

## PRECISION MACHINED COMPONENTS



### Stainless Steel Coupler Probe

#### APPLICATION

General industry: Beverage dispensing components

#### MATERIALS

304 stainless steel bar stock  
6410 free machining brass

#### MANUFACTURING PROCESSES

Machining (CNC turning, CNC horizontal)  
Surface preparation (polishing, passivation, cleaning)

#### REQUIRED TESTING

Chemical analysis  
Salt spray (ASTM B117)

#### TOLERANCES

##### General Tolerances

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

##### Critical Tolerances

- Linear  $\pm 0.05$  mm
- Surface roughness 32 rms

**Challenge:** A leading international beverage company was hesitant to source the manufacturing of their coupler probe overseas due to the tight tolerances necessary to ensure proper and consistent operation. Even small variances in the product could affect the functionality, resulting in leakage. Yet they also recognized they could enjoy a significant cost savings through overseas production. We were confident we could manufacture the part to the company's exacting specifications at a significant cost savings while also eliminating part-to-part variations. As they were already a customer of ours for other dispensing parts, we approached them with the opportunity.

**Solution:** Having put our reputation on the line, we worked diligently with our Shanghai office and with a long-time overseas machining partner to develop a reliable and repeatable machining procedure for the available equipment. We engineered CNC turning and boring processes and fixtures that could meet the size, position and finish requirements as well as the inside to outside diameter (ID to OD) tolerances with little to no part-to-part variation. And to ensure consistent long-term quality, we implemented a gaging process to verify the concentricity and surface finish was consistent from part to part. Then, each process was examined and evaluated for best practices and improved efficiencies.

We provided several sets of samples to the customer so they could test fit, function and appearance. To our mutual satisfaction, they were very pleased with the quality of the parts and the cost-savings we were able to provide them. Furthermore, we have had no quality issues with this part since moving it offshore more than a decade ago.