



Micro-Miniature Component For Automotive Supplier



Overview

An international sensors leader collaborates with a custom cold forging manufacturer to deliver a unique micro-miniature part for an environmental application in the automotive market.

Challenge

A global sensors engineering and manufacturing company with U.S. headquarters faced a NPD hurdle on a critical electronic connector component. The company required design, manufacturing and five sigma process capabilities to produce a micro-electrical mechanical system (MEMS) for an automotive clean energy emissions application. Additionally, the company required 100% quality inspection and JIT inventory management to supply their global assembly operations in Asia.

Solution

Since the sensor company did not possess the capabilities in-house to manufacture the component for their assembly, they partnered with MW Components, a custom cold forging specialist. MW Components developed the component geometry design to meet the tolerance specifications, implemented 100% in-process automated optical inspection (AOI), cleaned, plated, and integrated the final assembly, packaging, and logistics to deliver a complete solution.

The result of this collaboration, a wirebond pin component, was designed and produced from Copper CDA 102 with a minor OD of .03937" and overall length of .2118" with control dimensional tolerances down to +/- .00078". The key manufacturing/engineering considerations focused on maintaining the native mechanical properties of the CDA 102 substrate while achieving an end condition finish of a Ra less than five microns. MW Components' cold heading design engineering and manufacturing technology uniquely met the dimensional, surface finish, mechanical strength and piece part price requirements to support a successful customer MEMS auto- motive emission sensor market launch.



Achieving and controlling a surface finish condition of a Ra of less than five microns on the wirebond end was possible through MW Components' proprietary part and tooling progression, vertically integrated manufacturing operations, incorporation of finite element analysis, and a proprietary Automated Optical Inspection (AOI) system, developed and implemented by MW Components.

Result

The customer receives JIT delivery to their Asia Pacific contract assembly operation executed through a MRP supported Pull Kanban inventory system.

Key Features

The unique manufacturing and process control capabilities contributed by MW Components include:

- Competencies on collaborative engineering feasibility, project management and validation
- Vertically integrated tool and part design, and high volume production
- Application of cold heading manufacturing technology which preserves the native material's mechanical properties, even at high production velocity
- Custom, in-process automated optical inspection system
- Lean JIT Kanban pull inventory management



About MW Components

MW Components is focused on accelerating the entire process of delivering custom, stock, and standard parts to virtually any volume and against demanding deadlines. We work to highly complex tolerances. We help simplify the management of any number of different components. And we take a no-compromise approach to quality. With MW Components you can be sure you'll get the right part to the right specification when and where you need it.



MW Components

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