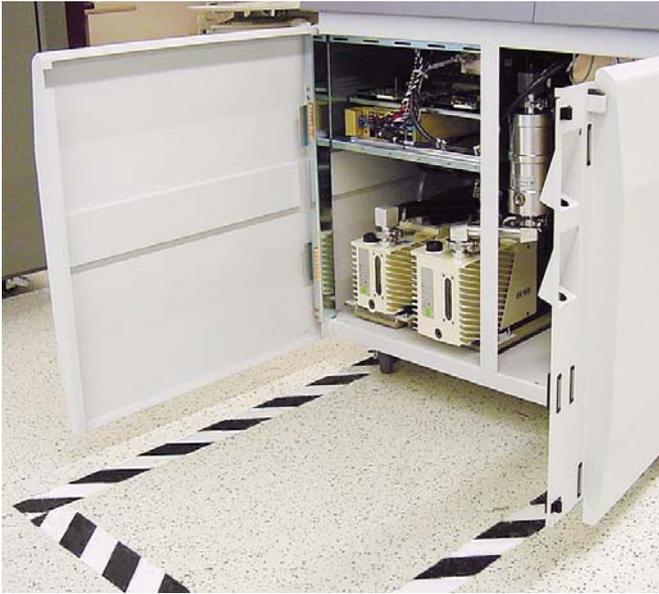


# Rotary Vane Pumps Typical Applications



- **Analytical Instruments**

Dual Stage Rotary Vane Pumps are practically the only primary vacuum pumps used on GC-MS, LC-MS, ICP-MS, and MALDI-TOF Instruments.

GC-MS typically uses our smallest pump, the DS102; the pump is needed to rough the system and back the high vacuum Turbo or Diffusion pump.

LC-MS and ICP-MS use a medium capacity pump on the sample injection/system interface, typically a DS402 or a DS602, and a smaller pump to back the system Turbo pumps.

MALDI-TOF depending on system size, uses the DS102 to the DS602 as roughing or interface pumps.

### Electron Microscopes

Small pumps, typically the DS202 and the DS302, are still used in competition with dry pumps to rough the system and the high vacuum Turbo or Diffusion pump.

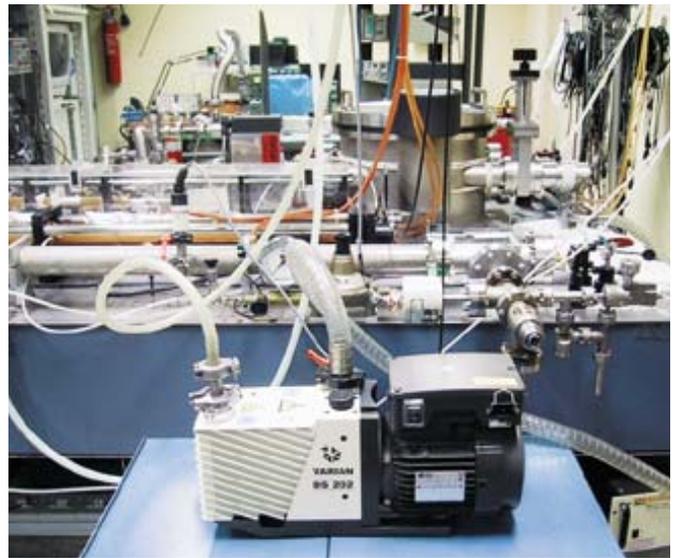


- **Leak Detection**

Pumps in the DS102, DS202 and DS302 range are typically used to back the Helium Mass Spectrometer Turbo or Diffusion pump.

The roughing pump is usually bigger, typically up to the DS402/DS602, and can still be installed on the Leak Detector itself, while bigger pumps can be used to pump down high throughput Leak Detection systems.





- **Industrial Vacuum Processes**

Vacuum coatings, Metallurgy Vacuum Furnaces, Lamps and TV Tube manufacture, Sterilizers, Freeze Dryers, Glove Boxes, High Speed Centrifuges, and Flywheels (for energy storage) represent the main Industrial applications for Dual Stage Rotary Vane pumps. In the first four fields of application the Rotary Pumps are used as roughing and backing pumps for High Vacuum Turbo or Diffusion pumps, while in the others the Rotary Pumps are typically the only vacuum pumps on the system.

- **High Energy Physics and Research Laboratories**

In these applications the Rotary Vane pumps are mainly used in combination with Turbo pumps. The combination is typically used to rough and pump High Vacuum experimental chambers or to start Ion Pumps in ultra high vacuum systems.

