

CASE STUDY – CUSTOM CRANIAL IMPLANTS

Process Utilize – Stereolithography (*Somos 14120 Resin*)

THE OBJECTIVE

Produce a customer manufacture cranial implant for patience to reduce rises at time of surgery.



THE CHALLENGES

Every cranial defect is different. The plates had to fit in the defect with minimal modification at time of surgery. The goal was also to reduce lead time from around 1 month to 1week from time of planning the surgery to time the implant is delivered to the hospital. Additionally each part needs to be qualified that it was within tolerance. This proved difficult due to the organic shape of the models.

THE SOLUTION

CT data was captured and cleaned to reveal the cranial defect. The Bioengineer then produces a custom plate from this defect and creates STL files. These files consisted of the plate and host bone, that would be used during the plate manufacturing process. Both files were then sent to Stereolithography.com to be grown in hi resolution on a Stereolithography machine. Due to the organic nature of the parts the customer wanted to ensure that the cranial defect edge was left untouched during post processing. To confirm this every Host Bone was Scanned by a 3D Laser Scanner and a inspection report was generated. If the Host Bone deviation was acceptable the part was then delivered to the customer.

In this case the customer was able to take advantage of one of our locally places fulfillment shops. This enable the parts to be delivered within 24 hours of the order being placed. This rapid turnaround allowed them to reach their delivery goal and become one of the leaders in custom manufactured Cranial Implants.

