



PROJECT PROFILE

MASS SPECTROMETER – PRODUCT DEVELOPMENT

CLIENT CHALLENGE

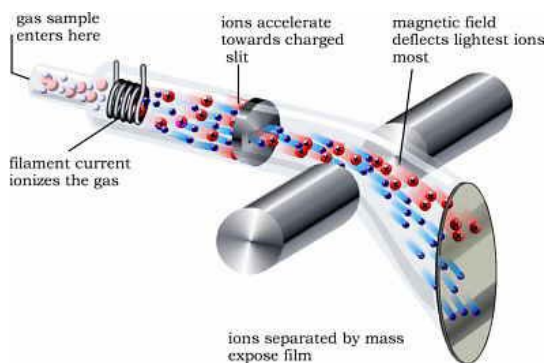
A world leader in the design and manufacture of mass spectrometers had decided to develop a new level of mass spectrometer, which included a newly developed time-of-flight chamber and ion optics system. Mass spectrometers are analytical instruments used in the mining, pharmaceutical, and semiconductor industries that utilize high vacuum systems to determine the elemental composition of samples. This was the largest product development project ever undertaken by the company and required outsourcing in several key areas.

Prior to the incorporation of Palladium Product Development and Design several current Palladium personnel were retained to assist in the conceptual design of many of the mechanical and electrical subsystems for the machine, as well as the development of a project schedule and the overall integration of the entire machine. The outsourced engineering team was involved throughout the detailed design, prototype, and pilot phases, and formed and led dedicated sub groups to undertake the development of the following subsystems:

- Cables and Harnesses
- AC Distribution System
- Air Cooling System
- Frame
- Shipping Crate

PROJECT HIGHLIGHTS

- Achieved concept to production in 16 months.
- Six Thinking Hats® technique used for all meetings and design reviews.
- Use of a 3D Solid Modeling package to perform design and integration.
- Vibration isolation of the flight chamber from the rest of the machine.
- Innovative shipping crate design with vibration and shock isolation.



SUSTAINING ENGINEERING REQUIREMENTS

Following the incorporation of Palladium Product Development and Design ongoing engineering support have been provided to the company and several of the same key personnel are still active with the client in continued upgrades and product improvement programs. Design modifications related to manufacturing efficiencies, researched quality improvements and implementation of client/user feedback are part of the company's continued quality improvement ideology.