Atkore - US TRAY

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

SECTION 26 05 36

CABLE TRAYS FOR ELECTRICAL SYSTEMS (WIRE BASKET)

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Throughout this document you will find designated 'specifier notes' or links to specific electronic resources in green to better serve your needs. If you have any questions or comments, please contact your local US Tray Brand sales representative.

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PART 1 GENERAL

1.1 SUMMARY

A. Work covered under this Section 26 05 36 consists of furnishing of necessary labor, supervision, materials, equipment, tests and services to completely execute a complete wire basket cable tray system as described in this specification and as shown on the drawings.

B. Wire basket cable tray systems are defined to include, but are not limited to: straight sections of continuous wire mesh, field formed horizontal and vertical bends, tees, drop outs, supports, and accessories.

C. Related Sections:
   1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
   2. Section 26 05 29 - Hangers and Supports for Electrical Systems.

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List reference standards included within text of this section. Edit the following depending on Project conditions.

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1.2 REFERENCES

A. American Society for Testing and Materials (ASTM) International:
   1. ASTM A1011 / A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-

Strength Low-Alloy with Improved Formability, and Ultra-High Strength*(Formally ASTM A570 & A607).*

2. ASTM A123 / A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A510 - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel
4. ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing
5. ASTM A580 – Standard Specification for Stainless Steel Wire
6. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
7. ASTM A641 / A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
8. ASTM A653 / A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
9. ASTM D769 - Standard Specification for Black Synthetic Iron Oxide

B. National Electrical Manufacturers Association:
   1. NEMA VE 1 - Metal Cable Tray Systems.
   2. NEMA VE 2 - Cable Tray Installation Guidelines.

C. NFPA 70: National Electrical Code (2017)

D. ANSI/TIA-568-C.0 – Generic Telecommunications Cabling for Customer Premises

E. ANSI/TIA-569-B – Commercial Building Standard for Telecommunications Pathways and Spaces

1.3 DRAWINGS

A. The drawings, which constitute a part of these specifications, indicate the general route of the wire basket cable tray systems. Data presented on these drawings is only as accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification of all dimensions, routing, structural loading, regional and national compliances are required.

B. Specifications and drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Contractor is directed to make field surveys as part of his work prior to submitting system layout drawings.

1.4 QUALITY ASSURANCE

A. All cable and equipment shall be installed in a neat and professional manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the owner or owner's representative. Atkore does not warrant and shall not be liable for any claims or damages related to the installation of the Products

B. Distributors to supply all equipment and accessories new and free from defects.

C. Distributors to supply all equipment and accessories in compliance with the applicable standards listed in Part 1.2 of this section and with all applicable national, state and local codes.

D. Distributors to supply all items of a given type shall be the products of the same manufacturer.

E. Manufacturers: Firms regularly engaged in manufacture of cable trays and fittings of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

F. Any zinc plated wire basket cable tray supplied by the distributor shall be classified by Underwriters Laboratories (UL).

G. NEMA Compliance: Manufacturer to comply with NEMA Standards Publication Number VE1, "Cable Tray Systems".

H. Installation by the contractor to comply with the National Electrical Code (NEC), as applicable, relating to construction and installation of cable tray and cable channel systems (Article 392, NEC).

I. Installation by the contractor to comply with NFPA 70B, "Recommended Practice for Electrical Equipment Maintenance" pertaining to installation of cable tray systems.

1.5 DELIVERY, STORAGE AND HANDLING

A. Onsite delivery of cable tray systems and components carefully to avoid breakage, denting and scoring finishes. Do not install damaged equipment.

B. Onsite storage of cable trays and accessories to be in in original cartons and in clean dry space; protect from weather and construction traffic. Wet materials should be unpacked and dried before storage.

1.6 SUBMITTALS

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Click here to visit US Tray for submittals. These may be supplied by the distributor from the US Tray Brand website at time of quoting. **********

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

B. Submittal Drawings: Submit drawings of wire basket cable tray and accessories including connector assemblies, clamp assemblies, brackets, splice plates, splice bars, grounding clamps and hold-down plates showing accurately scaled components. Indicate wire basket cable tray dimensions, support points, and finishes.

C. Product Data: Submit manufacturer's data on wire basket cable tray system including, but not limited to, types, materials, finishes and inside depths.

D. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under references. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.7 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Contractor to record actual routing of cable tray and locations of supports once the project is completed.

1.8 QUALIFICATIONS

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Include the following paragraph if a list of manufacturer is not included or when substitutions are allowed to define applicable requirements. [ ] denotes a variable or choice

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A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum [_____] years of documented experience, and with service facilities within [_____] miles of Project.

1.9 CONTRACTOR PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene a minimum of [_____] week(s) prior to commencing work of this section.

PART 2 PRODUCTS
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NEMA VE 1 Class designation, indicated in the following specifications for metal cable tray, is support span in feet (meters) plus working load designation.

Available Support Spans: 10 feet (3048 mm).

Working Load Designation:
A - 50 pounds per foot (74.4 kg/m).
B - 75 pounds per foot (111.6 kg/m).
C - 100 pounds per foot (148.8 kg/m).

Consult NEMA VE 1 for additional information and safety factors.
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2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with these specifications, wire basket cable tray systems to be installed shall be as manufactured by the following:
   1. Atkore – US Tray
      11500 Norcom Rd
      Philadelphia, PA 19154 TOLL-FREE / 800-882-5543 https://www.ustray.com/
   2. Engineer approved equivalent.

2.2 WIRE BASKET CABLE TRAY SECTIONS AND COMPONENTS
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[ ] denotes a variable or choice
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A. Manufacturer to provide wire basket cable tray of types and sizes purchased with pre-welded splice bars. Manufacturer to construct units with rounded edges and smooth surfaces; in compliance with applicable standards; and with the additional construction highlighted in Section 2.2

B. All straight sections shall be constructed with a pre-welded splice plate to connect two runs of wire basket together. These splice bars must be UL approved for grounding with use of grounding clips.

C. Wire basket cable tray shall be made of high strength steel wires and formed into a standard 2 inch by 4 inch wire mesh pattern with intersecting wires welded together. All mesh sections must have at least one bottom longitudinal wire along entire length of straight section.

D. Wire basket cable tray sizes shall conform to the following nominal criteria (±10mm):
   1. Straight sections shall be furnished in standard 118.3 inch lengths.
   2. Wire diameter shall be a uniform 0.177” (4.5mm), 0.197” (5mm), or 0.236” (6mm) on mesh sections.
   3. Wire basket cable tray shall have a 2 inch usable loading depth by [2] [4] [6] [8] [12] [16] [18] [20] [24] inches wide.
   4. Wire basket cable tray shall have a 4 inch usable loading depth by [4] [8] [12] [16] [18] [20] [24] inches wide.
   5. Wire basket cable tray shall have a 6 inch usable loading depth by [6] [8] [12] [16] [18] [20] [24] inches wide.

E. In order for a system to be approved as an equipment ground conductor (EGC), all splicing assemblies shall be UL Classified or CSA approved as an EGC. When using powder coated wire mesh cable tray as an EGC, the paint must be completely removed at all contact points of splice/ground bolt attachments.

F. Material and Finishes: Material and finish specifications for [Carbon Steel Wire] [Stainless Steel Wire] are as follows.
   1. Electro-Plated Zinc Galvanizing: Straight sections shall be made from steel meeting the minimum mechanical properties of ASTM A510, Grade 1008 and shall be electro-plated zinc in accordance with ASTM B633, Type III, SC-3.
   2. Stainless Steel: Straight sections and accessories shall be made from AISI Type [304] [316] stainless steel meeting the minimum mechanical properties of ASTM A580.
   3. Black Powder Coat: Straight sections shall be powder coated black with an average paint thickness of 1.2mils (30microns) to 3.0mils (75microns).
   4. Hot Dipped Galvanizing: Straight sections shall be made from steel meeting the minimum mechanical properties of ASTM A510, Grade 1008and shall be hot dipped galvanized after fabrication in accordance with ASTM A123.

G. All fittings shall be field formed from straight sections in accordance with manufacturer’s instructions.

H. Wire basket cable tray supports shall be center support hangers, trapeze hangers or wall brackets as manufactured by the US Tray Division of Allied Tube & Conduit Corporation, [or engineer approved equal].

I. Special accessories shall be furnished as required to protect, support and install a wire basket cable tray system.

PART 3 EXECUTION

3.1 EXISTING WORK

A. Contractor or approved sub-contractor to remove exposed abandoned cable tray, including abandoned cable tray above accessible ceiling finishes. Remove supports. Cut wire basket cable tray flush with walls and floors, and patch surfaces.

B. Contractor or approved sub-contractor to maintain access to existing wire basket cable tray and other installations remaining active and requiring access. Modify installation or provide access panel.

C. Contractor or approved sub-contractor to extend existing wire basket cable tray installations using materials and methods [compatible with existing electrical installations, or] as specified.

D. Contractor or approved sub-contractor to clean and repair existing wire basket cable tray to remain or to be reinstalled.

3.2 INSTALLATION

A. Install cable trays as indicated: Installation shall be in accordance with equipment manufacturer's instructions, and with recognized industry practices to ensure that cable tray equipment comply with requirements of NEC and applicable portions of NFPA 70B. Reference NEMA-VE2 for general cable tray installation guidelines.

B. All trays should be supported using a minimum of ¼" All Threaded Rod.

C. Special accessories shall be furnished as required to protect, support and install a wire basket cable tray system.

D. Coordinate wire basket cable tray with other electrical work as necessary to properly interface installation of wire basket cable tray with other work.

E. Support trays and fasten to structure. Install supports at each connection point, at end of each run, and at other points to maintain spacing between supports of [_____] feet ([_____] cm) maximum. Use manufacturer recommended size for cantilever brackets. Installation of oversized or undersized cantilever brackets may lead to system failure.

F. Ground and bond metal cable tray in accordance with NFPA 70, National Electrical Code, Article 392: Cable Trays.
   1. Provide continuity between wire basket cable tray components.

2. Make connections to tray using mechanical, compression or exothermic connectors.
3. If required, ground cable trays by mounting up to two [___] AWG bare copper wires to each wire basket cable tray section, bonded with a grounding clamp

G. If required, install warning signs at [_____] feet ([_____] m) centers along wire basket cable tray, located to be visible.

H. Provide sufficient space encompassing wire basket cable tray to permit access for installing and maintaining cables.

3.3 TESTING

A. Test wire basket cable tray support systems to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance. See NFPA 70Bfor testing and test methods.

B. Manufacturer shall provide test reports witnessed by an independent testing laboratory of the “worst case” loading conditions outlined in this specification and performed in accordance with the latest revision of NEMA VE-1 ; including test reports verifying rung load capacity in accordance with NEMA VE-1 Section 5.4..