

PRECISION MACHINED COMPONENTS

Lamp Valve Body



APPLICATION

General industry:
Gas lamp component

MATERIALS

ASTM B247, Gr. 6061 aluminum
(1.250 in hex bar)
MIL-A-8625 Type II clear anodized finish

MANUFACTURING PROCESSES

Cutting and deburring
Machining (CNC horizontal)
Surface preparation (polishing, cleaning)
Clear anodizing
Custom artwork (silkscreening)

REQUIRED TESTING

Chemical analysis (ASTM B247)
Coating thickness (ASTM B487)
Paint adhesion (crosshatch/tape peel)

TOLERANCES

General Tolerances

- Linear ± 0.010 in
- Angular $\pm 1^\circ$

Critical Tolerance

- Linear ± 0.005 in

Challenge: Midstate Lamp is a small company in Illinois that makes low-pressure gas/propane lamps to replace 100-watt electric bulbs used in homes. As an Amish-owned company, many components of their lamps — including the aluminum valve body — are produced in-house, often using time- and labor-intensive processes. While the company sometimes contracted an outside supplier to improve manufacturing times, they were having trouble finding one that could provide the valve body with the quality they needed on a consistent basis. The two biggest quality problems were improper threading in the internal chamber, which can cause the lamp to malfunction, and poor adhesion of the anodized aluminum coating, which degrades the general appearance.

Midstate turned to UGS to see if we could provide the consistent quality and improved turnaround they sought.

Solution: First, UGS identified a sourcing partner capable of machining aluminum with high precision. We worked with them to develop custom fixturing and machining processes to ensure all dimensions, and, in particular, threads precisely complied with the design specifications. This included purchasing the custom thread gauges and tooling to meet Midstate's tolerance and functional requirements. We also identified a partner to perform the anodization and instituted strict quality control measures to guarantee adequate adhesion and appearance. They also applied the final product markings via a silkscreening process.

Midstate was thrilled with the quality and delivery of the parts we provided them. Our efforts not only saved them 20 percent on materials costs but also streamlined their procurement process and freed up their in-house capacity for other business units and products.