

UL Orange Type LFNC-A (6500 Series)

Scope

This specification covers AFC Cable Systems, Inc. LIQUID-TUFF™ Layered Liquidtight Flexible Nonmetallic Conduit, designed for use in wet, dry or oily locations as a flame resistant, Nonmetallic raceway for power, control and communications cables where repetitive motion and constant flexing is required. It is intended for applications where abrasion and physical abuse may occur. It complies with Article 356 of the NEC® regarding layered conduit Type LFNC-A. The product is UL Listed for 80°C (176°F) in a dry location, 60°C (140°F) in a wet location and 60°C (140°F) in a oily location. It is also UL Listed through 2-inch trade sizes for outdoor use and sunlight resistance. This Liquidtight Flexible Nonmetallic Conduit is manufactured and tested in accordance with Harmonized Underwriters Laboratories Inc. Standard UL 1660. The product carries the UL Listing Mark for US and Canada.

Construction

Liquidtight Flexible Nonmetallic Conduit Type LFNC-A is a layered raceway of circular cross section with a smooth flexible polyvinyl chloride (PVC) inner layer with a reinforcing layer covered with a flexible polyvinyl chloride (PVC) jacket. The wall thicknesses and dimensions of the layered conduit shall comply with Table 1 of harmonized UL 1660/CSA C22.2 No. 227.2.1 of UL 1660 which is summarized in Table 1. Color: Orange

Grounding

A separate Grounding conductor is required by both the National Electrical Code and Canadian Electrical Code for all trade sizes.

Markings

The outer surface of the conduit shall be clearly marked with a legible print legend in accordance with harmonized UL 1660/CSA C22.2 No. 227.2.1.

Performance Tests

The completed LIQUID-TUFF™ Liquidtight Flexible Nonmetallic Conduit Type A shall meet all of the performance requirements contained in UL 1660 outlined in Appendix A.

Description

- Layered Type A construction per NEC® 356.2(1)
- Nylon reinforced braid between two layers of PVC for strength and flexibility
- Flame retardant compound
- Sunlight resistant
- Oil resistant
- Mild acid resistance
- Non-conductive raceway

Temperature Rating

- 80°C (176°F) DRY
- 60°C (140°F) WET
- 60°C (140°F) OIL



Applications

Suitable for use in:

- NEC® 356.2(1) Liquidtight Flexible Nonmetallic Conduit Type LFNC-A
- Wet Locations
- Outdoor use to include exposure to Sunlight and Weather
- Service Entrance Wiring per NEC® 230.43(16)
- Connections to Cabinets and Wall Outlets in Underfloor Raceways per NEC® 390.15
- Cable Trays per NEC® 392.10(A) and Table 392.10(A) Wiring Methods
- Flexible Connections in Hazardous Locations:
 - Class I Div 2 NEC® 501.10(B)(2)(5), Class II Div 1 NEC® 502.10(A)(2)(3), Class II Div 2 NEC® 502.10(B)(2), Class III Div 1 NEC® 503.10(A)(3)(3) and Class III Div 2 NEC® 503.10(B).
- Wiring in Spaces Above Class I Locations per NEC® 511.7(A)(1).
- Agricultural Buildings where Flexible Connections are required per NEC® 547.5(D)
- Marinas and Boatyards per NEC® 555.13(A)(1)
- Electric Signs and Outdoor Lighting for Neon Secondary-Circuit Wiring of 1000V or Less per NEC® 600.31(A)
- Electric Signs and Outdoor Lighting for Neon Secondary-Circuit Wiring of More Than 1000V per NEC® 600.32(A)(1)
- Flexible Connections for Hoists and Cranes per NEC® 610.11(C)
- Wiring Elevators, Dumbwaiters, Escalators, Moving Walks, Platforms and Stairway Chairlifts per NEC® 620.21
- Raised Computer Room Floors per NEC® 645.5(E)(1)(b)(12)
- Motors for Permanently Installed Pools where Flexible Connections are required per NEC® 680.21(A)(2)
- Spas and Hot Tubs where Flexible Connections are required per NEC® 680.42(A)(1)
- Feeders for Natural and Artificially Made Bodies of Water where Flexible Connections are required per NEC® 682.13
- Solar Photovoltaic (PV) Systems per NEC® 690.31(A)
- Applications where constant flexing motion is required

Ratings

- Underwriters Laboratories Inc. Standard: UL 1660 File: E123464
- cUL Certified for Canada
- NFPA 70 NEC® Article 356
- Canadian Electric Code (CEC) Part I Clause 12-1300
- All Trade Sizes require an equipment grounding conductor per NEC® 356.60
- All Trade Sizes require a bonding conductor per CEC Rule 12-1306

TABLE 1.

ORDERING INFORMATION						PRODUCT DIMENSIONS/BEND RADIUS			
Product Code	Trade Size	Metric Designator	Coil Length (feet)	Reel Length (feet)	Approx. Weight 100 feet (pounds)	Min. Average Wall Thickness	Internal Diameter (min/max) (inches)	External Diameter (min/max) (inches)	Bend Radius (inches)
6501-30-00	3/8	12	100	—	14	0.045	0.475/0.515	0.745/0.785	2
6502-30-00	1/2	16	100	—	16	0.045	0.610/0.650	0.900/0.940	3.25
6502-60-00	1/2	16	—	1000	16	0.045	0.610/0.650	0.900/0.940	3.25
6503-30-00	3/4	21	100	—	18	0.050	0.805/0.845	1.140/1.180	4.25
6504-30-00	1	27	100	—	29	0.050	1.020/1.065	1.400/1.450	6.5
6504-45-00	1	27	—	500	29	0.050	1.020/1.065	1.400/1.450	6.5
6505-24-00	1-1/4	35	50	—	40	0.055	1.360/1.405	1.790/1.835	8
6506-24-00	1-1/2	41	50	—	83	0.055	1.575/1.630	2.035/2.090	9
6507-24-00	2	53	50	—	140	0.055	2.035/2.090	2.595/2.650	11.1

NOTE: All dimensions and weights are subject to normal manufacturing tolerances.

Appendix A

UL Performance Tests

Physical Properties: • Original Tensile and Elongation • Air Oven Aging Test • Oil Immersion Test • Deformation	Cold Impact	Durability of Ink Printing
Tension	Secureness of Fittings	Weather Resistance
Flexibility (Low Temperature)	Mechanical Water Absorption	Resistance to Deflection (Crush) Test
Vertical Flame	Moisture Penetration Test	

Reference Standards

UL 1660/ CSA C22.2 No. 227.2.1	Harmonized Standard for Liquidtight Flexible Nonmetallic Conduit
UL 514B	Standard for Conduit, Tubing and Cable Fittings
NFPA 70	National Electric Code (NEC®) Articles 250, 356, 390, 501, 502, 503, 504, 511, 620, 645, 680 and 690

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Construction

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Grounding

A separate Grounding conductor is required by both the National Electrical Code and Canadian Electrical Code for all trade sizes.

Markings

The outer surface of the conduit shall be clearly marked with a legible print legend in accordance with harmonized UL 1660/CSA C22.2 No. 227.2.1.

Performance Tests

The completed LIQUID-TUFF™ Liquidtight Flexible Nonmetallic Conduit Type A shall meet all of the performance requirements contained in UL 1660 outlined in Appendix A.

Description

- Layered Type A construction per NEC® 356.2(1)
- Nylon reinforced braid between two layers of PVC for strength and flexibility
- Flame retardant compound
- Sunlight resistant
- Oil resistant
- Mild acid resistance
- Non-conductive raceway

Temperature Rating

- 80°C (176°F) DRY
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Applications

Suitable for use in:

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- Electric Signs and Outdoor Lighting for Neon Secondary-Circuit Wiring of More Than 1000V per NEC® 600.32(A)(1)
- Flexible Connections for Hoists and Cranes per NEC® 610.11(C)
- Wiring Elevators, Dumbwaiters, Escalators, Moving Walks, Platforms and Stairway Chairlifts per NEC® 620.21
- Raised Computer Room Floors per NEC® 645.5(E)(1)(b)(12)
- Motors for Permanently Installed Pools where Flexible Connections are required per NEC® 680.21(A)(2)
- Spas and Hot Tubs where Flexible Connections are required per NEC® 680.42(A)(1)
- Feeders for Natural and Artificially Made Bodies of Water where Flexible Connections are required per NEC® 682.13
- Solar Photovoltaic (PV) Systems per NEC® 690.31(A)
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- NFPA 70 NEC® Article 356
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