

Specifications of Low-Voltage Complete Sets of Equipment in the Middle East



Overview

In the Middle East and Europe, LVS is used across various sectors including commercial, industrial, and residential applications.

Key Takeaways

Low-voltage complete sets of equipment in the Middle East must comply with GCC Technical Regulations, IEC standards, and local utility specifications to ensure safety, reliability, and operational efficiency. GCC Technical Regulations

The Gulf Cooperation Council (GCC) has established the Gulf Technical Regulation for Low Voltage Electrical Equipment and Appliances, enforced since July 1, 2016, to standardize safety, quality, and electromagnetic compatibility (EMC) requirements across member states . Key points include:

- Gulf Conformity Mark (G Mark): All LV equipment must bear this mark to demonstrate compliance.
- Product Categorization: Equipment is classified into List 1 (lower hazard) and List 2 (higher hazard). List 1 products require a Declaration of Conformity, while List 2 products require a Gulf-type examination by a Notified Body.
- Technical Documentation: Manufacturers must maintain documentation for risk assessment, design, and compliance verification.

- **Safety and EMC Requirements:** Equipment must meet essential safety standards to protect users, property, and the environment.

Saudi Arabia – SEC Specifications

The Saudi Electricity Company (SEC) provides detailed specifications for low-voltage complete sets, particularly for outdoor unit substations combining transformers and LV distribution panels . Key technical features include:

- **Voltage Ratings:** Distribution transformers up to 36 kV with 400/230 V LV output.
- **LV Panels:** Dual low-voltage panels with aluminum busbars, main circuit breakers, and outgoing MCCBs.
- **Digital Monitoring:** LV digital panel meters for operational monitoring.
- **Construction:** Units are transportable, fixed on prepared plinths, and designed for environmental protection and operational safety.
- **Standards Compliance:** Equipment must comply with SEC SDMS standards and general requirements for all materials.

Abu Dhabi – LV Switchgear Committee Guidelines

In Abu Dhabi, the Low Voltage Switchgear Committee (LVSGC) oversees LV equipment approval and standardization :

- **Pre-Approval Requirement:** Manufacturers must obtain LVSGC pre-approval for LV switchgear panels (MDB, MCC, SMDB, FDB), bus trunking systems, circuit breakers (ACB, MCCB, RCD, MCB), capacity banks, and automatic transfer switches.
- **IEC Standards Compliance:** All equipment must meet IEC standards for design, testing, and installation.
- **Approved Vendor List:** Only pre-approved products are allowed for use in customer premises and utility networks.
- **Guidelines:** LVSGC provides detailed design, testing, and installation guidelines to ensure safety, reliability, and operational efficiency.

Design and Construction Features

Complete sets of LV equipment integrate multiple components into a fully functional system :

- **Enclosure:** Typically metal, providing protection against dust, small animals, and environmental pollution.
- **Integration:** Combines switches, contactors, circuit breakers, transformers, and monitoring devices in a compact layout.
- **Operational Efficiency:** Facilitates quick fault detection, reduces maintenance time, and optimizes space usage.

- **Standardization:** Modular and standardized design reduces construction costs and improves economic efficiency.
- **Future Trends:** Increasing focus on intelligent systems, automation, and enhanced performance for energy management and system regulation.

Summary

Low-voltage complete sets of equipment in the Middle East must adhere to GCC-wide technical regulations, national utility standards, and IEC-based design and safety guidelines. Compliance ensures:

- Safety for personnel and property
 - Reliable operation under environmental and electrical stresses
 - Efficient maintenance and fault management
 - Standardized integration for distribution and industrial applications
- Manufacturers and suppliers must maintain proper documentation, obtain conformity marks, and follow pre-approval processes to operate in GCC markets.

Article Content

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SPECIFICATION FOR THE SUPPLY AND INSTALLATION OF

3.1.2.1 The system of supply will be three phase, 3 wire, 50 Hertz, 11KV alternating current for medium voltage and three-phase, 4

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Middle East and Africa Low Voltage Protection and Control Market ...

Switching equipment is leading the Middle East and Africa low voltage protection and control market because of its vital role in

Gulf Technical Regulation Guidance for Low Voltage Equipment

Page 26 of 29 Guidance for “Gulf Technical GCC Standardization Regulation for Low Voltage Electrical Organization Equipment and

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