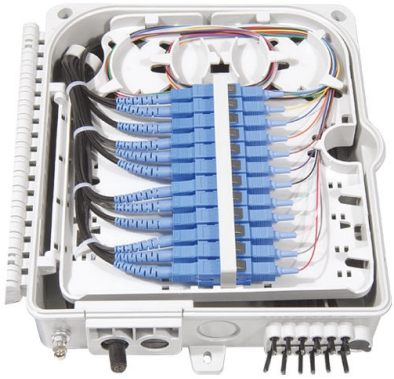
COETZER OPTICAL SYSTEMS (Pty) Ltd

Installation of explosion-proof glass in distribution boxes



Overview

Explosion-Proof Distribution Boxes for Hazardous AreasExpert guidance on specifying, installing, and maintaining explosion-proof distribution box solutions.

Key Takeaways

Explosion-proof distribution boxes must be installed using certified materials, precise sealing, proper grounding, and professional procedures to ensure safety in hazardous environments.Material and Structural Requirements

Explosion-proof distribution boxes should be made of stainless steel (Baosteel 304 or higher) or copper-free aluminum, with a minimum wall thickness of 4 mm for the enclosure to withstand mechanical stress and prevent ignition of flammable gases or dust . The glass used in viewing panels or inspection windows must be tempered or laminated explosion-proof glass, capable of withstanding internal pressure and thermal stress without shattering . All fasteners should be galvanized or corrosion-resistant, and wiring components must maintain proper electrical clearance and creepage distances .

Certification and Compliance

Installations must comply with national and international standards, including GB7251, ATEX, IECEx, and NEC Class I/II Division standards . Certification documents should be site-specific, reflecting the hazardous area classification, as improper sealing or generic certification can compromise safety . The boxes should be suitable for Zone 1, Zone 2, Zone 21, Zone 22, or Class I/II Division 1 hazardous areas .

Wiring and Grounding

Cables must be routed through explosion-proof cable glands, ensuring both internal and external grounding is correctly connected . Wiring should be neatly arranged, tied with nylon tape, and matched to the appropriate wire cross-section for terminals . Conduits connecting to the box should be thick-walled galvanized steel pipes (minimum 2.5 mm) with threaded connections and locknuts to maintain a robust explosion-proof barrier .

Installation Procedures

• Professional Installation: Only trained personnel with credentials for hazardous area installations should perform the work .

• Cover Handling: Do not open the box cover while power is on; protect joint surfaces from scratches and apply anti-rust oil after maintenance .

• Inclination and Placement: The box should be installed with an inclination of no more than 5 degrees, away from heat sources, collision risks, and moisture-prone areas .

• Outdoor Protection: Fit a rain cover if installed outdoors to prevent water ingress and corrosion .

Maintenance Considerations

Regular inspections are essential to check for damage to components, corrosion, or compromised seals. Dust or combustible buildup on surfaces can reduce heat dissipation and increase ignition risk, so cleaning and maintenance schedules must be strictly followed .

Summary

Proper installation of explosion-proof glass in distribution boxes requires certified materials, precise sealing, correct grounding, professional installation, and ongoing maintenance. Adhering to these requirements ensures the box functions safely in hazardous environments, preventing accidents caused by sparks, heat, or gas infiltration .

Article Content

Terminal and Junction Boxes (Ex d) | Explosion Protection

To meet diverse installation requirements, a variety of enclosure dimensions, terminals, and cable gland options are available. The

Microsoft Word

Applications: These explosion proof junction boxes are used as classified enclosures, pull box, splice box, control panel, equipment

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Contact Us

Continue your research online:

Website: https://coetzerinvestments.co.za
Technical inquiry: https://coetzerinvestments.co.za/contact.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.