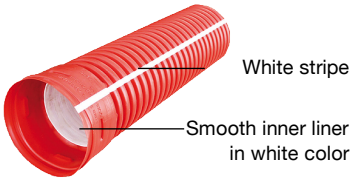
CORRUGATED CONDUIT IN STICKS

Underground applications from 50 mm through 300 mm (2 to 12 inch)

TECHNICAL SPECIFICATIONS

Description

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



Scope

This product specification describes ADSM corrugated conduit double wall, in nominal diameters from 50 through 300 mm (2 to 12 inch); for use in underground applications 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 life and 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 underground electrical systems built by open-pit channeling (ditch), 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.

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Dimensions

Table 1. HDPE corrugated conduit dimensions

Product code	Nominal diameter		Inner diameter (average)	Outer diameter (average)	Available total area	Useful length
	(mm)	(inch)	(mm)	(mm)	(mm^2)	(m)
02680020UP	50	2	51	64.30	2 043	6.15
03680020UP	75	3	76	93.50	4 536	6.12
04680020UP	100	4	102	121.9	8 171	6.13
06680020UP	150	6	152	176.4	18 146	6.11
08680020UP	200	8	203	233.5	32 365	6.10
10680020UP	250	10	254	290.2	50 671	6.10
12680020UP	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^3 to 0.960 g/cm^3	NMX-E-004-CNCP-2004 NMX-E-166-CNCP-2016
Melt index	0.1 to 0.4 g/10 min @ 190°C - 2.16 kg	NMX-E-135-CNCP-2004
Flexural modulus	553 to 1103 MPa (80 000 to 160 000 psi)	NMX-E-183-CNCP-2010
Tensile strength	10 MPa, minimum (1450 psi, minimum)	NMX-E-082-CNCP-2010
Slow Crack Growth Resistance	Test condition B (100% Igepal), 24 h and 50% of failure	NMX-E-184-CNCP-2003
Hydrostatic Strength Classification	Not pressure rated	-
Color and UV stabilizer	Natural	NMX-E-034-CNCP-2014

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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 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
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 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 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.

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