CUSTOMER SITUATION

A large original equipment manufacturer (OEM) needed help redesigning a reusable laparoscopic surgical instrument. Its goal was to incorporate a “take-apart” design into this surgical device to facilitate improved cleaning and sterilization.

The customer requirements for the design were challenging:
- The device user interface needed to be intuitive and robust for easy assembly in the sterile surgical field
- The solution had to apply to a family of surgical products, including backwards compatibility with existing products

The customer chose to work with Nordson MEDICAL because of Nordson MEDICAL’s expertise with laparoscopic surgical instruments and mechanism design, and ability to deliver a robust and manufacturable design solution.

NORDSON SOLUTION

In Phase 1B, Prototype Iterations, the team created additional prototypes for functional assemblies across 2 device platforms and multiple surgical accessories.

In Phase 1C, Concept Freeze, the team incorporated Design for Manufacturability and Assembly (DFMA) and assembly-level statistical tolerance analysis to ensure that the assembly mechanism was robust and that critical dimensions would hold their tolerances at process capability index 1.33.

Nordson MEDICAL’s innovative design met the user needs for a robust and intuitive assembly mechanism. The project went from brainstorm sketch to concept freeze, resulting in a complete and manufacturable design solution.

OUTCOME

The 3i Project Booster Session helped the team to set a clear design direction at the outset, avoiding iterative design loops.

Nordson MEDICAL completed the concept development project on time and within budget and met all technical goals. The Nordson MEDICAL team then turned the project over to the customer’s internal team to complete the product development process.

Nordson MEDICAL’s work significantly reduced the technical risk, which led to a more predictable product development cycle.

The customer was very impressed with Nordson MEDICAL’s innovative design solution and gained a great deal of value from the 3i project and follow-on concept development work.

Nordson MEDICAL has since conducted additional 3i events with this customer and has collaborated on other development programs.

Product Development Phases

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<tr>
<th>Phase</th>
<th>Description</th>
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<tr>
<td>0</td>
<td>Concept Generation</td>
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<td>(3i Project Booster Session)</td>
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<tr>
<td>1A</td>
<td>Concept Refinement and Prototypes</td>
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<tr>
<td>1B</td>
<td>Prototype Iterations</td>
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<tr>
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<td>Concept Freeze</td>
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