

# Enclosure Design & Development of HVAC Units and Electrical Schematics and Wiring Harness with Quick Turnaround Time

## Overview

The client required a comprehensive design and development solution for the enclosure of HVAC units along with the creation of electrical schematics and wiring harnesses. The project demanded a quick turnaround without compromising accuracy, manufacturability, or safety compliance. The challenge was to deliver end-to-end mechanical and electrical integration that would streamline HVAC production workflows.



### Engagement

End-to-end mechanical and electrical design



### Technology

Mechanical-Electrical CAD Integration & System Design

## Solution Approach

- Developed 3D CAD models and 2D manufacturing drawings for HVAC enclosures
- Created complete electrical project documentation using SolidWorks tools
- Designed detailed multi-wire diagrams as per functional requirements
- Assigned standard electrical components (fuses, terminals, contactors, motors, pumps, etc.) with manufacturer data
- Selected appropriate cables based on performance and compliance standards
- Generated complete BoMs, detailed electrical drawings, and wiring reports

## Client & Industry

**A leading HVAC manufacturer specializing in commercial and residential heating, ventilation, and air conditioning systems**

Motherson Technology Services was approached by a leading HVAC solutions provider to design and develop enclosures for both commercial and residential HVAC units, along with electrical schematics and wiring harnesses. The objective was to ensure design accuracy, seamless electrical integration, and rapid project turnaround while meeting manufacturability and compliance standards.

## Expertise

The project leveraged expertise in various areas, including:



**Enclosure design and optimization for HVAC systems**



**Electrical schematic design and 3D wiring harness routing**



**Cross-functional expertise in both mechanical CAD and electrical design**



**Fast-paced execution and rapid prototyping for quicker go-to-market**

## Benefits Delivered

Motherson Technology Services enabled faster HVAC product rollout by delivering fully integrated enclosure and electrical designs with minimal turnaround time. The solution improved manufacturing efficiency, reduced design errors, ensured compliance with electrical standards, and enhanced product reliability—resulting in lower production costs and quicker market readiness.