BLUE DIAMOND
Industries, LLC

Technical Guide: NEC Compliance for HDPE Conduit

Overview

Blue Diamond Industries (BDI) manufactures High-Density Polyethylene (HDPE) conduit that is fully compliant with the **National Electrical Code** (NEC). When properly installed, BDI conduit provides a durable, moisture-resistant, and corrosion-proof raceway for electrical conductors.

1. Primary Code Reference: Article 353

The NEC recognizes HDPE conduit under Article 353. BDI UL-Listed conduit meets all requirements for use as a non-metallic raceway that is circular in cross-section and resistant to moisture and chemical agents.

- **Approved Uses (Article 353.10):**
  - **Direct Burial:** BDI conduit is approved for direct burial in earth without concrete encasement.
  - **Corrosive Environments:** Excellent for use in areas subject to severe corrosive influences as described in Article 300.6.
  - **Cinders:** Approved for installation in cinder fill.
  - **Wet Locations:** Naturally impervious to moisture, making it ideal for wet locations and preventing "water trees" in power cables.
- **Installation Method:** Ideal for Horizontal Directional Drilling (HDD) to minimize surface disruption (Article 353.10(6)).

2. Cable-in-Conduit (CIC): Article 354

BDI's factory-installed Cable-in-Conduit is governed by **Article 354**, "Nonmetallic Underground Conduit with Conductors."

- **Standard Compliance:** BDI CIC is listed to **UL 1990,** meeting the NEC requirement that the assembly of conductors and conduit be factory-manufactured.
- **Application:** Approved for direct burial and for use in continuous lengths to eliminate underground splicing.

3. Support and Anchoring (Article 353.30)

While HDPE is primarily an underground solution, the NEC provides specific guidance on its transition:

- **Bores and Trenches:** Continuous runs of BDI HDPE do not require intermediate support when installed underground or within a bore.
- **Transitions:** When transitioning to above-ground systems, BDI recommends transitioning to rigid metal conduit (RMC) or PVC as per local code requirements for exposed locations.

4. Bends and Elbows (Article 353.24 & 353.26)

- **Number of Bends:** In accordance with Article 353.26, there shall not be more than the equivalent of four quarter bends (360° total) between pull points (e.g., conduit bodies and boxes).
- **Bending Radius:** BDI HDPE is flexible, but it must be installed according to the minimum bending radius to prevent damage to the duct or the conductors inside. (Refer to BDI Technical Data Sheets for specific radius calculations per diameter).

5. Grounding and Bonding

As a nonmetallic raceway, BDI conduit does not require grounding. However, an equipment grounding conductor (EGC) must be pulled within the conduit to ground equipment at both ends of the run, as per **Article 250**.