



## Additive Manufacturing

by R. Tomlinson – [Plastic Moulding Solutions](#)

Is it the next game changer in the polymer industry?

Most if not all of those employed within the plastics manufacturing industry will have heard of rapid prototyping or additive manufacturing to give its correct name of the many names that have been labelled on this process.

Is it about to become even important than just producing prototypes, models or jigs and fixtures I believe that advancements within the additive manufacturing will go way beyond producing plastic moulds for testing an idea.

I believe that advances in the additive manufacturing arena will really benefit the plastics industry when the adoption of metal additive manufacturing is well and truly established as a replacement for conventional manufacturing by the use of machining metal.

The major parts of a mould are the core and cavity and this is where the manufacturing cost of a mould come from, this is proven by the fact that you can buy almost every part of a mould except the core and cavity from a supplier of the standard parts used in mould making and in some instances you can buy collapsing cores.

I know that the latest trend in additive manufacturing in the industry is to produce polymer-based moulds using the process but these are limited by the materials used in the process and by the materials you wish to process, they also have a limited prolonged life expectancy.

Their use will no doubt improve over time as more additive materials are developed for this application.

The additive manufacture process using metals is the real game changer in my opinion I already know of its use in moulds where cycle time reductions of over 30% have been achieved by using this method of manufacture.

Its use is crucial in being able to create conformal cooling within both the core and cavity at a point where you actually need cooling rather than being located near to the point, yes you will still have to do some finishing of the core and cavity depending on the build process and complexity of the design but this will require hours not weeks like final polishing etc.

There will be some areas where this method will not be suited to the manufacturing process but technology in this area is moving at a rapid pace, developments are constantly being made in all areas of the additive metal process which is changing everyone's perspective.

In Australia a company has developed a machine that uses supersonic additive manufacture reducing the build time of a flywheel from 20 hours using traditional additive methods to 11 minutes and 38 seconds, in another application a car component was produced in 20 minutes rather than 100 hours in the conventional manner.

I know of systems that incorporate machining of the metal after the build process to finish of the construction of parts within the same framework of the machine yet more advanced than just additive metal who knows how far this technology will go?

Being able to use advances in technology such as the above will no doubt change the industry for the better and make machining metal something else.

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