

UL and CSA NSF® 169 Component for Splash Zones (SZ Series)

Scope

This specification covers AFC Cable Systems, Inc. UL Liquid-Tuff™ Liquidtight Flexible Steel Conduit designed for use as a raceway for NSF® 169 Component Special Purpose Food Equipment and Devices, meat packing, restaurants, food processing, poultry packing, pharmaceutical facilities, as well as, power, control and communications cables in accordance with Article 350 of the National Electrical Code. Temperature ranges: 80°C (176°F) Dry, 60°C (140°F) Wet, 70°C (158°F) Oily, -40°C (-40°F) Low Temperature. PVC jacket designed to inhibit bacteria growth and to withstand 'wash down/splash zones' with bleach agents. This Liquidtight Flexible Steel Conduit is manufactured and tested in accordance with Underwriters Laboratories Inc. Standard UL 360 and carries the UL Listing Mark. It is further certified to NSF® 169 Component, CSA C22.2 Number 56. The product carries the UL Listing Mark, CSA Certification Mark, and NSF® 169 Component Certification Logo.

Construction

The Type LFMC (UL) Liquidtight Flexible Steel Conduit shall be formed from a zinc coated galvanized low carbon steel strip having a uniform width and thickness. The 3/8 through 1-1/4 Trade Sizes are manufactured with square-lock profile that contains a continuous bonding strip. The 1-1/2 through 4 Trade Sizes are manufactured with a fully interlocked "S" profile without a bonding strip. The construction shall be in accordance with UL 360 and CSA C22.2 Number 56 requirements. The finished Type LFMC dimensions shall be in accordance with Table 5.1 of UL 360 and Table 2 of CSA C22.2 No. 56 which are summarized in Table 1.

Jacket - PVC

White PVC jacket* inhibits bacteria growth. Rugged moisture, oil and sunlight resistant polyvinyl chloride (PVC) jacket shall be applied directly over the flexible metal conduit with a wall thickness in accordance with Table 4.1 of UL 360. May be cleaned without degradation to the jacket with bleaching agents. Jacket Color: Stocked in white

*Additional colors available upon request

Markings

The surface of the outer jacket shall be clearly marked with a legible print legend in compliance with UL 360, CSA C22.2 No. 56 and NSF® 169 Component.

Performance Tests

In accordance with UL 360 and CSA C 22.2 No. 56, the completed UL Liquid-Tuff Liquidtight Flexible Conduit shall meet all of the performance requirements outlined in Appendix A for Type LFMC.

Description

- NSF® 169 Component for "splash zones" in food production areas
- NSF® 169 Component Special Purpose Food Equipment and Devices
- PVC jacket inhibits bacteria growth — color White
- Ease of cleaning/sterilization using bleach — no degradation of jacket
- Flexible rugged moisture, oil & sunlight resistant PVC jacket
- Hot dipped zinc galvanized low carbon steel core
- Excellent temperature range
- UL bonding strip 3/8 — 1-1/4 for grounding



Temperature Rating

- 80°C (176°F) DRY
- 60°C (140°F) WET
- 70°C (158°F) OIL
- UL Listed for -40°C (-40°F) LOW TEMPERATURE

Applications & References

Suitable for use in:

- NEC® 350 Liquidtight Flexible Metal Conduit Type LFMC
- Wet Locations
- Direct Burial in earth
- Concrete Embedment
- Exposure to Sunlight and Weather
- Service Entrance Wiring up to 6 feet per NEC® 230.43(15)
- Grounding in 3/8 to 1 1/4 trade sizes per NEC® 250.118(6)
- 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)(4), Class II Div 1 NEC® 502.10(A)(2)(2), Class II Div 2 NEC® 502.10(B)(2), Class III Div 1 NEC® 503.10(A)(3)(2) and Class III Div 2 NEC® 503.10(B)
- Wiring in Spaces Above Class I Locations per NEC® 511.7(A)(1)
- Use in 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 per NEC® 600.31(A)(1) and 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)(11)
- 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)
- Fire Pump Wiring per NEC® 695.6(D)
- Electric Fire Pump Control Wiring per NEC® 695.14(E)
- "Splash Zones" contiguous to food production and wash down areas as defined in NSF® 51 Component and NSF® 170 Component Standards
- Food equipment and other devices associated with food production where not in contact with the food

Ratings

- Underwriters Laboratories Inc. Standard: UL 360 File: E26540
- CSA Group: Standard: C22.2 No. 56 File: 51593
- NFPA 70 NEC® Article 350
- Canadian Electric Code (CEC) Part I Clause 12-1300
- UL Listed in all Trade Sizes for Direct Burial which includes Concrete Encasement
- Conduit in Trade Sizes 1 ½ and larger require an equipment grounding conductor per NEC® 350.60
- NSF® International certified as complying with NSF®/ANSI 169 and all applicable requirements

Reference Standards

UL 360	Standard for Liquidtight Flexible Metal Conduit
CSA C22.2 No. 56	Standard for Flexible Metal Conduit and Liquidtight Flexible Metal Conduit
File Reference(s):	UL E26540; CSA 51593
NEC® Articles	NEC® 250, 350, 390, 501.10(B)(2)(4), 502.10(A)(2)(2), 502.10(B)(2), 503.10(A)(3)(2), 503.10(B), 504.20, 553.7(B), 600.13(A), 600.32(A)(1), 610.11(C), 620.21(A)(1)(c)(2), 620.21(A)(2)(a), 620.21(A)(2)(d)(2), 620.21(A)(3)(a), 620.21(A)(4)(2), 620.21(B)(1), 620.21(C)(1), 645.5(E)(2), 680.42(A)(1), 682.13, 690.31(A), 695.6(D), 695.14(E)
Department of Defense Adopted UL 360 on October 1, 1987	
NSF®/ANSI 169	Special Purpose Food Equipment and Devices

TABLE 1.

ORDERING INFORMATION						PRODUCT DIMENSIONS/BEND RADIUS			
Product Code	Trade Size (inches)	Trade Size (mm)	Coil Length	Approx. Weight 100 feet (pounds)	Min. Average Thickness of Jacket (inches)	Over Conduit (min/max)	Over Jacket (min/max)	Internal Diameter (min/max) (inches)	Bend Radius (inches)
SZ01-30-00	3/8	12	100	24	0.03	0.594/0.614	0.690/0.710	0.484/0.504	2
SZ02-30-00	1/2	16	100	31	0.03	0.732/0.765	0.820/0.840	0.622/0.642	3.25
SZ03-30-00	3/4	21	100	49	0.035	0.930/0.960	1.030/1.050	0.820/0.840	4.25
SZ04-30-00	1	27	100	79	0.035	1.201/1.226	1.290/1.315	1.041/1.066	6.5
SZ05-24-00	1-1/4	35	50	103	0.035	1.540/1.570	1.630/1.660	1.380/1.410	8
SZ06-24-00	1-1/2	41	50	109	0.04	1.735/1.770	1.865/1.900	1.575/1.600	9
SZ07-24-00	2	53	50	146	0.04	2.180/2.215	2.340/2.375	2.020/2.045	11.12

NOTE: All dimensions and weights are subject to normal manufacturing tolerances. Review NEC® 350.60 and 250.118(6) for grounding requirements.

Additional trade sizes up to 4" available upon request