Medical implants are on the rise. Over 4.7 million Americans have undergone complete knee replacements and 2.5 million have undergone total hip arthroscopy. This is a global trend, and powder metallurgy (PM) plays a role in improving quality of life through its ability to meet or exceed expectations in regards to size, complexity, material properties, volume, reliability, and biocompatibility.

Full case studies on these PM medical components and more, and a directory of PM fabricators, are available online.

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**Precision: Surgical Suture Instrument**

- Highly complex, single-use instrument
- High-volume, 17-4PH stainless steel
- Four to five times cost savings over alternative manufacturing technologies
- Sustainable: 90% waste savings over machining from bar stock

A shaft assembly used in a novel surgical instrument for passing sutures through difficult-to-reach tissue.

**Complexity: Endoscopic Staple Gun**

- Designed to be the smallest, most effective on the market
- Extremely small, complex geometry solution
- High-strength 440 stainless steel
- This part cannot be made economically using alternative manufacturing technologies

This wedge blank actuates the release of staples in the endoscopic staple gun.

**Innovation: Gear System for Surgical Device**

- Integration of posts to flange eliminated additional assembly
- Engineered using highly wear resistant and durable materials
- New part design improved cost effectiveness by 60%
- Provided portability for the surgeon

This planetary gear system is used for gear reduction in a single-use surgical device.

PickPM.com is a resource for component designers and engineers created by the Metal Powder Industries Federation, a federation of trade associations, for the benefit of the metal powder industry.