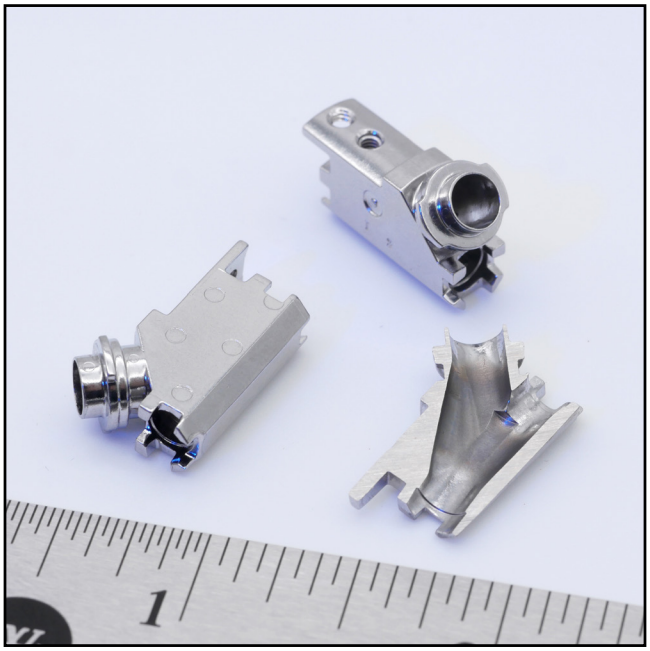
CASE STUDY



A 2019 Grand Prize Award Winner in the Medical/Dental category for metal injection molded components

K-Mount for Surgical Camera

Process:
Metal Injection Molding

Material:
MIM-17-4 PH (H900)

Density:
7.5g/cm^3

End Use and Function
This award-winning component is for a K-mount used in a digital surgical camera. Previously manufactured with two pieces that were then welded together, metal injection molding (MIM) technology allowed the manufacture of a single, smooth component.

Fabrication
The challenge in molding was to develop a slide mechanism robust enough to form the y-section with ease and with precise matching to avoid any flash in the molding stage. This was accomplished by using three angular slides that matched accurately at the center. A local threaded insert is used to form the threaded hole. Unique ceramic trays are used to stage the parts during sintering to minimize distortion. The part needs smooth guide ways to cable connectors and precise dimensions for correct camera placement. Previously, the part was made as two separate pieces that were subsequently welded, which tended to create sharp edges that damaged the cable during use. Using MIM enabled a single, smooth component to be produced. The part is made from MIM-17-4 PH (H900) and has a density of 7.5 g/cm^3.

Results
Using MIM instead of completing metal-forming technologies results in an overall cost savings while maintaining the ability to produce over 10K components per year.