



SEMICONDUCTOR INDUSTRY

TOOL COST REDUCTION: "DESIGN TO COST - BUILD TO VALIDATE"

The Situation

Why is it so hard to take cost out of an existing product? Typically, the first attempt at cost reduction is targeted at suppliers. In most cases, however, the supply chain group has already stripped excess costs. Further reduction requires redesign for which there are limited resources. The product cost is designed in, and system level redesign must occur to significantly effect total tool cost. On average, 80 percent of the cost of capital equipment is designed in and cannot be affected by supply chain efficiencies.

The Challenge

The customer needed a 30 percent cost reduction on the tool platform, while simultaneously implementing improvements in process technology. The cost reduction effort must be very low-risk and no process-related components could be affected. The development time frame was to deliver a first prototype of the cost reduced platform in three months.

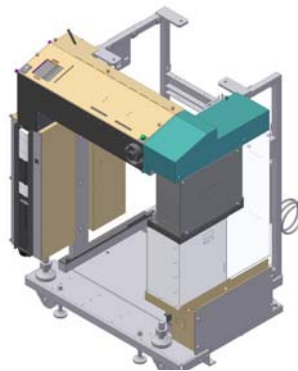
The Solution

Because the tool platform had been in high volume production for a number of years, it had been expanded with various options to remain competitive. These changes added to the overall platform cost and component count.

Areas of particular interest for the cost reduction redesign were:

- ◆ Frame Construction
- ◆ Electrical & Control Packaging
- ◆ Wire Harnessing
- ◆ Pneumatics
- ◆ Cooling and Heating Systems

Each area was systematically addressed. For example, the existing tool incorporated a standard tubular frame with a variety of separately built hardware and electrical enclosures that mounted directly to the frame. The new platform utilized a folded sheet metal frame design with built-in enclosures and integral wire harness clips. This greatly reduced tool part count and eliminated the need for added enclosures and mounting brackets.

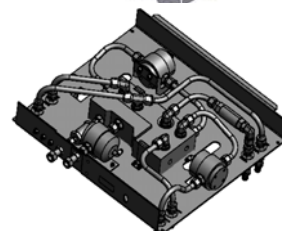


Original Design

Frame was redesigned to use unibody sheetmetal construction, reducing part count and improving serviceability



Cost Reduced Design



Ultra pure fluids panel was simplified by redesigning layout eliminating costly welded tubes

