

## Tooling Decisions

A brief and simple explanation of the differences  
between high and low quality tooling

Generally, we are all aware of the general costs and risks incurred in having low quality tooling and that taking measures for monitoring and improving the quality of tooling is very necessary. Low quality tooling is unreliable and has a tendency to wear out a lot quicker than high quality tooling. Some may think that low quality tooling is less costly and lasts for a very short time while, high quality tooling is expensive and long lasting, but that's not necessarily the case. Low quality tooling is usually very expensive. It's higher maintenance and repair costs and tendency to perform with inferior results to that of high quality tooling can have an immense impact on the revenue earned.

One important factor is the material that the tooling is being made of. In today's tooling market, the cost difference between steel and aluminum tooling is fairly negligible. A number of years ago, aluminum tools were made quicker but today that is not the case. Due to advances in tool machining industry, today steel tooling can be machined a lot quicker. Speaking in general terms, if aluminum tooling for a specific application can be machined in 14 days that same tool made of steel can be machined in 16 days. Prototype tooling is typically made of aluminum but for tooling being used over a somewhat longer cycle, steel tooling is the way to go. One advantage that aluminum tooling has over steel tooling is that aluminum draws out heat quicker. The drawback of aluminum is that it is soft and aluminum tooling can be damaged if the part, for example, doesn't fully eject. Steel is simply much more durable.

Another important factor is the technology used to manufacture the tooling necessary to perform the desired part in the desired production cycle. DLMS (Direct Laser Metal Sintering) and CNC (Computer Numerical Control) are technologies that are still being taken advantage of but are not commonly used to manufacture tooling nowadays whereas EDM (Electrical Discharge Machining) is so commonly used that you can't be a tooling company unless you offer it. For a tooling manufacturer in the competitive product development industry of today, it's pretty much implied that they offer tooling produced from EDM Technology. In fact, stating that your tooling company manufactures tooling using EDM is like stating that your company manufactures color televisions. EDM is an industry standard. You can't make tooling without it.

In addition, one thing you may want to look into when ordering tooling is the care put into the process of machining your tooling. High quality tool manufacturers will run your tools for 4 hours after they are machined. Then they will take it a part, look for wear if there's a problem they will fix it. Not only is the advantageous because you are more aware that your tooling is of high quality, but because the tool manufacturer tests the tooling for so long, the tooling gets good break-in time so that after you will have received your tooling and have adapted it to your machinery, the tooling is ready to go.

How do these decisions directly affect the final product? Low quality tooling produces low quality final products. The revenue generated from the final product is low because customers can only purchase it if its price is low. In fact, the revenue earned may not even cover the production costs. The final product of high quality tooling is of high quality and satisfies the buyer's needs.

### REFERENCES

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