


LIQUID-TUFF™

Ultraflex™ Mechanical Non-Metallic (NMPT) Protection Tubing


Description

- (1) Non-UL liquidtight raceway
- (2)  component, extra-flexible Non-Metallic mechanical protection tubing
 - Corrugated flame resistant PVC with integral reinforcing member
 - Non-conductive raceway – black

Temperature Rating


- 60°C Dry
- 60°C Wet and oily

Applications

-  recognized component for use in protection of insulated wire in assemblies or consoles of electrical apparatus. Use is to be determined by Underwriters Laboratories Inc.
- Non-UL liquidtight raceway



References & Ratings

-  recognized component Liquidtight Mechanical Protection Tubing under UL File Number E79977
- UL1696 Standard for Non-Metallic Mechanical Protection Tubing
- CSA File LL69271
- CSA C22.2 No. 227.3

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)	Internal Diameter (min/max) inches	External Diameter (min/max) inches	Bend Radius (inches)
160-012	3/8	12	100'	–	5	0.484/0.504	0.695/0.705	0.49
160-016	1/2	16	100'	–	8	0.622/0.642	0.825/0.835	0.63
160-021	3/4	21	100'	–	11	0.820/0.840	1.035/1.045	0.83
160-026	1	27	100'	–	16	1.041/1.066	1.297/1.308	1.10
160-035	1¼	35	100'	–	21	1.380/1.410	1.640/1.650	1.40
160-040	1½	41	100'	–	26	1.575/1.600	1.877/1.888	1.59
160-051	2	53	100'	–	33	2.020/2.045	2.352/2.363	2.04

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


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(1) Recognized Component (2) Non-UL Non-Metallic Conduit (NMPT)

Scope

This specification covers AFC Cable Systems, Inc. LIQUID-TUFF™ Liquidtight ULTRAFLEX™ (1)  RECOGNIZED COMPONENT EXTRA-FLEXIBLE NON-METALLIC MECHANICAL PROTECTION TUBING and (2) NON-UL EXTRA-FLEXIBLE NON-METALLIC CONDUIT.

(1) LIQUID-TUFF™ Liquidtight ULTRAFLEX™  RECOGNIZED COMPONENT EXTRA FLEXIBLE NON-METALLIC MECHANICAL PROTECTION TUBING is designed for use in connection with the support of and protection of insulated wires, placed within the tubing, that are used to interconnect separate component assemblies or consoles of electrical apparatus, such as x-ray equipment. Use of the combination is to be determined by Underwriters Laboratories Inc. The acceptable use of this material is limited to the following conditions:

1. This tubing may be used for the routing of internal wiring between electrical components of electrical equipment. The protection afforded to the internal wiring by the tubing may be considered equivalent to the protection afforded the internal conductors by the jacket of a Type SJT flexible cord.
2. The tubing is suitable for use at a maximum temperature of 60°C.
3. The tubing and manufacturer's supplied fittings were not tested to determine flammability rating per UL 224.
4. The tubing shall be terminated at each end of the consoles or appliances to which connected to provide strain relief to withstand a 35-pound pull for 1.0 minute. Fittings available from the manufacturer met this requirement.
5. The percent fill of the tubing with conductors shall not exceed 75% where percent fill is defined as: $\text{Percent Fill} = \frac{\text{Area of Enclosed Conductors} \times 100}{\text{Internal Area of Tubing Fill Factor}}$.
6. The minimum bend radius shall not be less than the outside diameter of the tubing.
7. The manufacturer's fittings were subjected to the Oil Spray Test in accordance with UL 514B.
8. As this tubing and manufacturer supplied fittings are to be Recognized as a Component, final acceptance will be determined in terms of the combination of component and appliance as determined by Underwriters Laboratories Inc., regarding such characteristics as flammability; degree of bending or flexing; resistance to water, oil and abrasion; and physical strength.

(2) LIQUID-TUFF™ Liquidtight ULTRAFLEX™ NON-UL EXTRA-FLEXIBLE Non-Metallic CONDUIT is designed for use in wet, dry or oily locations as a flame resistant, Non-Metallic raceway for power, control and communications cables. The product is intended for use at 60°C (140°F) in a dry location, 60°C (140°F) in a wet location and 60°C (140°F) in a oily location. It is sunlight resistant.



Construction

LIQUID-TUFF™ Liquidtight ULTRAFLEX™ MECHANICAL PROTECTION TUBING/CONDUIT has a circular cross section with a smooth polyvinyl chloride (PVC) inner surface and an integral reinforcing member within the conduit wall. The dimensions of the integral tubing/conduit shall comply with Table 1. Color: black

Grounding

Where applicable a separate grounding conductor is required for all trade sizes.

Markings

The product marking is contained on the outer carton.

Performance Tests

The completed LIQUID-TUFF™ Liquidtight ULTRAFLEX™ TUBING and CONDUIT shall meet the performance requirements outlined in Appendix A.

Standards

CSA C22.3 No. 227.3

UL1696

Non-metallic Mechanical Protection Tubing

File

UL E79977

CSA 69271

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(1)  Recognized Component (2) Non-UL Non-Metallic Conduit (NMPT)

Table 1

Conduit Size		Inside Diameter, In.		Outside Diameter, In.		Min. Bend Radii, In.	Weight lbs/100ft
Trade Size, In.	Metric	Min.	Max.	Min.	Max.		
3/8	(12)	0.484	0.504	0.695	0.705	0.49	5
1/2	(16)	0.622	0.642	0.825	0.835	0.63	8
3/4	(21)	0.820	0.840	1.035	1.045	0.83	11
1	(27)	1.042	1.066	1.297	1.308	1.10	16
1¼	(35)	1.380	1.410	1.640	1.650	1.40	21
1½	(41)	1.576	1.600	1.877	1.888	1.59	26
2	(53)	2.021	2.045	2.352	2.363	2.04	33

Appendix A

PERFORMANCE REQUIREMENTS

Heat Aging Test
 Cold Bend Test
 Heat Shock Test
 Crush Test
 Impact Test
 Oil Spray Test