

Programmable DC Electronic Load

Project Overview

I'm building a **programmable DC electronic load**, a device used to test power supplies and batteries by simulating real-world electrical loads. The enclosure is more than just a housing—it plays a critical role in **heat dissipation, structural integrity, and EMI shielding**.

Why Aluminum?

- **Heat Dissipation** – The entire enclosure acts as a passive heatsink, helping to manage thermal loads efficiently.
- **Structural Strength** – A precisely machined aluminum assembly ensures durability and accurate alignment.
- **EMI Shielding** – The thick aluminum case minimizes electrical interference, improving measurement accuracy.

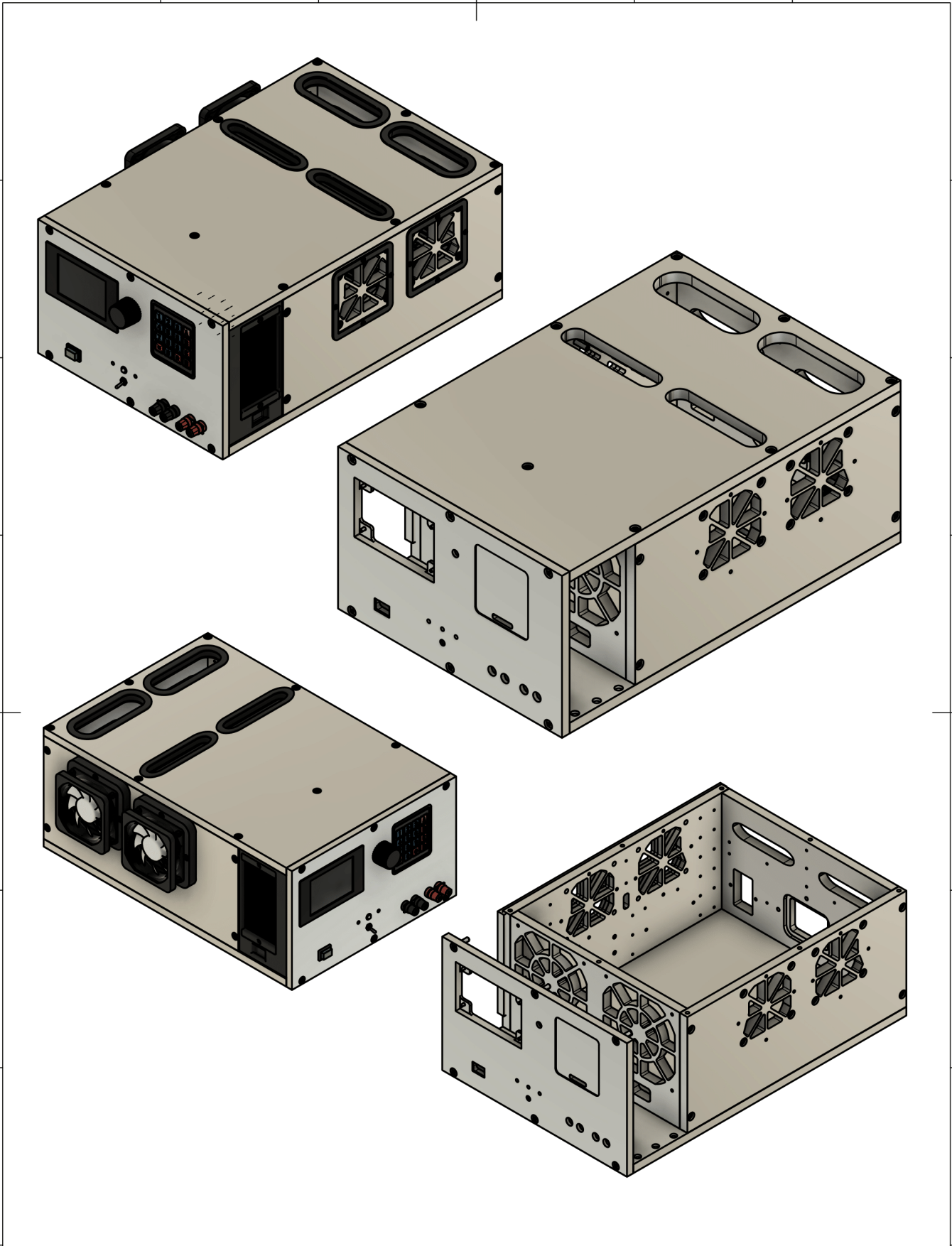
What I Need


The enclosure will be built from **seven individual aluminum plates**, precisely machined to assemble into a **rigid, thermally conductive structure**. These plates will require **cutouts, drilled holes, and accurate tolerances** to ensure a secure fit and proper airflow. A simple milled finish is sufficient—no special coatings or treatments required.

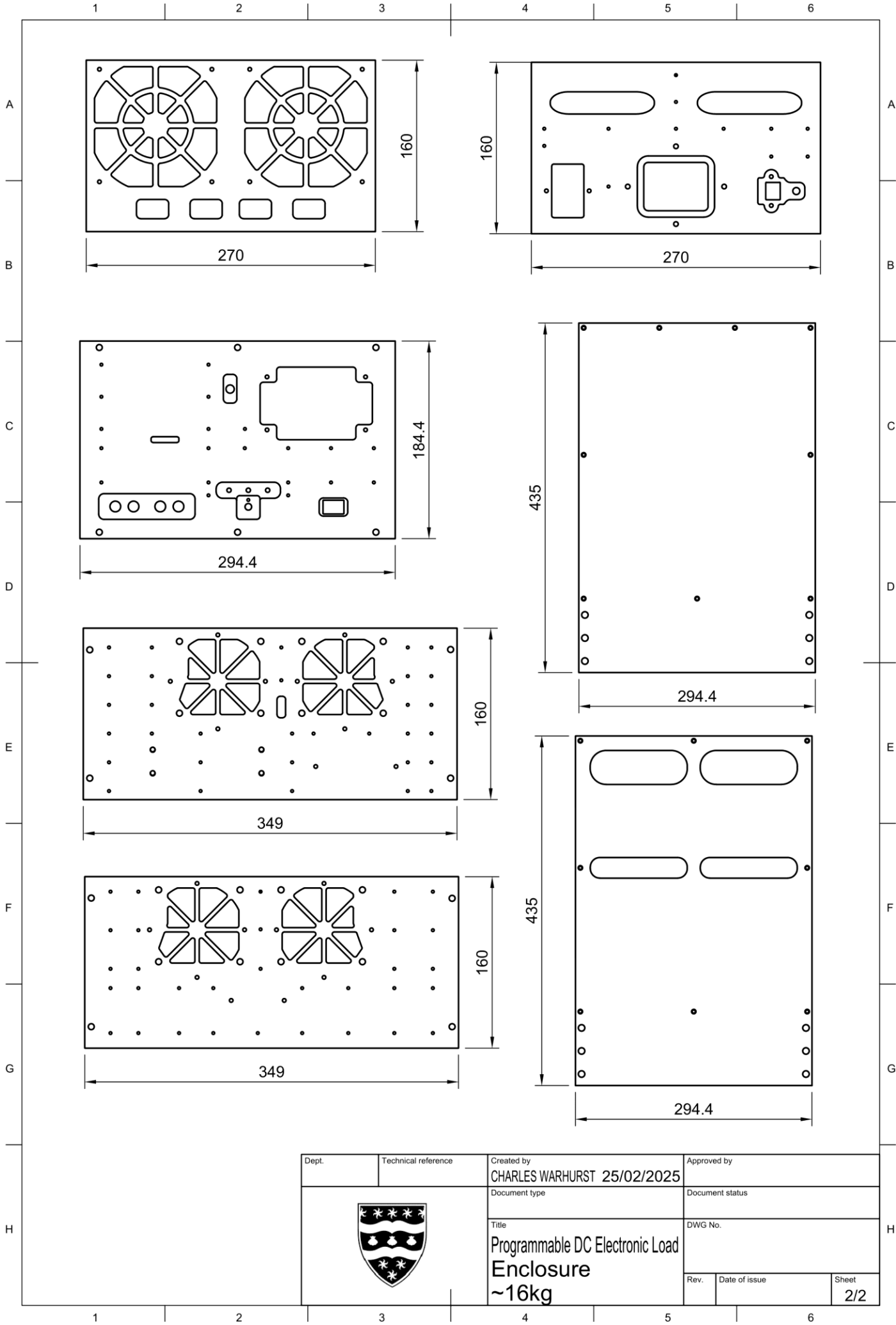
Example Commercial Units



My Design:



Dept.	Technical reference	Created by CHARLES WARHURST 25/02/2025	Approved by	
		Document type	Document status	
		Title Programmable DC Electronic Load Enclosure	DWG No.	
		Rev.	Date of issue	Sheet 1/2



	Dept.	Technical reference	Created by CHARLES WARHURST 25/02/2025		Approved by	
			Document type		Document status	
			Title Programmable DC Electronic Load Enclosure ~16kg		DWG No.	
			Rev.	Date of issue	Sheet 2/2	

PART NAME QTY = 1	FINAL MACHINED DIMENSIONS (mm)			INITIAL PLATE DIMENSIONS (mm)		
	WIDTH	HEIGHT	THICKNESS	WIDTH	HEIGHT	THICKNESS
Front Panel	270	160	12	276	166	12
Rear Panel	270	160	12	276	166	12
External Front Panel	294.4	184.4	10	300.4	190.4	12
Bottom Panel	294.4	435	12	300.4	441	12
Top Panel	294.4	435	12	300.4	441	12
Left Panel	349	160	12	355	166	12
Right Panel	349	160	12	355	166	12