KMC™
WE MANUFACTURE PARTNERSHIPS

CASE STUDY | Benefits of Prototyping

Parts manufactured affordably? Or affordable manufactured parts? These two statements sound the same but can mean very different things. A high-quality part can be affordable if — with some design adjustments — it can be manufactured consistently with little issue. Enter Prototyping.

As a metal products manufacturer, we are often working as a third party supplier to original equipment manufacturers (OEMs). Tier 1 providers work directly with OEMs to design solutions, and then hire companies like KMC Stampings to make the parts. The Tier 1 providers need to rely on their manufacturing partner for consistency because their reputation depends on it.

Prototyping is a must for our customers when bidding for these types of projects because third-party providers need to be 100 percent confident that they can mass produce the metal components they said they could, at the price and timeline they said they would. Following are four benefits to investing time and money in the prototyping process.

1. Verification — Reviewing design prints, dimensions, and tolerance requirements can get metal products manufacturers to a rough-order estimate. Creating a prototype and test run provides confidence in the design's manufacturability.

2. Engagement — Prototyping means working with a potential partner on the technical requirements — not just the commercial expectations — to ask questions about the application or mating surfaces, understand the tolerances and critical requirements, and complete a test production.

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3. Familiarity — During prototyping, our engineers get very familiar with the parts themselves. Manufacturing at a low volume helps us gain knowledge of the complexities of the parts and which ones are more difficult to make than others.

4. Improvement — Most importantly, prototyping gives us the opportunity to collaborate on with our customers on recommendations for design improvements that are made specifically to streamline the manufacturing of the part to ensure quality and cost control throughout the production lifecycle.

Take this recent customer experience for example.

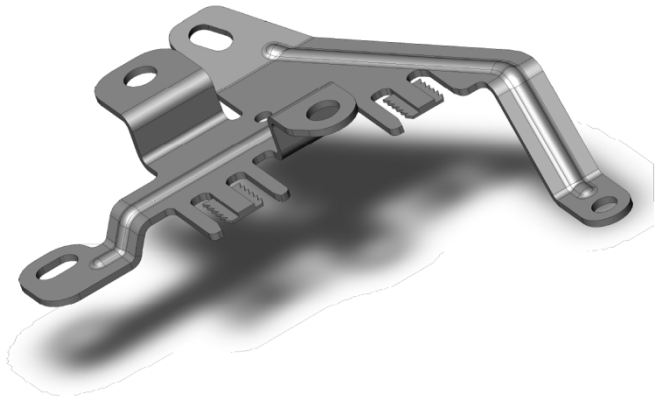
KMC responded to a Request for Quote (RFQ) from a manufacturer of high-pressure brake hoses and related products that would be used by an auto manufacturer. We engaged in the prototyping process to support our customer's validation process and in order to better inform our final quote. So we got to know their engineers, ironed out some challenges, and submitted our quotes with confidence. We were awarded some of the business we bid on, but not all.

A few weeks later, we heard back from the manufacturer that two of the parts they awarded to a different metal stamping company did not make it through the design review process. The company would not be able to make the part to the quality standard they had committed to during the RFQ cycle. We had created prototypes for these parts as part of our RFQ response, so we were able to say with confidence that we could manufacture the parts to the quality needed — as long as they were open to reducing some of the complexity in the design.

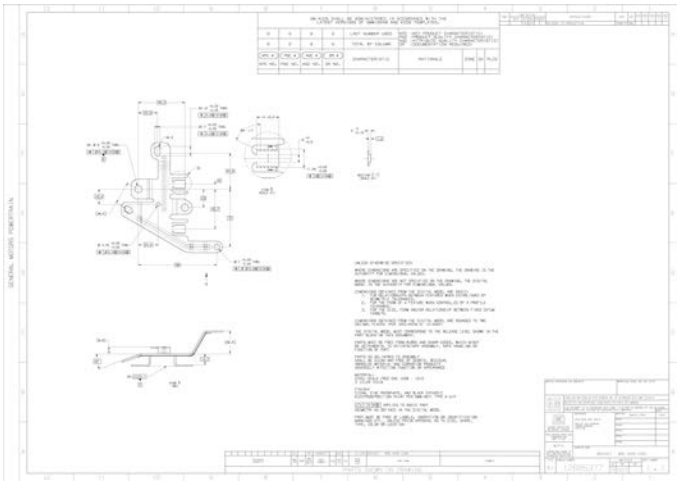
During the prototype phase, we found that the part design had a tight tolerance between a few of the mounting holes, as well as some twists that made the holes on different planes. We learned more about what the part would be mounted to and what the solution would be used for and worked with the manufacturer's engineers to determine the difficult combination of holes was unnecessarily driving up the cost of manufacturing.

With a few design changes, the final part is something that is easier and more cost-effective to produce and is guaranteed to hold quality throughout production. Since then, we have completed the proof of ability to manufacture and are preparing for a second-quarter production ramp up.

Prototyping has many benefits, but ultimately it is the most important part of understanding how we can truly respond to the critical technical and commercial requirements of our customers.



The most important phase in any product design is prototyping. During this phase we create multiple designs of a single product and determine which one will fit the client's needs best.



Our in-house precision manufacturing equipment means that once a finalized design is decided upon, we can reproduce that product without any loss in quality or precision for its entire lifetime.

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