



Case Study: Cost and Quality Improvement through “Design for Manufacturability”

The Challenge: This customer’s product requires a precision stainless steel weldment, with internal platforms, brackets, and a tightly closing lid. Cosmetics requirements are high. Several different versions and sizes are required.

The customer’s design had been through several fabricators, none of whom were able to meet delivery expectations, quality requirements or price targets. The customer approached Metcam to see what we could do to help.

The Solutions: The first thing Metcam did was to evaluate the manufacturability of the product. What materials were being used and could less costly materials be substituted? How complex was the forming and welding? What weld clean up issues were there? Could the design be changed to allow for easier final finishing of the stainless steel? Following this review, Metcam redesigned the units to maximize manufacturability and reduce costs. Additional benefits were faster cycle times, so delivery requirements could be met, and improved quality. Some of the “tricks” that the DFM team came up with included:

- Minimizing the use of welding. Not all components needed to be welded in order to maintain structural integrity. Less expensive and faster to install rivets were substituted wherever possible.
- Minimizing outside (cosmetic surface) welding and maximizing internal (non-cosmetic surface) welding.
- Design of self-locating parts by the use of tabs and notches. This greatly reduced the need for specialty welding fixtures, further improving throughput.
- Substituting other materials for cosmetic grade stainless steel wherever possible.
- Simplifying the outside profile of the enclosure to make it easier to put a consistent finish on the stainless.
- Protecting the cosmetic surfaces with adhesive backed PVC throughout the manufacturing process.

The Result: With a manufacturable design, Metcam was able to meet all three of the customer’s objectives . . . lower cost, shorter lead times, and higher quality.

