



# Guide to Reducing Costs of Metal Stamped Parts



847-678-2020

# Table of Contents

|                                       |    |
|---------------------------------------|----|
| Material.....                         | 4  |
| Die Lifecycle.....                    | 5  |
| Tooling.....                          | 6  |
| Quality Control.....                  | 7  |
| Tolerance.....                        | 8  |
| Specification Requirements.....       | 9  |
| Product Performance Requirements..... | 10 |
| Factory of Safety.....                | 11 |
| Manual Requirements.....              | 12 |
| Product Design Changes.....           | 13 |
| Similar Components.....               | 14 |
| Design Review.....                    | 15 |
| Government Regulations.....           | 16 |
| Secondary Services.....               | 17 |
| Automation.....                       | 18 |
| Project Management.....               | 19 |
| Market Familiarity.....               | 20 |
| Volume.....                           | 21 |
| Lead Time.....                        | 22 |
| Delivery Time.....                    | 23 |
| Reduce Scrap.....                     | 24 |
| Shipping.....                         | 25 |
| Packaging.....                        | 26 |



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# How can you reduce the cost per part?



This guide will walk you through 23 key points to review and examine for possible cost savings of your metal stamped parts. Let's get started!



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# Material

When selecting the material for your part did you consider all of your options? With current fluctuation of metal pricing, you may be able to find savings in an alternative material that you did not consider previously. Frequently we are able to substitute 1050 Annealed Spring Steel for HSLA with minor design modifications.

Recently a customer contacted us to review the production of an existing part. They were using 4130 Alloy Steel for the original component design when it had to be durable. The requirements have since changed and the durability is no longer an issue. To reduce the cost of the component we recommended Commercial Quality (CQ) Steel as a replacement.



Depending on current material prices and component requirements, making a material change may allow you to realize some quick savings while maintaining the structural requirements of the component.



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# Die Lifecycle

How often are your current dies taken offline for repair and re-tooling? If your current design requires frequent offline time for die repair, have you been able to determine the features that are causing this down time and the lead time extension? Review your design to determine the possibility of altering these features to simplify the component and eliminate unnecessary wear on your die and tooling. Manor's engineering staff can aid your team with issues like these.

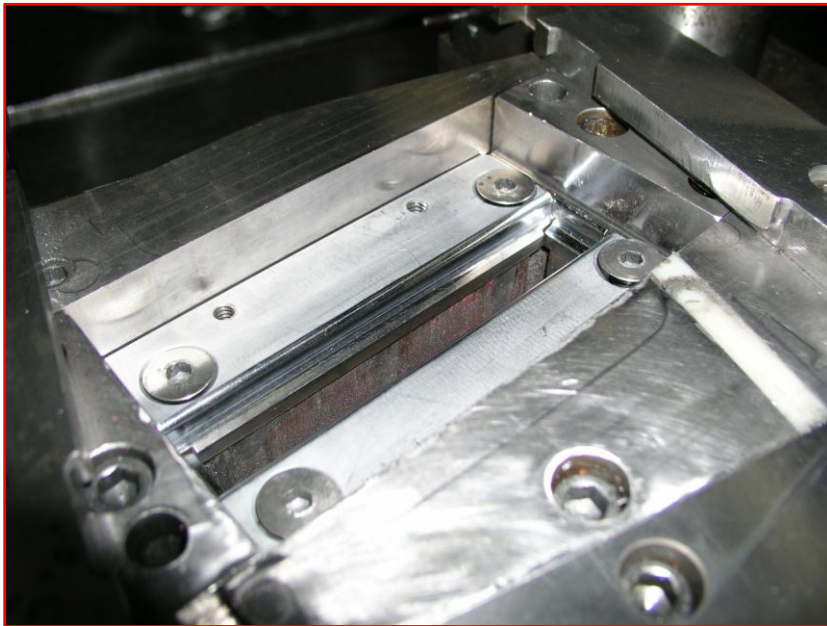


*"The automotive industry spends an estimated \$700 million a year on designing, testing, and correcting new dies for its latest models. About half of the total cost goes for remedying unanticipated errors manifested as wrinkles, splits, excessive thinning, or other defects."*

*Source: Stamping Out Die Defects, American Machinist, 11/1/2003*

# Tooling

Review your current tooling requirements for your components and determine if there are alterations that can be made to reduce complexity and maintain functionality. For example, changing square holes to circular holes drastically simplifies machining and tooling requirements. This will reduce your production time and your overall component cost. Review your design and outline the number of machines and processes that are required. Can changes be made to utilize the same machinery or process? Manor's engineering staff has helped implement changes in tooling to save customers money on their parts.



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# Quality Control



Attention to production quality control is the quickest path to cost savings. By reducing return shipments, onsite production visits, extension of lead times, and re-tooling costs you can impact your component savings dramatically.

Determine how your current metal stamping partner is testing and approving your parts. Is this meeting your needs? If so can you reduce this inspection to save time and cost? If your metal stamping partner selection was based on original component cost it may be worth reviewing how QC issues are actual impacting your component production cost. Frequently overseas vendors that appear to provide savings actually negatively impact your overall productivity.

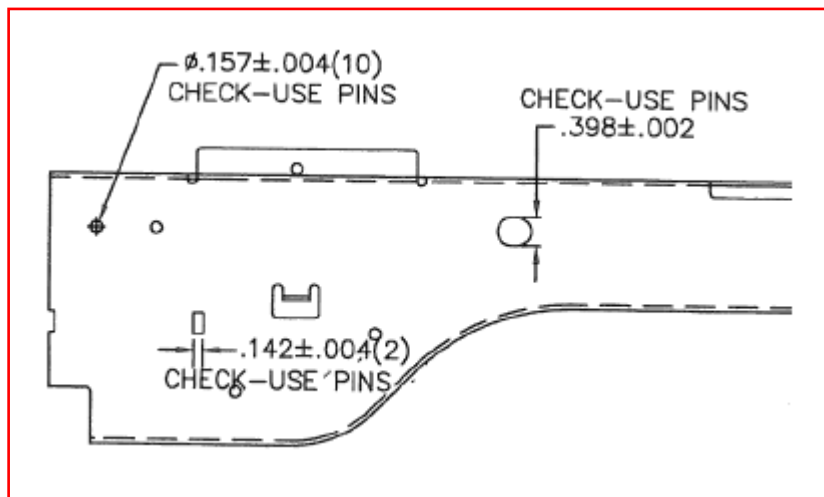


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# Tolerance

When the component was first designed did you just use the default  $\pm .002$  on your title block? Review your design to determine the feasibility of increasing the tolerance requirements without impacting the functionality of your design. It is possible that changes were made during the prototyping and production runs for the full assembly and you are able to adjust these requirements. Relaxing the tolerance on your component can have dramatic cost savings.



# Specification Requirements

If your component has been designed to be in compliance with an existing specification or standard, you should review the latest version to determine any changes that may be advantageous to your design or production process. If the standard or specification is no longer applicable to your design, make the acceptable changes to reduce cost and increase productivity.

## Sample Resources

Mil-Specs: <http://www.dscc.dla.mil/Programs/MilSpec/>

ASME: <http://www.asme.org/>

ANSI: <http://ansi.org/>

ASTM: <http://www.astm.org/>

API: <http://api.org/publications-standards-and-statistics.aspx>



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# Product Requirements and Performance

Your component has been in use for some time now and you have a wealth of reliable performance data. Can you reduce the load or cycle time requirements and achieve the same function? By analyzing the current design performance you may be able to identify areas of design modification that can reduce your costs.



# Factor of Safety

What was your factor of safety on the original design? Was this set too high during the original design? If the design load has changed or ended up being less than the original design called for, there is an opportunity to modify your existing design to reduce costs.

$$\text{Factor of Safety} = \frac{\text{Material Strength}}{\text{Design Load}}$$



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# Manual Requirements

Are there portions of your design that currently require manual intervention? If so, review these areas to identify possible automation or elimination. Manual machining operations are costly and time consuming. Anything you can do to reduce this, will have an immediate impact on your component cost. Our engineering team can help identify opportunities to automate feature creation for your parts.



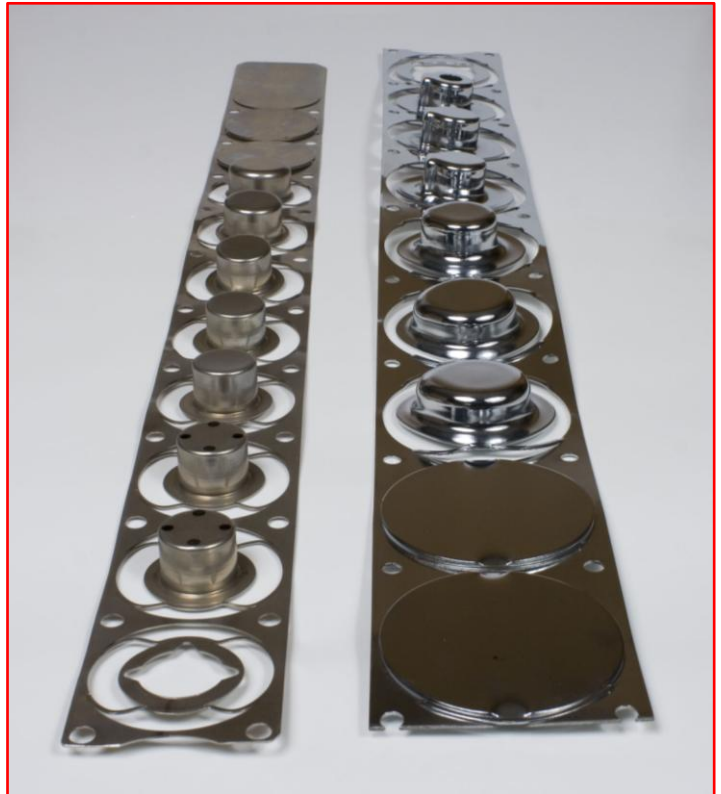
# Product Design Changes

Has the overall product that your component is used in undergone any design changes recently? Review these changes to determine how the other component changes have affected your original stamping design and function. Alternatively, you may be able to alter your design slightly to provide advantages in other areas while maintaining the function and integrity of the part. Some changes would allow you to ship more parts together and deliver more parts in each shipment.



# Similar Components/Near Duplicate Designs

Do you have components that are very similar? It is possible that modifications can be made to an existing component to fulfill both needs. Large businesses frequently keep extensive databases of their custom components to identify this opportunity. Be mindful of the work you have already done and use it to your advantage. By combining the two component designs you may be able to serve both needs and decrease your overall costs.



# Government Regulations

If you are using process or material regulated by the government, review the need and investigate alternatives. If the laws or regulations surrounding a material or process are subject to fluctuation or change this creates instability in your production process and varying cost. Do your best to eliminate these unknowns.

**Check Code of Federal Regulations Here:**

<http://www.ecfr.gov>



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# Secondary Services

If your component currently requires services from multiple vendors, investigate finding a partner that can supply all of these services for you. Not only will you save on shipping costs, but you will have one point of contact for the successful production of your component.



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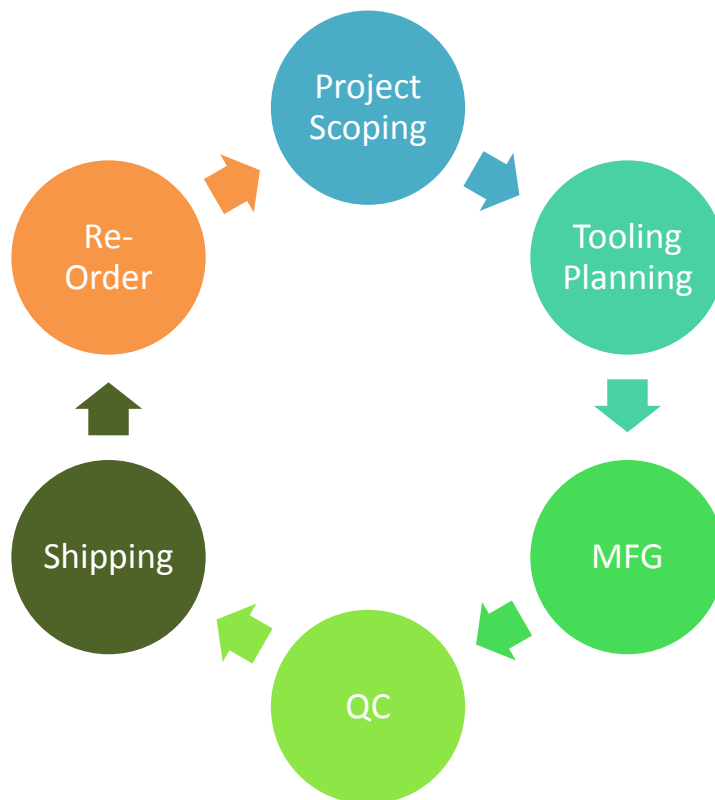
# Automation

Review the machinery available from your current metal stamping partner. Do they have opportunities to increase the automation of the component production? It is possible that different machinery may allow you to condense your production runs by combining feature creation. By reducing the number of passes, tooling setups/fixtures, and manual machining the cost of your component can decrease.



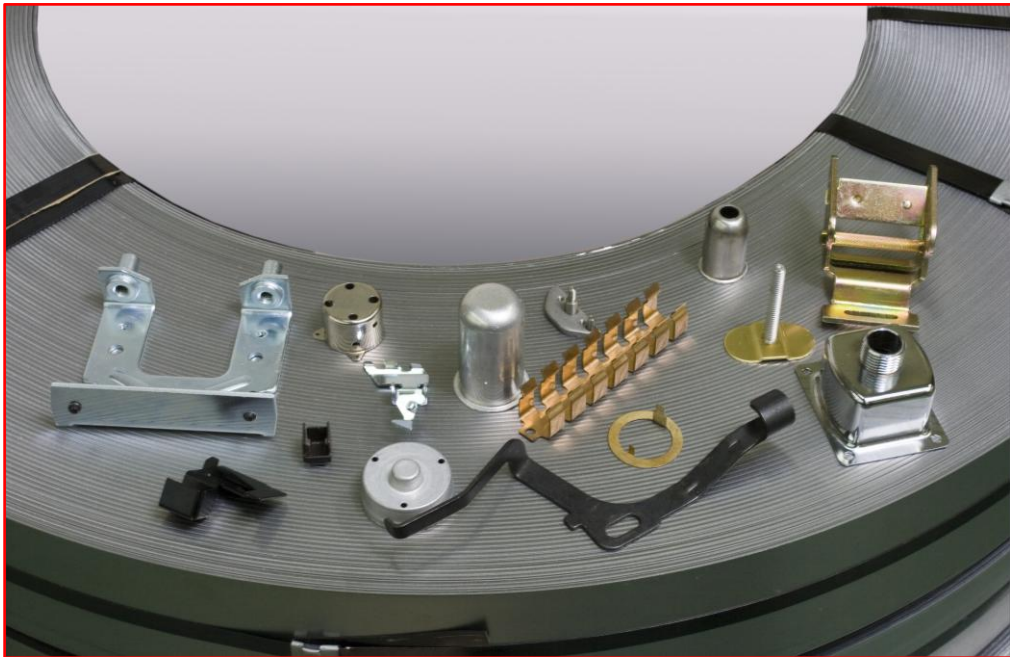
# Project Management

If you have a hard time getting in touch with your metal stamping partner or they do not return your calls with reliability, there will be additional costs accruing on your project. Review the project information and feedback you are provided for reliability, expediency, quality and accuracy. If you do not have strong project management for your metal stamping components, you will lose time managing the project yourself. Find a strong partner to lead this for you.



# Market Vertical Familiarity

Make sure your current metal stamping partner has a deep understanding of your area of expertise. Frequently different vertical markets will require different production steps or documentation. You do not want to get stuck educating your partner on how to do their job for you. Find a partner that is familiar with the requirements of your vertical and leverage their knowledge to analyze your design and make cost effective changes.



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# Volume

Has your production volume increased without reviewing your original design? Frequently the need for more components is met with a basic increase in production orders. When volume increases the opportunity arises to streamline your product design to increase manufacturability and production timelines. If you are still using your basic prototype design, now is the time to analyze where changes can be made to still achieve the required functionality from the component, while reducing costs.

Does your metal stamping partner have the ability to ramp up to high volume production with you? Unfortunately, some partners are not able to transition into high volume runs. You may still be paying "low volume" or "short run" pricing for your high volume run. Determine if your metal stamping partner has the ability to keep up with your needs while providing the cost savings your large orders require.

When selecting a metal stamping partner be sure they have the capability to move from prototype fabricating, short run production and eventual migration to high volume hard tooling.

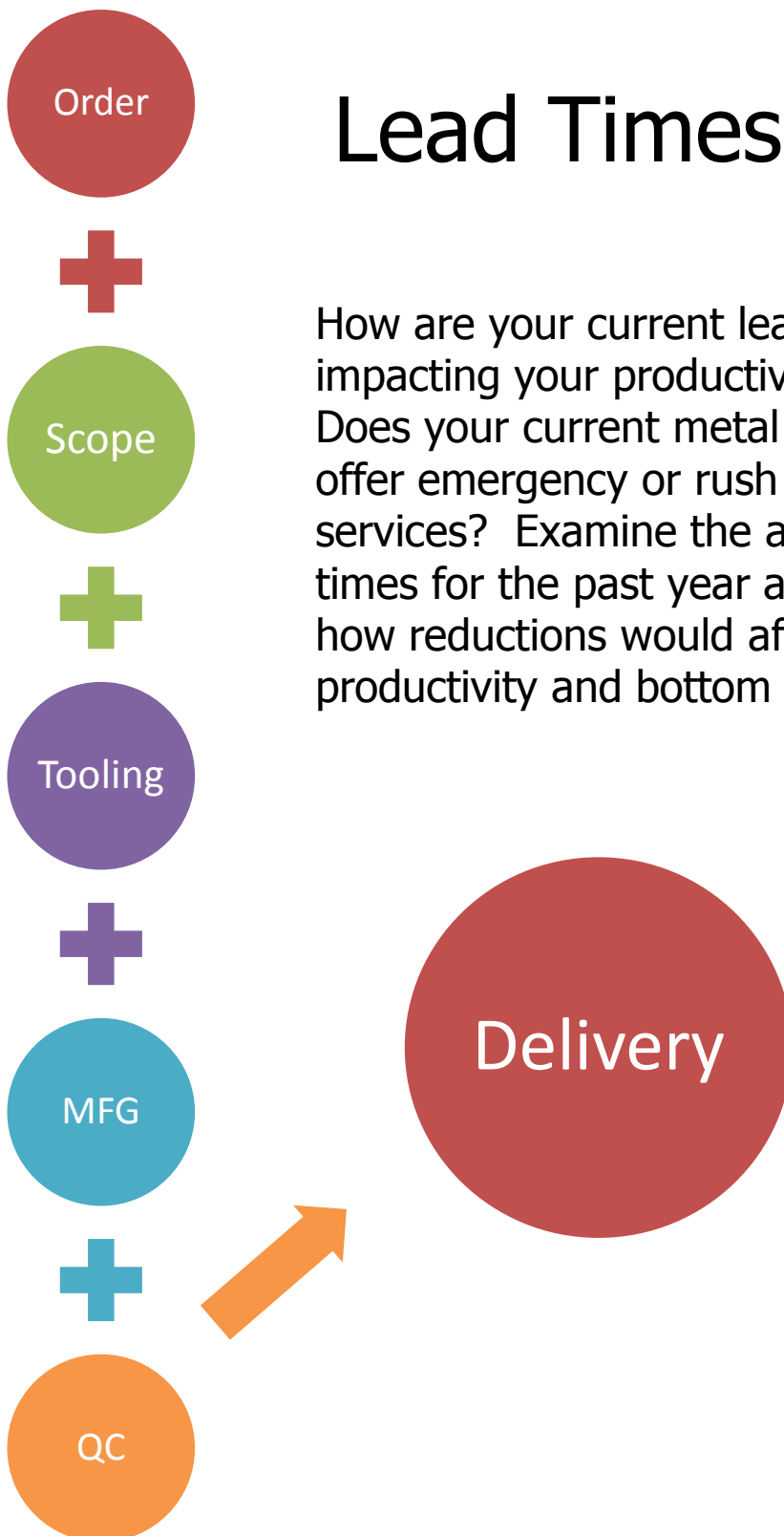


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# Lead Times

How are your current lead times impacting your productivity and cost? Does your current metal stamping partner offer emergency or rush production services? Examine the average lead times for the past year and determine how reductions would affect your productivity and bottom line.



# Delivery Time

*"Businesses should be looking at every workflow in detail on a regular basis to claim back the minutes and seconds they need to achieve these savings."*

*Source: "Supply Chain Inefficiencies Result in Huge Losses"  
www.strategicsourceror.com  
11/30/2012*

Review how your parts are currently scheduled for delivery. Does your current metal stamping partner provide warehousing or JIT services for your components? Do you know if your current carrier or delivery service is the most cost effective? Consider how alternative delivery schedules or carriers may impact your profitability for each component.

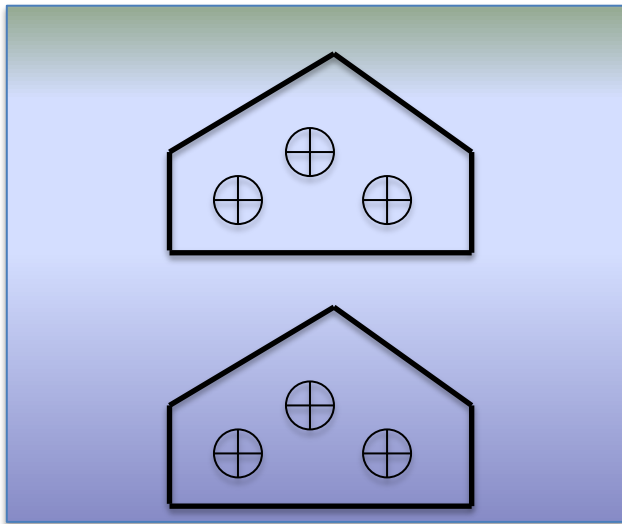


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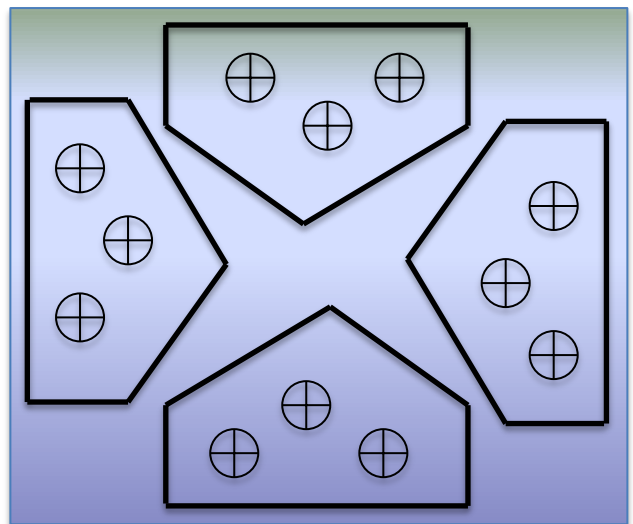
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# Reduce Scrap

Do you know what your current scrap rate is? Have you organized your components to reduce your overall scrap cost? If not, you should investigate the possibility of re-orienting your design and manufacturing drawings to maximize the material used in your metal stamping. By changing the layout of your components you can produce more pieces using less material. If your original layout had 10 parts on your design and you can fit just one more, you are now getting 10% more products for the same material price! Depending on the volume of your production runs this can save a large amount of money very quickly.



**More Scrap**



**Less Scrap**

# Shipping



*“With annual carrier rate increases, skyrocketing fuel costs and accessory charges that may increase 30 percent or more a year, finding a way to reduce shipping expenses can make a serious impact on an overall balance sheet.”*

*Source: "Reduce Shipping Expenses, Improve Bottom Line", Production Machining, 6/1/2007*

How does the geographic location of your metal stamping partner impact your shipping costs? Depending on the shipping weight of your components it may be advantageous to find a metal stamping partner in your local area or much closer to the final product assembly location. If you are using a metal stamping partner overseas, you should review any tariffs or taxes that are currently impacting your bottom line.



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# Packaging

When your component was originally designed did you determine the maximum volume it would be possible to ship in a single package? By making subtle design changes that do not affect performance you may be able to provide more advantageous packaging options that increase the volume per package. Additionally, you should review the current packaging materials and carrier to determine if any alterations can be made to reduce costs.



# Design Review

Have you had a third party that is an expert in stamping your type of component review your design and provide feedback? Two sets of eyes are better than one. Find an expert in metal stamping, progressive die stamping and deep drawn stamping to analyze your current design. Their years of expertise will allow them to identify cost saving opportunities very quickly, saving you even more time on quest to save money on every part you produce!

Manor Tool would welcome the opportunity to review all of these aspects of your current design and work on a solution to reduce your costs while maintaining the integrity of your components.

**If you are interested in a design review, please contact us at 847-678-2020.**



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# Metal Stamping Cost Reduction Checklist

- ☐ Material
- ☐ Die Lifecycle
- ☐ Tooling
- ☐ Quality Control
- ☐ Tolerance
- ☐ Specification Requirements
- ☐ Product Performance Requirements
- ☐ Factory of Safety
- ☐ Manual Requirements
- ☐ Product Design Changes
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- ☐ Government Regulations
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- ☐ Packaging



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