

Standard Design

ENERGEX[®] CN Distribution cables are single conductor concentric neutral power cables available from 5kV to 46kV suitable for continuous operation at 90°C, wet or dry, and are sunlight resistant. They can be used above ground, in open air, in cable trays (not TC rated as per CSA C22.2 No. 230), in conduit in air, aerially when suspended on a messenger wire, and either direct buried, or in buried duct.

The standard design consists of:

- Stranded copper or aluminum conductors from #8 AWG to 1000 kcmil made to the latest ASTM standards.
- Solid aluminum conductors from #2 to 2/0.
- Conventional conductor shield.
- Tree-retardant insulation.
- Strippable insulation shield.
- Concentric neutrals wires based on full, 1/3, 1/6, etc. requirements.
- Encapsulating (polyethylene), or overlaying (PVC) jacket.
(Unjacketed cables may be supplied upon request)

Design Options

STRANDBLOCK[®] Conductor

It has been long understood that the presence of moisture in a power cable can contribute to the growth of water trees within the insulation and lead to premature cable failure. ENERGEX[®] CN Distribution cable can be designed to effectively prevent the ingress of moisture into the cable core. The most critical area is the conductor shield/insulation interface where the highest electrical stress is found. ENERGEX[®] CN Distribution cable can utilize STRANDBLOCK[®] conductors to offer vital protection against moisture migration in the conductor.

All interstices between the individual strands of the conductor are filled with a semi-conducting sealant applied during the stranding operation. The STRANDBLOCK[®] sealant does not cover the exposed surface of the outer strands and does not interfere with the conductor to conductor shield interface.

Contact with the STRANDBLOCK[®] sealant does not adversely affect the conductor shield properties when tested in accordance with ICEA T-32-645, yet the sealant effectively blocks water migration along the conductor when tested in accordance with ICEA T-31-610. Finally, it is important to note that the STRANDBLOCK[®] conductor can be used with conventional connectors. "Connectability" tests have been successfully performed in accordance with ANSI C119.4.

High Performance Conductor Shield

The conductor shield/insulation interface is one of the most critical areas in cable design due to the higher electrical stress at this location. Nexans also offers ENERGEX[®] CN Distribution cables with a high performance conductor shield material. Accelerated aging tests have shown that such shield materials may extend the service life of the cable. These high performance compounds have fewer protrusions at this critical interface, thus minimizing electrical stresses.

Longitudinal Water Blocked Cable

It is a documented fact that the presence of water in medium voltage cables can lead to premature cable failure. Developments in power cable technology are now focused on preventing the ingress and migration of moisture in a power cable.

Nexans manufactures ENERGEX[®] CN medium voltage concentric neutral cables with an extruded-to-fill (encapsulating) polyethylene jacket and a water swellable agent. This prevents the longitudinal migration of moisture between the copper neutral wires and the jacket. Water can penetrate a cable jacket through open unprotected ends or through jacket damage incurred during installation or cable failure. The presence of moisture can lead to premature failure of medium voltage cables. Any effort to minimize the presence of moisture in medium voltage power cables is a step towards improving service life.

The complete cable with STRANDBLOCK[®] conductor will withstand the 5 psi water penetration test as described in ICEA T-34-664.

Alternative constructions with water swellable tapes and an overlaying (sleeved) jacket are also available.

Cable in Conduit

Nexans has the ability to supply ENERGEX[®] CN Distribution cable already installed inside conduit. Cable in conduit comes on reels up to 610 meters in length (longer lengths may be available on request). The advantages of this system are that installation time is significantly reduced and complicated pulls of cable are no longer a problem as the cable no longer has to be pulled into the conduit.

Features:

- High Density Polyethylene (HDPE) duct to ASTM D 3485
- -25°C installation temperature
- Factory lubricated