



Surgical Shuttle

PROBLEM

PTI Tech was originally engaged to replace a machined “nut” with a MIM-ed one for cost savings. This part would be laser-welded to a stamped component used in the DaVinci robot for minimally invasive surgery. The stamped component required critical surfaces, extremely thin walls, tight radii, and true position geometries, including two leg tips that had to be strong and sharp despite their thin wall. Given the level of surgical precision required, the stamping manufacturing method was delivering less than ideal parts, which then needed to be laser-welded to the MIM nut to complete the assembly.

SOLUTION

Although originally engaged to make only one of two components, PTI Tech’s engineers offered an innovative alternate approach that consolidated the two components into one net-shape and with high precision, via MIM. This was an enormous achievement, saving production time and costs. MIM is exceptional in its ability to produce complex geometries that would otherwise be difficult to manufacture in scale, as well as to offer design flexibility to reduce part count and assembly operations. Even with the multifaceted dimensions and tight tolerances, the MIM surgical shuttle required minimal secondary operations.



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PTI Tech (formerly Polymer Technologies Inc.) is an integrated precision injection molder of advanced polymers, metals (MIM), and ceramics (CIM) supporting the Aerospace, Medical, Defense, and Industrial sectors for over 30 years.