Midwest Metal Products

Research Report W2C-015

Topic: Weldment to Casting Conversion

Choosing a weldment for conversion to a high ROI casting

Type Report: Background/Analysis

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Summary. Production facilities regularly use weldments in their components that could, by converting to a casting, reduce costs and inventory parts counts, increase reliability, and even field performance. But which of the possibly hundreds of weldments should be considered for the highest Return-on-Investment?

This Research Report outlines a simple roadmap for both buyers and engineers to identify candidates for castings that will validate the reason for conversion as well as the financial advantages. Specific topic areas include:

Identifying possible candidates
Is conversion cost effective?
Is every weldment a candidate for conversion?
Risks associated with converting
How to mitigate or eliminate the risks

Identifying possible candidates

List available?

If your team uses AutoDesk® or SOLIDWORKS® type CAD software, they may have a listing of weldments already in the system. Many times, once created, weldments are forgotten. Yet, cost, reliability, and end user satisfaction may make that weldment an excellent conversion candidate.

Design team

Ask the design team to specifically look at their design software to identify weldments. The two most common include Autodesk® and SOLIDWORKS®. Each of these have a fabrication design capability using parts welded together.

Production management team

Production managers are an excellent source of weldments. They know the issues with keeping the production line rolling, on-time deliveries, and keeping customers happy. If there is an issue, that team can probably identify candidates quickly and easily from (bad) experience.

Line personnel

Workers directly involved with assembly can be an excellent source to identify issues associated with weldments that could be eliminated with the use of a casting. Most common are part fit and or interchangeability

Other simple sources include:

Field failure research. If your Quality team investigates field failures, they may have several recommendations where weldments exposed the customers to risk or your company to legal ramifications.

Sales teams. If you use an outside or inside sales team, these are people who are closest to the end user. Your customers are much more likely to grouse about the product to someone trying to get them interested in another sale. While the sales force my not immediately identify a weldment, minor research may uncover a weldment as the reason for a customer's ultimate unhappiness with reliability, functionality, or other cause.

Complaints. Who likes customer complaints, right? But these can be another area where a weldment impacted the customer's production resulting in a negative feedback. Not just failure, but interchangeability, fitment, finish, and branding could all play a role. Simple research here will quickly identify whether a weldment was elemental to the complaint.

Warranty claims/payments. If the company has warranties in place (like MMP's 6 ways risk reduction), this can also be a rich source that pays quick ROI. When claims/payments are reduced, that's almost instant savings and a quick reputation fix.

Is conversion cost effective?

Weldments have an extremely important role in design, one-off, and mock-up of parts and assemblies. Once the part or assembly has been finalized, economic considerations will force the evaluation of that method for longer term production. While every weldment may have the potential for conversion to a casting, some are not economically advantageous. How do you choose?

While these guidelines can certainly make sense in a logical world, consider using the cost analysis checklist in the **Research Report W2C-007** ***"Accurately Costing Weldments"*** to further aid in the choice and decision.

Not all weldments are candidates for conversion to a casting

This Research report provides some simple checklists to help your team find the best possible candidates. If you are new to weldment-to-casting conversions, these early successes will give you the confidence to look closely at other weldments that can save your company money, reduce risk, and improve your customer's view of your end product.

Not every weldment is a candidate for conversion. Some are too simple, others are not cost effective. Single, one-off, and pre-production components are rarely worth the investment. While there are exceptions, most production companies have many other hidden weldments that should be considered first.

What are the risks in conversion?

Many foundries claim to convert weldments, but few are truly experienced.

-using a new supplier always has risks. Ensure there are risk reduction initiatives in place such as delivery guarantees, minimum savings, and 'head of the line' priority when there is an issue.

-using a 'we only cast what you ask for' foundry that doesn't have the expertise on-staff to ensure your casting accomplishes everything you need.

How to mitigate or eliminate the risks

Ensure a consultation between your design team and a fully qualified Metallurgist. Anyone can melt metal, but only a metallurgist has the background, education, experience, and insight to get it done economically.

Look for a supplier with an onsite, full time, Ferrous Metallurgist. It's the difference between a house painter and Picasso. You get premium service from a trained specialist at a competitive price.

Ask for their experience in the type work. Many foundries will say 'you send us the specs and we will pour it'. That is NOT the way to convert. There is much more planning, alloy selection, design considerations, and finish considerations. The cost is almost identical but the results are dramatically different when your team has access to a Ferrous Metallurgist at the foundry.

Only consider supplier who guarantee delivery, quality, service and price. This is easier said than done. Look at the supplier's website for assurance and risk reduction initiatives.

Conclusion

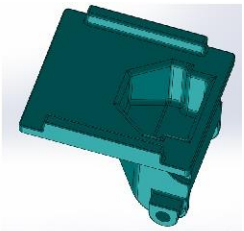
Weldments serve a very important purpose in the initial design. Once finalized, the economic and other benefits of castings should be evaluated. Following these guidelines will allow any company buyer or engineer to select initial candidates for evaluation.

While anyone can take out an appendix, only a trained and qualified surgeon will give the results you really want. And while any foundry can melt metal, it takes a metallurgist's oversight to ensure it is done with the proper alloy, to your exact specifications, in an economical environment.

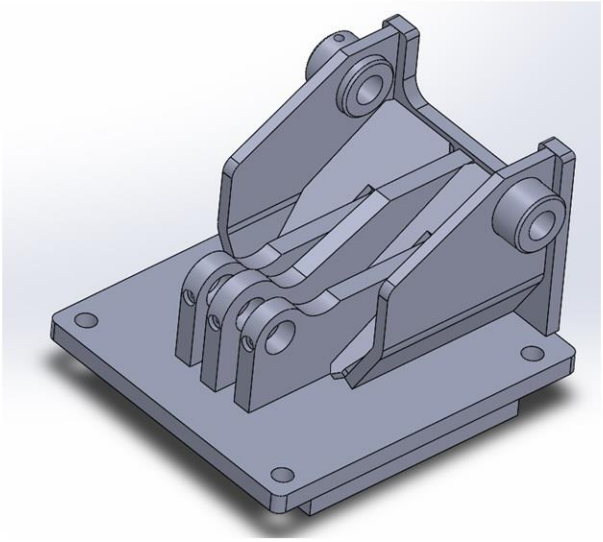
While some foundries will convert a weldment, only Midwest Metal Products gives you and your company the expertise of a metallurgist at every step of design and production.

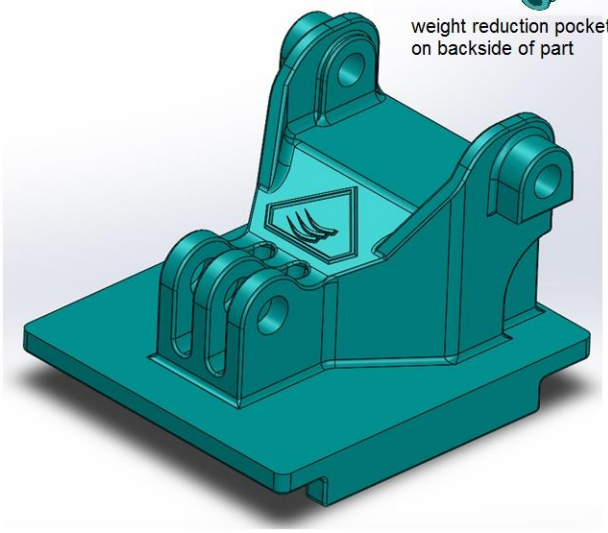
Midwest Metal Products offers a free certificate which will cover the cost of evaluation by a metallurgist HERE which eliminates any risk in evaluating a weldment.

MMP's casting conversion in action with a current client - 13 pc weldment to a single piece casting - including logo.



Part is the mount for a boom which carries their primary product on it - 175 lbs





weight reduction pocket on backside of part