Engineering Drawings for Power Supply (SMPS) Module

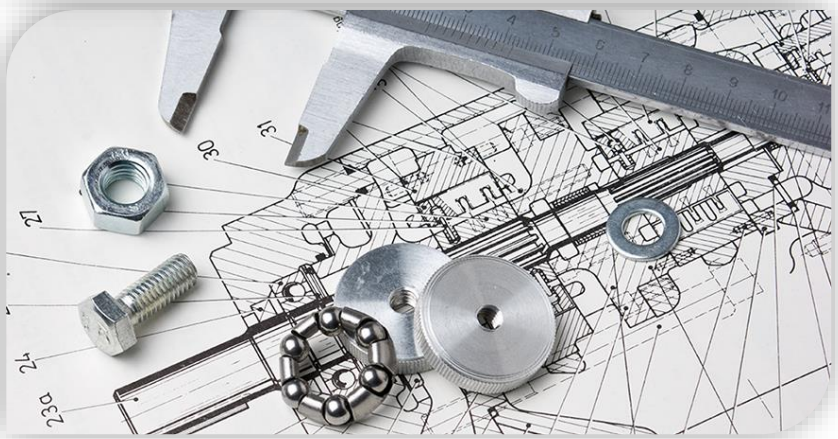
Scope: Transforming 3D Models into 2D Drawings

Application: Efficient and stable power supply for electronics

Switched-Mode Power Supplies (SMPS) are highly efficient and compact power converters tailored for contemporary electronics. They employ high-frequency switching to reduce energy loss and heat generation, making them perfect for computing, telecommunications, and industrial uses. SMPS provide stable and reliable power with lower electromagnetic interference, promoting the development of energy-efficient and space-saving electronic systems.

Engineering Drawings - Challenges

The client has engaged us to convert their Radar PCB Enclosure (3D CAD model) into accurate and detailed 2D engineering drawings for manufacturing.



Challenges:

- **Geometric Dimensioning and Tolerancing (GD&T):** Properly applying GD&T to define allowable variations in form, orientation, and location.
- **Detail Views and Section Cuts:** Including detail views and section cuts to show internal features and hidden details.
- **Scale and Proportions:** Choosing appropriate scales to ensure all details are visible and clear.
- **Annotations and Symbols:**Using standardized symbols and annotations to specify surface finishes, materials, welding instructions, and other details.
- **BOM (Bill of Materials) Integration:** Ensuring the drawing is associated with a BOM that precisely lists all components, materials, and part numbers needed for the project.
- **File Format Compatibility**: Ensuring drawings are in a universally readable format, possibly requiring conversion between different CAD software.

Engineering Drawings – SoW

Requirement Analysis

How we Executed?

Review & Outputs Generation

Results

Each stage of work involves multiple brainstorming sessions and reviews with the client.

Requirement analysis

Inputs

The client provided the 3D models for both the individual enclosure parts and the assembly.

Requirements

The client requires the drawing files and outputs to be provided

in the specified formats according to their requirements.

For the **Part 3D Model**,

- Part file - sldprt.
- STEP file – STEP AP203 format.
- Drawing in DWG format.
- Drawing in PDF format.
- Drawing File – slddrw format.
- PNG file of 3D model.

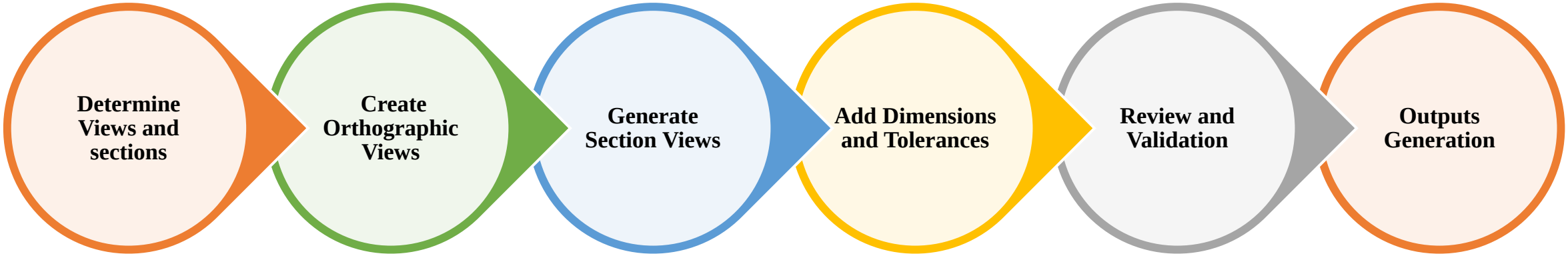
For the **Assembly 3D Model,**

- Assembly file – sldasm file.
- BOM file – in Microsoft Excel 5.0/95 Workbook.
- Drawing in PDF format.
- Drawing File – slddrw format.
- PNG file of 3D model.

How we Executed?(Contd.)

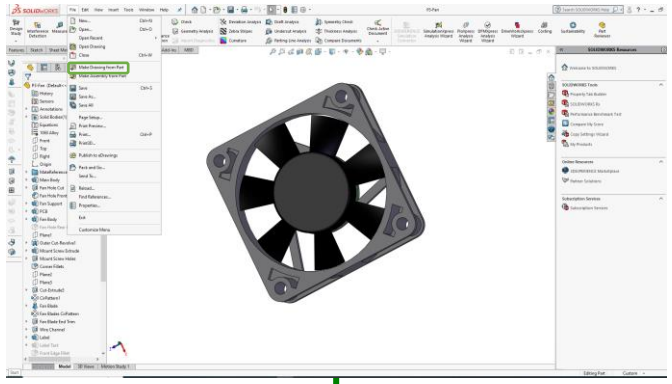
The 3D CAD models were meticulously examined to understand the geometry, features, and any specific details that needed to be included in the 2D drawings.

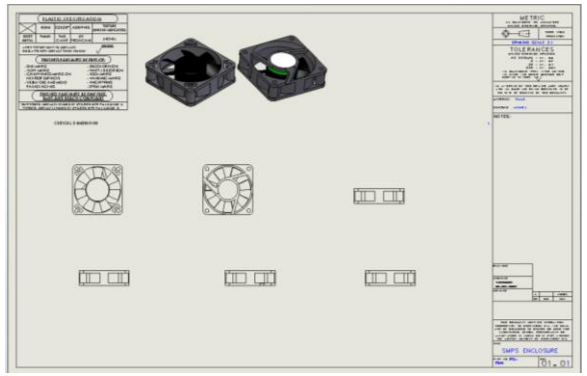
Work Outline



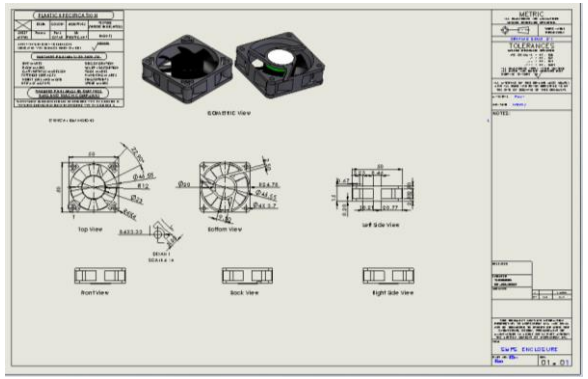
How we Executed? (Contd.)

For the Parts 3D Model





Development of Orthographic and Section Views



Insert Dimensions and Tolerances, Revision, annotations

Part file

P3-Fan

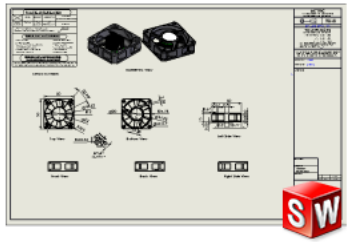
Step file

P3-Fan

PNG file

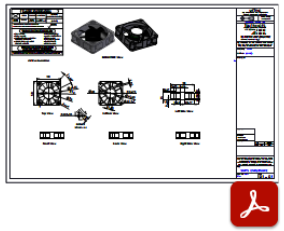
P3-Fan

DWG file - slddrw format



P3-Fan

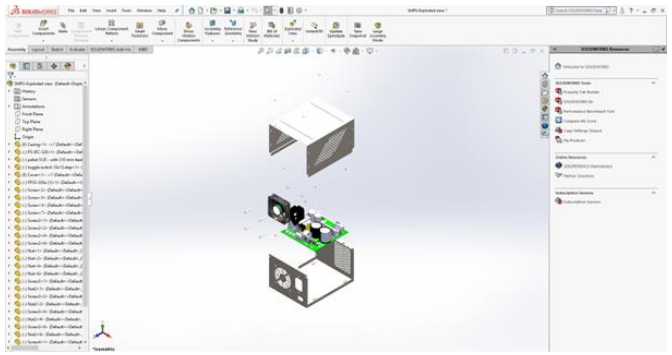
DWG file – PDF format

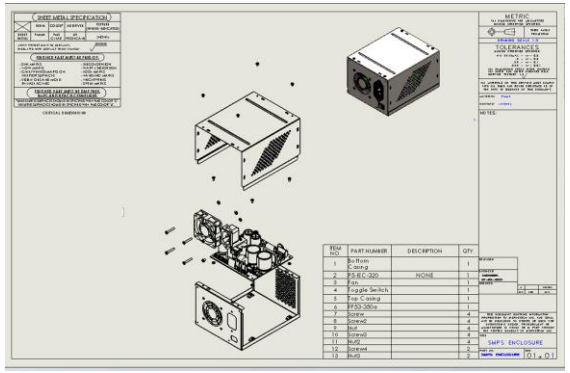


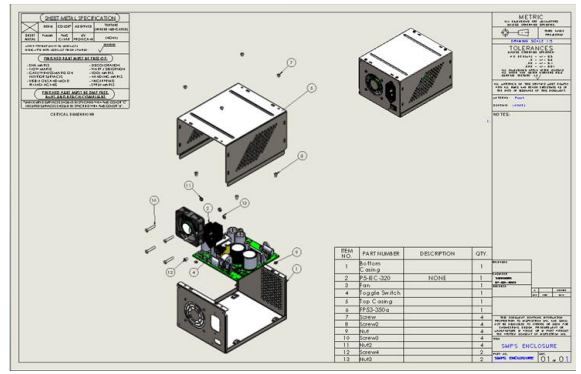
P3-Fan

How we Executed?

For the Assembly 3D Model







- **Part file**
  - SMPS ENLCOSURE
- **Step file**
  - SMPS ENLCOSURE
- **PNG file**
  - SMPS ENLCOSURE
- **BOM**
  - SMPS ENLCOSURE
- **DWG file - slddrw format**
  - SMPS ENCLOSURE
- **DWG file – PDF format**
  - SMPS ENLCOSURE
- **DWG file – DXF format**
  - SMPS ENLCOSURE

Review and Validation

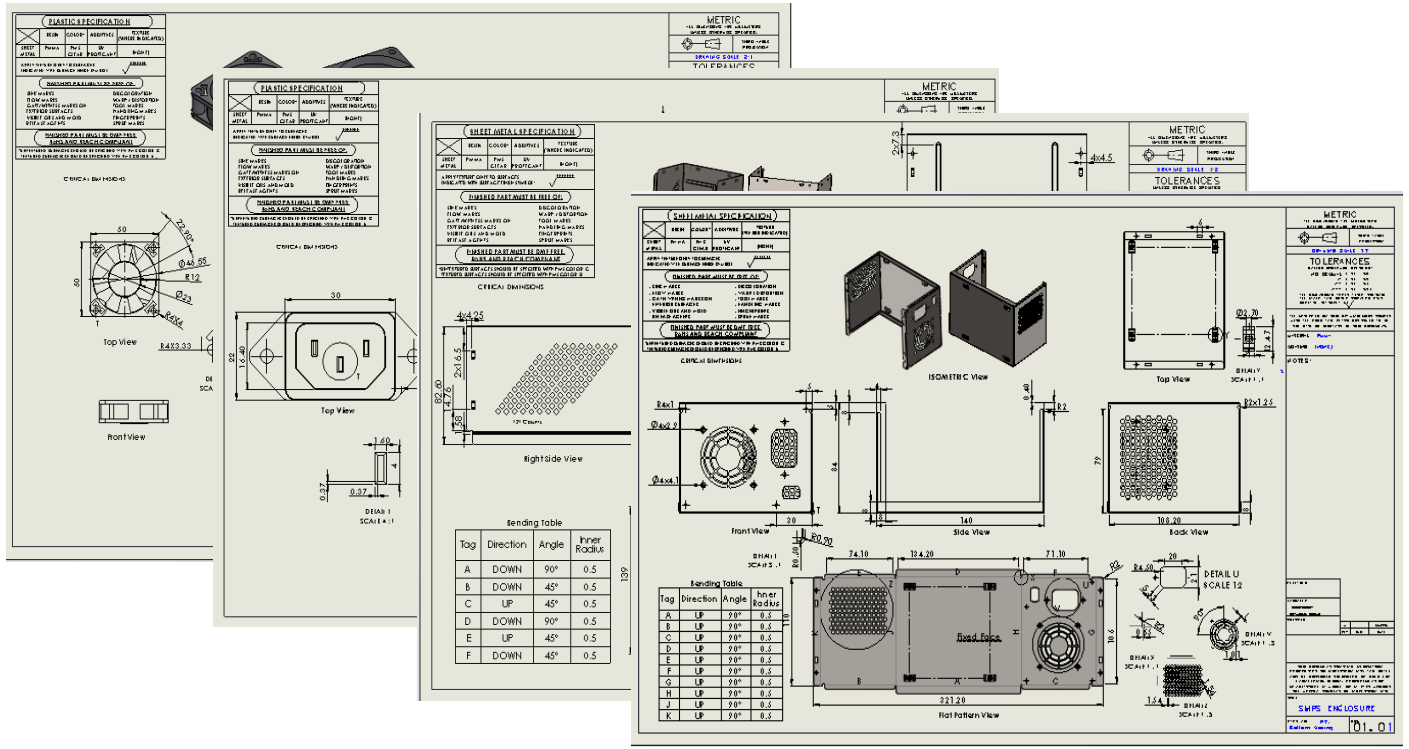
During the review stages, the following points are thoroughly examined, and their accuracy and compliance are verified:

- Clarity View
- Annotations and Labels
- Dimensional Precision
- Tolerances and Fits
- Accuracy of BOM
- Drawing Consistency
- Adherence to Client Specifications
- Graphic Quality

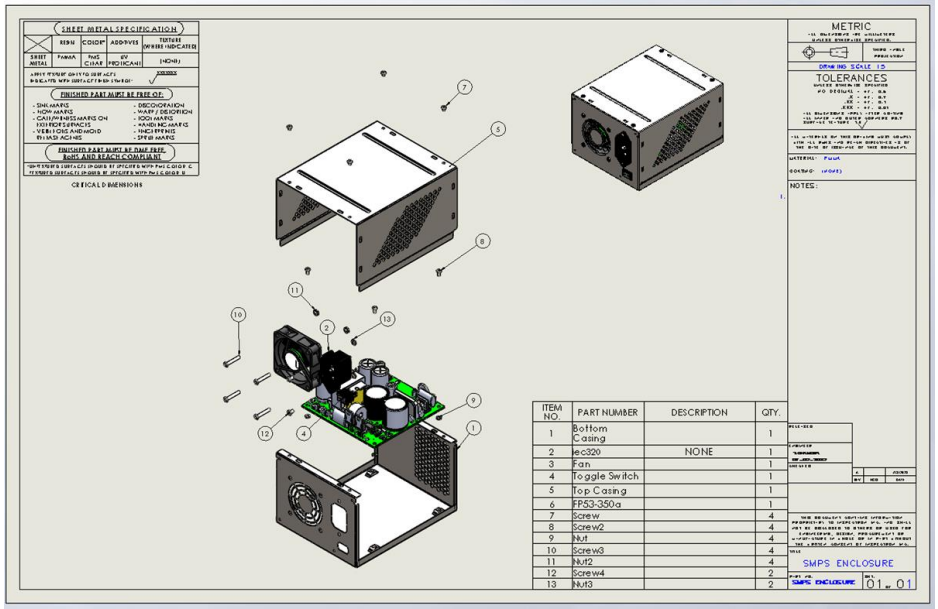
"Each file was thoroughly reviewed, and the results were delivered in the specified formats."

Results

Detailed Part Drawings



Detailed Assembly Drawings



GigHz
A Global Engineering partner

An ISO-27001 ISMS Certified Company

Customer Testimonial

"We are highly satisfied with the outstanding performance of this team. Despite facing challenges, they skillfully provided 2D drawings for both individual parts and assemblies of our 3D enclosure through MCAD Engineering Services. Their dedication to providing a cost-effective design without compromising on quality is truly commendable. Exceeding our quality expectations, they achieved this milestone in a remarkably short time, making it a pivotal moment for the project. This team stands out as the top choice for those seeking the perfect balance of time, cost, and quality."

Conclusion

- We effectively tackled various challenges by conducting brainstorming sessions and applying our expertise in MCAD Engineering Services.
- Successfully achieving the desired outcome within a stringent timeline was a key milestone, demonstrating our team's professionalism and capacity to meet deadlines effectively.
- We are dedicated to providing premier MCAD services by converting 3D visions into accurate 2D drawings, showcasing our exceptional skills and dependability in achieving superior results.
- We ensured that the drawing files were delivered with precision, meeting all expectations and adhering to specific requirements. Our focus was on maintaining strict alignment with their specifications throughout the process.