COMMERCIAL

LIQUID-TUFF™

Computer Blue UL Liquidtight Flexible Metal Conduit Type LFMC

Scope

This specification covers AFC Cable Systems, Inc. UL LIQUID-TUFF™ Computer Blue 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 80°C (176°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 in either earth or concrete encasement, outdoor use and sunlight resistance. This LIQUID-TUFF™ is now UL Listed for 70°C OIL RESISTANT applications. In addition the product is CSA certified for use at 75°C (167°F) in dry and oily locations and for minus -30°C (22°F) low temperature applications. This Liquidtight Flexible Steel Conduit is manufactured and tested in accordance with Underwriters Laboratories Inc. Standard UL 360 and CSA International Standard CSA C22.2 Number 56. The product carries the UL Listing Mark and the CSA Certification Mark.

Construction

The UL 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 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 2.

Jacket - PVC

A rugged moisture, oil and sunlight resistant polyvinyl chloride (PVC-colored Blue) jacket shall be applied directly over the flexible metal conduit with a wall thickness in accordance with Table 4.1 of UL 360 and Table 4 of CSA C22.2 No. 56 which are summarized in Table 2. Jacket: Blue

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. The Canadian Electric Code requires a grounding conductor for all trade sizes of Liquidtight Flexible Metal Computer Blue Conduit.

Markings

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

Performance Tests

In accordance with UL 360 and CSA C22.2 No. 56, the completed UL LIQUID-TUFF™ Computer Blue Liquidtight Flexible Steel Conduit shall meet all of the performance requirements outlined in Appendix A.

Description

- UL bonded strip 3/8" – 1-1⁄4" for grounding
- UL Liquidtight all sizes
- Sunlight resistant
- Flame retardant PVC jacket
- Hot dipped zinc galvanized low carbon steel core
- Blue PVC jacket

Temperature Rating

- 80°C (176°F) DRY
- 60°C (140°F) WET
- 70°C (158°F) OIL
- -30°C (-22°F) LOW TEMPERATURE

Applications

- NEC® 350 Liquidtight Flexible Metal Conduit Type LFMC
- Suitable for Wet Locations
- Suitable for Direct Burial in earth
- Suitable for Concrete Embedment
- Suitable for exposure to Sunlight and Weather
- 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 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 NEC® 680.21(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)

References & 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

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 Jacket (min/max)	Internal Diameter (min/max) inches	Bend Radius (inches)
6402-30-00	1/2	16	100'	—	31	0.820/0.840	0.622/0.642	3.25
6402-45-00	1/2	16	—	500'	31	0.820/0.840	0.622/0.642	3.25
6402-60-00	1/2	16	—	1000'	31	0.820/0.840	0.622/0.642	3.25
6403-30-00	3/4	21	100'	—	49	1.030/1.050	0.820/0.840	4.25
6403-45-00	3/4	21	—	500'	49	1.030/1.050	0.820/0.840	4.25
6403-66-00	3/4	21	—	2000'	49	1.030/1.050	0.820/0.840	4.25
6404-30-00	1	27	100'	—	79	1.290/1.315	1.041/1.066	6.5
6404-41-00	1	27	—	400'	79	1.290/1.315	1.041/1.066	6.5
6405-24-00	1-1⁄4	35	50'	—	103	1.630/1.660	1.380/1.410	8
6405-40-00	1-1/4	35	—	200'	103	1.630/1.660	1.380/1.410	8
6406-24-00	1-1/2	41	50'	—	90	1.865/1.900	1.575/1.600	9
6406-35-00	1-1/2	41	—	150′	90	1.865/1.900	1.575/1.600	9
6407-24-00	2	53	50'	—	120	2.340/2.375	2.020/2.045	11.12
6407-30-00	2	53	—	100'	120	2.340/2.375	2.020/2.045	11.12
6408-22-00	2-1/2	63	25'	—	121	2.840/2.875	2.480/2.505	14.62
6408-79-00	2-1/2	63	—	275'	121	2.840/2.875	2.480/2.505	14.62
6409-22-00	3	78	25'	—	145	3.460/3.500	3.070/3.100	17.5
6409-56-00	3	78	—	175'	145	3.460/3.500	3.070/3.100	17.5

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

Appendix A

UL Performance Tests	CSA Performance Tests
UL 360 Standard	CSA C22.2 NO. 56 STANDARD
RESISTANCE TEST	-
FAULT CURRENT	-
IMPACT	-
	COLD IMPACT
TENSION	TENSION
CRUSHING	-
PIPE STIFFNESS for DIRECT BURIAL	-
ROOM TEMPERATURE FLEXIBILITY	-
LOW TEMPERATURE FLEXIBILITY	LOW TEMPERATURE FLEXIBILITY
ZINC COATING	ZINC COATING
VERTICAL FLAME	VERTICAL FLAME
PHYSICAL PROPERTIES of JACKET	PHYSICAL PROPERTIES of JACKET
ORIGINAL TENSILE and ELONGATION	ORIGINAL TENSILE and ELONGATION
AIR OVEN AGING TESTS	AIR OVEN AGING TESTS
OIL IMMERSION in AIR OVEN TESTS	OIL IMMERSION in AIR OVEN TESTS
DEFORMATION TEST	DEFORMATION TEST
MECHANICAL WATER ABSORPTION	-
MOISTURE PENETRATION	-
SUNLIGHT RESISTANCE	-
TEST for SECURENESS of FITTINGS	COMPATIBILITY with CONNECTORS
TEST for DURABILITY of INK PRINTING	-
	PINHOLE TEST

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
UL 514B	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. 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

Table 3. Jacket Thickness

Conduit Trade		Min. Acceptable Average Thickness of Jacket (inches)
Trade Size	Metric Designator	
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