GMS
ENGINEERED SOURCE & SUPPLY

Alamo McConnel: Boom Arm Jaw End Case Study

Key component of the Alamo McConnel 65-series Power Arms

A challenging 8 part fabrication to casting.
Saving time, effort, and money.

We engineered tomorrow for

McCONNEL

420g
Reduction in weight

60%
Quicker to fix

10%
Saving per unit

Project Objective

During a review meeting with our long-term customer Alamo McConnel on site at their Ludlow facility, the engineering director informed GMS that the facility was going to face significant constraints on production output due to a 35% increase in demand from their customer base.

In the past, GMS had identified cost saving opportunities by moving current fabricated sub-assemblies (as pictured below) over to finished machined castings, but at that time the customer felt they lacked the resource to manage the change through and chose not to proceed.

Taking this into account, the challenge for GMS was not only to guide the customer's design team to produce a fit for manufacture alternative, but also assist in the new product quality confirmation stage which would in turn alleviate the customer's fears regarding lack of resource.

Original fabricated design

Jaw end wax model

Project Method

A quick visit to the work shop floor, led to a point-to-point analysis of the current method of manufacture, from beginning to end.

Coalition of snap points were discussed which in turn lead to costing being applied for all operations, including; flame cutting, storage of sub-assemblies, inventory holding, weld fixturing, final welding and painting, and most importantly; capacity versus output.

Having identified the problematic areas with the current parts, all partners were consulted (Alamo McConnel, GMS and its manufacturing partner) and concept designs were drawn up.

Prototype tooling was laid down and in a short lead-time initial ISIR castings were produced, complete with Full Level 3 PPAP documentation and testing verification reports.

Having received the samples, the finished machined castings were welded into the final boom arm assemblies, painted, and fitted to the final machine unit. During this process McConnell welding technicians noted that the parts took much less time to fixture up, and full seam welding progressed quicker than with the original fabricated sub-assemblies.

This machine was then despatched as Field Evaluation Unit (FEU) and underwent an 8 month trial period without any reported issues or breakdowns.

The assessment of performance was very good, and the feedback on the improved machine aesthetics was also commented upon from Alamo McConnel's customers.

Project Outcome

Through application of its DFM (design for manufacture) expertise, and inter-organisational co-operation, GMS was able to work closely with Alamo McConnell to provide the following outcomes for the below finished product:

- reduction in inventory stock holding
- reduction in number of stock lines
- reduction in issuing of purchase orders
- less movement of parts
- reduction in weight
- improved fixturing
- improved weld quality
- improved vibrational resistance
- increased strength
- improved throughput
- increased capacity
- more aesthetically pleasing product
- (*most importantly*) cost savings

GMS assisted design

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