



## Kaf-Tech

This product specification is written according to the Construction Specifications Institute *MasterFormat*, 2018 Update.

### SECTION 26 05 33

## FLEXIBLE RACEWAY SYSTEMS FOR ELECTRICAL SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

#### 1.2 SUMMARY

- A. This Section includes flexible raceways for electrical wiring for commercial, industrial, MRO, and DOT applications.

#### 1.3 REFERENCES

- A. UL 1- Standard for Flexible Metal Conduit - FMC
- B. UL 360 - Standard for Liquidtight Flexible Metal Conduit - LFMC
- C. UL 1610 - Standard for Liquidtight Flexible Nonmetallic Conduit – LFNC
- D. UL 1696 - Standard for Mechanical Protection Tubing – MPT
- E. UL 514B – Standard for Conduit, Tubing, and Cable Fittings

#### 1.4 SUBMITTALS

- A. Product Data: For each type of flexible raceway and fitting indicated.
- B. Qualification Data: For testing agency.
- C. Field quality-control test reports.

#### 1.5 QUALITY ASSURANCE

- A. Electrical equipment and materials shall be new and within one year of manufacture, complying with the latest codes and standards. No used, re-built, refurbished and/or re-manufactured electrical equipment and materials shall be furnished on this project.
- B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by

OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Flexible Raceways shall be manufactured in accordance with the applicable UL Standard referenced in 1.4 for installation in accordance with NFPA 70 (NEC)

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in unopened cartons or bundles as appropriate, clearly identified with manufacturer's name, Underwriter's or other approved label, grade or identifying number.

## PART 2 – PRODUCTS

### 2.1 LIQUID TIGHT FLEXIBLE METAL CONDUIT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AFC Cable Systems, Inc. (Liquid Tuff)
- B. Conduit shall be suitable for wet and dry locations, direct burial applications, concrete embedment area, and outdoor rated areas. Applications include lift stations, electric signs, and outdoor lights, hoist/crane systems, solar installations of various types, pool pumps, and anywhere a flexible connection is required due to movement or vibrations.
- C. Conduit shall be rated for special applications where needed such as low smoke/zero halogen, extra oil resistant, extreme temperature, corrosion resistant, and color identification.
- D. Shall be in compliance with UL 360.
- E. Shall be suitable for hazardous installation and meet NEC Code articles 501, 502, and 503 requirements.
- F. Conduit includes integral bond wire allowing the armor to be used as a ground in accordance with NFPA 70 (NEC).
- G. Fittings for LFNC shall be in compliance with UL 514B.

### 2.2 LIQUID TIGHT FLEXIBLE NON-METALLIC CONDUIT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. AFC Cable Systems, Inc. (Liquid Tuff)
- B. Conduit shall be suitable for wet and dry locations, direct burial applications, concrete embedment area, and outdoor rated areas. Common applications are when installing in a corrosive environment and when a durable non-metallic conduit is required. These include marinas, docks, boat lift stations, pool, and sauna pumps.
- C. Conduit shall be rated for special applications where needed such as low smoke/zero halogen, extra oil resistance, extreme temperature, corrosion resistant, and color identification.
- D. Shall be in compliance with UL 1660.
- E. Shall be suitable for hazardous installation and meet NEC Code articles 501, 502, and 503 requirements.
- F. Fittings for LFNC shall be in compliance with UL 514B.

## 2.3 NONMETALLIC MECHANICAL PROTECTION TUBING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. AFC Cable Systems, Inc.
- B. NMPT is used for the support, routing and mechanical protection of conductors, wires, and cables. It is intended to be used to interconnect separate component assemblies or consoles of electrical devices, such as robotics, medical or X-ray equipment.
- C. NMPT is a nonmetallic UL recognized component tubing in compliance with UL 1696. It is treated as an assembly. The product is only recognized when an approved manufacturer fitting is utilized. Fittings for NMPT shall be in compliance with UL 1696.

## 2.4 FLEXIBLE METAL CONDUIT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. AFC Cable Systems, Inc.
- B. Shall be in compliance with UL 1.
- C. Conduit is used in flexible metal raceway systems for electrical power, communication cables, motor leads, listed assemblies and wire fixtures and manufactured wiring systems
- D. Conduit shall be used only in non-wet locations as defined in NFPA 70 (NEC)

## PART 3 - EXECUTION

### 3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
  - 1. Exposed Conduit: LFMC, LFNC, or FMC.
  - 2. Concealed Conduit, Aboveground: LFMC, LFNC, or FMC.
  - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC, LFNC, or FMC.
- B. Comply with the following indoor applications, unless otherwise indicated:
  - 1. Exposed, Not Subject to Physical Damage: LFMC, LFNC, or FMC.
  - 2. Concealed in Ceilings and Interior Walls and Partitions: LFMC, LFNC, or FMC.
  - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
  - 4. Damp or Wet Locations: LFMC, LFNC, or NMPT.
  - 5. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: FMC.
  - 6. Interconnection of separate component assemblies or consoles of electrical devices, such as robotics, medical or X-ray equipment: NMPT
- C. Minimum Raceway Size: 3/8-inch trade size.
- D. Raceway Fittings: Compatible with raceway raceways and suitable for use and location.
  - 1. LFMC, LFNC, NMPT, or FMC: Use only fittings listed for use with that material.

### 3.2 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
  - 1. Repair damage to flexible raceways with matching touchup coating recommended by manufacturer.