



PROJECT PROFILE

ULT FREEZER DESIGN IMPROVEMENT

CLIENT REQUIREMENTS

A manufacturer of specialized ULT (ultra low temperature) freezers for medical and laboratory use, which are sold around the world had the goal of improving one of their freezer lines to feature improved noise and thermal characteristics. Several current Palladium personnel were retained (prior to the incorporation of Palladium Product Development & Design) for their specific expertise in Thermal/NVH (noise, vibration and harshness) issues as well as additional experience in the New Product Development field. The following tasks were required on the way to successful project completion:

- Identifying the need to produce realistic engineering-based performance improvement concepts prior to proceeding with industrial design concepts due to a direct effect on space claim.
- Realistic engineering concept paths were developed through a combination of CAD modelling, analysis, and knowledgeable COTS and supplier sourcing for the key components: seals, fans, vibration isolators, and insulation.
- The concepts were supported by concurrent analysis for thermal performance, sealing, and NVH.
- Concept CAD models, PowerPoint slide shows, Comparison Tables, and Calculations were produced to efficiently convey and collaborate on concept design information to a company wide team that was located at several locations in the United States and Canada.

PROJECT HIGHLIGHTS

The project was delivered within tight time and budget limits as the outsourced project development team provided:

- Extensive Product Development and NVH experience.
- Sound engineering basis for proposed performance improvement concept options.
- Knowledgeable COTS and supplier sourcing and experience dealing with OEM manufacturers.
- Careful consideration of alternate parallel path concepts due to the tight redesign schedule.
- Consideration and evaluation of competitor improvements in the ULT field.



The project methodology enabled the client to:

- Mitigate redesign risks by introduction of sound engineering options to improve ULT performance
- Provide a well documented path to lead to concept selection, detailed design and production model development.

SUSTAINING ENGINEERING SERVICES

Palladium Product Development & Design provides sustaining engineering for many products, industries and companies such as the case history described above. Many of the same personnel involved with the freezer improvements described above (some with over 20 years industry experience) are still active with Palladium and providing services to past clients they have served, as well as taking on new clients with upgrades and product improvement programs. Design modifications related to manufacturing/machine design, packaging and transportation efficiencies, researched product quality improvements and inclusion of client/user feedback are routinely implemented as a result of these analyses and design engineering services