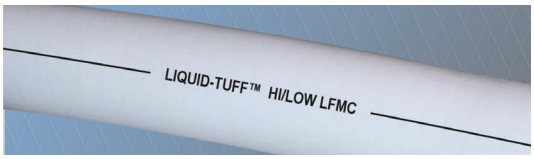
INDUSTRIAL

LIQUID-TUFF™

UL Hi-Low Temperature Liquidtight Flexible Steel Conduit, Type LFMC



Scope

This specification covers AFC Cable Systems, Inc. UL Listed LIQUID-TUFF™ Hi-Low Liquidtight Flexible Steel Conduit designed for use as a raceway for power, control and communication cables in accordance with Article 350 of the National Electrical Code. The product is Underwriters Laboratories Inc. (UL) Listed for 105°C (221°F) in a dry location, 60°C (140°F) in a wet location and 70°C (158°F) in an oily location. It is also UL Listed in all trade sizes for direct burial, outdoor use and sunlight resistance. THE LIQUID-TUFF™ HI-LOW IS UL LISTED FOR -55°C (-67°F) LOW TEMPERATURE APPLICATIONS. This Liquidtight Flexible Steel Conduit is manufactured and tested in accordance with Underwriters Laboratories Inc. Standard UL 360. The product carries the UL Listing Mark.

Construction

The Hi-Low Liquidtight Flexible Steel Conduit shall be formed from a zinc coated galvanized low carbon steel strip having a uniform width and thickness. The construction shall be in accordance with UL 360. The finished Hi-Low Type LFMC dimensions shall be in accordance with Table 5.1 of UL 360 which is summarized in Table 3.

Jacket – PVC

A 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 which is summarized in Table 2. Jacket: Gray. Additional colors available upon request.

Grounding

Permanent circuit ground protection is provided through the continuous bonding strip built into the conduit core in sizes 3/8" through 1-1⁄4". A separate grounding conductor is required by the NEC® for trade sizes 1-1⁄2" and larger.

Markings

The surface of the outer jacket shall be clearly marked with a legible print legend in compliance with UL 360.

Performance Tests

In accordance with UL 360, the completed LIQUID-TUFF™ Hi-Low Liquidtight Flexible Steel Conduit shall meet all of the performance requirements outlined in Appendix A. Reference.

Description

- Superior temperature ratings
- Hot dipped zinc galvanized low carbon steel core
- UL bonding strip 3/8" – 1-1⁄4" for grounding
- Sunlight resistant
- Flame retardant PVC jacket – Gray

Temperature Rating

- 105°C (221°F) Dry
- 60°C (140°F) Wet
- 70°C (158°F) Oil resistant
- -55°C (-67°F) Low temperature

Applications

- NEC® 350 Liquidtight Flexible Metal Conduit Type LFMC Machine tool wiring applications
- Suitable for Wet Locations
- Suitable for Direct Burial in earth
- Suitable for Concrete Embedment
- Suitable for exposure to Sunlight and Weather
- Suitable for installation at low temperatures
- Suitable for grounding in 3/8 to 1 ¼ trade sizes per NEC® 250.118(6)
- Suitable for 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).
- Suitable for Raised Computer Room Floors per NEC 645.5(E)(2)
- Suitable for Service Entrance Wiring up to 6 feet per NEC 230.43(15)
- Suitable for feeders and services where flexible connections are required in Floating Buildings per NEC 553.7(B)
- Suitable for Marinas and Boatyards per NEC 555.13(A)(1)
- Suitable for Electric signs and Outdoor Lighting per NEC 600.31(A)(1) and 600.32(A)(1)
- Suitable for Flexible Connections for hoists and cranes per NEC 610.11(C)
- Suitable for wiring Elevators, Dumbwaiters, Escalators, Moving Walks, Platforms and Stairway Chairlifts per NEC 620.21
- Suitable for Motors for Permanently Installed Pools where Flexible Connections are required per NEC680.21(A)(3)
- Suitable for Spas and Hot Tubs where Flexible Connections are required per NEC 680.42(A)(1)
- Suitable for feeders for Natural and Artificially Made Bodies of Water where Flexible Connections are required per NEC 682.13
- Suitable for Solar Photovoltaic (PV) Systems per NEC 690.31(A)
- Suitable for Fire Pump Wiring per NEC 695.6(D)
- Suitable for Electric Fire Pump Control Wiring per NEC 695.14(E)

Ratings

- Underwriters Laboratories Inc. Standard: UL 360 File: E26540
- UL LISTED for 105°C (221°F)
- UL LISTED for -55°C (67°F)
- NFPA 70 NEC® Article 350
- 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

ORDERING INFORMATION						PRODUCT DIMENSIONS/BEND RADIUS			
Product Code	Trade Size (inches)	Trade Size (mm)	Coil Length (feet)	Reel Length (feet)	Approx. Weight 100 feet (pounds)	External Diameter (inches) Over Conduit (min/max)	External Diameter (inches) Over Jacket (min/max)	Internal Diameter (min/max) inches	Bend Radius (inches)
6901-30-00	3/8	12	100'	—	25	0.594/0.614	0.690/0.710	0.484/0.504	2
6902-30-00	1/2	16	100'	—	31	0.732/0.765	0.820/0.840	0.622/0.642	3.25
6902-45-00	1/2	16	—	500'	31	0.732/0.765	0.820/0.840	0.622/0.642	3.25
6902-60-00	1/2	16	—	1000'	31	0.732/0.765	0.820/0.840	0.622/0.642	3.25
6903-30-00	3/4	21	100'	—	48	0.930/0.960	1.030/1.050	0.820/0.840	4.25
6903-45-00	3/4	21	—	500'	48	0.930/0.960	1.030/1.050	0.820/0.840	4.25
6903-60-00	3/4	21	—	1000'	48	0.930/0.960	1.030/1.050	0.820/0.840	4.25
6904-30-00	1	27	100'	—	80	1.201/1.226	1.290/1.315	1.041/1.066	6.5
6904-41-00	1	27	—	400'	80	1.201/1.226	1.290/1.315	1.041/1.066	6.5
6905-24-00	1-1/4	35	50'	—	105	1.540/1.570	1.630/1.660	1.380/1.410	8
6906-24-00	1-1/2	41	50'	—	110	1.735/1.770	1.865/1.900	1.575/1.600	9
6907-24-00	2	53	50'	—	147	2.180/2.215	2.340/2.375	2.020/2.045	11.12
6908-22-00	2-1⁄2	63	25'	—	172	2.640/2.675	2.840/2.875	2.480/2.505	14.62
6909-22-00	3	78	25'	—	200	3.295/3.335	3.460/3.500	3.070/3.100	17.5
6910-22-00	3-1⁄2	91	25'	—	235	3.720/3.789	3.960/4.000	3.500/3.540	20
6911-22-00	4	103	25'	—	256	4.220/4.280	4.460/4.500	4.000/4.040	24

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

Reference Standards

UL 360	Standard for Liquidtight Flexible Metal Conduit
UL 514B	UL Standard for Conduit, Tubing and Cable Fittings
NFPA 70	National Electric Code (NEC) Articles 250, 350, 390, 501, 502, 503, 504, 511, 620, 645, 680 and 690
NEMA RV 3	Application and Installation Guidelines for Flexible and Liquidtight Flexible Metal Conduits

Table 2. Jacket Thickness

Conduit Trade Size	Conduit Trade Metric Designator	Min. Average Thickness of Jacket (inches)
3/8	12	0.030
1/2	16	0.030
3/4	21	0.035
1	27	0.035
1-1/4	35	0.035
1-1/2	41	0.040
2	53	0.040
2-1/2	63	0.050
3	78	0.050
3-1/2	91	0.060
4	103	0.060

Table 3. Conduit Diameters — Acceptable Internal and External Diameters

Conduit Size		Internal Diameter (in.)		Over Jacket (in.)	
Trade Size (in.)	Metric Designator	Min.	Max.	Min.	Max.
3/8	12	0.484	0.504	0.690	0.710
1/2	16	0.622	0.642	0.820	0.840
3/4	21	0.820	0.840	1.030	1.050
1	27	1.041	1.066	1.290	1.315
1-1/4	35	1.380	1.410	1.630	1.660
1-1/2	41	1.575	1.600	1.865	1.900
2	53	2.020	2.045	2.340	2.375
2-1/2	63	2.480	2.505	2.840	2.875
3	78	3.070	3.100	3.460	3.500
3-1/2	91	3.500	3.540	3.960	4.000
4	103	4.000	4.040	4.460	4.500

Appendix A

UL Performance Tests

Resistance and High Current	Flexibility	Mechanical Water Absorption
Fault Current	Low Temperature Flexibility	Moisture Penetration
Impact	Zinc Coating	Sunlight Resistance
Tension	Vertical Flame	Test for Secureness of Fittings
Crushing	Physical Properties	Test for Durability of Ink Printing
Pipe Stiffness	Deformation	