

CAST AND MACHINED COMPONENTS

APPLICATION

General industry: Beverage dispensing components

MATERIALS

CF8 (cast equiv. of 304) stainless steel
6410 free machining brass

MANUFACTURING PROCESSES

Investment casting
Machining (CNC turning, CNC horizontal and broaching)
Surface preparation (polishing, passivation, cleaning, chrome plating)

REQUIRED TESTING

Chemical analysis
Salt spray (ASTM B117)
Porosity detection (section/micro-polish)

TOLERANCES

General Tolerances

- Linear ± 0.10 in
- Angular $\pm 1^\circ$
- Surface roughness 64 rms

Critical Tolerances

- Linear ± 0.05 mm
- Surface roughness 32 rms

Brass and Stainless Steel Coupler Body



Challenge: To reduce the production costs for a complicated coupler body used in their dispensing system, an international beverage company was looking to source the part overseas. Yet each time, the selected supplier couldn't meet the dimensional requirements necessary to deliver a functionally sound part.

Because the coupler acts as both a valve for liquids and gas as well as an actuator, it was imperative that the finished product meet several critical dimensions for multiple detailed holes and threads. In particular, the size and location of the internal hole and grooves needed to be consistent from part to part for the coupler and probe to operate reliably and allow for smooth and even beverage dispensing.

Solution: Working closely with our partners and technical personnel in China and Hong Kong, we identified a single source that could both cast and passivate stainless steel as well as cast and chrome-plate brass materials to ensure consistency between the parts. We then worked with them to develop, implement and validate a process that eliminated porosity issues and reduce any part-to-part dimensional variation.

Brass and Stainless Steel Coupler Body

To ensure the quality of the parts, we worked closely with this same partner to develop and implement gauges to verify the machined and threaded holes met the strict specifications that allowed the valve to produce the proper flow of liquids and gases without over-pressurizing the line.

We also helped develop and implement specialized form tooling and a specific proprietary process to ensure the internal O-ring grooves are routinely machined to the proper size and surface finish for both metals.

After providing several samples for the customer to check, UGS secured the business. Not only had we succeeded in meeting the tough technical and dimensional requirements, but we had also met the customer's cost-savings target. Since then, more than 98 percent of our shipments were delivered on time and our cost of quality is less than 1 percent.

Moreover, the success of this project has allowed our customer to consolidate its U.S. operations from three to two locations, saving them significant operational costs.