



# Agilent Technologies

The Measure of Confidence



The new IDP-15 Dry Scroll Pump



The new TwisTorr 84 FS and 304 FS

## Agilent Vacuum: the UHV company

**Agilent Technologies, spun-off from Hewlett-Packard in 1999, is today a world technology leader in life sciences, electronic measurement, and chemical analysis. In 2010 Agilent acquired Varian, Inc., a leading provider of analytical instrumentation and vacuum products. Varian's 60+ years of technology leadership and tradition of innovation in vacuum and leak detection became a part of Agilent, the world's premier measurement company. Two of Silicon Valley's champions have combined to create a one-stop, truly global vacuum supplier, leader in High- and Ultra-High Vacuum solutions for physics research and scientific instrumentation.**

### Technology leadership in UHV

Varian Vacuum, now Agilent Vacuum has always been at the forefront of vacuum technology, setting industry standards since 1957, with the invention of the ion pump that made UHV possible. The first sputter ion pump was developed to improve the life and performance of microwave tubes by continuous pumping with "appendage" ion pumps. The Varian invention of the sputter ion pump and of the ConFlat Flange (CFF) ushered in the era of ultra-high vacuum. The availability of vacuum systems that could routinely achieve pressures below  $10^{-11}$  mbar (Torr) enhanced R&D efforts in high energy physics. All of the major innovations in ion pump technology have come from Varian, now Agilent, from the first Diode Vaclon pump to the Triode, then to the StarCell series pumps, and the Vaclon Plus. Agilent supplies UHV solutions to all major academic and government labs, particle accelerators and synchrotrons, and large physics projects worldwide.

### Collaboration with CERN

The cooperation with CERN for joint development of ion pumps dates back to 1967, when Varian opened the Torino factory specifically for the manufacture of Ion Pumps designed to create ultra-high vacuum for the first CERN experiment. Since then, Varian, now Agilent, continues to supply High and Ultra-High Vacuum

solutions to CERN. One of the first large installations of sputter ion pumps (300 pumps, with a pumping speed of 400 l/s) was the hadron collider ISR (Intersecting Storage Rings) that ran at CERN from 1971 to 1984. This was the start of a long history of ion pumps in Agilent's Torino plant, which today is the hub for ion pump development and manufacturing. It was also the start of an intensive collaboration between CERN and Varian (now Agilent). The StarCell ion pump, specifically designed to fulfill the vacuum requirement of the LEP project, was developed in Torino in 1983 and tested extensively by Varian and CERN engineers together on the CERN premises. As a result, more than 1,000 StarCell ion pumps have been built for the LEP project alone. The StarCell ion pump has proven to be the most important ion pump development and is the worldwide recognized standard for creating and maintaining ultra high vacuum in several applications, ranging from research to industry, including particle accelerators, synchrotron light sources, medical accelerators, electron microscopes, surface analysis and focused ion beams. As a key enabling technology, ultra-high vacuum produced by Agilent ion pumps has been a critical and fundamental element of particle physics research from its early days to the recent milestone discovery of the Higgs boson on the Large Hadron Collider at CERN.

### Complete UHV Solutions

Agilent Vacuum is the leading UHV company, providing total oil-free solutions from atmospheric pressure to ultra-high vacuum. Agilent is the only vacuum supplier providing a complete range of pumps and accessories from dry scroll pumps, to high vacuum turbomolecular pumps, including the revolutionary TwisTorr FS, with proven best technical specifications on the market, the new IDP-15 Dry Scroll Pump, up to the most advanced line of ultra high vacuum ion pumps, combined with the new Agilent 4UHV, the first true 4-channel ion pump controller.



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## Agilent Technologies

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