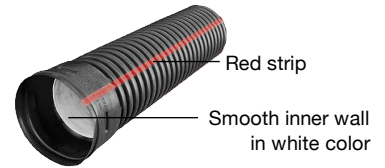


## Description

Corrugated conduit double wall (S-type) outer wall in black color, strip line in red color and inner wall in white color; made from high density polyethylene (HDPE) virgin compounds, for aerial to underground transitions of electrical wiring systems.



## Scope

This product specification describes ADSM corrugated transition conduit double wall in sticks, in nominal diameters from 50 through 300 mm (2 to 12 inch); for use in aerial to underground transitions of low, medium and high voltage electrical wiring systems.

## Characteristics

- The double wall structure (corrugated outer layer and smooth inner liner) optimizes the performance of the most important mechanical characteristics, such as flattening, brittleness, pipe stiffness, etc.
- Resistant to moisture, chemical and corrosive agents of the soil; as well as UV rays assuring a long durability after pipe installation.
- Low friction coefficient, between 0.15 y 0.20, to facilitate wiring.
- Easy, safe and tight connection by means of our integrated bell end system. The corrugated end includes an elastomeric gasket to make hermetic joints. The gasket complies with the standard NMX-T-021-SCFI.
- In conduit from 50 to 200 mm (2 to 8 inch) inner diameter, dimples in the bell end shall engage the corrugation to provide a lockable joint.

## Requirements

- Accomplish the CFE DF110-23 specification.
- Prototype acceptance certificate issued by CFE-LAPEM.
- Release of our manufacturing pipe batches by CFE / LAPEM

## Uses

For aerial to underground transmission lines, outer exposed and underground constructed by channeling in the open (trench), either direct buried or concrete encased to:

- Low and medium voltage electrical systems in commercial and industrial installations, public lighting, apartment development, logistics and industrial parks, hotels, etc.; the electrical installation standard NOM-001-SEDE-2012, allows the use from 38 mm through 150 mm (1.5 to 6 inch) inner diameter conduit.
- Low and medium voltage electrical distribution systems, the CFE construction specification of underground electrical systems DCCSSUBT allows the use from 50 mm through 100 mm (2 to 4 inch) inner diameter conduit.
- High voltage electrical transmission systems, the CFE design specification for underground transmission lines DCDLTS01 allows the use from 150 mm through 300 mm (6 to 12 inch) inner diameter conduit.

### Dimensions

**Table 1. HDPE corrugated conduit dimensions**

| Product code | Nominal diameter |        | Inner diameter<br>(average) | Outer diameter<br>(average) | Available<br>total area | Useful length |
|--------------|------------------|--------|-----------------------------|-----------------------------|-------------------------|---------------|
|              | (mm)             | (inch) | (mm)                        | (mm)                        | (mm <sup>2</sup> )      | (m)           |
| 02170020UP   | 50               | 2      | 51                          | 64.30                       | 2 043                   | 6.15          |
| 03170020UP   | 75               | 3      | 76                          | 93.50                       | 4 536                   | 6.12          |
| 04170020UP   | 100              | 4      | 102                         | 121.9                       | 8 171                   | 6.13          |
| 06170020UP   | 150              | 6      | 152                         | 176.4                       | 18 146                  | 6.11          |
| 08170020UP   | 200              | 8      | 203                         | 233.5                       | 32 365                  | 6.10          |
| 10170020UP   | 250              | 10     | 254                         | 290.2                       | 50 671                  | 6.10          |
| 12170020UP   | 300              | 12     | 305                         | 363.0                       | 73 062                  | 6.05          |

### Material properties

Corrugated conduits are manufactured from high density polyethylene (HDPE) virgin compounds that comply with the requirements of the CFE DF110-23 specification (Table 2).

**Table 2. HDPE virgin compounds properties**

| Property                               | Specification  | Test method                                |
|--|--|--|
| Density                                | 0.940 g/cm <sup>3</sup> to 0.960 g/cm <sup>3</sup>         | NMX-E-004-CNCP-2004<br>NMX-E-166-CNCP-2016 |
| Melt index                             | 0.1 to 0.4 g/10 min<br>@ 190°C - 2.16 kg                   | NMX-E-135-CNCP-2004                        |
| Flexural modulus                       | 553 to 1103 MPa<br>(80 000 to 160 000 psi)                 | NMX-E-183-CNCP-2010                        |
| Tensile strength                       | 10 MPa, minimum<br>(1450 psi, minimum)                     | NMX-E-082-CNCP-2010                        |
| Slow Crack Growth Resistance           | Test condition B (100% Igepal),<br>24 h and 50% of failure | NMX-E-184-CNCP-2003                        |
| Hydrostatic Strength<br>Classification | Not pressure rated   | -  |
| Color and UV stabilizer                | Natural  | NMX-E-034-CNCP-2014                        |

### Mecanichal specifications

ADS Mexicana curvable corrugated conduits comply with the mechanical specifications, requirements and test methods of the CFE DF110-23 specification (Table 3).

**Table 3. HDPE corrugated conduit mechanical specifications**

| Specification                            | Description   | Test method                                      |
|--|---|--|
| Pipe impact strength                     | There shall be no evidence of splitting, cracking, breaking, separation of corrugation seams, separation of the valley and liner, or combinations thereof, on any specimen when impact the specimen with an energy of 46.59 J                       | Section 7.4 of the<br>NMX-E-242/1-ANCE-CNCP-2005 |
| Pipe flattening                          | There shall be no evidence of splitting, cracking, breaking, separation of corrugation seams, separation of the valley and liner, or combinations thereof, on any specimen between parallel plates test when pipe inside diameter is reduced by 20% | NMX-E-014-CNCP-2014                              |
| Ovality                                  | The difference between the minimum and maximum values of the inner diameter does not exceed 5%  | NMX-E-021-CNCP-2006                              |
| Carbon black content                     | Between 2% - 3%   | NMX-E-034-CNCP-2014                              |
| Pipe stiffness                           | At least 345 kPa (50 psi) @ 5% of inner diameter deflection   | NMX-E-208-CNCP-2015                              |
| Delamination                             | There shall be no evidence of a separation between the inner liner and outer corrugated wall when the specimen is cut circumferentially after flattening test   | Section 7.5 of the<br>NMX-E-242/1-ANCE-CNCP-2005 |
| Environmental Stress Cracking Resistance | It does not exhibit cracks when cut a 90° transversal portion of pipe and bend three specimens reducing 20% of the chord length immersed in Igepal (100%) @ 50° C for 24 h  | Section 7.6 of the<br>NMX-E-242/1-ANCE-CNCP-2005 |
| Joint integrity                          | Joints does not exhibit leaks when is applied a pressure of 0.03 MPa (4.35 psi) for 10 min  | NMX-E-205-CNCP-2011                              |

### Installation

Installation must be carried out in accordance with the recommendations set forth in the CFE specifications DCCSSUBT and DCDLTS01, as well as in the ASTM D2321-18 standard.