

Article Overview

Clamping nuts in explosion-proof distribution boxes are critical fasteners that secure joints and maintain the enclosure's explosion-proof integrity.

Function and Importance

Clamping nuts are used to fasten the joints of explosion-proof distribution boxes and ensure a tight seal that prevents the escape of explosive gases or dust. They are essential for maintaining the integrity of the enclosure, particularly in Ex "d" (flameproof) and dust explosion-proof equipment. Improper or substandard fasteners can loosen, fall off, or compromise the seal, creating safety hazards and reducing the explosion-proof performance of the box .

Material and Design Considerations

Explosion-proof clamping nuts are typically made from high-strength materials such as stainless steel (AISI 304L or 316L) to withstand mechanical stress, corrosion, and extreme temperatures . The design often includes coarse threads and sufficient engagement depth to ensure secure fastening, especially when the enclosure is made of aluminum alloys, which have lower thread strength . Some designs incorporate pre-buried anti-loosening threaded steel sleeves to prevent thread failure during repeated maintenance or component replacement .

Installation Guidelines

- o **Torque and Preload:** Proper torque must be applied to achieve the correct bolt preload, ensuring the clamping nut maintains a tight seal without damaging the enclosure .
- o **Thread Engagement:** Avoid fine threads in aluminum shells; coarse threads with adequate engagement are preferred to maintain strength .
- o **Locking Mechanisms:** Locknuts or other anti-loosening devices are recommended to prevent vibration-induced loosening, which could compromise explosion-proof integrity .
- o **Maintenance:** Factory-installed bolts should not be removed unnecessarily. If replacement is required, use identical fasteners that meet the original explosion-proof specifications .

Standards and Compliance

Clamping nuts and other fasteners must comply with explosion-proof standards such as ATEX, IECEx, or UL, ensuring they are tested for use in hazardous zones (Zone 1, 2, 21, 22). Using certified fasteners guarantees that the enclosure maintains its flameproof or dust-proof rating .

Summary

Explosion-proof distribution box clamping nuts are high-strength, certified fasteners that secure the enclosure, maintain sealing integrity, and ensure safe operation in hazardous environments. Proper material selection, thread design, torque application, and adherence to standards are essential to preserve the explosion-proof performance of the distribution box .

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The table showing thread sizes and clamping ranges for cable glands with PG threads provides all relevant

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•Equipped with specialized hinge structure, which can prevent the flameproof joints from damage when opening and closing the box,

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Warom specializes in manufacturing explosion-proof electrical equipment, with products covering explosion-proof lighting fixtures,

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Warom Group is a leading manufacturer of explosion-proof lighting and electrical equipment in China. We

Equipped with a specialised hinge structure which can prevent damage to the flameproof joints when

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