

From Scans to Reality: The Journey of Digital Anatomical Printing

Digital Anatomical Printing (DAP) is a process used by contract manufacturers to create accurate and high-quality anatomical models for medical professionals and researchers. The process involves several steps, from obtaining the necessary files to delivering the final physical model. Let's go through the process from beginning to end:

- 01 File Acquisition:** The client provides the contract manufacturer with the necessary files. These files typically consist of medical imaging scans, such as CT scans or MRI scans, which capture the patient's anatomy in detail. These files serve as the basis for creating a 3D digital model of the anatomy.
- 02 Digital Model Creation:** Additive technicians use specialized software, such as 3D modeling software or computer-aided design (CAD) software, to transform the medical imaging files into a digital 3D model of the anatomy. This digital model will serve as the blueprint for the physical model.
- 03 Physical Model Production:** With the digital model completed, the manufacturer proceeds to create a physical anatomical model. This is typically done through advanced manufacturing processes, such as 3D printing or CNC machining. 3D printing, in particular, is commonly used due to its ability to accurately reproduce complex anatomical structures layer by layer.
- 04 Inspection and Quality Assurance:** The physical model is carefully inspected to ensure that it matches the digital model with high precision. Any discrepancies or inaccuracies between the digital and physical models are identified and corrected during this stage. Quality assurance is crucial to ensure that the final anatomical model is accurate and functional.
- 05 Collaboration with Medical Professionals:** To further ensure the accuracy and functionality of the anatomical model, contract manufacturers often collaborate closely with medical professionals, such as surgeons or radiologists. These experts can provide valuable feedback on the model's accuracy, realism, and usefulness in medical applications. Their input helps refine the model to meet the specific needs of end-users.
- 06 Finalization and Delivery:** After addressing any feedback and making necessary adjustments, the contract manufacturer finalizes the anatomical model. The model is then delivered to the client, who can use it for various medical and research purposes, such as surgical planning, medical training, or device testing.

