Standards for Explosion-Proof Requirements of Armored Pigtails

Overview

Requirements for electrical installations in Ex zonesThis article discusses requirements for companies and installers when designing and installing electri.

Key Takeaways

Armored pigtails used in hazardous locations must comply with explosion-proof standards, be properly certified, and installed according to zone-specific requirements to prevent ignition.

Certification and Standards

Armored pigtails intended for explosive atmospheres must meet recognized safety standards such as ATEX 114/153, IECEx, and EN 60079-14, which define design, testing, and installation requirements for electrical equipment in hazardous areas. Certification ensures that the pigtail will not act as an ignition source even under fault conditions. While cables themselves are not always legally required to be ATEX-certified, selecting cables suitable for the specific zone classification is mandatory.

Zone Classification

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Before installation, the hazardous area must be classified into zones based on the likelihood and duration of explosive atmospheres: Gas zones: Zone 0 (continuous), Zone 1 (likely), Zone 2 (unlikely/short duration)Dust zones: Zone 20 (continuous), Zone 21 (likely), Zone 22 (unlikely/short duration) The armored pigtail must be selected according to the zone, ensuring the appropriate Explosion Protection Level (EPL) and temperature rating. Construction RequirementsExplosion-proof armored pigtails should have: Robust armor and sheath: Continuous metallic armor with a gas- and vapor-tight design, often with an additional PVC or thermoplastic jacket for environmental protection.

Flexible stranding: To allow installation in trays, conduits, or direct burial without compromising integrity. Temperature and impact resistance: Rated for low temperatures (e.g., -40°C) and mechanical stress. Sealed terminations: Cable entry points must prevent dust, moisture, and gas ingress, maintaining the integrity of the explosion-proof enclosure.

Installation Practices

Minimize components: Reduce the number of connectors and wires in hazardous zones to lower failure risk. Tight connections: Ensure all terminations are secure and compatible with the enclosure's explosion-proof rating. Qualified personnel: Only trained and certified electricians should perform installation and maintenance.

Acceptance testing: After installation, verify compliance with documentation, functionality, and safety systems before energizing.

Summary

To meet explosion-proof requirements, armored pigtails must be certified, zone-appropriate, mechanically robust, and properly installed. Compliance with ATEX, IECEx, and EN 60079 standards, along with careful attention to sealing, connection integrity, and qualified installation, ensures safe operation in hazardous environments.

Article Content

Requirements for electrical installations in Ex zones

This article discusses requirements for companies and installers when designing and installing electrical systems in hazardous areas.

ATEX Cable Glands | Standards, Certification & Safety

By understanding ATEX standards, certification requirements, and proper selection criteria, engineers and procurement specialists can enhance operational safety while reducing risks.

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ATEX & EN 60079-14 Cable Selection Guide

Learn how to select the correct cables for Ex zones under ATEX and EN 60079-14. Includes cable requirements, IS shielding rules, approved cable

How to Select the Right Hazardous Area Cable Gland

Without the correct gland, even certified equipment can fail to meet ATEX, IECEx, or NEC safety requirements. This comprehensive guide explains

Explosion Proof Ratings: NEC, ATEX & IECEx Guide

This guide covers every major explosion proof ratings system with a facility matrix, decision workflow, and real-world installation examples. When

Cables for Ex-Areas: SAMCON

Several regulations apply here: If the devices to be connected are in the Ex area, the respective standards for the corresponding type of protection (e.g. flameproof enclosure, intrinsic safety, ...)

What cables to use in Ex zones

PUR cables are halogen-free, flame-resistant, and offer enhanced mechanical, chemical, and UV resistance – making them suitable for harsh environments. They can operate at temperatures

Explosion Proof Cable Glands for Armoured Cables (Double

They ensure secure cable termination, prevent hazardous gas leakage, and maintain system integrity under extreme conditions. In environments where failure is not an option, selecting

Article: IECEx/ATEX Standards for Explosion-Protected (Ex) Safety

The Directive defines the essential health and safety requirements and conformity assessment procedures that must be applied before such products are placed on the EU market.

Wellhead Surface Pigtails

Wellhead Surface Pigtails Robust Compact Geometry Taurus Engineering designs and produces a variety of Surface Pigtails, including standard, or explosion-proof with optional integral I-Wire and/or

Wired for Safety: Cable Options For Hazardous Areas

Improper cables or cable glands can compromise the protection class of the device, leading to explosion hazards. International standards (IEC) are

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Armored Fiber Optic Pigtail Datasheet | FS

Armored fiber patch cables feature a specialized jacketing that increases the durability of fiber cables. In addition, the stainless steel tube allow optical fiber to be installed in the indoor harsh environments

Hazardous Locations: Safe Electrical Cable | IEC

Learn how to choose safe electrical cables for hazardous locations, including key safety standards, material considerations, and compliance

Explosion-proof cable entry — selection and application

The requirements for explosion-proof cable glands are regulated by the standards series GOST IEC 60079-0 and GOST IEC 60079-1 (for Ex d protection type), as well as international

Explosion Protection – Directives, Standards and Regulations

The requirements for electrical equipment for hazardous locations are multi-layered: National and international determinations, guidelines and standards must be complied with to achieve the highest

Top 10 Bulletproof Cars

Discover the top 10 bulletproof vehicles for 2026, from Alpine Armoring''s impressive A12 level MASTIFF® to the luxury armored Mercedes

Double Compression Cable Glands: Installation Guidelines and Best ...

One such critical component is the Double compression cable gland. Far more than a simple connector, these glands are safety-critical devices ensuring that armored cables remain

Armored cable cable gland

Find your armored cable cable gland easily amongst the 41 products from the leading brands (ORTAC, ROSE, A2S, ...) on DirectIndustry, the industry specialist for your professional purchases.

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