



Acoustic Enclosure for Alternator Test Bench NIDEC Power, Dharwad

Project Snapshot

Client: Nidec Industrial Automation India Pvt. Ltd.

Location: Dharwad, Karnataka

Solution Provider: Escon Gensets Pvt. Ltd.

Scope: Design, Manufacturing, Supply, Installation & Commissioning of high performing acoustic enclosure.

Application: Alternator Test Bench (Routine & Partial Load Testing)

Overview

This project involved the turnkey delivery of a high-performance acoustic enclosure designed for alternator testing applications. The solution enables routine and partial load testing across a wide voltage and power range, while ensuring compliance with stringent noise control and safety standards. The enclosure was engineered to reduce noise levels from 110 dB(A) to 70–75 dB(A), creating a controlled and compliant testing environment for heavy-duty alternators.

Key Technical Highlights

- Alternator Testing Range: 415V to 13.8kV
- Power Range: Up to ~4.4 MVA / 3.52 MW
- Supported Frames: LSIN 50.2, LSA 52.3, LSA 53.2, LSA 54.2
- Enclosure Size: 13m x 8m x 8m
- Noise Reduction: ~35–40 dB attenuation

Key Features

- Modular acoustic enclosure with bolted construction
- Heavy-duty structural steel framework
- Multi-layer acoustic insulation (mineral wool / PU foam)
- Motorized telescopic sliding doors with acoustic sealing
- Integrated ventilation with acoustic louvers and blowers

Execution Challenges

- Installation of 8m high enclosure structure
- Balancing airflow and acoustic performance
- Integration with multi-configuration test bench setup
- Maintaining safety in a new facility environment



Engineering Approach & Solutions

- Developed modular design for ease of assembly, maintenance, and scalability
- Designed airflow system ensuring >6.2 m³/s cooling while maintaining acoustic integrity
- Integrated motorized sliding doors for operational efficiency and safety
- Ensured compatibility across multiple alternator ratings and configurations

Safety, Quality & Compliance

The project was executed adhering to stringent HSE protocols and Indian regulatory standards. All systems were validated through structured inspection, testing, and acceptance procedures. All required approvals, documentation, and acceptance plans were within the project scope and were successfully completed in coordination with the client.

Results & Impact

- Achieved significant noise reduction (~ 35 – 40 dB)
- Enabled safe and accurate alternator testing environment
- Delivered fully compliant and ready-to-operate test bench solution
- Enhanced operational efficiency and maintainability

What Sets This Project Apart

- Specialized acoustic solution for heavy-duty alternator test benches
- Combination of modular design and high acoustic performance
- Turnkey execution including design, approvals, installation, and validation
- Capability to deliver in complex and high-precision industrial environments

Conclusion

This project reinforces Escon's capability in delivering advanced acoustic solutions for industrial testing environments. With a strong focus on engineering precision, compliance, and execution excellence, Escon continues to be a reliable partner for critical infrastructure projects.