CASE STUDY

Cooling Test Station for End-of-Line Testing of Refrigerators, AC, and De-freezers

24% quality improvement, 64% fewer complaints, and 18% faster testing cycles for efficient cooling appliance production.

Instron Technologies
INNOVATE TO IMPROVISE

Industry

Appliance Manufacturing

▶▶ **Industry Segment:**

Cooling Appliances (Refrigerators, Air Conditioners, De-freezers)

Client Summary

The client is a renowned manufacturer of cooling appliances, producing air conditioners, de-freezers, and refrigerators for domestic and industrial use. Faced with rising rejection rates and after-sales complaints, the client sought an automated end-of-line testing system to ensure product quality and enhance testing efficiency.

Highlights

✓ 24% reduction in quality rejections through automated cooling tests.

✓ 64% reduction in after-dispatch customer complaints, improving product reliability.

✓ Complete traceability from raw material to final packaging.

✓ Integrated testing for multiple appliances (air conditioners, refrigerators, de-freezers).

✓ 18% improvement in testing cycle times, reducing production bottlenecks.

Challenges

▷▷ Manual testing across multiple product lines led to inconsistent results and delays, impacting production timelines.

▷▷ The lack of real-time data and visibility into testing outcomes caused frequent quality rejections and customer complaints.

▷▷ Difficulty integrating testing data with the existing ERP system for traceability and reporting.

Project Success Factors

✓ **24% Reduction in Quality Rejections:** By automating and standardizing testing processes, the client achieved higher consistency in quality control, reducing rejection rates across all appliance types.

✓ **64% Decrease in After-Dispatch Complaints:** The real-time evaluation system identified and corrected faults before shipment, leading to a dramatic reduction in customer complaints.

✓ **18% Faster Testing Cycles:** Automated testing cycles and real-time reporting resulted in a faster end-of-line process, reducing production bottlenecks by 35%.

✓ **Complete Traceability:** The ability to track performance from the start of the test to final packaging improved visibility into potential issues, enhancing overall quality control.

Customer Feedback

"The client noted substantial improvements in product quality and efficiency. They were particularly impressed with the system's flexibility, user-friendly and intuitive interface which allowed them real time position of the appliances, saving time for troubleshooting. The reduction in customer complaints and faster production cycles were standout benefits. Additionally, the ERP integration provided seamless data reporting, helping them achieve compliance with industry standards."

🛠️ System Highlights:

▶▶ **Cooling Test Station:** Designed by Instron Technologies, the Cooling Test Station offers a comprehensive platform for testing various cooling appliances (air conditioners, de-freezers, and refrigerators)

▶▶ **Multi-Appliance Testing:** Supports real-time testing of cooling appliances with seamless switching between product types for maximum flexibility.

▶▶ **Sensors & Data Collection:** Integrated with advanced sensors for monitoring critical parameters such as temperature, pressure, airflow, and power consumption.

▶▶ **Real-Time Data Analytics:** Instant pass/fail evaluation based on predefined test conditions for each appliance, ensuring rapid identification of faulty units.

▶▶ **Traceability:** Complete tracking of each unit tested, from assembly to final packaging, enabling root cause analysis and quality assurance.

▶▶ **ERP Integration:** Direct connectivity with the client's ERP systems (SAP, Oracle), ensuring smooth data flow for analysis and compliance reporting.

ℹ️ About Instron Technologies

With operations in Canada and India, Instron Technologies is a leader in Process Skid Plants, Digital Factory Solutions, and Test Bench Systems. Committed to sustainability, our dynamic team develops innovative solutions that not only meet critical customer challenges but also emphasize eco-friendly practices. Serving over 200 clients in more than 10 countries, we demonstrate our dedication to innovation, operational efficiency, and environmental responsibility.

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