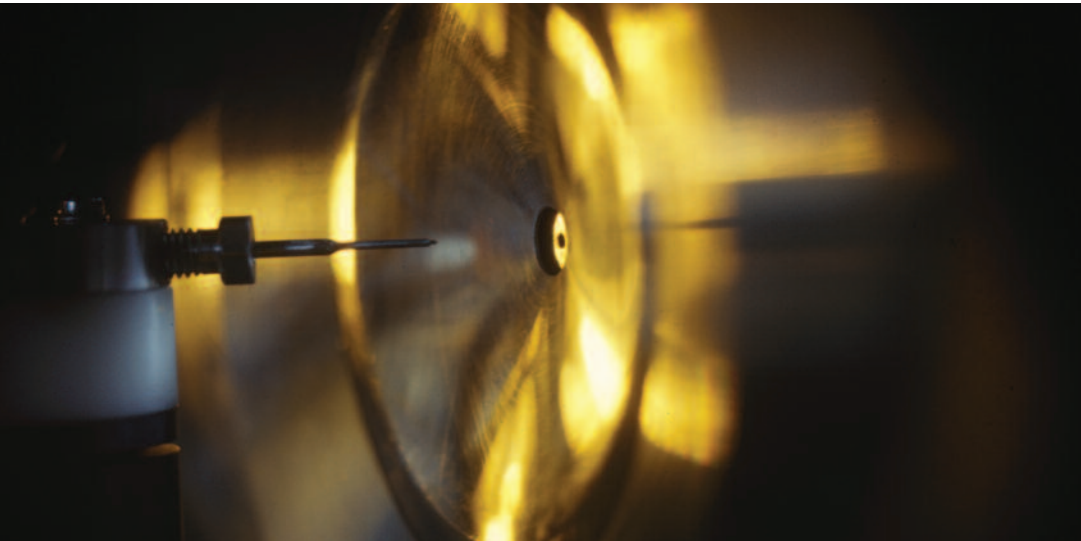


Photo courtesy of National Research Council of Canada (Harry Turner)

APPLICATIONS

MASS SPECTROMETERS

ELECTRON MICROSCOPES

CRYOGENICS

GLOVE BOXES

GAS TRANSFER

LOAD LOCKS AND TRANSFER CHAMBERS

DRYING OVENS

PRIMARY PUMP FOR TURBO SYSTEMS

GENERAL PURPOSE LABORATORY

MALDI/TOF LC/MS/MS ICP/MS GC/MS

Agilent Mass Spectrometers In the Laboratory

Mass spectrometers with Atmospheric Pressure Ionization (API) systems characterized by high gas flows, such as LC/MS/MS, can benefit from the variable speed selection feature of TriScroll inverter pumps.

The pumping speed can be finely adjusted to deliver the optimum working pressure at the mass spectrometer inlet, making it possible to easily match the pumping characteristics of your existing rotary vane pump and simplify system retrofit.



Atmospheric Ionization System

Variable Speed Tuning

Atmospheric Ionization Systems with high flows such as LC/MS/MS, benefit from the enhanced sensitivity available with the variable speed tuning feature of Agilent's TriScroll Inverter pumps.

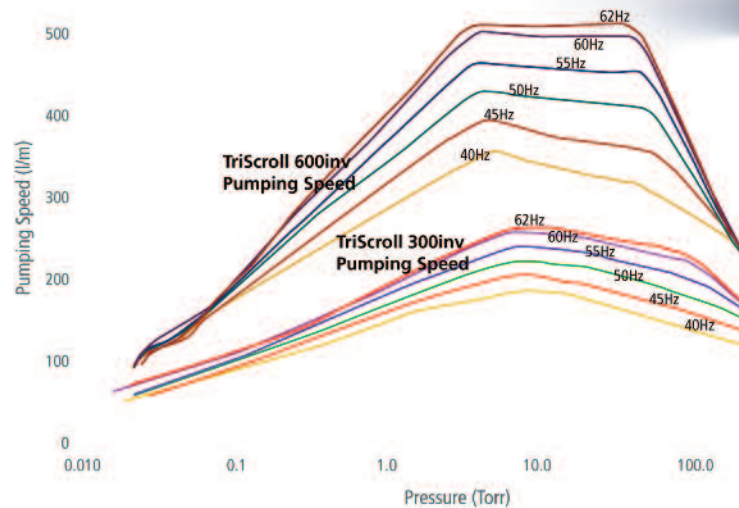
Variable Rotational Speed

The TriScroll Inverter pumps adjust rotational speed to the nearest 1 Hz for precise control of pumping speed

Sensitivity =

API Source

Gas plus Ions



Agilent TriScroll Pumps

Agilent's Inverter-driven TriScroll Pumps are multi-stage, dry vacuum pumps designed and manufactured by Agilent for high reliability and durability.

Benefits of Dry TriScroll Pumps

- *High pumping speed* and low ultimate pressure provide the clean, dry vacuum your system requires
- *The unique patented TriScroll design* delivers consistent performance and superior cost of ownership
- *Long-life tip seals* routinely last more than a year before replacement

- *TriScroll Pumps eliminate* the frequent maintenance requirements of oil-sealed rotary vane pumps, simplifying regulatory and environmental compliance, and eliminating oil disposal costs

Benefits of TriScroll Inverter Pump

- *Constant pumping speed worldwide* regardless of line frequency
- *Optimal pumping speed selection* for any application with the adjustment of the nominal rotational speed of the pump
- *Remote start and stop* with a contact closure made possible by a standard D-shell connector



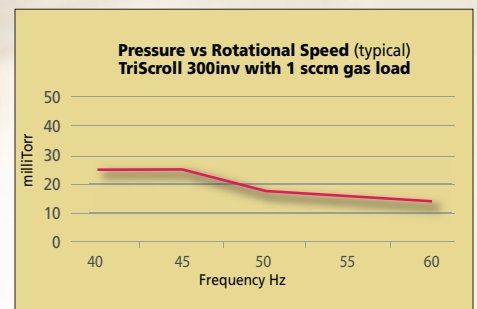
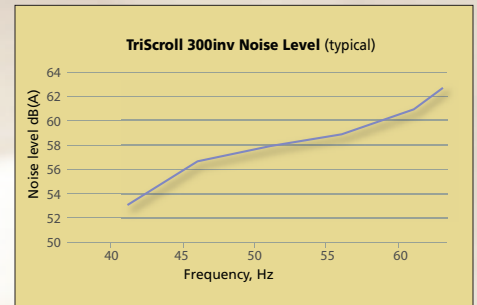
- *Monitoring of pump parameters* via serial interface
- *Significant decrease in noise levels* in the work area resulting from pump's operation at lower rotational speeds with little loss in base pressure performance of the pump.



The Pumps

The function of the Scroll Pump is twofold in a Mass Spectrometer, as shown in the illustration. The pump:

- pumps the **Interface** region of the mass spec, evacuating over 99.7% of the gas from the inlet system to maintain the desired interface pressure.
- functions as the backing pump for the Split Flow Turbopump, which evacuates the **HV** section and the **Q₀** section of the Mass Spectrometer.



Triscroll Inverter – Features and Benefits

No oil changes	Reduce maintenance time and eliminate quarterly PM
No oil leaks	Eliminate disposal costs and maintain lab cleanliness
Variable speed control	Deliver optimal working pressure Decrease significantly noise levels in the work area Extend service intervals
Low power consuming inverter	Eliminate tripping of circuit breakers caused by high starting current

Integrated Support

- Agilent toll free telephone hotlines provide you with the easiest live front-end support
- Native language representatives assist you with Technical/Application/Order Processing/Engineering support
- Comprehensive Service programs can be tailored to meet your most demanding needs



Triscroll inverter – Technical Specification

	TS300inv	TS600inv
Peak pumping speed	250 l/m, 15 m ³ /hr (8.8 cfm)	500 l/m, 30m ³ /h (17.7 cfm)
Ultimate pressure	1.3 x 10 ⁻² mbar (10 mTorr)	9.3 x 10 ⁻³ mbar (7 mTorr)
Inlet connection	NW25	NW40
Exhaust connection	1/4" Female NPT with swivel NW16 (adapter provided)	3/8" Female NPT with swivel NW25 (adapter provided)
Gas ballast	1/4" Female NPT	
Weight – pump only	26 kg (57 lb.)	31 kg (68 lbs)
Power requirements	Single phase 200-240 VAC, 50-60 Hz, 5 amps (max)	
Operating speed	40-62 Hz (factory setting) : 1800 RPM	
Noise level per ISO 11201, variable w/frequency	55-68 dBA	

Triscroll Inverter – Ordering Information

TriScroll 300 Dry Scroll Primary Pump, single phase, 200-240 VAC, 50/60 Hz	PTS03001INV
TriScroll 600 Dry Scroll Primary Pump, single phase, 200-240 VAC, 50/60 Hz	PTS06001INV

Power Cord Selection

Europe, 10A/220-230 VAC, 2.5 Meter	656494220	India, 10A/220-250 VAC, 2.5 Meter	656494245
Denmark, 10A/220-230 VAC, 2.5 Meter	656494225	Israel, 10A/230 VAC, 2.5 Meter	656494230
Switzerland, 10A/230 VAC, 2.5 Meter	656494235	North America, 10A/230 VAC, 2.5 Meter	656494255
UK/Ireland, 13A/230 VAC, 2.5 Meter	656494250		

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