

Designing for process

Designing parts specifically for AM saves on costs and lead-times



Reducing the number of production steps from 38 to 9, reducing lead-time from 20 to just 5 weeks, and giving a cost reduction of more than 30%.

Hittech Group BV is a group of companies supplying services in system integration, casting and sub-contract manufacturing for other companies. In order to offer a more complete service portfolio to their customers, Hittech and 3T-am formed a strategic alliance to work on a range of projects. This alliance enables Hittech to offer its customers the benefits of Additive Manufacturing. In return, it allows 3T-am access to Hittech's world class design and 'value engineering' expertise and high-end volume production machining and finishing capabilities.

Producing the new 'E-Box' via AM has:

- reduced the number of production steps from **38** to **9**
- reduced lead-time from **20** weeks to just **5** weeks
- reduced component cost by more than **30%**



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Hittech produced an enclosure for electronic components that required complex internal channels in the walls of the box for cooling these system components. Additionally, the environment for the electronics within the box is maintained with air cooling which flows from the walls of the box over the internal components.

In order to manufacture the complex internal cooling channels and other features of the box using conventional methods, there were 38 steps in the manufacturing process chain, including milling out the channels and then bonding on the outer skins to complete the exterior walls of the box itself.

In conjunction with 3T-am, Hittech identified an opportunity to change the method of production of the enclosure in order to reduce the number of steps in the process, and improve the overall manufacturing yield.

3T-am and Hittech redesigned the electronics box to allow for Additive Manufacturing thus enabling the part to be made in one piece. All the blind holes have been eliminated, and the 90° cross drilled channels have been changed to be smooth flowing channels. This has also had the effect of vastly improving the efficiency of the device.

“A key objective of the redesign was to reduce the yield loss during manufacture which has been reduced to almost zero”

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