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MV and HV Power Cable Manufacturing Inspection and Testing Course



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Introduction:

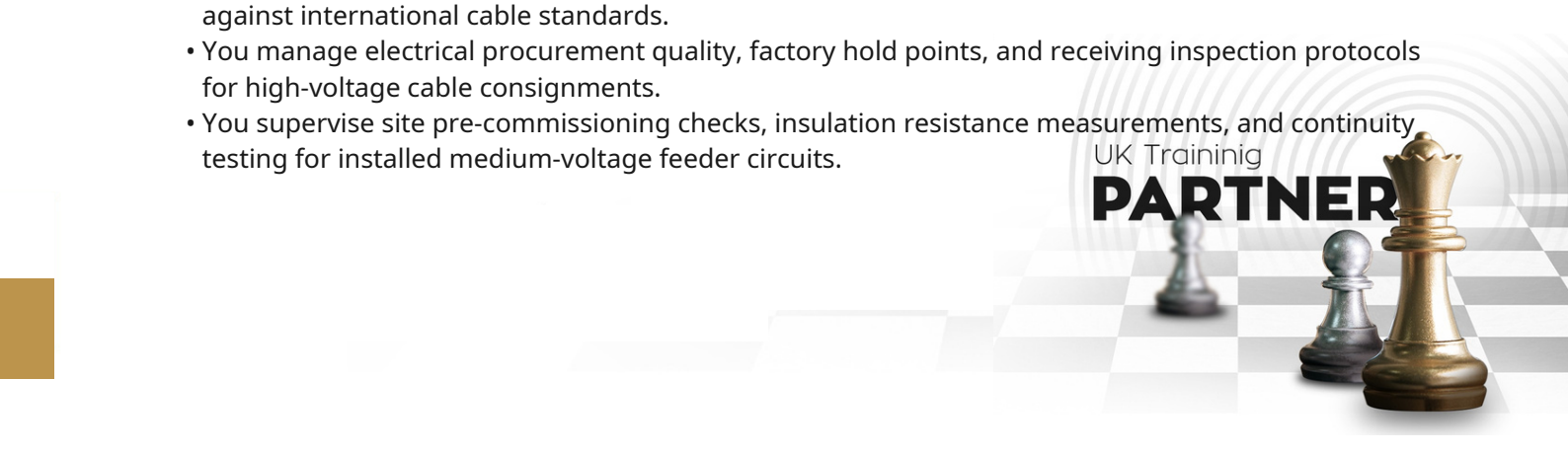
This MV and HV Power Cable Manufacturing Inspection and Testing Course prepares you to supervise extrusion quality, witness factory acceptance tests, and verify electrical integrity over one week. You will build a Cable Quality Inspection Plan and Factory Acceptance Dossier containing material verification logs, eccentricity evaluation sheets, and routine high-voltage withstand protocols. You need foundational knowledge of electrical engineering, industrial cabling concepts, or site quality assurance, as this practitioner-level course focuses on physical manufacturing stages and laboratory diagnostics. You will practise through inspection walkthrough exercises, assessing extrusion line controls, screen concentricity, and laboratory test setups.

Course Objectives:

- Draft conductor resistance evaluation sheets using IEC 60228 criteria for stranded copper and aluminium power conductors.
- Calculate insulation eccentricity limits using IEC 60502-2 and AEIC CS8 formulas for extruded medium-voltage cable cores.
- Run routine high-voltage withstand and partial discharge tests using IEC 60502-2 protocols on factory test reels.
- Score vertical flame propagation and circuit integrity specimens using IEC 60332-3 and IEC 60331 test procedures.
- Map reel drum bending diameters and moisture-sealing controls using industrial factory packaging specifications for dispatch readiness.
- Assemble factory acceptance hold points using structured inspection and test plans for vendor audit sign-offs.

Target Audience:

- You inspect power cable manufacturing lines, extrusion runs, and conductor stranding processes for industrial infrastructure projects.
- You witness factory acceptance testing, dielectric withstand tests, and partial discharge measurements at cable manufacturing plants.
- You verify material test certificates, sheath thickness calculations, and dimensional compliance against international cable standards.
- You manage electrical procurement quality, factory hold points, and receiving inspection protocols for high-voltage cable consignments.
- You supervise site pre-commissioning checks, insulation resistance measurements, and continuity testing for installed medium-voltage feeder circuits.



Course Outline:

Day 1: Inspecting Conductor Fabrication and Material Quality

- Verifying Conductor DC Resistance Using IEC 60228 Measurement Bridges
- Evaluating Conductor Stranding Compactness Using Optical Profile Projectors
- Assessing Raw Conductor Material Purity Using Metallurgical Certificates
- Inspecting Conductor Screen Application Using Continuous Extrusion Monitors
- Build: Conductor Geometry and Material Compliance Log

Day 2: Evaluating Insulation Extrusion and Geometric Tolerances

- Auditing Triple Extrusion Quality Using Continuous Vulcanisation Line Records
- Measuring Crosslinked Polyethylene Thickness Using Optical Wafer Micrometers
- Calculating Insulation Core Eccentricity Using IEC 60502-2 Threshold Formulas
- Inspecting Bonded Insulation Screen Strippability Using Mechanical Tensile Gauges
- Build: Insulation Extrusion and Eccentricity Inspection Sheet

Day 3: Conducting Factory Electrical Withstand and Dielectric Testing

- Executing High Voltage AC Withstand Tests Using Resonant Test Sets
- Measuring Cable Core Partial Discharge Using IEC 60502-2 Detectors
- Verifying Metallic Screen Earth Continuity Using Low Resistance Ohmmeters
- Recording Dielectric Dissipation Factor Values Using Tan Delta Bridges
- Build: Routine Electrical Withstand and Partial Discharge Test Log

Day 4: Verifying Sheathing Integrity and Fire Performance

- Testing Flame Spread Characteristics Using IEC 60332-3 Vertical Bunches
- Assessing Fire Survival Performance Using IEC 60331 Burn Chambers
- Measuring Anti Corrosion Overheat Sheathing Using Dial Calipers
- Verifying Drum Bending Diameters Using Industrial Packaging Guidelines
- Build: Fire Performance and Sheathing Verification Protocol

Day 5: Executing Inspection Walkthroughs and Factory Release Workflows

- Simulating Factory Acceptance Hold Points Using Day 1 Conductor Logs
- Auditing Extrusion Dimensional Tolerances Using Day 2 Eccentricity Sheets
- Reviewing Factory Electrical Test Curves Using Day 3 Discharge Logs
- Verifying Reel Sealing and Labelling Using Day 4 Packaging Checklists
- Build: Cable Quality Inspection Plan and Factory Acceptance Dossier



Skills You Will Gain:

- IEC 60228 Conductor Resistance Verification
- IEC 60502-2 Extrusion Eccentricity Measurement
- Partial Discharge Factory Diagnostic Analysis
- High Voltage Resonant Withstand Testing
- IEC 60332-3 Bunched Flame Test Inspection
- Cable Drum Packing Compliance Auditing
- Inspection and Test Plan Hold Point Formulation

Why Attend This Course:

- Verify conductor resistance and stranding conformity at the factory floor using IEC 60228 testing protocols to prevent excessive line heating.
- Evaluate insulation wall thickness and wafer eccentricity using calibrated optical devices to avoid premature dielectric breakdown in operation.
- Witness factory partial discharge and high-voltage withstand tests with standard diagnostic instrumentation to detect latent manufacturing defects.
- Assemble a Cable Quality Inspection Plan and Factory Acceptance Dossier to manage manufacturer hold points and enforce procurement quality.

Conclusion:

Returning to your desk, you will implement the Cable Quality Inspection Plan and Factory Acceptance Dossier to standardise manufacturer audit protocols across upcoming cable procurement orders. You will present the completed eccentricity evaluation sheets, partial discharge criteria, and inspection hold points to your quality manager and chief electrical engineer for formal adoption into vendor evaluation procedures. Following its first use during a factory acceptance test, you will review non-conformance logs and test certificates to confirm that every cable drum satisfies all mechanical, dimensional, and dielectric requirements.

Frequently Asked Questions FAQ:

What will you be able to do after the MV and HV Power Cable Manufacturing Inspection and Testing Course?

You will be able to audit cable manufacturing lines, witness factory acceptance tests, verify material certificates, calculate core eccentricity, evaluate partial discharge readings, and enforce quality hold points across medium-voltage and high-voltage power cable production runs.



What do you need to know before starting the MV and HV Power Cable Manufacturing Inspection and Testing Course?

You need practical familiarity with electrical engineering principles, site electrical installation, or quality inspection procedures. Prior experience reviewing cable test sheets is beneficial, as this practitioner-level course explores manufacturing quality controls and dielectric testing protocols rather than introductory circuit theory.

What do you build during the MV and HV Power Cable Manufacturing Inspection and Testing Course?

You build a Cable Quality Inspection Plan and Factory Acceptance Dossier. This document integrates conductor resistance verification sheets, insulation eccentricity calculation matrices, partial discharge testing logs, vertical flame test verification protocols, and packaging release checklists.

How does the MV and HV Power Cable Manufacturing Inspection and Testing Course differ from a cable splicing and termination course?

This course concentrates on factory extrusion line quality, raw material verification, geometric tolerances, and laboratory dielectric testing rather than manual jointing craftsmanship. You evaluate manufacturing standards and factory witness test data rather than assembling individual cable terminations.

