

Technical Specifications

LIQUID-TUFF™

UL Liquidtight Flexible Steel Conduit, Type LFMC

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Scope

This specification covers Kaf-Tech's UL LIQUID-TUFF™ 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, 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 25°C (-13°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 Type 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 3.

Jacket

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 and Table 4 of CSA C22.2 No.56 which are summarized in Table 2.

Grounding

Permanent circuit ground protection is provided through the continuous copper 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 Conduit.

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Reference Standards

UL 360	Standard for Liquidtight Flexible Steel 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:	250.102, 250-118(7), 250.134(B), 350, 390.15, 501.4(B)(2), 502.4(A)(1)(e), 503.3(A)(2), 511.7(A)(1), 645.5(D)(2), 680.21, 680.42, 695.6(E) and 695.14(E)

Department of Defense Adopted UL 360 on October 1, 1987

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™ Liquidtight Flexible Steel Conduit shall meet all of the performance requirements outlined in Appendix A.





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Table 2
Jacket Thickness

Conduit Trade		Minimum 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
1¼	35	0.035
1½	41	0.040
2	53	0.040
2½	63	0.050
3	78	0.050
3½	91	0.060
4	103	0.060

Appendix A

UL Performance Tests	CSA Performance Tests
Resistance and High Current	Physical Properties
Fault Current	Original Tensile and Elongation
Impact	Air Oven Aging Test
Tension	Oil Immersion Test
Crushing	Deformation Test
Pipe Stiffness	Tension
Flexibility	Zinc Coating
Zinc Coating	Low Temperature Flexibility
Vertical Flame	Vertical Flame
Physical Properties	Cold Impact
Deformation	Pinhole Test
Mechanical Water Absorption	Compatibility with Connectors
Moisture Penetration	
Sunlight Resistance	
Test for Secureness of Fittings	
Test for Durability of Ink Printing	

Table 3
Conduit Diameters
Acceptable Internal and External Diameters

Conduit Size		Internal Diameter, In.		Over Conduit, In.		Over Jacket, In.	
Trade Size, In.	Metric Designator	Min.	Max.	Min.	Max.	Min.	Max.
3/8	12	0.484	0.504	0.594	0.614	0.690	0.710
1/2	16	0.622	0.642	0.732	0.765	0.820	0.840
3/4	21	0.820	0.840	0.930	0.960	1.030	1.050
1	27	1.041	1.066	1.201	1.226	1.290	1.315
1¼	35	1.380	1.410	1.540	1.570	1.630	1.660
1½	41	1.575	1.600	1.735	1.770	1.865	1.900
2	53	2.020	2.045	2.180	2.215	2.340	2.375
2½	63	2.480	2.505	2.640	2.675	2.840	2.875
3	78	3.070	3.100	3.295	3.335	3.460	3.500
3½	91	3.500	3.540	3.720	3.789	3.960	4.000
4	103	4.000	4.040	4.220	4.280	4.460	4.500

