



# Busbar Value Engineering Checklist

*Busbar Design | Cost Reduction | Hole | Bend Proximity Sizing | Tolerance | Aluminum Busbar*

**Storm Power Components** understands that the goal for each customer is to receive top quality busbars and connectors at the lowest cost possible. To assist you in your pursuit of savings, please see below for common cost drivers that, if managed, can lead to significant cost avoidance.

## Hole/Bend Proximity

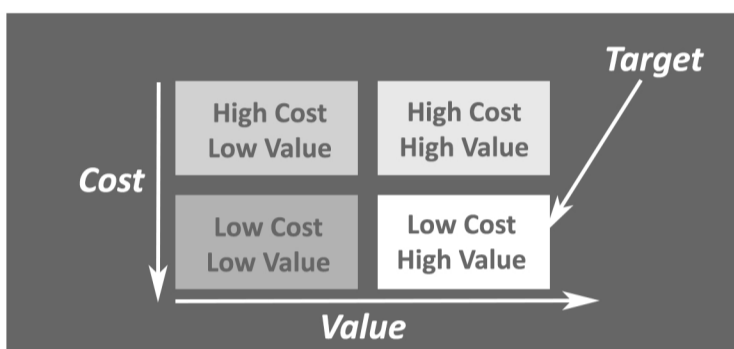
Usually, holes are punched out of a part while it is flat, then any necessary bends are formed afterwards. If a hole is placed too close to a bend in a part, an extra step must be added to the production process where the hole is milled after the bend. Otherwise, the hole is deformed by the formation of the bend. If a part designer can move the hole a bit farther from any bends, this extra step (and the additional costs) can be avoided.

## Tolerance

Tolerance specifications can seriously affect pricing. For example, turret and single end punch machines can handle a +/- 0.010 tolerance specification, so the production is relatively easy and cheap. But if the part's tolerance is set to +/- 0.005, the punch's tolerance settings can only go so tight, and the part must be taken to the milling machine or hard stamping die auto press, which is more precise, but more costly and time-intensive.

Another tolerance-to-cost scenario relates to powder coated insulation. Before spraying, the masking process is done manually, and dealing with very precise tolerances requires more time and labor. If masking tolerances can be loosened ever so slightly, the masking process becomes smooth and quick, saving on time and costs.

**In summary**, it is important to consider tolerance specifications. Maxing out tolerance is often an easy way to reduce pricing.



[LINK TO BUSBAR AMPACITY TABLES >](#)

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by Chris Granger*



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## Order Quantity

This point can not be emphasized enough, machine setup fees make up a significant amount of overall order cost of production. These machine programming, set-up and fixturing costs are spread out over the entire quantity in an order. So, the larger the order, the less the relative cost of production. If a customer needs a regular but small amount of a single part, Storm can create a custom stocking program where a large batch is produced at once, then sent out in small amounts on a schedule. This allows for huge savings in overhead and machine setup fees.

## Standard Sizing

On-site inventory of bar and sheet feed stock usually consists of standard-sized materials, sourced in volume quantities from a low cost mill. If an odd-sized raw material is required, the products must either be ordered from a distributor or a larger size product will be cut down to the required size. Both options increase cost - either by the pass-through of the distributor's margins, or by letting money fall to the mill-room floor. Also, if a standard sized part is sheared down to a smaller size, each sheared edge must be deburred. This extra step leads to increased labor costs. Whenever possible, standard size bar and sheet products are the way to go.

## Aluminum Busbar

Aluminum might be a more cost effective option than copper. It is a good idea to consider the intended use of the part and determine if aluminum is a valid, cost-saving option. For further discussion on aluminum busbar, see this page: [Aluminum: Advantages & Considerations](#)

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