



From prototyping to mass production: the benefits of choosing a supplier partner with end-to-end in-house capabilities

In this article, STL Director Alastair Gordon discusses why an increasing number of their customers prefer working with a supplier that has the in-house capability to carry out prototyping and small-scale production of samples, followed by mass manufacture and assembly of the end-product.

During the prototyping process a key driver for customers is to achieve a speedy way of producing first samples and checking for form, fit and function.

A typical developmental process would often be chemical etching, laser or waterjet cutting of blanks, followed by forming to create the required additional shapes. This can result in mismatches of forms due to location issues.

Trying to then scale up this method of manufacture to produce 10,000 components would take several months, representing time lost.

Customers could then get locked into an inadvisable process with no extra development work to take production into a larger scale; the result being a cost base which is great for a few samples, but no longer makes sense for production numbers in the thousands or hundreds of thousands.

At this point, a customer would look to switch supplier to a new company capable of mass producing quickly and accurately with all the issues that come with starting over again.

However, at STL we are noticing an increasing number of customers that are realising the benefit of using one supplier with the required in-house capabilities to carry out the entire end to end process; commencing with prototyping and small-scale production of samples, followed by mass manufacture and assembly of the end-product. This can be seen with some ZEV projects we are involved with.

For example, in another recent ZEV project, STL have been working with a design company to produce a sliding contact for charging stations that fit into roadside architecture. The customer had a design concept and came to STL looking for a small sample of 50 precious metal electrical contact rivets, which has then led to a next stage production of 10,000 contact rivets and in-house assembly at STL along with the contacts. The contact rivets are of course made in house by STL so no time is lost there.

After reacting quickly to the initial request for prototype rivets, by working closely with the customer at each stage of the project, STL have been able to offer valuable insight and guidance - and are now advising on how to improve the sliding contacts for the next 50,000 components to be produced.



STL reacted quickly with the prototyping of the contact rivets initially and were able to provide advice and guidance on an ongoing basis as a key project partner from then on within our manufacturing process.

Involving STL within the design phase means that the customer benefits from STL's vast experience producing electrical contacts out of bimetals and other high conductivity materials - and advising on the most effective and consistent way of producing the desired component post sampling within mass manufacture.

STL are producing samples utilising wire EDM prototype stamping in addition to techniques other than a full stamping tool, such as (part wire erosion and) forming.

The learning curve developed can then be rolled out into a mass production environment as and when needed, which becomes a massive advantage cutting out much of the later production development usually needed.

In principle this makes a lot of sense - if your intention is to prototype and then progress onto mass production, why not learn from the prototyping process ahead of going into full production?

The overall cost of ownership within the development process is lowered by gaining knowledge at the earliest stage of a project. STL can also add value by helping with the design for manufacture improvements implemented at those earlier stages.

Utilising this approach and the in-house capabilities and specialist knowledge of a stamping partner such as STL may also interest customers that require tight control of tolerances and an emphasis on re-productibility.

Once the prototyping stage has ensured that complex bends and the required tolerances are achievable, a stamping tool guarantees that every part is produced identically - ensuring reproducibility and removing the need for any additional manual secondary operations.

In contrast, controlling multiple 'one off' productions typical with small scale prototyping routes can be significantly more complex to manage and less reliable in delivering the desired results.

STL has in house Solidworks CAD with multiple designers, a full spec tool room ran/ run by experienced toolmaking personnel, wire & profile EDM systems, mechanical cutting via lathes and milling machines and both low and high-volume stamping capability. This gives STL the capabilities required to be able to prototype then mass produce under one roof, working in partnership with our customers.

This could be relevant to industry sectors such as Aerospace, Medical, potentially electronic base stations for example – many of whom would not typically associate stamping as a viable route for this because of perceived investment costs.

High volume stamping could then follow on directly from low volume sampling or a low volume mass production environment for those that require it, ensuring critically that they have a cost base which enables scaling of production.

As STL can offer both prototyping and high-volume stamping in house, we are interested in speaking with companies looking for a quality partner to prototype components ahead of a high-volume stamping process. If this sounds like you, email sales@samueltaylor.co.uk

Image caption: Prototype inlay contact made from Wire EDM, modular forming & STL inhouse strip produced by 21 year old Sam working within the STL tooling Team