

CATALOG



CABLE TRAY SYSTEMS

Cope™ Cable Trays, Fittings, Nuts & Accessories

A PART OF



Cope™ Cable Tray solutions for your infrastructure requirements

Welcome to our new products catalog. For the first time we offer our complete line of Cope cable tray products in a single catalog. This complete catalog is designed for ease of use and to provide the basic information needed to select the proper cable tray system for your needs.

The first section of the catalog provides comprehensive product information, definitions, and technical data needed to select the proper tray. The second section provides industry standards and guidelines for the manufacture and installation of cable tray.

Cope's I-BEAM™ tray provides a heavy duty welded cable tray for clients requiring I-BEAM side rails. It is perfect for long span locations, heavy loads, and will interface with existing "I" Beam configuration trays.

Cope's Swaged Ladder tray uses our patented swaging system of rung attachment. This system of attachment provides a very rigid tray without welding that is easy to handle and install. The flange out design provides the maximum access to your cables, even in narrow or divided cable trays.

Cope's Hat Rung tray provides a flange in alternative for those instances where space is critical. With the flanges turned inward, this tray can be fitted into confined spaces. Slotted rungs provide excellent cable tie down capability.

Cope Trof provides the ultimate in cable support for your small diameter, flexible cable. With 1" ribs located every 2" on center, drooping of cable is virtually eliminated.

Cope Channel provides an excellent support system for those applications where only a few cables are needed. It can also be used for separation of services in ladder or trof trays.



Cope Wire Basket Tray provides the superior flexibility and ease of installation required by data-com installations. The exclusive Kwik-Latch system speeds cable tray installation.

Cope Glas™ fiberglass cable tray provides the answer to many adverse environments. Life cycle costs, long span capability and easy field modification make Cope Glas™ an ideal choice for industrial, chemical, and petro-chemical facilities.

Our customer service team is available to assist with questions about application, installation, and availability of our products.

Thank you for considering Cope for your cable tray requirements.





COPE, previously known as T.J. Cope

Thomas Jefferson Cope founded T.J. Cope in Philadelphia, Pennsylvania in 1887. At that time, T.J. Cope's primary business was designing and manufacturing cable installation/pulling equipment for overhead and underground applications.

In 1948, T.J. Cope introduced the first modular Cable Tray System. The tray system was fabricated from sheet metal with the edges turned up forming a trof shape. This type of installation offered a more flexible and economical alternative to the traditional use of conduit.

In 1957, T.J. Cope was purchased by the Rome Cable Corporation, which in turn, was purchased by Alcoa in 1959. The Cyprus Mines Corporation purchased T. J. Cope six years later when the U. S. Justice Department forced Alcoa to divest its holdings of the Rome Cable Company.

T.J. Cope was merged into Allied Tube & Conduit Corporation in 2005. The Cope brand is owned by Allied Tube & Conduit Corporation and is part of the Electrical and Support Division. Allied Tube & Conduit Corporation is a world leading manufacturer of galvanized steel tubing, including electrical conduit; its affiliate, AFC Cable Systems, provides AC/MC cable and flexible conduits; and its other affiliate, Unistrut International Corporation, provides Power-Strut and Unistrut metal framing systems. Allied Tube & Conduit Corporation, a part of Atkore International, serves the electrical, mechanical, and construction markets worldwide.

Headquarters:

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16100 S. Lathrop Avenue
Harvey, IL 60426
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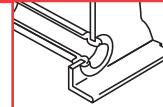
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Allied Tube & Conduit Corporation
11500 Norcom Road
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Tel: 215-961-2570
Fax: 215-961-2580

Allied Tube & Conduit Corporation
11539 North Houston Rosslyn Road
Houston, TX 77088
Tel: 281-445-2900
Fax: 281-931-9324



SECTION 1 Features & Technical Data



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Cope Swage

SECTION 2 NEMA Standard VE-1



SECTION 3 Cope™ LADDER



SECTION 4 Cope™ I-BEAM™



SECTION 5 Cope™ HAT



SECTION 6 Cope™ TROF



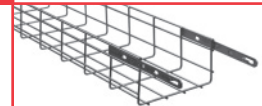
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NEMA

LADDER

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WIRE BASKET

Reference

PRODUCT FEATURES



OVERVIEW

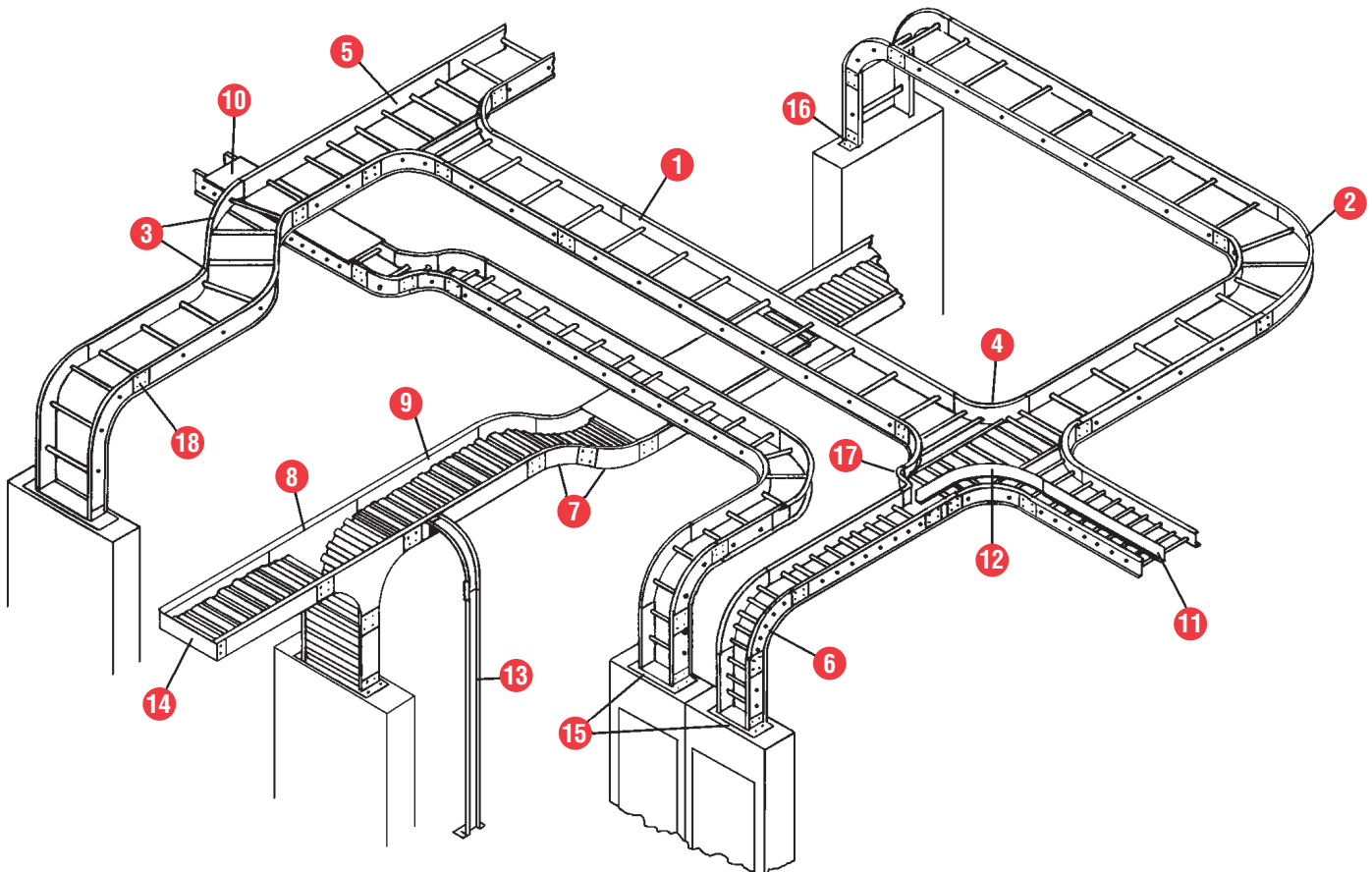
SELECTING A COPE™ CABLE TRAY SYSTEM

A number of factors must be considered when selecting the proper cable tray system and planning the installation:

- Material and Finish
- Types of Cable Tray
- NEMA Class
- Cavity Size – Load Depth/Width of Tray
- Length of Straight Sections
- Rung Spacing
- Radius of Fittings
- Cable Tray Support Locations
- Electrical Grounding

CABLE TRAY SYSTEM DRAWING LEGEND

- 1 Straight Section, Ladder (SL)
- 2 Horizontal Elbow, 90°, Ladder Type (9F)
- 3 Horizontal Elbow, 30° (3F), 45° (4F) or 60° (6F)
- 4 Horizontal Cross, Ladder Type (FC)
- 5 Horizontal Tee, Ladder Type (FT)
- 6 Vertical Elbow, Outside, 90° (90)
- 7 Vertical Elbow, Outside & Inside, 30° (30, 31), 45° (40, 41), or 60° (60, 61)
- 8 Vertical Tee, Solid Bottom Trof Type (VT)
- 9 Straight Section, Solid Bottom Trof (SL)
- 10 Flanged Solid Cover (FS)
- 11 Barrier Strip-Straight Section (SB)
- 12 Barrier Strip-Flexible-Horizontal Fitting (FB)
- 13 Straight Section, Channel (SL)
- 14 Blind End (BE)
- 15 Box Connector (BC)
- 16 Angle Connector (CA)
- 17 Reducing Connector (CO)
- 18 Universal Curvilinear Connector (RC)





TYPES OF CABLE TRAY

Any assembly of cable tray straight sections, fittings and accessories that form a rigid system to support cables is a cable tray. The different types of tray designs are described below.

Ladder

A prefabricated metal structure consisting of two side rails connected by individual transverse members or rungs.

Ladder tray is the most common and the most economical type of tray. It also provides maximum ventilation for cabling.

I-Beam™

Cope I-Beam cable tray system provides long span capability and versatility. Cope I-Beam interfaces with existing "I" Beam configurations.

Ventilated Trof

A prefabricated metal structure with clear openings no greater than 4".

Trof cable trays are the best choice for smaller cables. Ventilated trofs offer some air-flow while completely eliminating cable sagging.

Solid Trof

A prefabricated metal structure consisting of a bottom with no openings within the cable bearing surface.

Solid bottom cable trays completely eliminate cable sagging and offer the most protection for the cables.

Channel

A prefabricated metal structure consisting of a one-piece ventilated or solid bottom channel section not exceeding 6" in width.

Cope-Glas™

Fiberglass cable tray provides the answer to many adverse environments. Life cycle costs, long span capability and easy field modification make Cope Glas™ an ideal choice for industrial, chemical, and petro-chemical facilities.

Wire Basket

Provides the superior flexibility and ease of installation required by data-com installations. The exclusive Kwik-Latch™ system speeds cable tray installation.

MATERIALS AND FINISH

The material selection is based on the environmental conditions and economic considerations for the project.

Steel – Pre-Galvanized

Hot Dip Mill-Galvanized steel (ASTM-A-653-G90 CS) is zinc coated by a hot dip process. Steel strip from a coil is fed through a continuous zinc coater which cleans, fluxes and coats the steel with molten zinc. After cooling, the steel is recoiled. The pre-galvanized coating provides a total weight of 0.90 oz. of zinc for both sides of one square foot of material.

Mill galvanized ladder is made of pre-galvanized steel and generally used indoors or in locations not exposed to the elements or corrosives.

Steel – Hot Dip Galvanized After Fabrication

In hot dip galvanizing after fabrication (HDGAF), the finished part is immersed in a bath of molten zinc (ASTM 123). This method results in complete zinc coverage and a thicker coating than pregalvanized or electro-plated steel.

The zinc coating is typically 2.6 MIL or 1.5 oz./sq. ft. of surface area.

This is the coating of choice for applications where protection from severe corrosion is a design factor.

Stainless Steel

Type 304 and Type 316 stainless steel material in accordance with ASTM-A-240.

Aluminum

Aluminum material in accordance with AA-6063-T6. Aluminum trays are suitable for most outdoor applications and offer reductions in total installed costs.

Fiberglass

For extremely corrosive areas, Cope offers the most complete line of Fiberglass cable trays available. For a complete Cope "Cope-Glas™" catalog, please contact the factory or the Cope representative in your area.

Special Finishes

For extremely corrosive areas Cope can supply a PVC (polyvinyl chloride) coating over aluminum or uncoated steel. This is applied using the fluidized bed process to a nominal thickness of 12 mils.

Weathering steel is also available; contact factory for availability.

PRODUCT FEATURES

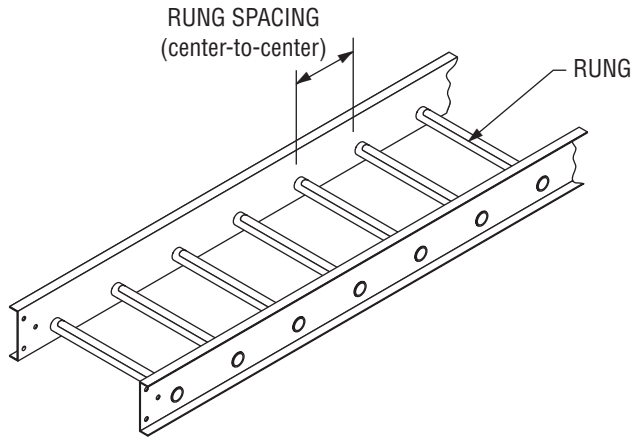


OVERVIEW

COPE™ SWAGE LADDER

(pages 23 – 62)

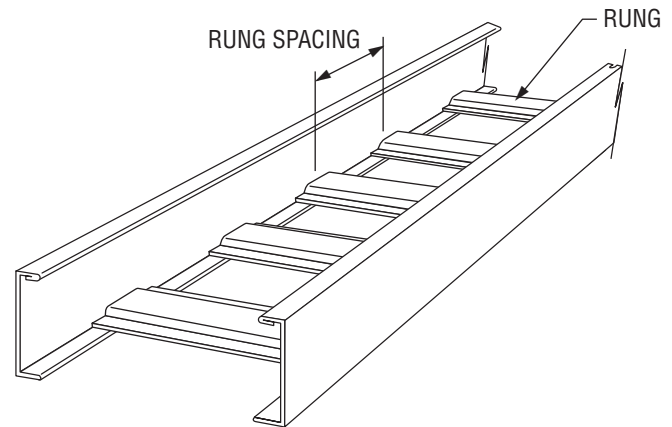
Is a structure consisting of two side rails, connected by individual rungs and is manufactured in accordance with NEMA Standard VE-1. Cope rungs are fastened to the side members by an exclusive swaging process. This assembly method insures a superior mechanical and electrical connection.



COPE™ HAT

(pages 99 – 132)

Is a prefabricated metal structure consisting of reinforced hat-shaped rungs, arc-welded to the side rails, and is manufactured to NEMA Standard VE-1. Cope Hat rungs are fastened to the side rails with an automatic, self-indexing MIG-arc-welding system, plug welding a 1/2" diameter zone. The superior strength of the Cope plug weld withstands the rigors of shipping, handling, erection, and cable support service.



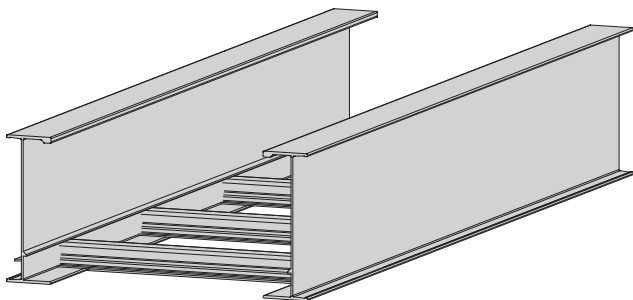
COPE™ I-BEAM™

(pages 63 – 98)

Cope I-Beam cable tray system provides long span capability and versatility. Cope I-Beam interfaces with existing "I" Beam configurations.

Cope Offers a complete system of I-Beam products and accessories to meet all your project requirements.

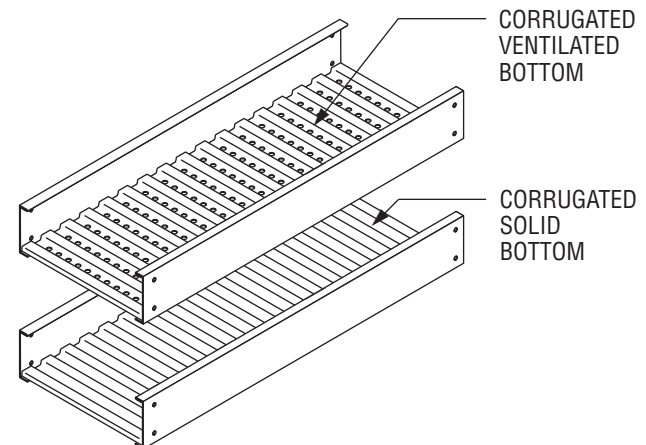
In the following pages you'll find the products, accessories, specifications, and technical data for the Cope I-Beam cable tray system.



COPE™ TROF

(pages 133 – 168)

Is a prefabricated metal structure consisting of ventilated or solid bottoms, welded to the side rails, and are manufactured and tested to NEMA Standard VE-1. Straight sections, fittings (elbows, tees, crosses, reducers, etc.), and a full line of matching and interfacing accessories are available. Corrugations give great lateral rigidity to the bottom transmitting the load to the side rails. Lateral (transverse) deflection is nearly eliminated compared to rung type trofs where the rails are not continuously braced by the bottom. Cope Corrugated bottoms do NOT limit the tray load capacity.

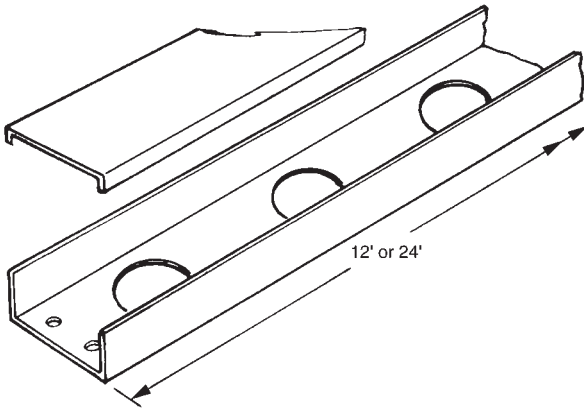




COPE™ CHANNEL

(pages 169 – 180)

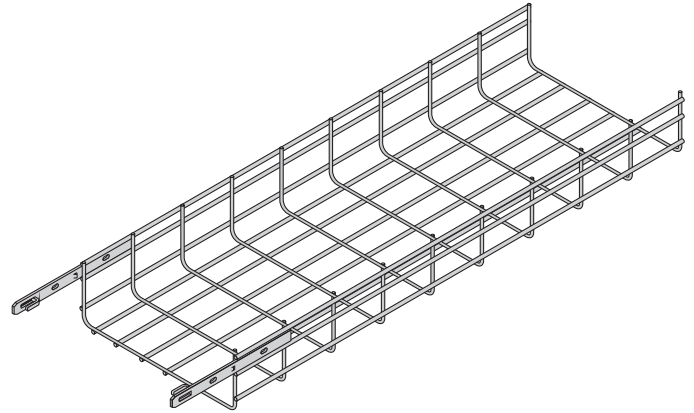
Cope Channel supports single branches of power or multiconductor control cable or instrument tubing. Ideal for communication, fire alarm, or call station and clock cabling. A complete line of devices are available for interfacing with Cope Ladders and Cope Trofs.



COPE™ WIRE BASKET

(pages 223 – 256)

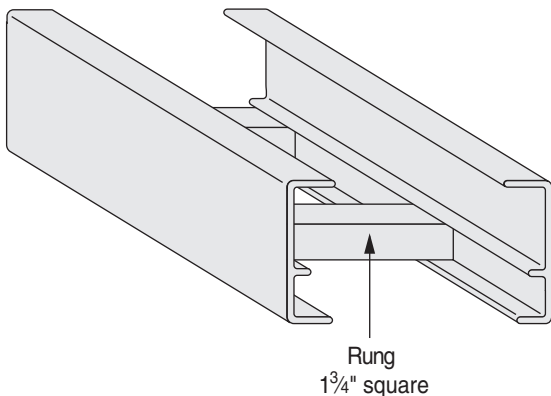
Wire basket tray is a welded wire mesh cable management system produced from high strength steel wires. Wire basket tray is produced by first welding a net, forming the channel, and then finishing after fabrication. The 2" x 4" mesh permits continuous airflow to help prevent heat buildup. In addition this unique open design prevents the buildup of dust, contaminants, and bacterial proliferation.



COPE-GLAS™

(pages 181 – 222)

Engineers, designers, contractors, installers and end users have many reasons to choose COPE-GLAS cable tray for their power, signal, and control distribution support requirements. COPE-GLAS cable tray systems are available in a variety of sizes and styles. A standard or special design can be fabricated for any indoor or outdoor application regardless of size.



PRODUCT FEATURES

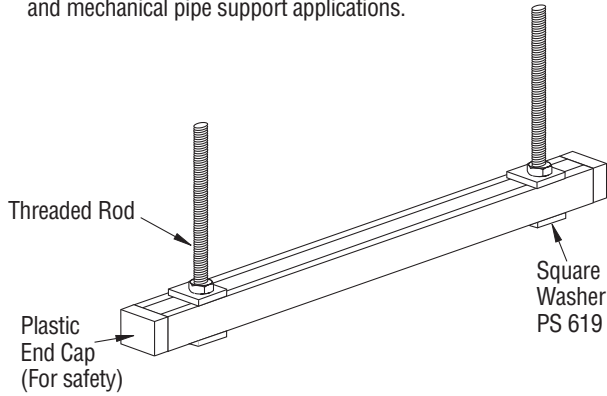


ASSOCIATED PRODUCTS

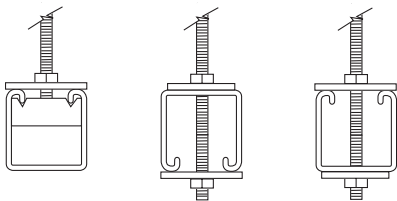
Power-Strut® Metal Framing System

Trapeze Support System

Power-Strut metal framing is ideal for electrical and mechanical pipe support applications.

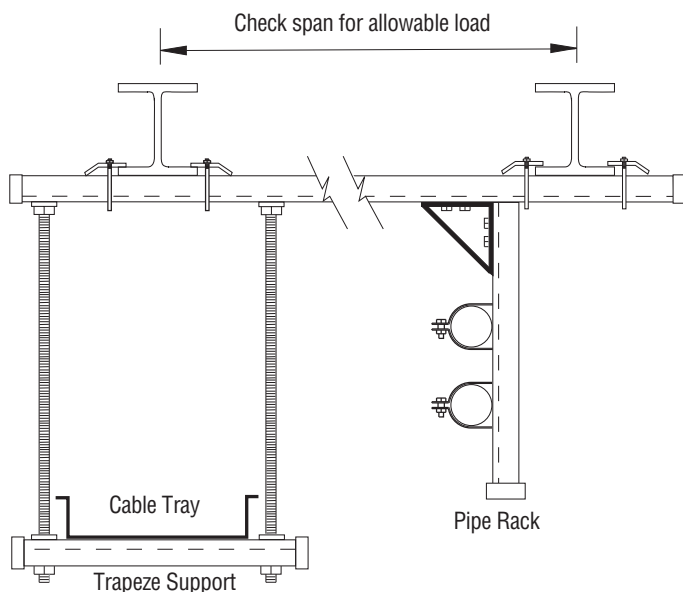


Acceptable Methods to Hang Channels

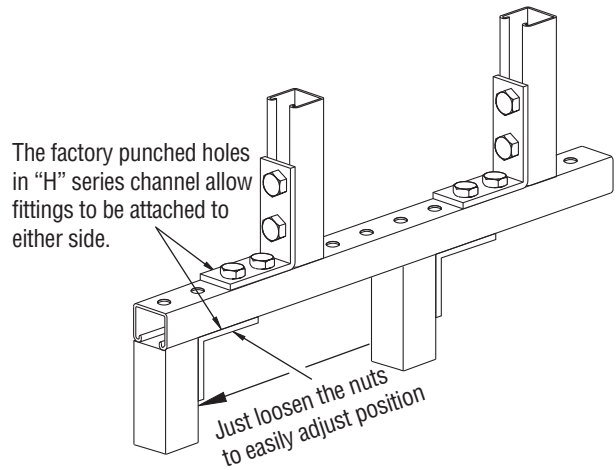


Pre-slotted channel allow through channel connections

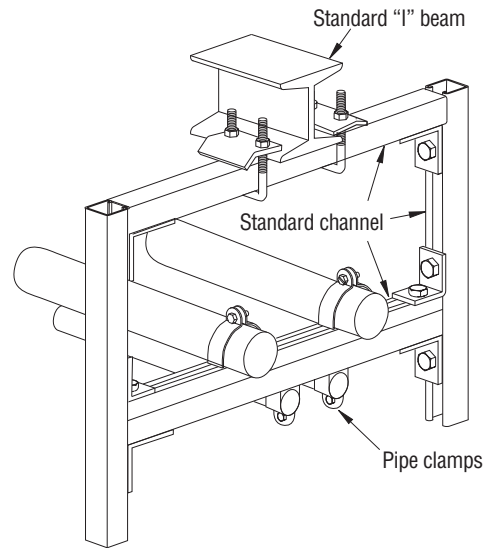
Overhead Multi-Use Support Systems Using Channel Attached to "I" Beams



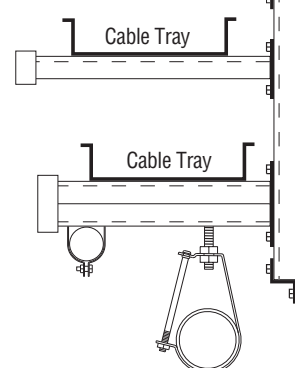
Standard Channel and Fitting Assembly



Ganged Pipe Support



Stock brackets are available in lengths from 6" to 36"





STANDARDS

2

Industry Standards and Guidelines

Cope products are produced in accordance with the standards of NEMA (National Electrical Manufacturers Association) and in accordance with CSA (Canadian Standards Association).

This section presents standards and guidelines for products and installation. They can be used as a reference for specifications and procedures.

SECTION 1 - REFERENCED STANDARDS & DEFINITIONS

1.1 REFERENCED STANDARDS

In this publication, reference is made to the standards listed below. Copies are available from the indicated source.

ANSI/NFPA 70-93 National Electrical Code®

American National Standards Institute

25 West 43rd Street, 4th Floor
New York, NY 10036

National Fire Protection Association

1 Batterymarch Park
Quincy, Massachusetts
USA 02169-7471

- A123** Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products, Specifications for
- A653** General Requirements, Steel Sheet, Zinc-Coated (Galvanized) by the Hot Dip Process, Specifications for
- B633** Electrodeposited Coatings of Zinc on Iron and Steel, Specifications for
- B766** Electrodeposited Coatings of Cadmium, Specification for

ASTM International
100 Barr Harbor Drive
PO Box C700

West Conshohocken, PA, 19428-2959

1.2 DEFINITIONS

Metallic Cable Tray System – An assembly of cable tray straight sections, fittings, and accessories that forms a rigid structural system to support cables.

Ladder Cable Tray – A prefabricated metal structure consisting of two longitudinal side rails connected by individual transverse members.

Trof Cable Tray – A prefabricated metal structure consisting of a ventilated bottom pan or rungs* within integral or separate longitudinal side rails.

**The cable tray bottom will have openings sufficient for the passage of air and utilize 75 percent or less of the plan area of the surface to support cables. The maximum distance between cable support surfaces shall not exceed 100 mm (4") in the direction parallel to the cable tray side rails.*

Solid Bottom Cable Tray – A prefabricated metal structure consisting of a bottom with no openings within integral or separate longitudinal side rails.

Straight Section – A length of cable tray which has no change in direction or size.

Cable Tray Fitting – A device which is used to change the direction or size of a cable tray system.

Cable Tray Connector (Splice Plate) – A device which joins cable tray straight sections and fittings, or both.

The basic types of connectors (splice plates) are:

- Rigid
- Expansion
- Adjustable
- Reducer

Fasteners – Screws, nuts, bolts, washers, rivets, pins, and other items used to assemble a cable tray system.

Horizontal Elbow (Horizontal Bend) – A cable tray fitting which changes the direction in the same plane. Standard degrees of bend are 90°, 60°, 45°, and 30°.

Horizontal Tee – A cable tray fitting which is suitable for joining cable trays in three directions at 90° intervals in the same plane.

Horizontal Cross – A cable tray fitting which is suitable for joining cable trays in four directions at 90° intervals in the same plane.

Vertical Elbow (Vertical Bend) – A cable tray fitting which changes direction to a different plane. Standard degrees of bend are 90°, 60°, 45°, and 30°.

An inside vertical elbow changes direction upward from the horizontal plane.

An outside vertical elbow changes direction downward from the horizontal plane.

Vertical Tee – A cable tray fitting which is suitable for joining cable trays in three different directions at 90° intervals in different planes.

Reducer (Straight, Right Hand, Left Hand) – A cable tray fitting which is suitable for joining cable trays of different widths in the same plane.

A straight reducer has two symmetrical offset sides.

A right-hand reducer, when viewed from the large end, has a straight side on the right.

A left-hand reducer, when viewed from the large end, has a straight side on the left.

Channel Cable Tray – A prefabricated metal structure formed from one piece of metal and having either a ventilated bottom or solid-bottom. The channel shall not exceed 152 mm (6") in width.

NEMA STANDARDS

Accessories – Devices which are used to supplement the function or plane of straight sections and fittings, and include such items as adjustable splices (horizontal and vertical), dropouts, covers, conduit adapters, hold-down devices and dividers.

Cable Tray Support – A device which provides adequate means for supporting cable tray sections and fittings.

The basic types of cable tray supports are:

- Cantilever bracket
- Trapeze
- Single rod suspension.

Cable Tray Support Span – The distance between the center lines of supports.

SECTION 2 – MANUFACTURING STANDARDS

2.1 MATERIALS

Cable tray systems shall be made of either corrosion-resistant metal or metal with a corrosion-resistant finish. Aluminum and stainless steel alloys are inherently corrosion-resistant and no finish coating is required in most environments.

2.2 FINISHES

2.2.1 Carbon steel used for cable trays shall be protected against corrosion by one of the following processes:

A. Hot-dip mill galvanized in accordance with ASTM Publication No. A653.*

*Coating designation G90 of ASTM 653 has an average zinc coating weight of 1.25 oz. per square foot (0.381 kg/m²) of steel total coating on both surfaces (1.06 mils or 0.027mm) average thickness per side).

Hot-dip mill galvanized coatings are produced by continuous rolling steel sheets or strips in coils through a bath of molten zinc. The process involves pre-treating the steel to make the surface react readily with molten zinc as the strip moves through the bath at high speeds. During fabrication where slitting, forming, cutting, or welding is performed, the cut edges and heat-affected zone of welding are subject to superficial oxidation. These areas are then protected through electrolytic action of the adjacent zinc surfaces. The coating is smooth, ductile, and adherent.

B. Hot-dip galvanized after fabrication in accordance with ASTM Publication No. A123. Grade 65. It is important to specify ASTM A653 or ASTM A123 to insure the specific coating is furnished.

Grade 65 of ASTM A123 has an average zinc coating weight of 1.50 oz. per square foot (0.46 kg/m²) (2.55 mils or 0.064mm) average thickness per side).

Fabricated products which are hot-dip galvanized are thoroughly cleaned, fluxed, and immersed into a bath of molten zinc where they react to form a metallurgical bonded zinc coating. Normal oxidation of the galvanized surfaces will, in a short period of time, appear as a dull gray or white coating. Some degree of roughness and variations of thickness can be expected due to the hot dipping process. Because the galvanizing process takes place at the low end of the stress-relieving temperature range, some stress relief occurs and some distortion or warping may result.

C. Other equivalent commercially available coatings.

2.2.2 Steel nuts and bolts shall be protected against corrosion by one of the following processes:

- A. ASTM Publication No. B633
- B. ASTM Publication No. B766
- C. Other equivalent commercially available coatings.

2.2.3 Where metallic cable tray is intended for installation in highly corrosive environments, including most alkaline and acidic conditions, further protection against corrosion shall be provided by one of the following processes:

A. PVC (Polyvinylchloride) – A PVC coating shall be applied in a fluidized bed or by electrostatic spray. The coating thickness shall be 15 mils (0.381 mm) ± 5 mils (±0.127mm).

Items to be protected shall be thoroughly cleaned, primed, and then coated with a fine grain UV (ultraviolet) stabilized vinyl plastic powder.

All field cuts and damaged areas of coated tray shall be repaired with a compatible PVC compound to ensure a coating integrity.

A PVC coating is generally applied to bare steel cable tray but can also be applied in aluminum cable tray. PVC is not recommended as a coating on galvanized steel cable trays because of rough surfaces and gas emissions which cause voids and adhesion problems.

B. Other equivalent commercially available coatings.

2.3 DIMENSIONS

2.3.1 General

Plus or minus values stated reflect the range of nominal dimensions in cable tray designs and are not intended to represent manufacturing tolerances.

2.3.2 Ladder Trays

- Lengths of Straight Sections** – NEMA - 12' (3,660mm) $\pm 3/16"$ (4.76mm) and 24' (7,320mm) $\pm 5/16"$ (7.94mm), not including connectors if attached. CSA - 10' (3,000mm) $\pm 3/16"$ (4.76mm) and 20' (6,000mm) $\pm 5/16"$ (7.94mm), not including connectors if attached.
- Widths** - 6", 12", 18", 24", 30", and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm), $\pm 1/4"$ (6.35mm) inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
- Depths** - Inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127.0mm, and 152mm), $\pm 3/8"$ (9.53mm). Outside depths shall not exceed inside depths by more than 1 1/4" (31.7mm).
- Rung Spacing on Straight Sections** - 6", 9", 12", or 18" (152mm, 229mm, 305mm, or 457mm) on centers.
- Radii** - 12", 24", and 36" (305mm, 610mm, and 914mm).
- Degree of Arc for Elbows** - 30°, 45°, 60°, and 90°.

2.3.3 Trof Trays

- Lengths of Straight Sections** – NEMA - 12' (3,660mm) $\pm 3/16"$ (4.76mm) and 24' (7,320mm) $\pm 5/16"$ (7.94mm), not including connectors if attached. CSA - 10' (3,000mm) $\pm 3/16"$ (4.76mm) and 20' (6,000mm) $\pm 5/16"$ (7.94mm), not including connectors if attached.
- Widths** - 6", 12", 18", 24", 30", and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm), $\pm 1/4"$ (6.35mm), inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
- Depths** - Inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127mm, and 152mm), $\pm 3/8"$ (9.53mm). Outside depths shall not exceed inside depths by more than 1 1/4" (31.7mm).
- Radii** - 12", 24", and 36" (305mm, 610mm, and 914mm).
- Degrees of Arc for Elbows** - 30°, 45°, 60°, and 90°.
- Transverse Elements** - The maximum open spacing between transverse elements shall be 4" (102mm) measured in a direction parallel to the tray side rails.

2.3.4 Solid-Bottom Trays

- Lengths of Straight Sections** NEMA - 12' (3,660mm) $\pm 3/16"$ (4.76mm) and 24' (7,320mm) $\pm 5/16"$ (7.94mm), not including connectors if attached. CSA - 10' (3,000mm) $\pm 3/16"$ (4.76mm) and 20' (6,000mm) $\pm 5/16"$ (7.94mm), not including connectors if attached.
- Widths** - 6, 12, 18, 24, 30, and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm) $\pm 1/4"$ (6.35mm), inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
- Depths** - inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127mm, and 152mm), $\pm 3/8"$ (9.53mm). Outside depths shall not exceed inside depths by more than 1 1/4" (31.7mm).
- Radii** - 12", 24", and 36" (305mm, 610mm, and 914mm).
- Degree of Arc for Elbows** - 30°, 45°, 60°, and 90°.
- Bottom** - Bottom is solid.

2.3.5 Channel Trays

- Lengths of Straight Sections** - 12' (3,660mm) $\pm 3/16"$ (4.76mm) and 24' (7,320mm) $\pm 5/16"$ (7.94mm), not including connectors if attached.
- Widths** - 3", 4", and 6" (76.2mm, 102mm, and 152mm), $\pm 1/4"$ (6.35mm), inside dimension.
- Depths** - 1 1/4" to 1 3/4" (31.7mm to 44.4mm) outside dimensions.
- Radii** - 12", 24", and 36" (305mm, 610mm, and 914mm).
- Degree of Arc for Elbows** - 30°, 45°, 60°, and 90°.

2.4 PROTECTION OF CABLE INSULATION

The inside of cable tray systems shall not have sharp edges, burrs, or projections which can damage cable insulation.

2.5 FITTINGS

The design and construction of fittings shall be based on the assumption that they will be supported in accordance with the recommendations given in 6.6 for support locations.

2.6 MARKING OF TRAYS WHEN USED AS EQUIPMENT GROUNDING CONDUCTORS

When steel or aluminum cable tray systems are used as equipment grounding conductors, cable tray sections and fittings shall be marked to show the minimum cross-sectional area in accordance with the Article 392 of the National Electrical Code®.

NEMA STANDARDS

SECTION 3 - PERFORMANCE STANDARDS & LOAD/SPAN CLASS DESIGNATIONS

3.1 WORKING (ALLOWABLE) LOAD CAPACITY

The working (allowable) load capacity represents the ability of a cable tray to support the static weight of cables. It is equivalent to the destruction load capacity, as determined by testing in accordance with 4.1 divided by a safety factor of 1.5.

3.2 LOAD/SPAN CLASS DESIGNATIONS

There shall be three working load categories of cable tray:*

- 50 lbs/linear ft. (74.4 kg/m) (Symbol A)
- 75 lbs/linear ft. (111.6 kg/m) (Symbol B)
- 100 lbs./linear ft. (148.8 kg/m) (Symbol C) and, four support span categories of:
- 8' (2.44m), 12' (3.66m), 16' (4.87m), 20' (6.09m)

Utilizing these above, load/span class designations are presented in the table below:

LOAD/SPAN CLASS DESIGNATIONS

Working Lbs./Ft	Load (kg/m)	Support Feet	Span (m)	NEMA Class
50	(74.4)	8	(2.44)	8A
75	(116.6)	8	(2.44)	8B
100	(148.8)	8	(2.44)	8C
50	(74.4)	12	(3.66)	12A
75	(116.6)	12	(3.66)	12B
100	(148.8)	12	(3.66)	12C
50	(74.4)	16	(4.87)	16A
75	(116.6)	16	(4.87)	16B
100	(148.8)	16	(4.87)	16C
50	(74.4)	20	(6.09)	20A
75	(116.6)	20	(6.09)	20B
100	(148.8)	20	(6.09)	20C

NOTE 1 - The above working loads are for cable only; when considering applications requiring concentrated static load, see 6.2.

NOTE 2 - These designations do not apply to channel tray, and the manufacturer should be consulted.

NOTE 3 - For deflection see 6.1.

SECTION 4 - TEST STANDARDS

4.1 DESTRUCTION LOAD TEST

4.1.1 Test Specimen

For each design of cable tray, two separate tests shall be made. An un-spliced straight section of the widest width shall be used in each test.

For ladder type cable trays rung spacing shall be 12" on center.

Differences in gauge, height of side rails, rung or bottom to side rail connection, or the configuration of any part constitute a different design.

4.1.2 Type and Length of Span

Test spans shall be simple beam spans with free unrestrained ends. Trays shall not have side restraints. Span lengths shall be as specified $\pm 1\frac{1}{2}$ " (38 mm).

4.1.3 Orientation of Specimens

Specimens shall be tested in a horizontal position. The total length of the test specimen shall be not more than the specified span length plus 20%. Any overhang shall be equal.

4.1.4 Supports

Each end of the specimen shall be supported by an $1\frac{1}{8}$ " (30 mm) wide by $\frac{3}{4}$ " (19 mm) high steel bar(s) with a 120° "V" notch cut in its bottom to a depth of $\frac{3}{16}$ " (5 mm). The "V" notch shall rest on a 1" (25 mm) solid round steel bar which is securely fastened to a rigid base, or the specimen shall be supported directly on a $2\frac{1}{2}$ " (65 mm) maximum diameter round steel bar or heavy wall steel tube fastened to rigid base.

4.1.5 Loading Material

Loading material shall be steel strips, lead ingots, or other loading material.

Steel strips shall have rounded or de-burred edges, a maximum thickness of $\frac{1}{8}$ " (3 mm), a width of 4" (100 mm), and a maximum length of 24' (7320 mm).

Five lead ingots, each weighing approximately 5 pounds (2.3 kg), shall be interconnected across corners into a string of 5 ingots approximately 22" (550 mm) long. Individual ingots are normally hexagonal, approximately 3" (75 mm) in diameter, and $1\frac{1}{2}$ " (38 mm) deep.

Other loading material shall have a maximum weight of 10 pounds (4.5 kg), a maximum width of 5" (125 mm), and a maximum length of 12" (300 mm).

4.1.6 Loading

All specimens shall be loaded to destruction. The load shall be applied in at least 10 increments which are approximately equal.

Loading shall be uniformly distributed for the length and breadth of the specimen except that the loading material shall be not closer than $\frac{1}{2}$ " (13 mm) nor further than 1" (25 mm) from the innermost elements of the side rails. It shall be arranged across the tray with a minimum of $\frac{3}{8}$ " (10 mm) between stacks so that the loading material does not bridge transversely. All loading material shall be placed between the supports without overhanging.

NEMA STANDARDS

For loading weight in a ladder-type tray, it shall be permissible to cover the bottom of the tray between supports with a flat sheet of No. 9 gauge (3.8 mm) flattened expanded material not more than 3' (900 mm) long and with a wire hole size of 3/4" (19 mm), or a flat sheet of No. 16 gauge (1.5 mm) sheet steel not more than 3' (900 mm) long. The expanded metal or sheet steel shall not be fastened to the tray and shall be no closer than 1/2" (13 mm) to the side rails. The 3' (900 mm) lengths shall not overlap by more than 2" (50 mm). The weight of the expanded metal or sheet steel shall be added to the total weight of the loading material.

4.1.7 Destruction Load Capacity

The total weight of the loading material on the cable tray at the time it is destroyed less the last incremental weight added shall be considered to be the destruction load capacity of the cable tray. The Rated Load Capacity shall be the Destruction Load Capacity divided by a safety factor of 1.5.

4.1.8 Interpolation & Extrapolation of Test Data

When allowable load and deflection data are determined by load tests, values for span lengths not tested shall be determined by interpolation from a curve based on values for a minimum of the two (2) span lengths. Extrapolation for shorter span lengths is permissible using the formula below, however extrapolation shall not be used for span lengths longer than the longest span length tested.

Where: $W2 = (W1 \times L12) / L22$

$W1 =$ Tested Load, lbs/ft (kg/m)

$W2 =$ Load on Shorter Span, lbs/ft (kg/m)

$L1 =$ Tested Span Length, ft (m)

$L2 =$ Shorter Span Length, ft (m)

4.2 RESIDUAL DEFLECTION TEST

Determine the Minimum Test Load (MTL) from the formula:

Where: $MTL = 1.5 * L * W$

1.5 = Safety Factor

L = Span Length, ft (m)

W = Rated Load at Span Length, lbs/ft (kg/m)

A minimum of two (2) tray specimens shall be tested. The following procedure shall be used for each tray.

1. Load tray to 10% of MTL. Measure the vertical deflection of the tray at two (2) points along the line midway between the supports and at right angles to the longitudinal axis of the tray. The two points shall be at the midpoint of the span and under of each side rail. The two readings shall be considered to be the initial deflection of the tray.
2. Continue loading until the Rated Load (W) has been applied. Measure the deflection at the same points as for the initial deflection measurement above.

3. Continue loading until the Minimum Test Load (MTL) has been applied. Remove the all load from the tray and wait 15 minutes before measuring the deflection at the previous two points. This final measurement is known as the residual deflection of the tray specimen.

Average the residual deflections of the two (2) test specimens. This shall be considered the final result. However, if the residual deflection for either specimen is > 80% of the initial deflection, and in addition, deviates from the average by more than 10%, then two more specimens shall be tested. The average of the three highest values at the point of measurement of the four specimens shall be considered the final result.

4.3 ELECTRICAL CONTINUITY OF CONNECTIONS

4.3.1 Test Specimen

Each specimen shall consist of two 24" (600 mm) lengths of side rail connected by the manufactures standard splice.

4.3.2 Resistance Test Procedure

Each specimen should be joined together, using the mechanical connector, and following the instructions provided by the manufacturer.

A current of 30 amperes DC shall be passed through the specimen and the resistance measured between two points 1/16" (1.6 mm) from each side of the splice. The net resistance of the joint shall be not more than 0.00033 ohm as computed from the measured voltage drop and the current passing through the specimen. The ambient temperature of the specimen shall be between 60° and 90°F (15° to 35°C). The current shall be applied to the specimen at least 12" (300 mm) from the splice joint.

SECTION 5 - SPECIFICATIONS & DRAWINGS

5.1 DATA TO APPEAR IN SPECIFICATIONS

The following statement and minimum data, when applicable, should appear in all cable tray specifications:

Cable tray shall be manufactured and installed in accordance with NEMA Standard VE 1-2002

Load / Support Span Class Designation (see Table 1) Type (see Section 1.2 Definitions)

Material (see Section 2.1)

Finish (see Section 2.2)

Tray Length (see Section 2.3)

Width (see Section 2.3)

Inside Depth (see Section 2.3)

Rung Spacing (see Section 2.3)

Fitting Radius (see Section 2.3).

5.2 DATA TO APPEAR ON DRAWINGS

The following minimum data should appear on all cable tray drawings:

- Type (ladder, trof, etc.)
- Width(s)
- Load depth
- Straight section, fitting, or accessory
- Fitting radii
- Elevation (bottom of tray)
- Vertical and horizontal changes in direction
- Clearances-vertical and horizontal
- Number of trays (if there is a stack of trays)
- Support span
- Show graphic scale

SECTION 6 - APPLICATION INFORMATION

6.1 DEFLECTION

Under normal applications deflection limitations should not be included in design criteria for cable trays. However, if unusual or special conditions exist, the manufacturer should be consulted. Limitations of deflection for aesthetic purpose only can result in an over-designed tray system.

6.2 CONCENTRATED STATIC LOAD (If Required by User)

A concentrated static load is not included in the Load/Span Designations NEMA VE-1, Table 1. Some user applications may require that a given concentrated static load be imposed over and above the working load.

Such a concentrated static load represents a static weight applied between the side rails at midspan. When so specified, the concentrated static load may be converted to an equivalent, uniform load (W_e) in pounds per linear foot (kilograms per meter) using the formula: (see NEMA VE-2, Section 4.8.2)

$$W_e = 2 \times \frac{\text{Concentrated Static Load}}{\text{span length, ft. (m)}}$$

The value for W_e will be added to the static weight of cables in the tray. This combined load may be used to select the appropriate load/span designation NEMA VE-1, Table 1. If the combined load exceeds the working load shown in the load/span designation table, the manufacturer should be consulted.

6.3 WARNING! WALKWAYS

Inasmuch as cable tray is designed as a support for power or control cables, or both, and is not intended or designed to be a walkway for personnel, the user is urged to display appropriate warnings cautioning against the use of this support as a walkway. The following language is suggested:

Warning! Not to be used as a walkway, ladder or support for personnel. To be used only as a mechanical support for cables and tubing.

6.4 FITTINGS

Changes in direction should be mechanically continuous and accomplished by use of fittings having dimensions in accordance with 2.5.

6.5 SUPPORTS

Supports for cable trays should provide strength and working load capacity sufficient to meet the load requirement of the cable tray systems.

Horizontal and vertical tray supports should provide an adequate bearing surface for the tray and should have provisions for hold down clamps or fasteners.

In addition, vertical tray supports should provide secured means for fastening cable trays to supports.

6.6 SUPPORT LOCATIONS

For complete information on cable tray support, please refer to NEMA Standard VE-2-2006.

6.6.1 Horizontal Cable Tray Straight Sections

Horizontal cable tray straight sections should be supported at intervals not to exceed the support span for the appropriate NEMA Class Designation shown in NEMA VE-1, Table 1. Un-spliced straight sections should be used on all simple spans and on end spans of continuous span runs. A support should be located within 2' (610mm) of each side of an expansion connector. Straight section lengths should be equal to or greater than the span length to ensure not more than one splice between supports.

6.6.2 Horizontal Cable Tray Fittings

1. Horizontal Elbow Supports for horizontal tray fittings should be placed within 2' (600 mm) of each fitting extremity, and as follows: (See page 22, Figure 6-1 for a graphic presentation of fitting supports.)
 - (a) 90° supports at the 45° point of arc.
 - (b) 60° supports at the 30° point of arc.
 - (c) 45° supports at the 22½° point of arc (except for the 12" (300 mm) radii).
 - (d) 30° supports at the 15° point of arc (except for the 12" (300 mm) radii).
2. Horizontal Tee Supports shall be placed within 2' (600 mm) of each of the three openings connected to other cable tray items for 12" (300 mm) radius fittings. On all other radii, at least one support should be placed under each side rail of the horizontal tee, preferably as shown in Figure 6-2, page 22.

3. Horizontal Cross Supports shall be placed within 2' (600 mm) of each of the four openings connected to other cable tray items for 12" (300 mm) radius fittings. On all other radii, at least one support should be placed under each side rail of the horizontal cross, preferably as shown in Figure 6-3, page 22.
4. Horizontal Wye Supports shall be placed within 2' of each of the three openings connected to other cable tray items, and at 22½° point of the arc adjacent to the branch as shown in Figure 6-4, page 22.
5. Reducer Supports shall be placed within 2' (600 mm) of each fitting extremity as shown in Figure 6-5 and 6-6, page 22.
6. Vertical Cable Tray Elbows should be supported at the top of runs at each end of the fitting. Vertical cable tray elbows at the bottom of runs should be supported at the top of the elbow and within 2' (600 mm) of the lower extremity of the elbow as shown in Figure 6-7, page 22.
7. Vertical Cable Tray Tees should be supported within 2' (600 mm) of each fitting extremity as shown in Figure 6-8, page 22.

6.6.3 Vertical Straight Sections

Vertical straight sections should be supported indoors at appropriate intervals permitted by the building structure; outdoor support intervals should be determined by wind loading. The maximum distance between vertical supports should not exceed 24' (7,320 mm) on centers.

6.6.4 Sloping Trays

Sloping trays should be supported at intervals not exceeding those for horizontal trays of the same design for the same installation.

6.6.5 Fittings as End of Run

A fitting which is used as an end of the run dropout should have a support attached to it, firmly reinforcing the fitting.

6.7 PROTECTION OF CABLE INSULATION

The inside of cable tray systems should present no sharp edges, burrs, or projections which could damage cable insulation.

6.8 THERMAL CONTRACTION AND EXPANSION

It is important that thermal contraction and expansion be considered when installing cable tray systems. If it is determined that expansion connectors are required, reference should be made to table on page 19 for maximum spacing between supports and to the table on page 19 to determine the proper splice plate setting.

The cable tray should be securely fixed at the support nearest to its midpoint between the expansion connectors and secured by expansion guides at all other support locations. The cable tray should be permitted longitudinal movement in both directions from that fixed point towards the expansion connectors.

Accurate gap setting at the time of installation is necessary for the proper operation of the expansion connectors. The following procedure should assist the installer in determining the correct gap:

Step 1 - Plot the highest expected cable tray metal temperature on the maximum temperature vertical axis. Example's Value = 100°F. (See page 19).

Step 2 - Plot the lowest expected cable tray metal temperature on the minimum temperature vertical axis. Example's Value = -28° F.

Step 3 - Draw a line between these maximum and minimum temperature points on the two vertical axis.

Step 4 - To determine the required expansion joint gap setting: Plot the cable tray metal temperature at the time of the cable tray installation on the Maximum temperature vertical axis. (Example's Value = 50° F).

Project over from the 50°F point on the maximum temperature vertical axis to an intersection with the line between the maximum and minimum cable tray metal temperatures. From this intersection point, project down to the gap setting horizontal axis to find the correct gap setting value (Example's Value: 3/8" gap setting). This is the length of the gap to be set between the cable tray sections at the expansion joint splice plate location.

NOTE: THE MAXIMUM GAP SPACE BETWEEN TRAY SECTIONS IS 1" (25 MM).

6.9 CABLE INSTALLATION

When installing cable in cable tray, it is important that care and planning be exercised so that the cable or the cable tray is not damaged or destroyed. The cable manufacturer should be contacted for maximum pulling tensions and minimum bending radii, and advice on prevention of "egging" or deformation of cable jacketing or shielding.



NEMA CLASS

The NEMA Classifications for Cable Tray were established to simplify and standardize the specification of Cable Tray. This classification is based on the working load (the total weight of the cables) and the support span (the distance between supports). The NEMA VE1 specifications are contained in Section 2.

Allied Tube & Conduit® Corporation is a member of NEMA and offers designs in all NEMA cable tray classifications.

Cable Load/Working Load

The Cable Load or the working load is the total weight of the cables to be placed in the tray. The NEMA classes are based on cable loads of 50#, 75#, and 100# per Lineal Foot. This is the total weight of cables in the tray. For purposes of selecting a suitable tray, this weight should be rounded off to the next higher NEMA working (allowable) load.

Support Spans

Support span is the distance between the supports. The NEMA standard support spans are based on 8', 12', 16' and 20'.

NEMA Classes

The following table summarizes the NEMA classes based on cable/working load and support span described previously.

NEMA Load/Span Designations

Class Designation	Support Span Feet	Working Load Lbs./Linear Ft.
8A	8	50
8B	8	75
8C	8	100
12A	12	50
12B	12	75
12C	12	100
16A	16	50
16B	16	75
16C	16	100
20A	20	50
20B	20	75
20C	20	100

To determine what NEMA load class is required for your project, refer to the National Electrical Code® (NEC®). Determine type of cable and the appropriate cable tray type based on NEC® Article 392 guidelines. Establish the number and type of cables required in each cable tray run; then calculate the total number of square inches of cable in the run. Using NEC®, Article 392.9, Tables 392.9(A), 392.9(C), 392.9(E), 392.9(F), and 392.10(A), determine the allowable cable fill for the type of cable tray and cable being used. The number of square inches of installed cable divided by the allowable cable fill percentage will determine the size of the cable tray needed.

Calculated the total weight of cables (in pounds per linear foot) to be installed in the cable tray. Determine the frequency of cable tray supports (span). **Example:** Project requires 50 multiple conductor cables in a tray. The cable is .5" in diameter and weighs .3 pounds per foot. The tray selected is a ventilated bottom trof tray and will be supported every 12 feet. **Tray Size Calculation:** Area = 3.14 x .252 = 0.19625 sq. in. per cable. 50 cables multiplied by .019625 sq. in. = 9.8125 total sq inches of cable. 9.8125 sq. in. divided by .5 (% fill allowed) = 19.625 sq. in. minimum needed within the tray. Divide 19.625 sq. in. by 4" (load depth of a tray) = 4.9" wide tray minimum. The closest standard tray is a 4" Load Depth x 6" Wide. **Weight Calculation:** 50 cables multiplied by .3 pounds per foot = 15 pounds per foot of cable. Select a NEMA 12A rated tray which will hold 50 pounds of weight when supported every 12 feet.

OTHER LOADING CONSIDERATIONS

It is important to note that when specifying loading requirements, there are other loading factors that may need to be considered over and above the actual cable loads.

Destruction Load Capacity

The total weight in the tray which causes the tray to collapse is called the "destruction load capacity". When trays do collapse, they generally do so by premature lateral buckling (compression) of the top flange.

Concentrated Loads

A concentrated load is a static weight applied between the side rails at mid span. When specified, these concentrated static loads may be converted to an equivalent uniform load (We), in pounds per lineal foot, using the following formula:

$$W_e = \frac{2 * \text{Concentrated Load}}{\text{Support Span}}$$

This load (We) is then added to the static weight of the cable before selecting the appropriate NEMA load span designation.

Please note per the NEMA VE-1 guidelines all Cope™ Cable Trays are labeled as follows:

WARNING!

DO NOT USE AS A WALKWAY, LADDER OR SUPPORT FOR PERSONNEL. TO BE USED ONLY AS A MECHANICAL SUPPORT FOR CABLES AND TUBING.

Allied Tube & Conduit® PHILADELPHIA, PA

ORDER NO. C26074	LINE 4	P.O. NO. 574311WW
PART NUMBER		NEMA VE-1/FG-1 LOAD CLASS 12B
1B48-06SL-12-09		
STR. LGTH LDR AL 4"LD 06" W 12"L 09 RS		

MINIMUM CROSS SECTION AREA .60 SQ. IN CABLE TRAY 6316

TORQUE 3/8" DIAMETER HARDWARE TO 20 FT.-LBS.

Intro. NEMA COPE™ LADDER COPE™ I-BEAM™ COPE™ HAT COPE™ TROF COPE™ CHANNEL COPE™ GLAS™ COPE™ WIRE BASKET Reference

OVERVIEW

ENVIRONMENTAL LOAD CONSIDERATIONS

Environmental loads should be considered in any outdoor installation, particularly when cable tray is to be covered. These loads include wind loads, snow loads, and ice loads. Specific information data concerning these loads can be obtained by contacting the Cope Factory. Other sources for this type of information can be obtained through the local weather bureau.

It is important to note that these types of loads need to be considered in terms of pounds per square feet, unlike the cable loads, which are calculated in terms of pounds per linear foot.

The following are general guidelines to follow:

- **Wind Loads**
75 m.p.h. wind = 25 lbs./sq. ft. pressure
- **Ice Loads**
1/2" thick ice on tray surfaces weighs 2.4 lbs/sq. ft.
- **Snow Loads**
Snow loads vary greatly depending on the latitude and altitude at the job site. Contact local weather bureau for information.

SAFETY FACTOR

All loads stated in the Cope Selection Charts have a 1.5 safety factor, in accordance with the NEMA VE-1 Guidelines. A safety factor is the reserve strength, above the actual cable loading, for which a tray system was designed.

Conversion of Safety factor from 1.5 to 2.0

The loads stated in the Selection Charts have a safety factor of 1.5 per the NEMA VE-1 guidelines. To convert the load carrying capabilities, as listed in these charts, to a 2.0 safety factor, multiply the stated loads by 0.75.

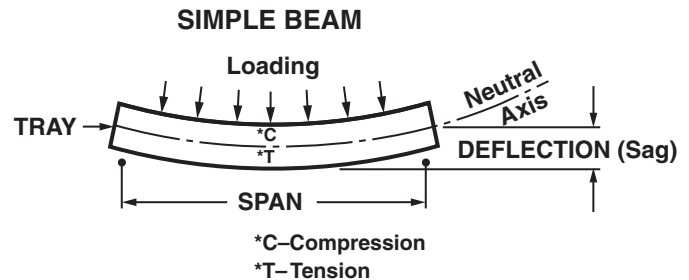
Testing Methods

Loading data stated in the catalog has been derived from actual testing of the tray systems, or by means of structural calculations. These figures were based on Simple Beam calculation, per the NEMA VE-1 guidelines.

When tray is supported as a simple beam, the load causes bending moments all along the beam resulting in deflection, called sag, inducing stress in the beam. The material above the longitudinal center line (neutral axis) is compressed. Material below is stretched and is in tension. The maximum stress in a simple beam is at the center of the span. Failure of cable tray will occur in compression before tension. This is why tray rails often have stiffened top flanges.

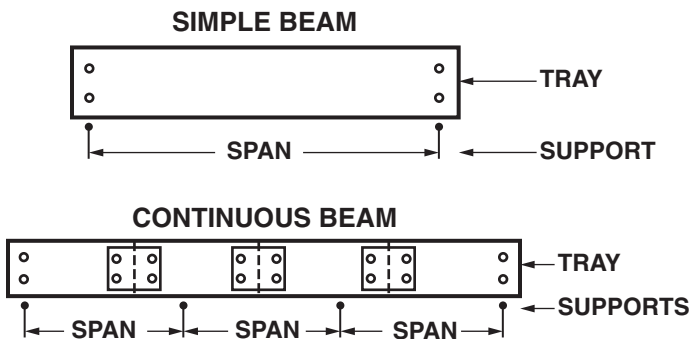
A simple beam is present when a single straight section of tray is supported on each end. When a series of straight sections are connected and supported by more than one support it is referred to as a continuous beam. The NEMA VE-1 Standards consider only simple beams for testing purposes, due to the following reasons:

1. It requires maximum properties for a given load and support spacing.
2. It is easiest to approximate by calculation.
3. It represents the most severe or worst case loading.
4. Destruction load capacities can be easily verified.



DEFLECTION VS. ECONOMY

Cable tray that meets all performance and dimensional criteria with the safety factor specified without regard for deflection is the most economical tray for the installation. When deflection limitations are imposed, a less economical tray system may result. We recommend that deflection limitations should be imposed in only the most stringent situations. If deflection is a concern, we recommend these maximum limits for the optimum design.



	Simple Beam Span	
	12'	20'
STEEL	1/100	1/75
ALUMINUM	1/75	1/50



CAVITY SIZE - LOAD DEPTH/WIDTH OF TRAY

The size of the cable tray cavity is determined specifically by the electrical requirements and by the specific cables being used to meet those requirements.

Article 392 of the National Electrical Code® lists the specific requirements concerning allowable Cable Fill. It is imperative that the size of the cavity meets the conditions set forth by the NEC®, specifically:

- Types of cables allowed in which type of cable trays
- Requirements for arranging the cables in the trays.

The NEC® breaks down the allowable cable fill into three main categories:

- **Multi-Conductor:** The number of multi-conductor cables rated at 2000 volts or less in cable tray.
- **Single conductor:** The number of single conductor cables rated at 2000 volts or less in cable tray.
- **MV and MC Cables:** The number of MV & MC cables rated at 2001 volts or over in the cable tray.

Cable fill guidelines set forth by the NEC® are generally based on limiting heat build up in the trays. Where data or communications type cables are being installed, heat is not a critical issue and the allowable fill is determined by the total cross sectional area of the tray cavity:

$$\text{Total Cross Sectional Area} = (\text{Width}) \times (\text{Load Depth}).$$

LENGTH OF STRAIGHT SECTIONS

Cope Cable Tray is available in 12' and 24' lengths in accordance with the NEMA Standards. It is also available in 10' and 20' lengths in accordance with CSA Standards. Customized lengths are also available upon request.

The following factors need to be considered when specifying the lengths of the tray:

Support Span – The support span should not be greater than the tray length. This ensures that two splice plate connections will not fall within one support span.

Space Constraints – When installing trays in a limited space, as often encountered in commercial applications, 10' and 12' lengths of tray are easier to handle and therefore are better suited for those applications.

Labor Costs – Where trays are being installed in an industrial facility, where space is not as significant an issue, handling 20' and 24' lengths may be more economical. In this instance, half as many tray connections need to be made. Additionally, if the proper tray system is specified, support spans may be lengthened.

RADIUS OF FITTINGS

Cable tray fittings are used to change directions both horizontally and vertically. The standard radii for cable tray fittings are 12", 24", and 36".

The radius of the fittings should be based upon minimum bending radius of the cables. This information can be obtained from the cable manufacturer.

Based on the total number of cables to be placed in the tray, it may be more practical to use the next higher radius.

CABLE TRAY SUPPORT LOCATIONS

Straight Sections

A general rule of thumb is that the splice plates should not fall beyond the 1/4 point of the span, or the distance between supports. For example: On a 20' support span the splice plates should not be further than 5' away from the support location.

Under no circumstances should two cable tray splices fall between any pair of supports.

For special applications, mid-span splice plates can be furnished. Please contact the factory.

Fittings

Supports for cable tray elbows are critical. It is important to note that the cable tray will come under its greatest stress when cables are being pulled into the tray. Therefore, proper placement of supports is necessary to insure that the integrity of the tray system is maintained during the cable pulling operation.

The diagrams on page 22 shows the recommended support locations for fittings.

Thermal Expansion and Contraction

It is important to use expansion connectors when installing long runs of cable tray. The number of expansion connectors required will depend on:

- (1) the maximum temperature differential
- (2) the tray material being installed

Cope Expansion Connectors allow 1" of travel. This table illustrates how often expansion splice plates must be used.

Temperature Difference	Dist. Between Expansion Joints		
	Steel	Aluminum	Copper
25°F (14°C)	512' (156m)	260' (79m)	363' (111m)
50°F (28°C)	256' (78m)	130' (40m)	182' (55m)
75°F (42°C)	171' (52m)	87' (27m)	121' (37m)
100°F (56°C)	128' (39m)	65' (20m)	90' (27m)
125°F (70°C)	102' (31m)	52' (16m)	72' (22m)
150°F (83°C)	85' (26m)	43' (13m)	60' (18m)
175°F (97°C)	73' (22m)	37' (11m)	52' (16m)

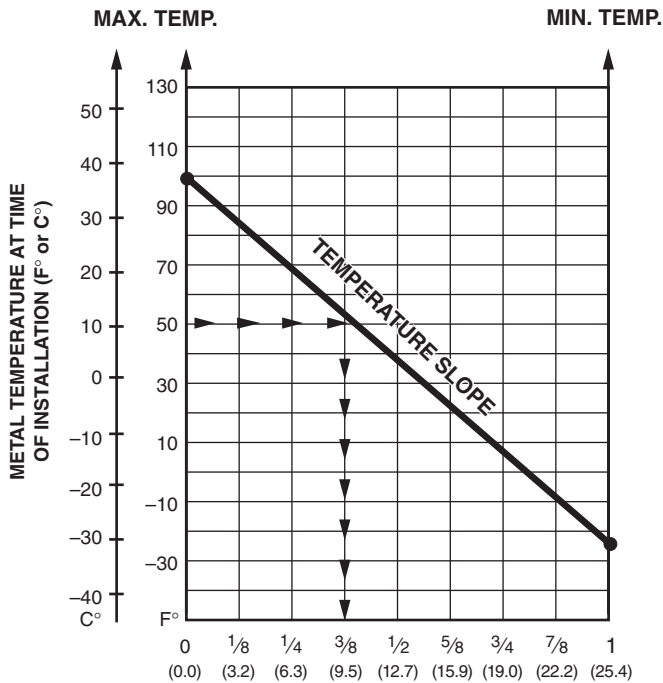
PRODUCT FEATURES & TECHNICAL DATA



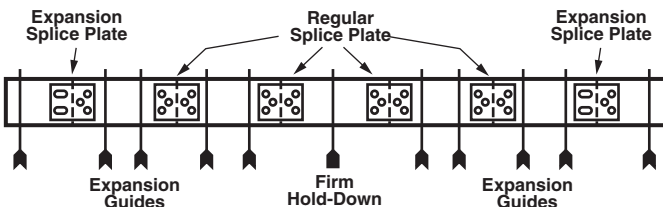
OVERVIEW

The following table is used to determine the proper gap setting between trays. The metal temperature determines the proper gap setting at the time of installation. Establish maximum and minimum temperatures in summer and winter for the area. Draw a line connecting them. Using the metal temperature at time of installation (C° or F°) draw horizontal to temperature slope and plot straight down to find gap distance at expansion joint.

The following diagram illustrates the proper installation of an expansion system.



It is important to note that grounding straps are required when expansion connections are made. This will insure proper grounding continuity.

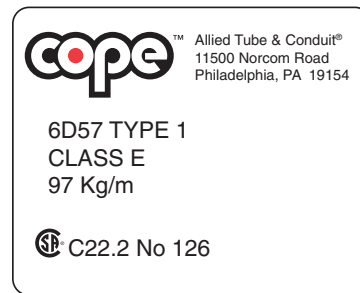


ELECTRICAL GROUNDING

The National Electrical Code®, Article 392-7 allows for Cable Tray to be used as an equipment grounding conductor in commercial and industrial establishments. The following table lists specific ampere ratings and the minimum cross sectional area requirements for each rating.

Allied Tube & Conduit Corporation produces trays that meet the National Electrical Code® (ANSI/NFPA 70), and are classified by Underwriters Laboratories, Inc. (UL) as equipment ground conductors. These can be used for any project worldwide except where another standard may take precedence, such as the Canadian Standards Association.

For projects requiring adherence to the Canadian Standards Association (CSA), Cope products as shown in the CSA Selection Charts, pages 34-35, and 142-143 are certified as complying with CSA C22.2 No. 0 and No. 126 and will bear the CSA Mark as shown below.



When required, the trays can be installed per the Canadian Electrical Code Parts I and II (CEC). Cope trays and splice plates meet the bonding requirements of the CSA Standards and the CEC.

Max. Fuse Amp Rating Circuit Breaker Amp Trip Setting or Relay Amp Trip Setting for Ground Fault Protection of any Cable Tray Circuit In the Cable Tray system	Minimum Cross Sectional Area of Metal* Steel Cable Trays		Aluminum Cable Trays	
	In ²	mm ²	In ²	mm ²
60	0.2	129	0.2	129
100	0.4	258	0.2	129
200	0.7	452	0.2	129
400	1	645	0.4	258
600	1.50**	968	0.4	258
1,000	-	-	0.6	387
1,200	-	-	1	645
1,600	-	-	1.5	968
2,000	-	-	2.00**	1,290

* Total cross sectional area of both side rails for ladder and trof type trays, or the minimum cross sectional area for metal in channel type cable trays or cable trays of one piece construction.

** Steel cable trays shall not be used as equipment grounding conductors for circuits with ground-fault protection above 600 amperes. Aluminum cable trays shall not be used as equipment grounding conductors for circuits with ground-fault protection above 2000 amperes.



Cope CSA steel designs are offered in Type 1 (HDGAF) finish and aluminum with plain finish. Available are ladder, vented, and solid bottom cable Trufs for 3 meter spans and ladder type for 6 meter spans.

The cross-sectional area for each Cope Cable Tray system, straight sections and fittings, can be found on the appropriate Cope Selection charts contained within this publication. In addition all Cope Cable Tray, straight sections and fittings, are supplied with pressure sensitive labels indicating the cross sectional area of both side rails, as required by the (NEC®) National Electrical Code®, Article 392.

Bonding Jumpers / Straps

Cable Tray connections made with Cope’s standard rigid splice plates do not exceed .00033 ohms net resistance, and are classified in Underwriters Laboratories Classification Program. These rigid type connections do not require electrical bonding straps. Cope's UL assigned number is "E60627", UL cards will be furnished upon request. Cope is listed in the UL Electrical Construction Directory under code CYNW.

Electrical bonding straps are required where cable trays are joined by connectors which allow for movement, such as vertical adjustable connectors, horizontal adjustable connectors, and expansion connectors.

Proper grounding is also necessary where cable trays run parallel to each other, are stacked upon one another, and in other instances, where tray runs are discontinuous.

Further questions concerning grounding issues should be directed to Allied Tube & Conduit Corporation.

SUMMARY

You are now ready to select the best Cope Cable Tray system to meet your needs. By now, we hope you've decided to select the system using the NEMA CLASSIFICATION (8A, 12B, 20C, etc.) which makes your work so much easier. Selection is also possible using physical dimensions, performance, or any combination of these data listed in our exclusive NEMA oriented Cope selection charts. As always, should you need additional information, we suggest you contact your nearest Cope Representative or call Allied Tube & Conduit Corporation directly.

Description	NEC® Articles	
	2002 and Later Editions	1999 & Prior Editions
Cable Trays	392	318

SUPPORT LOCATIONS FOR FITTINGS

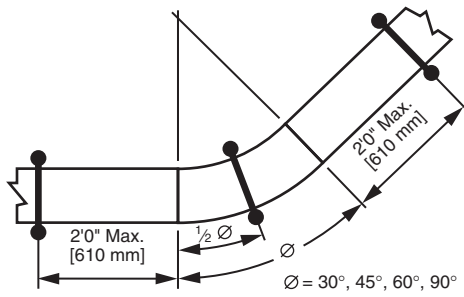


Figure 6-1
HORIZONTAL ELBOWS

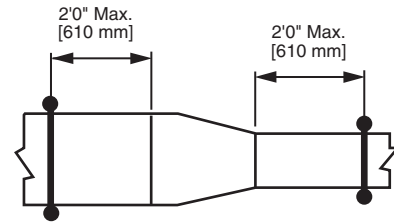


Figure 6-5
STRAIGHT REDUCER

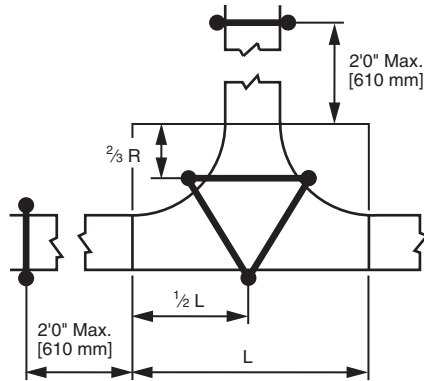


Figure 6-2
HORIZONTAL TEE

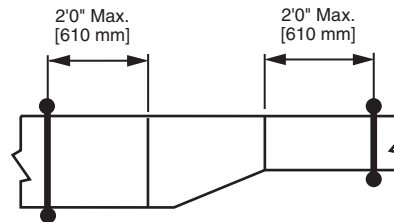


Figure 6-6
OFFSET REDUCER

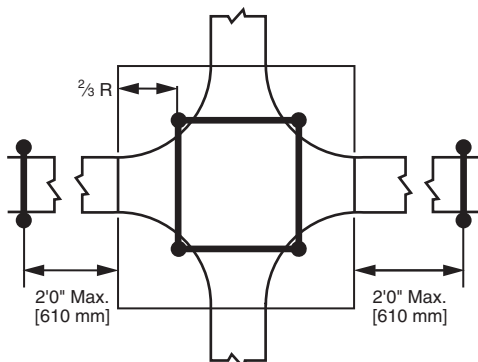


Figure 6-3
HORIZONTAL CROSS

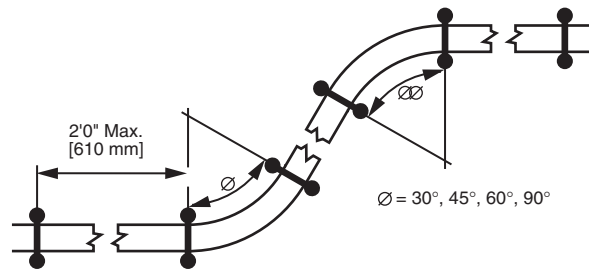


Figure 6-7
VERTICAL ELBOWS

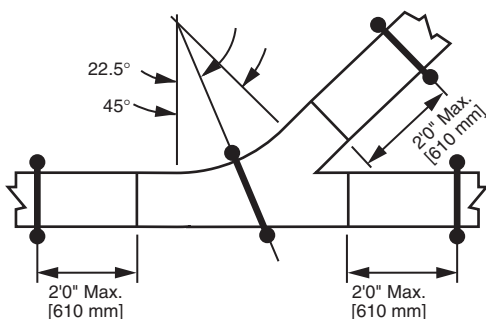


Figure 6-4
HORIZONTAL WYE

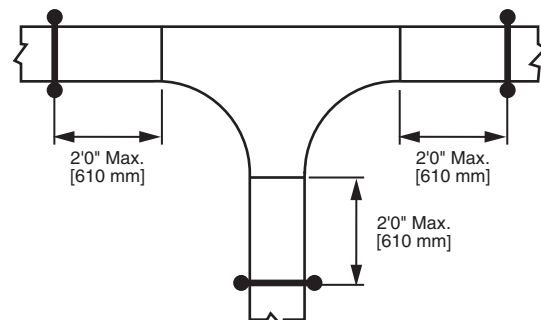


Figure 6-8
VERTICAL TEE



COPE™ LADDER

3



**Cable Ladder System for Power, Control,
Instrumentation Cable & Pneumatic Tubing**

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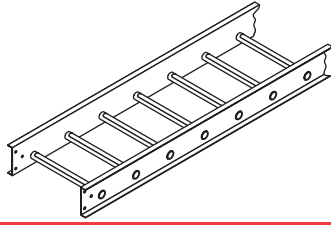
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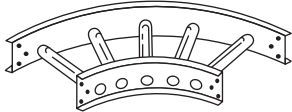
Straight Length

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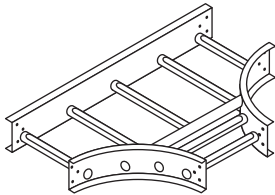
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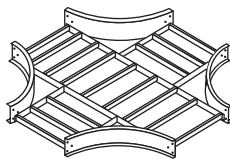
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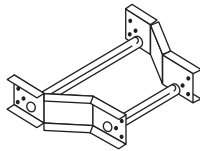
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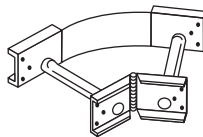
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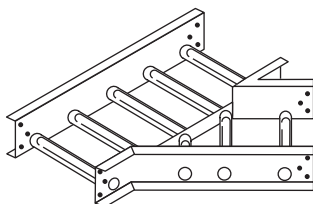
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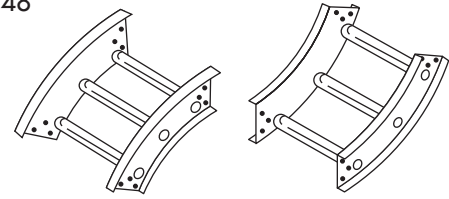
45° "Y" Branch

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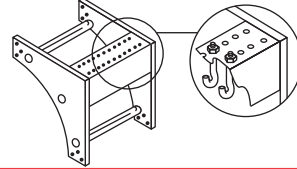
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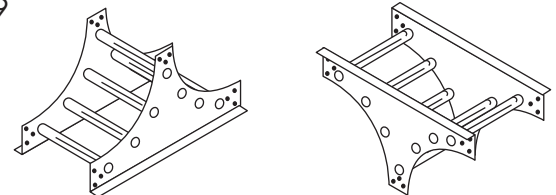
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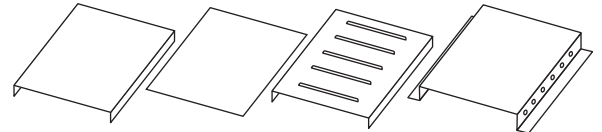
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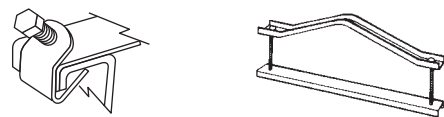
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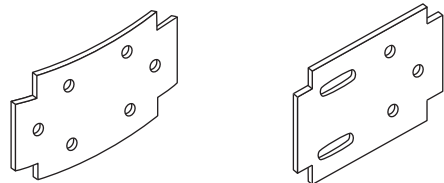
Cover Attachments

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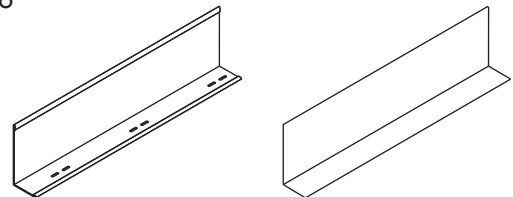
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LADDER CABLE TRAY SYSTEM



SELECTION CHART

Aluminum Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/ Span Class	NEMA Ld/Span	Cope System Number	Cope Systems Certified By CSA (See pg. 3-9)	Actual Load Depth	Side Rail Height	Flange Width (in.)	Sect. Mod. of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min X-Sect. Area of 2 Rails per NEC 392.7 (in. ²)
8A-12A	50 lb./ft. 12' span	1B38	1B38	3" (76mm)	4 1/4" (108mm)	1 3/16"	0.898	1.822	.60
		1B48	1B48	4" (102mm)	5 1/4" (133mm)	1 3/16"	1.142	2.872	.60
		3B58	—	5" (127mm)	6 1/4" (159mm)	1 3/16"	1.614	4.720	1.00
		1B68	—	6" (152mm)	7 1/4" (184mm)	1 3/16"	1.874	6.568	1.00
12B	75 lb./ft. 12' span	3B38	—	3" (76mm)	4 1/4" (108mm)	1 3/16"	1.148	2.270	.60
		1B48	1B48	4" (102mm)	5 1/4" (133mm)	1 3/16"	1.142	2.872	.60
		3B58	—	5" (127mm)	6 1/4" (159mm)	1 3/16"	1.614	4.720	1.00
		1B68	—	6" (152mm)	7 1/4" (184mm)	1 3/16"	1.874	6.568	1.00
12C	100 lb./ft. 12' span	5B38	—	3" (76mm)	4 1/4" (108mm)	1 3/16"	1.646	3.350	1.00
		3B48	—	4" (102mm)	5 1/4" (133mm)	1 3/16"	1.522	3.734	1.00
		5B58	—	5" (127mm)	6 1/4" (159mm)	1 3/16"	1.944	5.866	1.00
		5B68	—	6" (152mm)	7 1/4" (184mm)	1 3/16"	2.576	9.032	1.00
16A	50 lb./ft. 16' span	5B38	—	3" (76mm)	4 1/4" (108mm)	1 3/16"	1.646	3.350	1.00
		7448	7448	4" (102mm)	5 1/4" (133mm)	1 1/4"	2.396	6.292	1.50
		1D58	1D58	5" (127mm)	6 1/4" (159mm)	1 1/4"	2.378	7.202	1.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
16B	75 lb./ft. 16' span	3D38	3D38	3" (76mm)	4 1/4" (108mm)	1 1/4"	2.242	4.406	1.50
		7448	7448	4" (102mm)	5 1/4" (133mm)	1 1/4"	2.396	6.292	1.50
		1D58	1D58	5" (127mm)	6 1/4" (159mm)	1 1/4"	2.378	7.202	1.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
16C	100 lb./ft. 16' span	5D38	5D38	3" (76mm)	4 1/4" (108mm)	1 1/4"	2.782	5.738	1.50
		3D48	3D48	4" (102mm)	5 1/4" (133mm)	1 1/4"	3.434	8.746	2.00
		5D58	5D58	5" (127mm)	6 1/4" (159mm)	1 1/4"	3.542	10.748	2.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
20A	50 lb./ft. 20' span	3D38	3D38	3" (76mm)	4 1/4" (108mm)	1 1/4"	2.242	4.406	1.50
		7448	7448	4" (102mm)	5 1/4" (133mm)	1 1/4"	2.396	6.292	1.50
		1D58	—	5" (127mm)	6 1/4" (159mm)	1 1/4"	2.378	7.202	1.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
20B	75 lb./ft. 20' span	3D48	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	3.434	8.746	2.00
		5D58	5D58	5" (127mm)	6 1/4" (159mm)	1 1/4"	3.542	10.748	2.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
20C	100 lb./ft. 20' span	5E38	—	3" (76mm)	4 1/4" (108mm)	1 1/2"	3.716	7.758	2.00
		5D48	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	3.910	10.020	2.00
		7D58	7D58	5" (127mm)	6 1/4" (159mm)	1 1/4"	4.186	12.024	2.00
		5D68	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4"	4.874	17.188	2.00
OTHER ECONOMICAL SYSTEMS AVAILABLE									
		3658	3658	5" (127mm)	6 1/4" (159mm)	1 3/4"	3.490	10.906	1.50
		1E68	—	6" (152mm)	7 1/4" (184mm)	1 1/2"	3.252	11.452	1.50
EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS- 6", 9" OR 12" RUNG SPACING									
		9D58	—	5" (127mm)	6 1/4" (159mm)	1 1/4"	5.130	15.700	2.00
		7G58	—	5" (127mm)	6 1/4" (159mm)	2"	5.804	17.456	2.00

Note: indicates most common systems. Consult factory for lead times on other systems.

Note: Special Applications Available. Please Contact Factory.



LADDER CABLE TRAY SYSTEM

SELECTION CHART Aluminum Tray

LOAD AND DEFLECTION DATA FOR ALUMINUM LADDER Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1, Simple Beam - SAFETY FACTOR 1.5

Cope System Numbers	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Span			25 Ft. Span		
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k
1B38	222	.35	.002	125	.63	.005	80	.99	.012	55	1.42	.026												
1B48	324	.33	.001	173	.56	.003	117	.87	.007	77	1.26	.016												
3B58	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010												
1B68	416	.18	†	221	.31	.001	133	.46	.003	87	.62	.007												
3B38	354	.45	.001	191	.76	.004	117	1.14	.010	78	1.57	.020												
1B48	324	.33	.001	182	.59	.003	117	.87	.007	77	1.26	.016												
3B58	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010												
1B68	416	.18	†	221	.31	.001	133	.46	.003	87	.62	.007												
5B38	448	.39	†	251	.69	.003	161	1.08	.007	112	1.55	.014												
3B48	394	.31	†	222	.55	.002	142	.86	.006	100	1.24	.012												
5B58	480	.24	†	257	.40	.002	156	.60	.004	102	.81	.008												
5B68	540	.17	†	286	.29	.001	172	.43	.003	111	.57	.005												
5B38				251	.69	.003	161	1.08	.007	112	1.55	.014	51	2.26	.044	25	2.75	.110						
7448				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D58				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
3D38				342	.72	.002	219	1.12	.005	152	1.61	.011	82	2.74	.033	52	4.27	.082						
7448				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D58				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
5D38				444	.71	.002	284	.70	.002	188	1.53	.008	106	2.73	.026	65	4.07	.063						
3D48				525	.55	.001	336	.86	.003	233	1.24	.005	119	2.01	.017	76	3.14	.041						
5D58										229	1.00	.004	116	1.60	.014	75	2.50	.033						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
3D38										152	1.61	.011	82	2.74	.033	52	4.27	.082						
7448										155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D58										154	1.00	.006	78	1.61	.021	50	2.51	.050						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
3D48										233	1.24	.005	119	2.01	.017	76	3.14	.041						
5D58										229	1.00	.004	116	1.60	.014	75	2.50	.033						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
5E38										298	1.79	.006	161	3.07	.019	103	4.79	.047						
5D48										290	1.35	.005	156	2.30	.015	100	3.59	.036						
7D58							404	.76	.002	281	1.09	.004	158	1.94	.012	101	3.02	.030						
5D68										316	.86	.003	161	1.38	.009	103	2.16	.021						
3658										215	.92	.004	121	1.63	.013	77	2.55	.033						
1E68										221	.90	.004	119	1.53	.013	76	2.39	.032						
9D58										412	1.22	.003	214	2.00	.009	131	3.01	.023	68	3.23	.048			
7G58										451	1.20	.003	253	2.14	.008	162	3.35	.020	112	4.79	.043	104	5.24	.050

Note: To convert 1.5 safety factor to 2.0 multiply w, d, k by 0.75.

W=Pounds per linear foot
Metric: for kg/m multiply w by 1.48
d=Deflection (inches)
k= Deflection (in.) for each pound of load
†= Denotes k is less than .001 inch

LADDER CABLE TRAY SYSTEM



SELECTION CHART Steel Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Class	NEMA Load/ Span	Mill Galv. System Number	HDGAF System Number	Type 304 SS System Number	Cope Systems Certified By CSA	Actual Load Depth	Side Rail Height	Flange Width (in.)	Section Modulus of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min. X-Sect. Area of 2 Rails per NEC 392-7 (in. ²)
8A-12B	75 lb./ft. 12' span	8B36	6237	8B3T	8B36	3" (76mm)	4 1/4" (108mm)	13/16"	0.678	1.370	.40
		8246	6247	824T	—	4" (102mm)	5 1/4" (133mm)	13/16"	0.816	2.142	.40
		8256	6257	825T	—	5" (127mm)	6 1/4" (159mm)	13/16"	1.072	3.352	.70
		8B66	6B67	8B6T	8B66	6" (152mm)	7 1/4" (184mm)	13/16"	1.574	5.516	.70
12C	100 lb./ft. 12' span	6B36	6B37	6B3T	—	3" (76mm)	4 1/4" (108mm)	13/16"	0.834	1.690	.70
		8B46	6B47	8B4T	—	4" (102mm)	5 1/4" (133mm)	13/16"	0.924	2.324	.40
		6256	6257	625T	—	5" (127mm)	6 1/4" (159mm)	13/16"	1.330	4.158	.70
		8B66	6267	8B6T	8B66	6" (152mm)	7 1/4" (184mm)	13/16"	1.574	5.516	.70
16A	50 lb./ft. 16' span	8D36	6D37	8D3T	—	3" (76mm)	4 1/4" (108mm)	1 1/4"	0.852	1.736	.40
		8D46	6447	8D4T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	1.146	2.894	.70
		8456	6457	845T	—	5" (127mm)	6 1/4" (159mm)	1 1/4"	1.330	4.156	.70
		6466	6467	646T	6466/7	6" (152mm)	7 1/4" (184mm)	1 1/4"	2.062	7.478	1.00
16B	75 lb./ft. 16' span	6D36	6D37	6D3T	—	3" (76mm)	4 1/4" (108mm)	1 1/4"	1.056	2.152	.70
		8D46	6447	8D4T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	1.146	2.894	.70
		6456	6457	645T	6456/7	5" (127mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	1.00
		6466	6467	646T	6466/7	6" (152mm)	7 1/4" (184mm)	1 1/4"	2.062	7.478	1.00
16C	100 lb./ft. 16' span	4D36	4D37	4D3T	—	3" (76mm)	4 1/4" (108mm)	1 1/4"	1.298	2.652	1.00
		6446	6447	644T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6456	6457	645T	6456/7	5" (127mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	1.00
		8D66	6D67	8D6T	—	6" (152mm)	7 1/4" (184mm)	1 1/4"	1.814	6.370	.70
20A	50 lb./ft. 20' span	6D36	6D37	6D3T	—	3" (76mm)	4 1/4" (108mm)	1 1/4"	1.056	2.152	.70
		6446	6447	644T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6456	6457	645T	6456/7	5" (127mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	1.00
		6466	6467	646T	6466/7	6" (152mm)	7 1/4" (184mm)	1 1/4"	2.062	7.478	1.00
20B	75 lb./ft. 20' span	2D36	2D37	2D3T	—	3" (76mm)	4 1/4" (108mm)	1 1/4"	1.758	3.604	1.00
		4D46	4D47	4D4T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	1.744	4.418	1.00
		6D56	6D57	6D5T	6D56/7	5" (127mm)	6 1/4" (159mm)	1 1/4"	1.814	5.486	1.00
		6D66	6D67	6D6T	6D66/7	6" (152mm)	7 1/4" (184mm)	1 1/4"	2.246	7.902	1.00
20C	100 lb./ft. 20' span	2D46	2D47	2D4T	—	4" (102mm)	5 1/4" (133mm)	1 1/4"	2.370	6.026	1.50
		4D56	4D57	4D5T	4D56	5" (127mm)	6 1/4" (159mm)	1 1/4"	2.240	6.778	1.00
		4466	4467	446T	—	6" (152mm)	7 1/4" (184mm)	1 1/4"	2.556	9.264	1.00

OTHER ECONOMICAL SYSTEMS AVAILABLE

4B36	4B37	4B3T	—	3" (76mm)	4 1/4" (108mm)	13/16"	1.024	2.078	.70
6B46	6B47	6B4T	—	4" (102mm)	5 1/4" (133mm)	13/16"	1.140	2.872	.70
4B46	4B47	4B4T	—	4" (102mm)	5 1/4" (133mm)	13/16"	1.402	3.538	1.00

EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS- 6", 9" OR 12" RUNG SPACING

2D56	2D57	2D5T	—	5" (127mm)	6 1/4" (159mm)	1 1/4"	3.052	9.270	1.50
11D56	11D57	11D5T	—	5" (127mm)	6 1/4" (159mm)	1 1/4"	3.536	10.630	1.50

Note: indicates most common systems. Consult factory for lead times on other systems.



LADDER CABLE TRAY SYSTEM

SELECTION CHART Steel Tray

LOAD AND DEFLECTION DATA FOR STEEL LADDER Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1, Simple Beam - SAFETY FACTOR 1.5

Cope System Numbers	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Span			25 Ft. Span		
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k
8B36/6237/8B3T	360	.26	†	198	.46	.002	124	.70	.006	84	.98	.012												
8246/6247/824T	383	.18	†	210	.31	.001	127	.46	.004	83	.62	.007												
8256/6257/825T	357	.11	†	194	.18	†	119	.28	.002	79	.38	.005												
8B66/6B67/8B6T	680	.12	†	328	.19	†	182	.26	.001	107	.31	.003												
6B36/6B37/6B3T	453	.27	†	249	.47	.002	156	.71	.005	106	1.00	.009												
8B46/6B47/8B4T	456	.20	†	244	.33	.001	152	.51	.003	103	.71	.007												
6256/6257/625T	460	.11	†	250	.19	†	154	.29	.002	103	.40	.004												
8B66/6267/8B6T	680	.12	†	328	.19	†	182	.26	.001	107	.31	.003												
8D36/6D37/8D3T				290	.53	.002	182	.81	.004	126	1.17	.009	65	1.91	.029									
8D46/6447/8D4T				382	.42	.001	245	.66	.003	170	.94	.006	86	1.54	.018									
8456/6457/845T				268	.20	†	166	.31	.002	111	.43	.004	58	.71	.012									
6466/6467/646T				372	.20	†	238	.24	.001	178	.38	.002	93	.62	.007									
6D36/6D37/6D3T				381	.56	.001	244	.88	.004	169	1.27	.008	88	2.08	.024									
8D46/6447/8D4T				382	.42	.001	245	.66	.003	170	.94	.006	86	1.54	.018									
6456/6457/645T				574	.35	†	367	.55	.001	245	.76	.003	123	1.22	.010									
6466/6467/646T				372	.20	†	238	.24	.001	178	.38	.002	93	.62	.007									
4D36/4D37/4D3T				487	.58	.001	312	.91	.003	216	1.31	.006	113	2.16	.019									
6446/6447/644T				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
6456/6457/645T				574	.35	†	367	.55	.001	245	.76	.003	123	1.22	.010									
8D66/6D67/8D6T				504	.25	†	306	.37	.001	202	.51	.003	101	.80	.008									
6D36/6D37/6D3T										169	1.27	.008	88	2.08	.024	52	2.98	.057						
6446/6447/644T										186	.89	.005	100	1.51	.015	53	1.94	.037						
6456/6457/645T										245	.76	.003	123	1.22	.010	66	1.59	.024						
6466/6467/646T										178	.38	.002	93	.62	.007	55	.91	.017						
2D36/2D37/2D3T										304	1.36	.004	159	2.24	.014	94	3.23	.034						
4D46/4D47/4D4T										280	1.02	.004	145	1.67	.012	85	2.40	.028						
6D56/6D57/6D5T										269	.80	.003	139	1.28	.009	81	1.82	.022						
6D66/6D67/6D6T										291	.59	.002	148	.95	.006	85	1.33	.016						
2D46/2D47/2D4T										395	1.05	.003	206	1.74	.008	121	2.50	.021						
4D56/4D57/4D5T										296	.79	.003	152	1.28	.008	105	1.91	.018						
4466/4467/446T										379	.66	.002	191	1.05	.005	102	1.37	.013						
4B36/4B37/4B3T	569	.28	†	313	.48	.002	196	.73	.004	133	1.03	.008	74	1.81	.025									
6B46/6B47/6B4T	591	.21	†	325	.36	.001	203	.55	.003	137	.77	.006	77	1.37	0.19									
4B46/4B47/4B4T	779	.22	†	428	.38	†	268	.59	.002	182	.83	.005	102	1.47	0.16	65	2.29	0.39						
2D56/2D57/2D5T										490	.85	.002	254	1.40	.006	149	2.00	.013	79	1.91	.024	73	2.38	.033
11D56/11D57/11D5T										434	.66	†	244	1.17	.005	156	1.82	.012	108	2.62	.024	100	2.85	.029

Note: To convert 1.5 safety factor to 2.0 multiply w, d, k by 0.75.

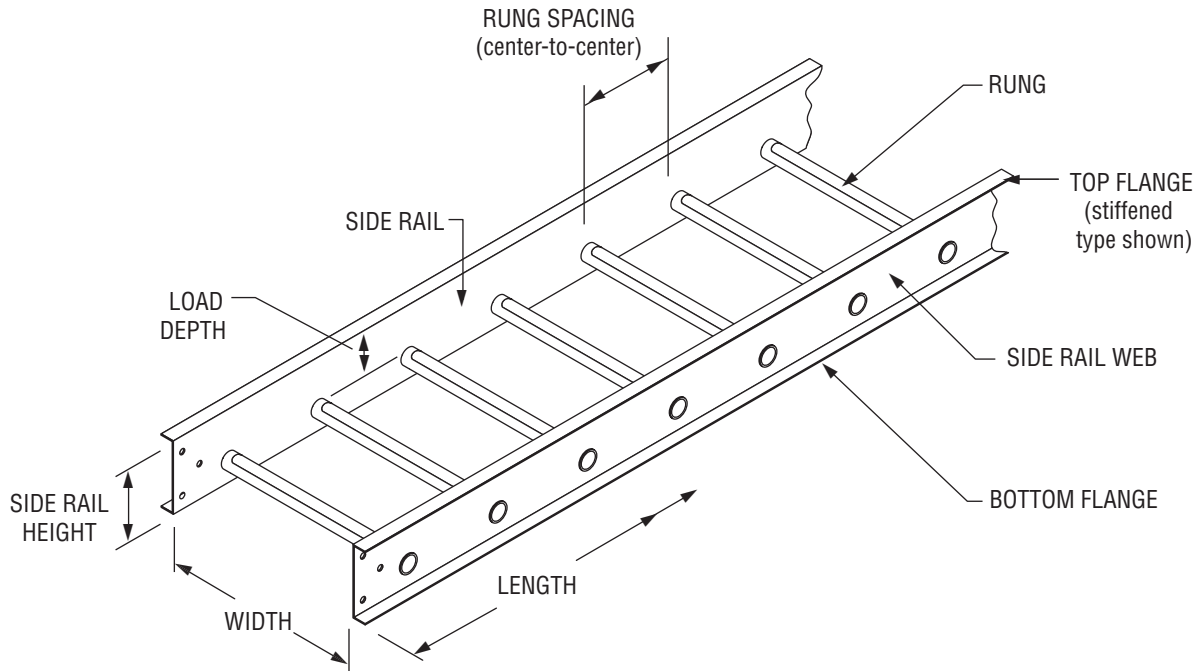
W=Pounds per linear foot
Metric: for kg/m multiply w by 1.48
d=Deflection (inches)
k= Deflection (in.) for each pound of load
†= Denotes k is less than .001 inch

LADDER CABLE TRAY SYSTEM



OVERVIEW

COPE SWAGE LADDER is a structure consisting of two side rails, connected by individual rungs and is manufactured in accordance with NEMA Standard #VE-1. Cope rungs are fastened to the side members by an exclusive swaging process. This assembly method insures a superior mechanical and electrical connection.



Side Members - Cope side members are designed with top and bottom flanges turned outward. This simplifies fastening the cable tray to the supports. Cable tray with outward facing flanges allows complete access within the cable loading area and eliminates the possibility of cable damage from sharp edges within the cable area. The return on the top flange strengthens the side member and allows cable to be smoothly dropped over the side.

Rung - Cope ladder rungs are 1.00" diameter tubing flattened on top to provide a cable bearing surface. This construction allows cable to drop out anywhere without contacting a sharp edge.

Rung Spacing - The interval at which rungs are swaged to the side member. This is measured from centerline of rung to centerline of rung. Cope manufactures straight lengths with four standard rung spacings; 6", 9", 12", and 18". Rung spacing selected is generally determined by size and type of cable being supported. When in doubt, 9" rung spacing is a generally accepted compromise.

Length - The longitudinal dimensions of standard Cope Cable Ladder are 10', 12', 20' or 24'.

Width - The transverse dimensions of Cope Cable Ladder are measured inside, (from side member web to side member web), and are furnished in seven standard widths: 6", 9", 12", 18", 24", 30", or 36".

Overall Width - Overall ladder width is equal to the inside or nominal width plus the width of side member flanges.

Load Depth - Measured from top surface of rung to top of side member. This is not to be confused with overall height. Cope manufactures four loading depths: 3", 4", 5", and 6" in accordance with NEMA Standard VE-1. All Cope part numbers refer to the load depth of the tray.

Overall Height - Cope overall height is equal to the loading depth plus 1 1/4".

Fittings - For changing direction horizontally and vertically, Cope manufactures elbows, tees and crosses in all widths and loading depths. Fittings are available in three standard radii; 12", 24", and 36". Cope maintains a nominal 9" rung spacing through the centerline of all fittings.



COPE CABLE LADDER FEATURES IMPORTANT INDUSTRY-LEADING FEATURES:

1. Universal Curvilinear Splice Plate System

The splice plates for rigid connections have a slight curve so they can be used on straight sections or fittings. Tightening of the fastener pulls the plate flush with the side rail. The fasteners are snug and the joint is superior structurally and electrically. Even when tightened by hand, there is pressure on the fastener to hold it securely.

Note: Heavy Duty, Mid Span Splice Plates available upon request .

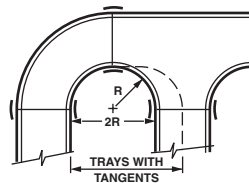
2. Zero Tangent Fittings

Tangent as referred to on cable tray fittings is the straight at the end of the curve to accommodate a flat splice plate. Zero Tangent Fittings facilitates installation when parallel cable trays must be located at minimum distances from each other, such as motor control centers and switch gear centers. COPE ZERO TANGENT FITTINGS CAN SAVE UP TO 12" PER ROW OF TRAY.

BONUS: Inspection for proper installation of splice plate is visual. If the plate is bowed away from the rail, nuts must be tightened.

3. Cope's Swaged Rung Cable Ladder System Process

The heart of the Cope design is the tubular rung and its connection to the side rail by cold swaging... a process where special machinery compresses and locks the tubular rung material around both the inside and outside of the cable tray side rails. This connection is made without the use of heat, which can potentially disturb the molecular structure of the metal and weaken it.



The tubular rung is flattened during the swaging process to ensure a proper cable bearing surface.

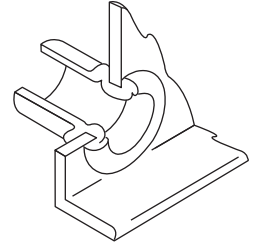
Testing - The superior strength of the swaged ladder tray system has been verified in independent testing conducted by the Pittsburgh Testing Laboratory. Pullout loads of 2500 lbs. were reached. Other tests show the same type rungs, when welded, had a 35% lower pullout load.

The strength of the swage also maintains the 90° relationship of the rungs to the side rail. The tubular rungs, which are very stiff, transmit the cable loads to the side rails resulting in much less deflection than in a similar system with welded rungs.

For a copy of the independent test results, please contact the factory.

Swage Advantages - Cold swaging allows for the side rails to be turned outward, simplifying cable installation, and provides 100% access to the cables.

The cold swaging yields the most rigid tray system in the industry. The swaged rung connection resists stresses in all directions; up or down, side to side, or in and out. The swaged ladder also resists the camber and warping effects encountered in a typical welded system.



The increased rigidity means that a 24' section of tray can be lifted on one end with little or no twisting or bending of the tray section. This rigid construction makes the trays safer for field personnel to handle and reduces shipping damage.

Electrical Properties - Electrically, the 106 tons of pressure in the swaging process virtually eliminates the interstices and a homogenous electrical path results:

Resistance of Cope Aluminum Swaged Tray: 31 microhms

Resistance of Cope Steel Swaged Tray: 37.3 microhms

Resistance of Popular Aluminum Welded Tray: 101 microhms

Conclusion - Cold swaging yields a very strong, efficient and aesthetically pleasing system that has stood the test of time and offers installation savings due to its ease of handling.

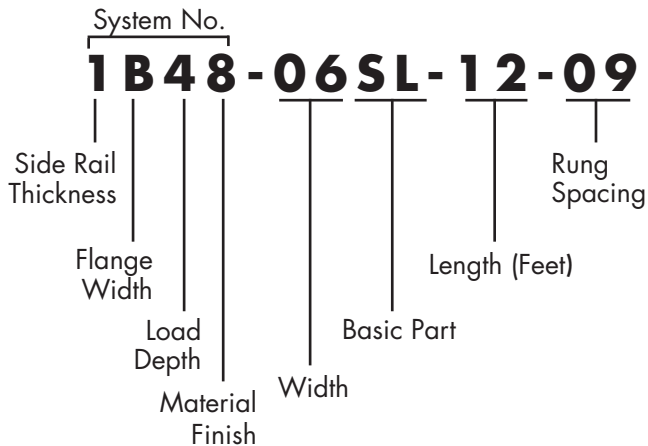
LADDER CABLE TRAY SYSTEM



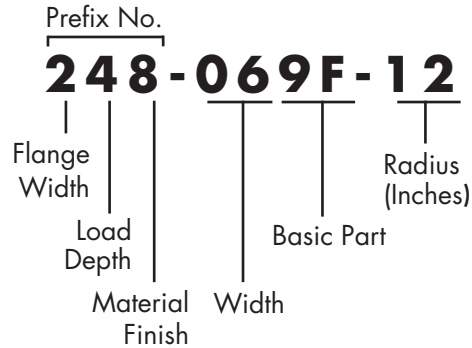
PART NUMBERING SYSTEM:

Please pay careful attention to the part numbering structure. Example: Catalog No. 1B48-06SL-12-09 is a 4" load depth aluminum ladder with a 1 3/16" flange, 6 inches wide, straight length 12 feet long, rungs on 9" centers. Please make sure to use the system numbers from pages 26 through 29 when ordering.

Straight Length



Fittings



SYSTEM NUMBER (STRAIGHT SECTION ONLY) – The first four digits make up the system number which identifies the structural, dimensional and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange width, the load depth (inside, in inches), and material finish (galvanized, aluminum or coated).

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages. Fittings do not have stiffened upper flanges.

WIDTH – Identifies the inside width of the tray in inches. Note: Sizes 42" and 48" are not recognized by NEMA

BASIC PART NUMBER – Identifies the straight length, fitting or accessory.

SECONDARY DIMENSION NUMBER – Identifies the length of a straight section in feet, the radius of a fitting in inches, or the second width of a reducer in inches.

RUNG SPACING – Identifies the center-to-center distance between rungs on straight length. Nominal 9" (229mm) rung spacing maintained through center line of all fittings.

Thickness Steel (Ga.)	Flange Width	Load Depth	Material Finish
8 - 18 ga.	2 - 13/16" (21mm)	3" (76mm)	6 - Mill-Galv.
6 - 16 ga.	4 - 1 1/4" (32mm)	4" (102mm)	7 - HDGAF
4 - 14 ga.	5 - 1 1/2" (38mm)	5" (127mm)	8 - Aluminum
2 - 12 ga.	6 - 1 3/4" (45mm)	6" (152mm)	T - 304SS
11 - 11 ga.	7 - 2" (51mm)		
Thickness Alum (in.)			
1 - Thinner	B - 13/16" (21mm)		
3 -	D - 1 1/4" (32mm)		
5 - **	E - 1 1/2" (38mm)		
7 -	F - 1 3/4" (45mm)		
9 - Thicker	G - 2" (51mm)		

**Alum. extruded side rails are individually engineered to loads and spans.

*** Contact factory for 42" and 48" width tray (not NEMA Standard)

Description			
Width (in.) ***	Basic Part Number	Length	Rung Spacing
-06=6" (152mm)	SL (Straight Len.)	- 12' (3.7m)	06=6" (152mm)
-09=9" (229mm)	9F (90° Horiz. El.)	- 24' (7.3m)	09=9" (229mm)
-12=12" (305mm)	6F (60° Horiz. El.)	- 10' (3m, CSA)	12=12" (305mm)
-18=18" (457mm)	4F (45° Horiz. El.)	- 20' (6m, CSA)	18=18" (457mm)
-24=24" (610mm)	3F (30° Horiz. El.)		
-30=30" (762mm)	90 (90° Out. Vert.El.)		
-36=36" (914mm)	60 (60° Out. Vert. El.)		
-42=42" (1067mm)	40 (45° Out. Vert. El.)		
-48=48" (1219mm)	30 (30° Out. Vert. El.)		
	9I (90° In. Vert. El.)		
	6I (60° In. Vert. El.)		
	4I (45° In. Vert. El.)		
	3I (30° In. Vert. El.)		
	FT (Horiz. Tee)		
	FC (Horiz. Cross)		
	TT (Horiz. Tapped Tee)		
	TC (Horiz. Tapped Cross)		
	VT (Vert. Tee)		
	SR (Vert. Cable Support Elbow)		
	ST (Straight Reducer)		
	RH (Right Hand Reducer)		
	LH (Left Hand Reducer)		
	AF (Adjustable Elbow)		
	LY (45° Left "Y" Branch)		
	RY (45° Right "Y" Branch)		
			Radius (in.)
			-12=12" (205mm)
			-24=24" (610mm)
			-36=36" (914mm)



LADDER CABLE TRAY SYSTEM

COPE LADDER

NEMA Intro.

COPE™ LADDER

COPE™ I-BEAM™

COPE™ HAT

COPE™ TROF

COPE™ CHANNEL

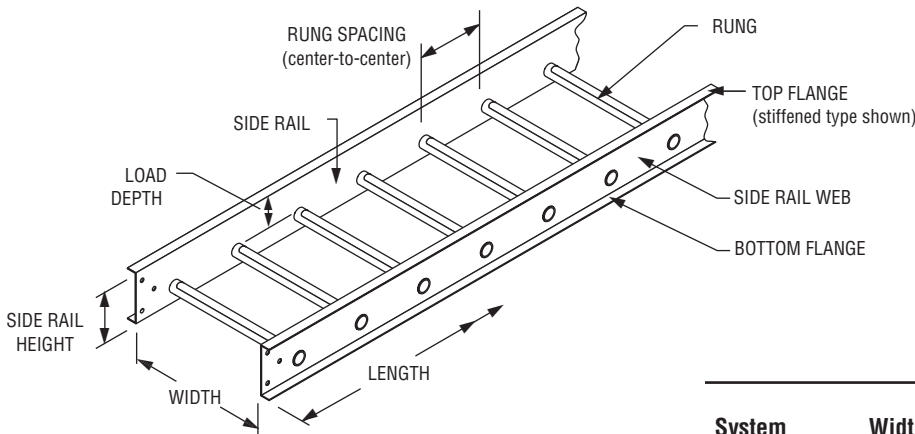
COPE™ GLAS™

COPE™ WIRE BASKET

Reference

Reference

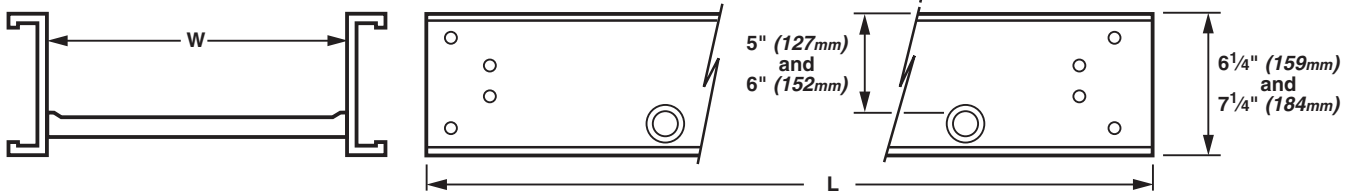
Straight Length [SL]



COPE LADDER is manufactured in 10' (CSA), 12', 20' (CSA), and 24' lengths; 6", 9", 12", 18", 24", 30", and 36" widths; and, 3", 4", 5", and 6" load depths. Rungs are 1" diameter tubes with a 7/8" flattened cable support surface. 6", 9", 12", and 18" rung spacings are available. Fittings have nominal 9" rung spacing through center line. Dimensions given are inside. For overall widths add two flange widths of the system selected (see Selection Charts). Some systems have stiffened upper (top) flanges to obtain rigidity required (see Selection Charts).

Rungs are assembled to side rails by Cope's exclusive cold swaging process. Outward facing flanges allow full unobstructed access to contents of tray in width and depth.

Materials: Aluminum, Hot Dip Mill-Galvanized (pre galvanized) to ASTM A-653, Hot Dip Galvanized After Fabrication (HDGAF) to ASTM A-123, Stainless Steel (Type 304 and 316). Sufficient connectors are supplied to assemble straight sections and fittings for each order. Connectors for field cuts to be ordered separately (see Connectors).



MATERIAL & FINISH SPECIFICATIONS (Ladder Cable Tray)

	Pre-Galvanized Steel	Hot-Dip Galvanized after Fabrication ASTM A-123	Aluminum	Type 304 Stainless Steel
Siderails	ASTM A-653-G90 CS (18 & 16 Gage) ASTM A-653-G90 CS (14 & 12 Gage)	ASTM A-1008 (18 & 16 Gage) ASTM A-1011 (14 & 12 Gage)	AA-6063-T6 Extruded	ASTM A-240; Type 304
Rungs	ASTM A-653-G90 CS	ASTM A-1008	AA-6063-T6 Extruded* AA-6063-T832 Extruded* AA-6063-T52 Extruded*	ASTM A-269; Type 304
Splice Plate Finish	ASTM A-1011 ASTM A-591 Class C	ASTM A-1011 ASTM A-123 Grade 65	AA-5052-H34	ASTM A-240; Type 304 2B Finish (Typical)
Connector Bolts	SAE J429 Grade 1 (ASTM A-307 Grade A)	SAE J429 Grade 1 (ASTM A-307 Grade A)	SAE J429 Grade 1 (ASTM A-307 Grade A)	AISI Type 304 Stainless Steel
Bolt Plating	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	
Covers	ASTM A-653-G90 CQ	ASTM A-653-G90 CQ	AA-3003 H14 or 3150 H14	ASTM A-240; Type 304

*Special High Strength 32 ksi Minimum Yield

Catalog Number							
System	Width	Basic No.	Length	Rung Spacing			
See Pages 25-29	-06=6"	(152mm)	SL	NEMA	-06=6"	(152mm)	
	-09=9"	(229mm)			12' (3.7m)*	-09=9"	(229mm)
	-12=12"	(305mm)			24' (7.3m)*	-12=12"	(305mm)
	-18=18"	(457mm)			10' (3m)*		
	-24=24"	(610mm)		CSA	20' (6m)*		
	-30=30"	(762mm)				-18=18"	(457mm)
	-36=36"	(914mm)					
	-42=42"	(1067mm)				-10' (3m)	
	-48=48"	(1219mm)				-20' (6m)	

*10' & 12' all NEMA Classes, 20' & 24' NEMA Classes 16A, 16B, 16C, 20A, 20B, 20C.

** not NEMA standard width

EXAMPLE: Catalog No. 1B48-06SL-12-09 is a 4-inch load depth aluminum ladder with a 13/16" flange, 6 inches wide, straight length 12 feet long, rungs on 9" centers.

	Conversion Table						CSA				
English	6"	9"	12"	18"	24"	30"	36"	12'	24'	10'	20'
Metric (mm)	152	229	305	457	610	762	914	3.7m	7.3m	3m	6m

LADDER CABLE TRAY SYSTEM



CSA ORDERING INFORMATION

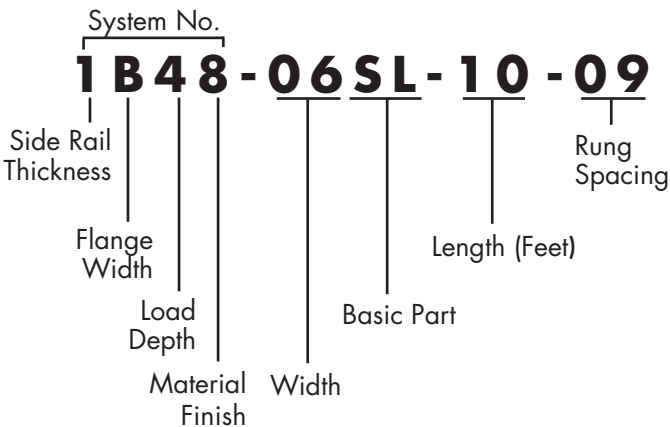
Cope CSA Standards C22-2 Cable Trif Ladder Type

HOW TO ORDER:

Explanation of Cope's Canadian Standards cable tray catalog numbers is described below. Use the system numbers given in selection charts for straight sections, or the fitting prefix numbers given in fitting tables. Be sure to follow system number or the fitting prefix with the item "description" number. The list below gives the CSA certified item carrying the CSA label.



Straight Length



SYSTEM NUMBER (STRAIGHT SECTION ONLY) –

The first four digits make up the system number which identifies the structural, dimensional, and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange width, the load depth (inside, in inches), and material finish (galvanized, aluminum or coated).

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages. Fittings do not have stiffened upper flanges.

WIDTH – Identifies the inside width of the tray in inches. Note: Sizes 42" and 48" are not recognized by NEMA

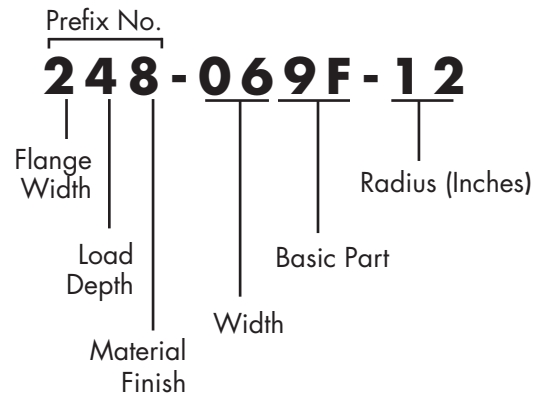
BASIC PART NUMBER – Identifies the straight length, fitting, or accessory.

Thickness Steel (Ga.)	Flange Width	Load Depth	Material Finish
8 - 18 ga.	2 - 1 ³ / ₁₆ " (21mm)	3" (76mm)	7 - HDGAF
6 - 16 ga.	4 - 1 ¹ / ₄ " (32mm)	4" (102mm)	CSA Class 1
4 - 14 ga.	6 - 1 ³ / ₄ " (45mm)	5" (127mm)	8 - Aluminum Plain Finish
	*B - 1 ³ / ₁₆ " (21mm)	6" (152mm)	
	*D - 1 ¹ / ₄ " (32mm)		
Thickness Alum (in.)			
1 - Thinner			
3 - ↓			
5 - ** ↓			
7 - Thicker			

*Stiffened Upper Flange

**Alum. extruded side rails are individually engineered to loads and spans.

Fittings



SECONDARY DIMENSION NUMBER – Identifies the length of a straight section in feet, the radius of a fitting in inches, or the second width of a reducer in inches.

RUNG SPACING – Identifies the center-to-center distance between rungs on straight length. Nominal 9" (229mm) rung spacing maintained through center line of all fittings.

Description			
Width (in.)	Basic Part Number	Length	Rung Spacing
-06=6" (152mm)	SL (Straight Len.)	10-10' (3m)	06=6" (152mm)
-09=9" (229mm)	9F (90° Horiz. El.)	20-20' (6m)	09=9" (229mm)
-12=12" (305mm)	6F (60° Horiz. El.)		12=12" (305mm)
-18=18" (457mm)	4F (45° Horiz. El.)		
-24=24" (610mm)	3F (30° Horiz. El.)		
-30=30" (762mm)	90 (90° Out. Vert. El.)		
-36=36" (914mm)	60 (60° Out. Vert. El.)		
-42=42" (1067mm)	40 (45° Out. Vert. El.)		
-48=48" (1219mm)	30 (30° Out. Vert. El.)		
	9I (90° In. Vert. El.)		
	6I (60° In. Vert. El.)		
	4I (45° In. Vert. El.)		
	3I (30° In. Vert. El.)		
	FT (Horiz. Tee)		
	FC (Horiz. Cross)		
	VT (Vert. Tee)		
	SR (Vert. Cable Support Elbow)		
	ST (Straight Reducer)		
	RH (Right Hand Reducer)		
	LH (Left Hand Reducer)		
	AF (Adjustable Elbow)		
	RY & LY (45° Y Branch)		

Radius (in.)	
-12=12" (205mm)	
-24=24" (610mm)	
-36=36" (914mm)	



LADDER CABLE TRAY SYSTEM

CSA SYSTEM SELECTION CHART:
Cope Ladder - Type Cable Trof



Certified COPE Systems That Meet Performance Class CSA Std. C22.2

Certified CSA Load Class	Cope System	Load Depth	Side Rail	Flange Width	Max. Load Kg/m (lb/ft)	Maximum Support Span	Deflection at Max Support Span	Meets CSA Elec. Tests
ALUMINUM LADDER TRAY - Safety Factor: 1.5								
C	1B38	3" (76mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	25.1mm	Yes
D	3D38	3" (76mm)	4 1/4" (108mm)	1 1/4" (32mm)	67 (45)	6m (1)	108.5mm	Yes
16C	5D38	3" (76mm)	4 1/4" (108mm)	1 1/4" (32mm)	149 (100)	4.9m	69.3mm	Yes
C	1B48	4" (102mm)	5 1/4" (133mm)	1 3/16" (21mm)	97 (65)	3m	22.1mm	Yes
20A	7448	4" (102mm)	5 1/4" (133mm)	1 1/4" (32mm)	74 (50)	6m (1)	73.4mm	Yes
20B	3D48	4" (102mm)	5 1/4" (133mm)	1 1/4" (32mm)	112 (75)	6m (1)	79.8mm	Yes
20A	1D58	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	63.8mm	Yes
20B	5D58	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	112 (75)	6m (1)	54.9mm	Yes
E	3658	5" (127mm)	6 1/4" (159mm)	1 3/4" (45mm)	112 (75)	6m (1)	64.8mm	Yes
20C	7D58	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	149 (100)	6m (1)	76.7mm	Yes
20C	5D68	6" (152mm)	7 1/4" (184mm)	1 1/4" (32mm)	149 (100)	6m (1)	54.9mm	Yes
Mil Gal STEEL LADDER TRAY Safety Factor: 1.5								
C	8B36	3" (76mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	17.8mm	Yes
20A	6456	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	40.4mm	Yes
E	6D56	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	112 (75)	6m (1)	46.2mm	Yes
20C	4D56	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	149 (100)	6m (1)	48.5mm	Yes
12B	8B66	6" (152mm)	7 1/4" (184mm)	1 3/16" (21mm)	112 (75)	3.7m	24.9mm	Yes
20A	6466	6" (152mm)	7 1/4" (184mm)	1 1/4" (32mm)	74 (50)	6m (1)	23.1mm	Yes
20B	6D66	6" (152mm)	7 1/4" (184mm)	1 1/4" (32mm)	112 (75)	6m (1)	33.8mm	Yes
HDGAF STEEL LADDER TRAY Safety Factor: 1.5								
C	8B37	3" (76mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	17.8mm	Yes
20A	6457	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	40.4mm	Yes
E	6D57	5" (127mm)	6 1/4" (159mm)	1 1/4" (32mm)	112 (75)	6m (1)	46.2mm	Yes
12B	8B67	6" (152mm)	7 1/4" (184mm)	1 3/16" (21mm)	112 (75)	3.7m	24.9mm	Yes
20A	6467	6" (152mm)	7 1/4" (184mm)	1 1/4" (32mm)	74 (50)	6m (1)	23.1mm	Yes
20B	6D67	6" (152mm)	7 1/4" (184mm)	1 1/4" (32mm)	112 (75)	6m (1)	33.8mm	Yes

Notes: (1) Also recommended for 3 meter support spans

Note: indicates most common systems. Consult factory for lead times on other systems.

CSA LOADS

Identify the desired load designation needed for your project from the chart below. Both CSA Class and NEMA designations are listed by load capability and span. Then select the CSA Certified Cope System from the table above. Where CSA C22.2 is not mandatory, you may want to consider other Cope systems offered on the selection charts (page 25 thru 29).

Historical Load/Span Class Designation

Load, kg/m (lb/ft)	Span, m (ft)				
	2.4 (8)	3.0 (10)	3.7 (12)	4.9 (16)	6.0 (20)
37 (25)	—	A	—	—	—
67 (45)	—	—	—	—	D
74 (50)	8A	—	12A	16A	20A
97 (65)	—	C	—	—	—
112 (75)	8B	—	12B	16B	E or 20B
149 (100)	8C	—	12C	16C	20C
179 (120)	—	D	—	—	—
299 (200)	—	E	—	—	—

Note: 8A/B/C, 12A/B/C, 16A/B/C, and 20A/B/C have been NEMA designations. A, B, C, D and E have been CSA designations

RECEIVING, INSTALLING, AND MAINTENANCE

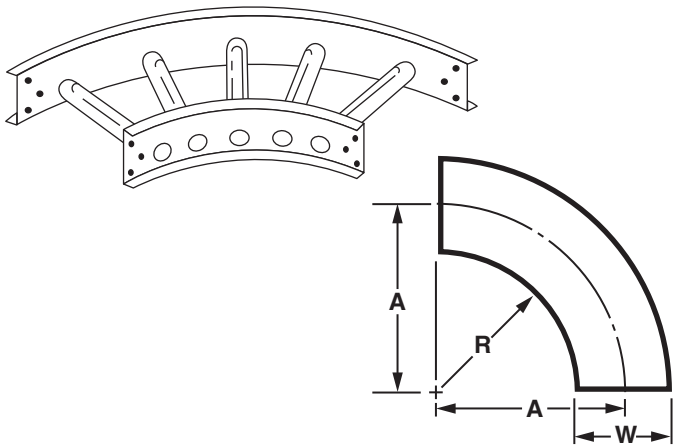
The proper care and handling of cable trays by the receiver and installers is very important to insure a safe installation that will meet the intended service life. Cope has an installation guide available to assist the installers and those who will maintain the installed system.

DIMENSIONS AND STRUCTURAL PROPERTIES: COPE CSA SYSTEMS

The performance of the Cope cable trays systems certified by CSA is given above. Structural properties of straight sections, though not required to be listed, are given in the Cope NEMA selection charts, in English units. Dimensions of straight sections and certified fittings are furnished in English and metric units for use in layout and/or entry into computerized systems.

Note: For other CSA approved systems please contact the factory.

90° Horizontal Elbow [9F]

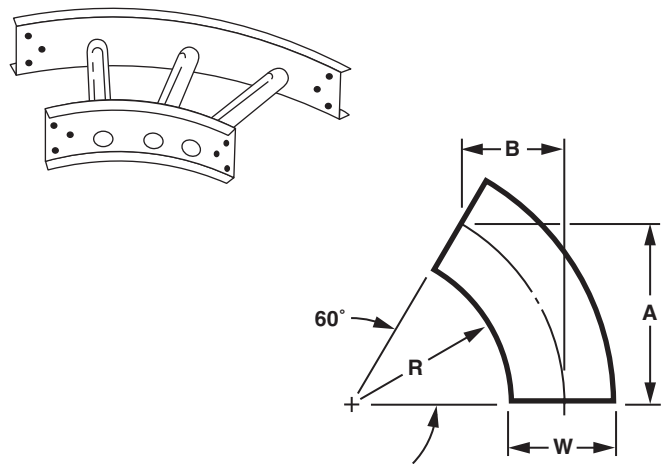


CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension
12" (305mm)	6" (152mm)	15" (381mm)
	9" (229mm)	16½" (419mm)
	12" (305mm)	18" (457mm)
	18" (457mm)	21" (533mm)
	24" (610mm)	24" (610mm)
	30" (762mm)	27" (686mm)
	36" (914mm)	30" (762mm)
	42" (1067mm)	33" (838mm)
24" (610mm)	48" (1219mm)	36" (914mm)
	6" (152mm)	27" (686mm)
	9" (229mm)	28½" (724mm)
	12" (305mm)	30" (762mm)
	18" (457mm)	33" (838mm)
	24" (610mm)	36" (914mm)
	30" (762mm)	39" (991mm)
	36" (914mm)	42" (1067mm)
36" (914mm)	42" (1067mm)	45" (1143mm)
	48" (1219mm)	48" (1219mm)
	6" (152mm)	39" (991mm)
	9" (229mm)	40½" (1029mm)
	12" (305mm)	42" (1067mm)
	18" (457mm)	45" (1143mm)
	24" (610mm)	48" (1219mm)
	30" (762mm)	51" (1295mm)
48" (1219mm)	36" (914mm)	54" (1372mm)
	42" (1067mm)	57" (1448mm)
	48" (1219mm)	60" (1524mm)

EXAMPLE: 238-129F-12

60° Horizontal Elbow [6F]



CSA Certified for CSA Systems

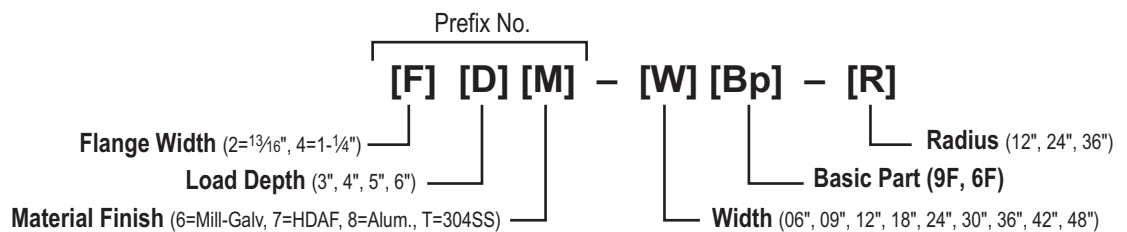
Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	13" (330mm)	7½" (191mm)
	9" (229mm)	14¼" (362mm)	8¼" (210mm)
	12" (305mm)	15⅝" (397mm)	9" (229mm)
	18" (457mm)	18¼" (464mm)	10½" (267mm)
	24" (610mm)	20¾" (527mm)	12" (305mm)
	30" (762mm)	23⅜" (594mm)	13½" (343mm)
	36" (914mm)	26" (660mm)	15" (381mm)
	42" (1067mm)	28⅞" (725mm)	16½" (419mm)
24" (610mm)	48" (1219mm)	31⅞" (791mm)	18" (457mm)
	6" (152mm)	23⅞" (594mm)	13½" (343mm)
	9" (229mm)	24¾" (629mm)	14¼" (362mm)
	12" (305mm)	26" (660mm)	15" (381mm)
	18" (457mm)	28⅝" (727mm)	16½" (416mm)
	24" (610mm)	31¼" (794mm)	18" (457mm)
	30" (762mm)	33¾" (857mm)	19½" (495mm)
	36" (914mm)	36⅜" (924mm)	21" (533mm)
36" (914mm)	42" (1067mm)	38⅟¹⁶" (989mm)	22½" (572mm)
	48" (1219mm)	41⅞" (1056mm)	24" (610mm)
	6" (152mm)	33¾" (857mm)	19½" (495mm)
	9" (229mm)	35⅞" (892mm)	20¼" (514mm)
	12" (305mm)	36⅜" (924mm)	21" (533mm)
	18" (457mm)	39" (991mm)	22½" (572mm)
	24" (610mm)	41⅝" (1057mm)	24" (610mm)
	30" (762mm)	44⅞" (1121mm)	25½" (648mm)
48" (1219mm)	36" (914mm)	46¾" (1187mm)	27" (686mm)
	42" (1067mm)	49⅟¹⁶" (1253mm)	28½" (724mm)
	48" (1219mm)	51⅟¹⁶" (1319mm)	30" (762mm)

EXAMPLE: 238-126F-12

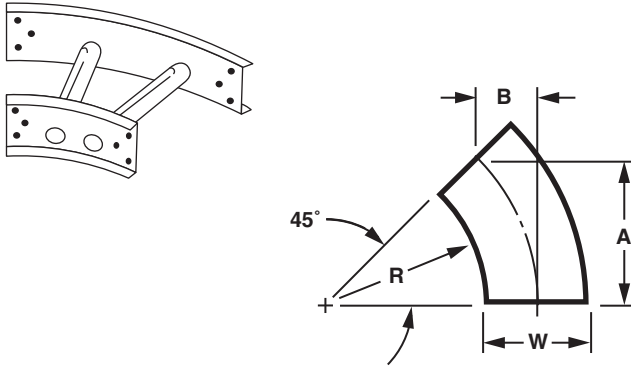
Note: Use Adjustable Connectors for odd angles. Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61
for Electrical
Grounding Chart



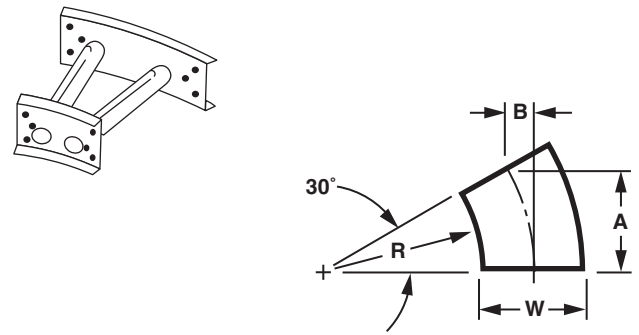
45° Horizontal Elbow [4F]


CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	10 ⁵ / ₈ " (270mm)	4 ³ / ₈ " (111mm)
	9" (229mm)	11 ⁵ / ₈ " (295mm)	4 ⁷ / ₈ " (124mm)
	12" (305mm)	12 ³ / ₄ " (324mm)	5 ¹ / ₄ " (133mm)
	18" (457mm)	14 ⁷ / ₈ " (378mm)	6 ¹ / ₈ " (156mm)
	24" (610mm)	17" (432mm)	7" (178mm)
	30" (762mm)	19 ⁷ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
	36" (914mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	42" (1067mm)	23 ⁵ / ₁₆ " (592mm)	9 ⁵ / ₈ " (244mm)
24" (610mm)	48" (1219mm)	25 ⁷ / ₁₆ " (646mm)	10 ¹ / ₂ " (267mm)
	6" (152mm)	19 ¹ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
	9" (229mm)	20 ¹ / ₈ " (511mm)	8 ³ / ₈ " (213mm)
	12" (305mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	18" (457mm)	23 ³ / ₈ " (594mm)	9 ⁵ / ₈ " (244mm)
	24" (610mm)	25 ¹ / ₂ " (648mm)	10 ¹ / ₂ " (267mm)
	30" (762mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	36" (914mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
36" (914mm)	42" (1067mm)	31 ¹³ / ₁₆ " (808mm)	13 ¹ / ₈ " (333mm)
	48" (1219mm)	33 ¹⁵ / ₁₆ " (862mm)	14" (356mm)
	6" (152mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	9" (229mm)	28 ⁵ / ₈ " (727mm)	11 ⁷ / ₈ " (302mm)
	12" (305mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
	18" (457mm)	31 ⁷ / ₈ " (810mm)	13 ¹ / ₄ " (337mm)
	24" (610mm)	34" (864mm)	14 ¹ / ₈ " (359mm)
	30" (762mm)	36 ¹ / ₈ " (918mm)	15" (381mm)
36" (914mm)	36" (914mm)	38 ¹ / ₄ " (972mm)	15 ⁷ / ₈ " (403mm)
	42" (1067mm)	40 ¹ / ₄ " (1022mm)	16 ¹ / ₁₆ " (424mm)
	48" (1219mm)	42 ³ / ₈ " (1076mm)	17 ⁹ / ₁₆ " (446mm)

EXAMPLE: 238-124F-12

30° Horizontal Elbow [3F]


CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	7 ¹ / ₂ " (191mm)	2" (51mm)
	9" (229mm)	8 ¹ / ₄ " (210mm)	2 ¹ / ₄ " (57mm)
	12" (305mm)	9" (229mm)	2 ³ / ₈ " (60mm)
	18" (457mm)	10 ¹ / ₂ " (267mm)	2 ⁷ / ₈ " (73mm)
	24" (610mm)	12" (305mm)	3 ¹ / ₄ " (83mm)
	30" (762mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
	36" (914mm)	15" (381mm)	4" (102mm)
	42" (1067mm)	16 ¹ / ₂ " (419mm)	4 ³ / ₈ " (111mm)
24" (610mm)	48" (1219mm)	18" (457mm)	4 ¹³ / ₁₆ " (122mm)
	6" (152mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
	9" (229mm)	14 ¹ / ₄ " (362mm)	3 ⁷ / ₈ " (98mm)
	12" (305mm)	15" (381mm)	4" (102mm)
	18" (457mm)	16 ¹ / ₂ " (419mm)	4 ³ / ₈ " (111mm)
	24" (610mm)	18" (457mm)	4 ⁷ / ₈ " (124mm)
	30" (762mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	36" (914mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
36" (914mm)	42" (1067mm)	22 ¹ / ₂ " (572mm)	6" (152mm)
	48" (1219mm)	24" (610mm)	6 ³ / ₈ " (162mm)
	6" (152mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	9" (229mm)	20 ¹ / ₄ " (514mm)	5 ¹ / ₂ " (140mm)
	12" (305mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
	18" (457mm)	22 ¹ / ₂ " (572mm)	6" (152mm)
	24" (610mm)	24" (610mm)	6 ¹ / ₂ " (165mm)
	30" (762mm)	25 ¹ / ₂ " (648mm)	6 ⁷ / ₈ " (175mm)
36" (914mm)	36" (914mm)	27" (686mm)	7 ¹ / ₄ " (184mm)
	42" (1067mm)	28 ¹ / ₂ " (724mm)	7 ⁵ / ₈ " (194mm)
	48" (1219mm)	30" (762mm)	8" (203mm)

EXAMPLE: 238-123F-12

Note: Use Adjustable Connectors for odd angles. Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

Prefix No.

[F] [D] [M] - [W] [Bp] - [R]

Flange Width (2=1³/₁₆", 4=1-1⁴/₄")

Load Depth (3", 4", 5", 6")

Material Finish (6=Mill-Galv, 7=HDAF, 8=Alum., T=304SS)

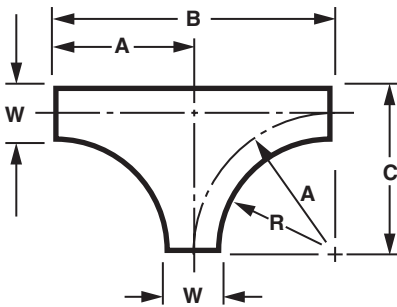
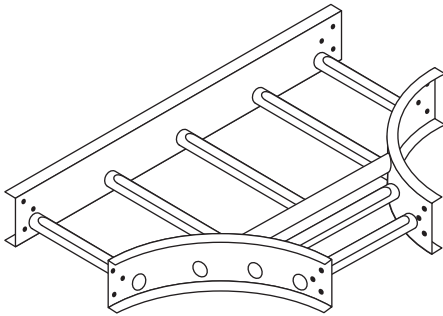
Radius (12", 24", 36")

Basic Part (4F, 3F)

Width (06", 09", 12", 18", 24", 30", 36", 42", 48")

See Page 61
for Electrical
Grounding Chart

Horizontal Tee [FT]



CSA Certified for CSA Systems

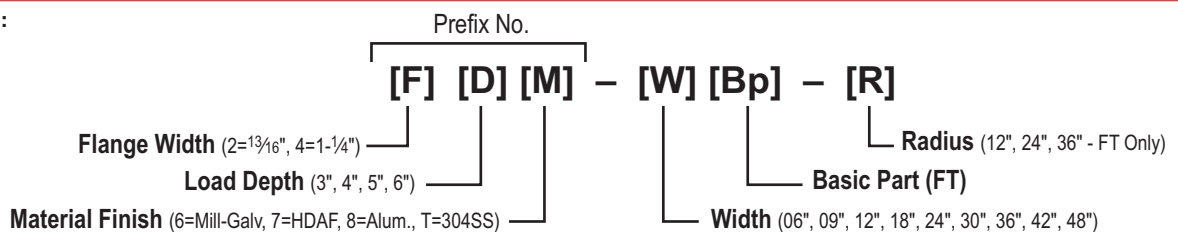
Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	15" (381mm)	30" (762mm)	18" (457mm)
	9" (229mm)	16½" (419mm)	33" (838mm)	21" (533mm)
	12" (305mm)	18" (457mm)	36" (914mm)	24" (610mm)
	18" (457mm)	21" (533mm)	42" (1067mm)	30" (762mm)
	24" (610mm)	24" (610mm)	48" (1219mm)	36" (914mm)
	30" (762mm)	27" (686mm)	54" (1372mm)	42" (1067mm)
	36" (914mm)	30" (762mm)	60" (1524mm)	48" (1219mm)
	42" (1067mm)	33" (838mm)	66" (1676mm)	54" (1372mm)
24" (610mm)	48" (1219mm)	36" (914mm)	72" (1829mm)	60" (1524mm)
	6" (152mm)	27" (686mm)	54" (1372mm)	30" (762mm)
	9" (229mm)	28½" (724mm)	57" (1448mm)	33" (838mm)
	12" (305mm)	30" (762mm)	60" (1524mm)	36" (914mm)
	18" (457mm)	33" (838mm)	66" (1676mm)	42" (1067mm)
	24" (610mm)	36" (914mm)	72" (1829mm)	48" (1219mm)
	30" (762mm)	39" (991mm)	78" (1981mm)	54" (1372mm)
	36" (914mm)	42" (1067mm)	84" (2134mm)	60" (1524mm)
36" (914mm)	42" (1067mm)	45" (1143mm)	90" (2286mm)	66" (1676mm)
	48" (1219mm)	48" (1219mm)	96" (2438mm)	72" (1829mm)
	6" (152mm)	39" (991mm)	78" (1981mm)	42" (1067mm)
	9" (229mm)	40½" (1029mm)	81" (2057mm)	45" (1143mm)
	12" (305mm)	42" (1067mm)	84" (2134mm)	48" (1219mm)
	18" (457mm)	45" (1143mm)	90" (2286mm)	54" (1372mm)
	24" (610mm)	48" (1219mm)	96" (2438mm)	60" (1524mm)
	30" (762mm)	51" (1295mm)	102" (2591mm)	66" (1676mm)
	36" (914mm)	54" (1372mm)	108" (2743mm)	72" (1829mm)
	42" (1067mm)	57" (1448mm)	114" (2896mm)	78" (1981mm)
48" (1219mm)	60" (1524mm)	120" (3048mm)	84" (2134mm)	

EXAMPLE: 238-12FT-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61 for Electrical Grounding Chart

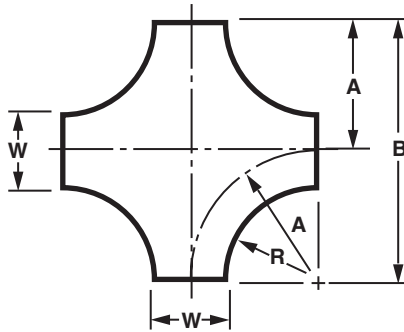
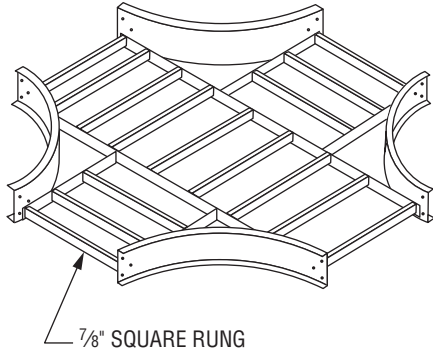




LADDER CABLE TRAY SYSTEM

Reference COPE™ WIRE BASKET COPE™ GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

Horizontal Cross [FC]



CSA Certified for CSA Systems

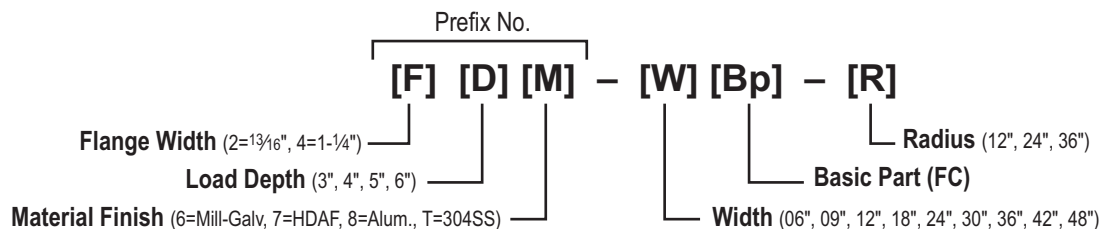
Radius - R	Width - W	"A" Dimension		"B" Dimension	
12" (305mm)	6" (152mm)	15"	(381mm)	30"	(762mm)
	9" (229mm)	16½"	(419mm)	33"	(838mm)
	12" (305mm)	18"	(457mm)	36"	(914mm)
	18" (457mm)	21"	(533mm)	42"	(1067mm)
	24" (610mm)	24"	(610mm)	48"	(1219mm)
	30" (762mm)	27"	(686mm)	54"	(1372mm)
	36" (914mm)	30"	(762mm)	60"	(1524mm)
	42" (1067mm)	33"	(838mm)	66"	(1676mm)
24" (610mm)	48" (1219mm)	36"	(914mm)	72"	(1829mm)
	6" (152mm)	27"	(686mm)	54"	(1372mm)
	9" (229mm)	28½"	(724mm)	57"	(1448mm)
	12" (305mm)	30"	(762mm)	60"	(1524mm)
	18" (457mm)	33"	(838mm)	66"	(1676mm)
	24" (610mm)	36"	(914mm)	72"	(1829mm)
	30" (762mm)	39"	(991mm)	78"	(1981mm)
	36" (914mm)	42"	(1067mm)	84"	(2134mm)
36" (914mm)	42" (1067mm)	45"	(1143mm)	90"	(2286mm)
	48" (1219mm)	48"	(1219mm)	96"	(2438mm)
	6" (152mm)	39"	(991mm)	78"	(1981mm)
	9" (229mm)	40½"	(1029mm)	81"	(2057mm)
	12" (305mm)	42"	(1067mm)	84"	(2134mm)
	18" (457mm)	45"	(1143mm)	90"	(2286mm)
	24" (610mm)	48"	(1219mm)	96"	(2438mm)
	30" (762mm)	51"	(1295mm)	102"	(2591mm)
	36" (914mm)	54"	(1372mm)	108"	(2743mm)
	42" (1067mm)	57"	(1448mm)	114"	(2896mm)
	48" (1219mm)	60"	(1524mm)	120"	(3048mm)

EXAMPLE: 238-12FC-12

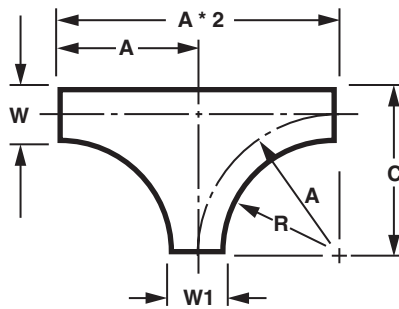
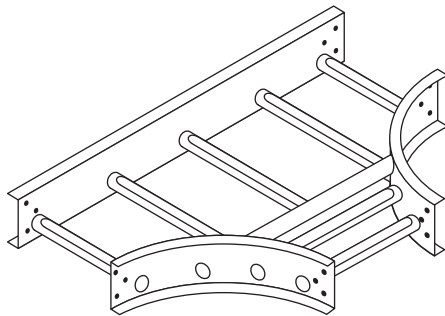
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61
for Electrical
Grounding Chart



Horizontal Tapped Tee [TT]



CSA Certified for CSA Systems

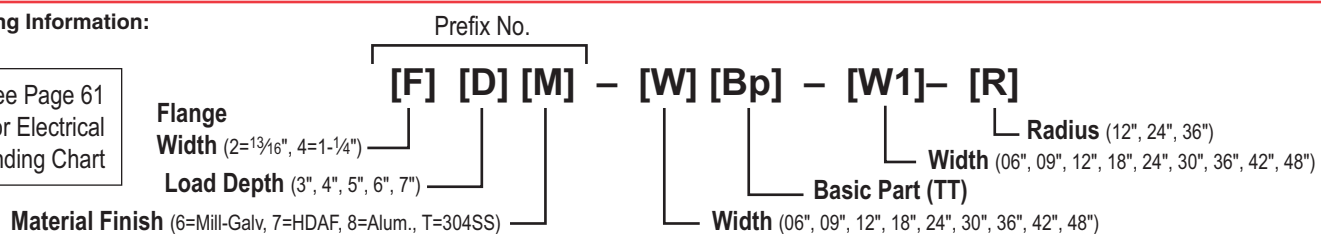
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	48" (1219mm)	42" (1067mm)	33" (838mm)	60" (1524mm)
		36" (914mm)	30" (762mm)	
		30" (762mm)	27" (686mm)	
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
	42" (1067mm)	9" (229mm)	16½" (419mm)	54" (1372mm)
		6" (152mm)	15" (381mm)	
		36" (914mm)	30" (762mm)	
		30" (762mm)	27" (686mm)	
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
36" (914mm)	12" (305mm)	18" (457mm)	48" (1219mm)	
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
	30" (762mm)	27" (686mm)		
	24" (610mm)	24" (610mm)		
	18" (457mm)	21" (533mm)		
30" (762mm)	12" (305mm)	18" (457mm)	42" (1067mm)	
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
	24" (610mm)	24" (610mm)		
	18" (457mm)	21" (533mm)		
	12" (305mm)	18" (457mm)		
24" (610mm)	9" (229mm)	16½" (419mm)	36" (914mm)	
	6" (152mm)	15" (381mm)		
	18" (457mm)	21" (533mm)		
	12" (305mm)	18" (457mm)		
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
18" (457mm)	12" (305mm)	18" (457mm)	30" (762mm)	
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
	12" (305mm)	18" (457mm)		
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
12" (305mm)	9" (229mm)	16½" (419mm)	24" (610mm)	
	6" (152mm)	15" (381mm)		
	12" (305mm)	18" (457mm)		
	9" (229mm)	16½" (419mm)		
	6" (152mm)	15" (381mm)		
	9" (229mm)	16½" (419mm)		
9" (229mm)	6" (152mm)	15" (381mm)	21" (533mm)	

EXAMPLE: 238-12TT-09-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61
for Electrical
Grounding Chart





LADDER CABLE TRAY SYSTEM

Intro. NEMA

COPE™ LADDER

COPE™ I-BEAM™

COPE™ HAT

COPE™ TROF

COPE™ CHANNEL

COPE-GLAS™

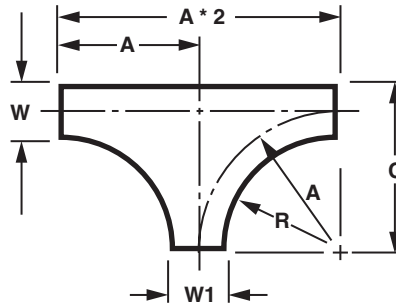
COPE™ WIRE BASKET

Reference

Reference

Reference

Horizontal Tapped Tee [TT] (cont.)



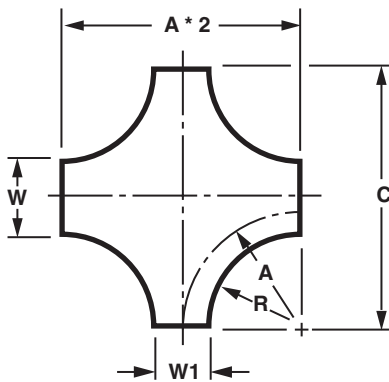
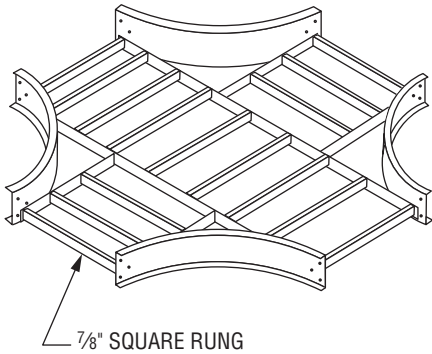
CSA Certified for CSA Systems				
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
24" (610mm)	48" (1219mm)	42" (1067mm)	45" (1143mm)	72" (1829mm)
		36" (914mm)	42" (1067mm)	
		30" (762mm)	39" (991mm)	
		24" (610mm)	36" (914mm)	
		18" (457mm)	33" (838mm)	
		12" (305mm)	30" (762mm)	
	42" (1067mm)	9" (229mm)	28½" (724mm)	66" (1676mm)
		6" (152mm)	27" (686mm)	
		36" (914mm)	42" (1067mm)	
		30" (762mm)	39" (991mm)	
		24" (610mm)	36" (914mm)	
		18" (457mm)	33" (838mm)	
36" (914mm)	12" (305mm)	30" (762mm)	60" (1524mm)	
	9" (229mm)	28½" (724mm)		
	6" (152mm)	27" (686mm)		
	30" (762mm)	39" (991mm)		
	24" (610mm)	36" (914mm)		
	18" (457mm)	33" (838mm)		
30" (762mm)	12" (305mm)	30" (762mm)	54" (1372mm)	
	9" (229mm)	28½" (724mm)		
	6" (152mm)	27" (686mm)		
	18" (457mm)	33" (838mm)		
	12" (305mm)	30" (762mm)		
	9" (229mm)	28½" (724mm)		
24" (610mm)	6" (152mm)	27" (686mm)	48" (1219mm)	
	18" (457mm)	33" (838mm)		
	12" (305mm)	30" (762mm)		
	9" (229mm)	28½" (724mm)		
18" (457mm)	6" (152mm)	27" (686mm)	42" (1067mm)	
	9" (229mm)	28½" (724mm)		
	12" (305mm)	30" (762mm)		
12" (305mm)	6" (152mm)	27" (686mm)	36" (914mm)	
	9" (229mm)	28½" (724mm)		
9" (229mm)	6" (152mm)	27" (686mm)	33" (838mm)	

CSA Certified for CSA Systems				
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
36" (914mm)	48" (1219mm)	42" (1067mm)	57" (1448mm)	84" (2134mm)
		36" (914mm)	54" (1372mm)	
		30" (762mm)	51" (1295mm)	
		24" (610mm)	48" (1219mm)	
		18" (457mm)	45" (1143mm)	
		12" (305mm)	42" (1067mm)	
	42" (1067mm)	9" (229mm)	40½" (1029mm)	78" (1981mm)
		6" (152mm)	39" (991mm)	
		36" (914mm)	54" (1372mm)	
		30" (762mm)	51" (1295mm)	
		24" (610mm)	48" (1219mm)	
		18" (457mm)	45" (1143mm)	
36" (914mm)	12" (305mm)	42" (1067mm)	72" (1829mm)	
	9" (229mm)	40½" (1029mm)		
	6" (152mm)	39" (991mm)		
	30" (762mm)	51" (1295mm)		
	24" (610mm)	48" (1219mm)		
	18" (457mm)	45" (1143mm)		
30" (762mm)	12" (305mm)	42" (1067mm)	66" (1676mm)	
	9" (229mm)	40½" (1029mm)		
	6" (152mm)	39" (991mm)		
	18" (457mm)	45" (1143mm)		
	12" (305mm)	42" (1067mm)		
	9" (229mm)	40½" (1029mm)		
24" (610mm)	6" (152mm)	39" (991mm)	60" (1524mm)	
	18" (457mm)	45" (1143mm)		
	12" (305mm)	42" (1067mm)		
	9" (229mm)	40½" (1029mm)		
18" (457mm)	6" (152mm)	39" (991mm)	54" (1372mm)	
	9" (229mm)	40½" (1029mm)		
	12" (305mm)	42" (1067mm)		
12" (305mm)	6" (152mm)	39" (991mm)	48" (1219mm)	
	9" (229mm)	40½" (1029mm)		
9" (229mm)	6" (152mm)	39" (991mm)	45" (1143mm)	

LADDER CABLE TRAY SYSTEM



Horizontal Tapped Cross [TC]



CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	48" (1219mm)	42" (1067mm)	33" (838mm)	72" (1829mm)
		36" (914mm)	30" (762mm)	
		30" (762mm)	27" (686mm)	
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
		9" (229mm)	16 1/2" (419mm)	
	6" (152mm)	15" (381mm)		
	42" (1067mm)	36" (914mm)	30" (762mm)	66" (1676mm)
		30" (762mm)	27" (686mm)	
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
		9" (229mm)	16 1/2" (419mm)	
6" (152mm)		15" (381mm)		
36" (914mm)	30" (762mm)	27" (686mm)	60" (1524mm)	
	24" (610mm)	24" (610mm)		
	18" (457mm)	21" (533mm)		
	12" (305mm)	18" (457mm)		
	9" (229mm)	16 1/2" (419mm)		
	6" (152mm)	15" (381mm)		
	30" (762mm)	24" (610mm)		24" (610mm)
18" (457mm)		21" (533mm)		
12" (305mm)		18" (457mm)		
9" (229mm)		16 1/2" (419mm)		
24" (610mm)	18" (457mm)	21" (533mm)	48" (1219mm)	
	12" (305mm)	18" (457mm)		
	9" (229mm)	16 1/2" (419mm)		
	6" (152mm)	15" (381mm)		
18" (457mm)	12" (305mm)	18" (457mm)	42" (1067mm)	
	9" (229mm)	16 1/2" (419mm)		
	6" (152mm)	15" (381mm)		
12" (305mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)	
	6" (152mm)	15" (381mm)		
9" (229mm)	6" (152mm)	15" (381mm)	33" (838mm)	

EXAMPLE: 238-36TC-18-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

Prefix No. [F] [D] [M] - [W] [Bp] - [W1]- [R]

See Page 61 for Electrical Grounding Chart

Flange Width (2=1 3/16", 4=1-1/4")

Load Depth (3", 4", 5", 6")

Material Finish (6=Mill-Galv, 7=HDAF, 8=Alum., T=304SS)

Radius (12", 24", 36")

Width (06", 09", 12", 18", 24", 30", 36", 42", 48")

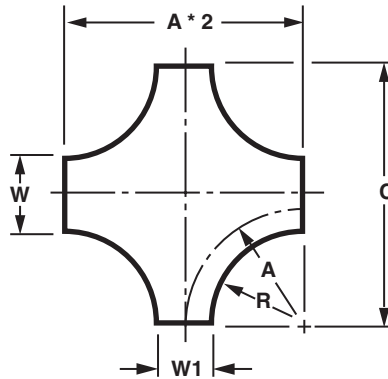
Basic Part (TC)

Width (06", 09", 12", 18", 24", 30", 36", 42", 48")



LADDER CABLE TRAY SYSTEM

Horizontal Tapped Cross [TC] (cont.)



CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
24" (610mm)	48" (1219mm)	42" (1067mm)	45" (1143mm)	96" (2438mm)	
		36" (914mm)	42" (1067mm)		
		30" (762mm)	39" (991mm)		
		24" (610mm)	36" (914mm)		
		18" (457mm)	33" (838mm)		
		12" (305mm)	30" (762mm)		
	42" (1067mm)	9" (229mm)	28½" (724mm)	90" (2286mm)	
		6" (152mm)	27" (686mm)		
		36" (914mm)	42" (1067mm)		84" (2134mm)
		30" (762mm)	39" (991mm)		
		24" (610mm)	36" (914mm)		
		18" (457mm)	33" (838mm)		
	12" (305mm)	30" (762mm)			
	9" (229mm)	28½" (724mm)	78" (1981mm)		
	6" (152mm)	27" (686mm)			
	36" (914mm)	24" (610mm)		36" (914mm)	72" (1829mm)
		18" (457mm)		33" (838mm)	
		12" (305mm)		30" (762mm)	
9" (229mm)		28½" (724mm)			
30" (762mm)	6" (152mm)	27" (686mm)	66" (1676mm)		
	12" (305mm)	30" (762mm)			
	18" (457mm)	33" (838mm)			
18" (457mm)	9" (229mm)	28½" (724mm)	60" (1524mm)		
	6" (152mm)	27" (686mm)			
12" (305mm)	9" (229mm)	28½" (724mm)	57" (1448mm)		
	6" (152mm)	27" (686mm)			
9" (229mm)	6" (152mm)	27" (686mm)			

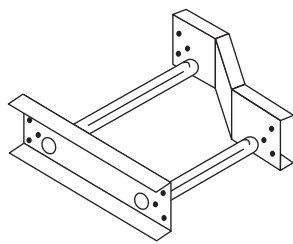
CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
36" (914mm)	48" (1219mm)	42" (1067mm)	57" (1448mm)	120" (3048mm)	
		36" (914mm)	54" (1372mm)		
		30" (762mm)	51" (1295mm)		
		24" (610mm)	48" (1219mm)		
		18" (457mm)	45" (1143mm)		
		12" (305mm)	42" (1067mm)		
	42" (1067mm)	9" (229mm)	40½" (1029mm)	114" (2896mm)	
		6" (152mm)	39" (991mm)		
		36" (914mm)	54" (1372mm)		108" (2743mm)
		30" (762mm)	51" (1295mm)		
		24" (610mm)	48" (1219mm)		
		18" (457mm)	45" (1143mm)		
	12" (305mm)	42" (1067mm)			
	9" (229mm)	40½" (1029mm)	102" (2591mm)		
	6" (152mm)	39" (991mm)			
	36" (914mm)	24" (610mm)		48" (1219mm)	96" (2438mm)
		18" (457mm)		45" (1143mm)	
		12" (305mm)		42" (1067mm)	
9" (229mm)		40½" (1029mm)			
30" (762mm)	6" (152mm)	39" (991mm)	90" (2286mm)		
	12" (305mm)	42" (1067mm)			
	18" (457mm)	45" (1143mm)			
24" (610mm)	9" (229mm)	40½" (1029mm)	84" (2134mm)		
	6" (152mm)	39" (991mm)			
18" (457mm)	12" (305mm)	42" (1067mm)	81" (2057mm)		
	9" (229mm)	40½" (1029mm)			
12" (305mm)	9" (229mm)	40½" (1029mm)			
9" (229mm)	6" (152mm)	39" (991mm)			

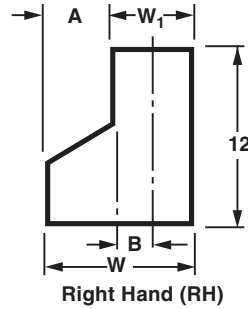
LADDER CABLE TRAY SYSTEM



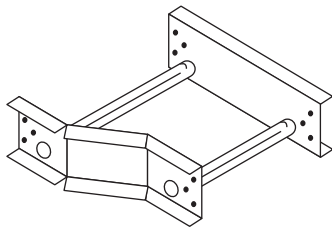
Left Hand [LH] & Right Hand [RH] Reducer



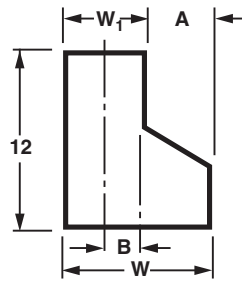
RIGHT HAND (RH)



Right Hand (RH)



LEFT HAND (LH)



Left Hand (LH)

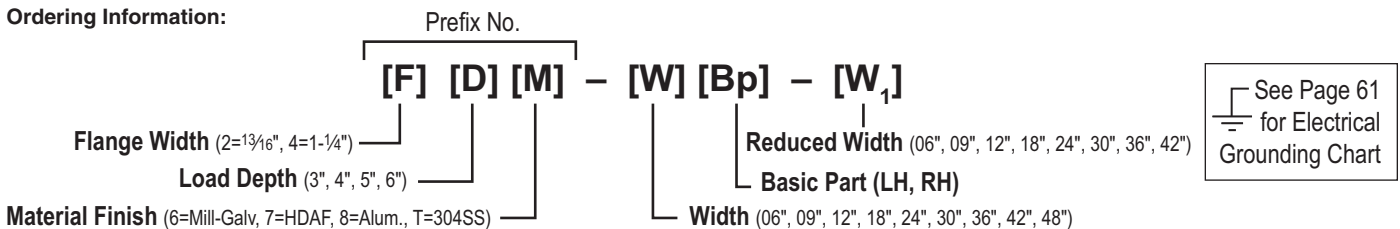
CSA Certified for CSA Systems

Width - W	"W1" Dim.	"A" Dim.	"B" Dim.
48" (1219mm)	42" (1067mm)	6" (152mm)	21" (533mm)
	36" (914mm)	12" (305mm)	18" (457mm)
	30" (762mm)	18" (457mm)	15" (381mm)
	24" (610mm)	24" (610mm)	12" (305mm)
	18" (457mm)	30" (762mm)	9" (229mm)
	12" (305mm)	36" (914mm)	6" (152mm)
	9" (229mm)	39" (991mm)	4 1/2" (114mm)
	6" (152mm)	42" (1067mm)	3" (76mm)
42" (1067mm)	36" (914mm)	6" (152mm)	18" (457mm)
	30" (762mm)	12" (305mm)	15" (381mm)
	24" (610mm)	18" (457mm)	12" (305mm)
	18" (457mm)	24" (610mm)	9" (229mm)
	12" (305mm)	30" (762mm)	6" (152mm)
	9" (229mm)	33" (838mm)	4 1/2" (114mm)
	6" (152mm)	36" (914mm)	3" (76mm)
	36" (914mm)	30" (762mm)	6" (152mm)
24" (610mm)		12" (305mm)	12" (305mm)
18" (457mm)		18" (457mm)	9" (229mm)
12" (305mm)		24" (610mm)	6" (152mm)
9" (229mm)		27" (686mm)	4 1/2" (114mm)
6" (152mm)		30" (762mm)	3" (76mm)
30" (762mm)	24" (610mm)	6" (152mm)	12" (305mm)
	18" (457mm)	12" (305mm)	9" (229mm)
	12" (305mm)	18" (457mm)	6" (152mm)
	9" (229mm)	21" (533mm)	4 1/2" (114mm)
	6" (152mm)	24" (610mm)	3" (76mm)
24" (610mm)	18" (457mm)	6" (152mm)	9" (229mm)
	12" (305mm)	12" (305mm)	6" (152mm)
	9" (229mm)	15" (381mm)	4 1/2" (114mm)
	6" (152mm)	18" (457mm)	3" (76mm)
18" (457mm)	12" (305mm)	6" (152mm)	6" (152mm)
	9" (229mm)	9" (229mm)	4 1/2" (114mm)
	6" (152mm)	12" (305mm)	3" (76mm)
12" (305mm)	9" (229mm)	3" (76mm)	4 1/2" (114mm)
	6" (152mm)	6" (152mm)	3" (76mm)
9" (229mm)	6" (152mm)	3" (76mm)	3" (76mm)

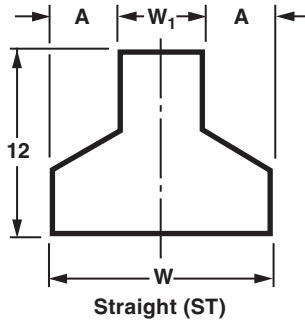
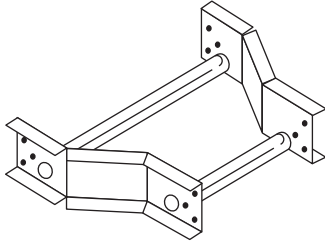
EXAMPLE: 238-12LH-06

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



Straight Reducer [ST]



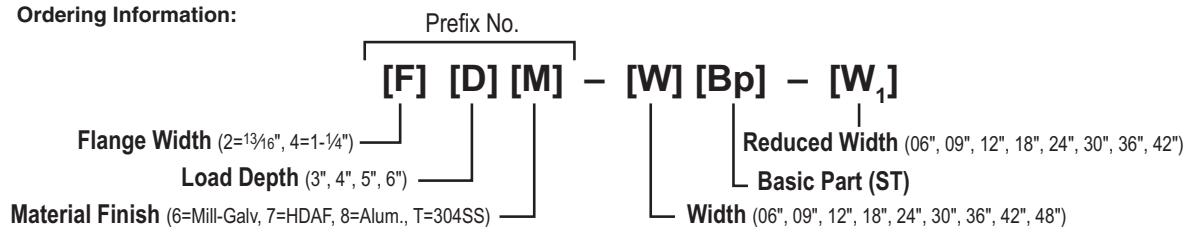
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Width - W	Width - W1	"A" Dimension
48" (1219mm)	42" (1067mm)	3" (76mm)
	36" (914mm)	6" (152mm)
	30" (762mm)	9" (229mm)
	24" (610mm)	12" (305mm)
	18" (457mm)	15" (381mm)
	12" (305mm)	18" (457mm)
	9" (229mm)	19½" (495mm)
42" (1067mm)	36" (914mm)	3" (76mm)
	30" (762mm)	6" (152mm)
	24" (610mm)	9" (229mm)
	18" (457mm)	12" (305mm)
	12" (305mm)	15" (381mm)
	9" (229mm)	16½" (419mm)
	6" (152mm)	18" (457mm)
36" (914mm)	30" (762mm)	3" (76mm)
	24" (610mm)	6" (152mm)
	18" (457mm)	9" (229mm)
	12" (305mm)	12" (305mm)
	9" (229mm)	13½" (343mm)
	6" (152mm)	15" (381mm)
30" (762mm)	24" (610mm)	3" (76mm)
	18" (457mm)	6" (152mm)
	12" (305mm)	9" (229mm)
	9" (229mm)	10½" (267mm)
	6" (152mm)	12" (304mm)
24" (610mm)	18" (457mm)	3" (76mm)
	12" (305mm)	6" (152mm)
	9" (229mm)	7½" (191mm)
	6" (152mm)	9" (229mm)
18" (457mm)	12" (305mm)	3" (76mm)
	9" (229mm)	4½" (114mm)
	6" (152mm)	6" (152mm)
12" (305mm)	9" (229mm)	1½" (38mm)
	6" (152mm)	3" (76mm)
9" (229mm)	6" (152mm)	1½" (38mm)

EXAMPLE: 238-12ST-06

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

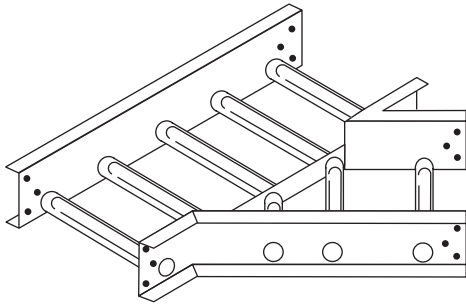


See Page 61
for Electrical
Grounding Chart

LADDER CABLE TRAY SYSTEM



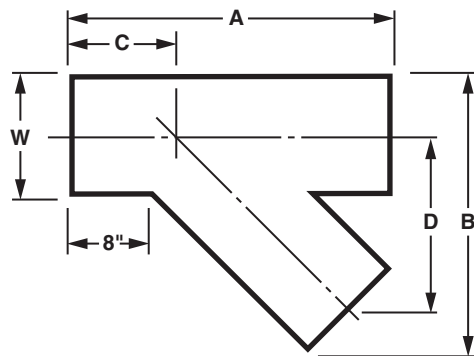
45° "Y" Branch Left Hand [LY] & Right Hand [RY]



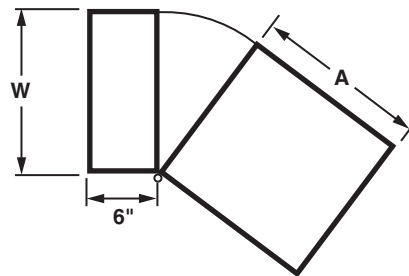
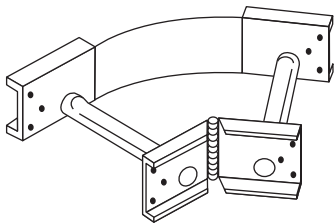
Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
6" (152mm)	22 1/2" (571mm)	16 1/4" (413mm)	9 1/4" (235mm)	11 1/8" (283mm)
9" (229mm)	26 3/4" (679mm)	21 3/8" (543mm)	9 13/16" (249mm)	13 3/4" (349mm)
12" (305mm)	31" (787mm)	26 1/2" (673mm)	10 1/2" (267mm)	16 1/4" (412mm)
18" (457mm)	39 1/2" (1003mm)	36 3/4" (933mm)	11 3/4" (298mm)	21 3/8" (543mm)
24" (610mm)	48" (1219mm)	47" (1193mm)	13" (330mm)	26 1/2" (673mm)
30" (762mm)	56 3/8" (1432mm)	57 1/4" (1454mm)	14 1/8" (359mm)	31 5/8" (803mm)
36" (914mm)	65" (1651mm)	67 1/2" (1714mm)	15 1/2" (394mm)	36 3/4" (933mm)
42" (1067mm)	73 3/8" (1864mm)	77 5/8" (1972mm)	16 3/4" (425mm)	41 3/4" (1060mm)
48" (1219mm)	81 7/8" (2080mm)	87 7/8" (2232mm)	18" (457mm)	46 7/8" (1191mm)

EXAMPLE: 238-12LY

RIGHT HAND (RY) SHOWN



Adjustable Elbow [AF]



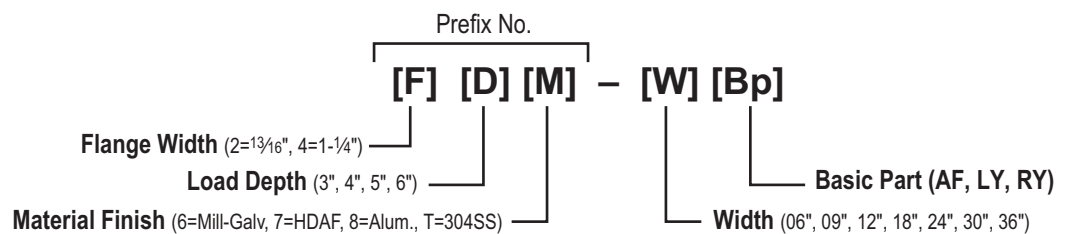
Width - W	"A" Dimension
6" (152mm)	8" (203mm)
9" (229mm)	11" (279mm)
12" (305mm)	14" (356mm)
18" (457mm)	20" (508mm)
24" (610mm)	26" (660mm)
30" (762mm)	32" (813mm)
36" (914mm)	38" (965mm)
42" (1067mm)	44" (1118mm)
48" (1219mm)	50" (1270mm)

EXAMPLE: 238-12AF

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61 for Electrical Grounding Chart

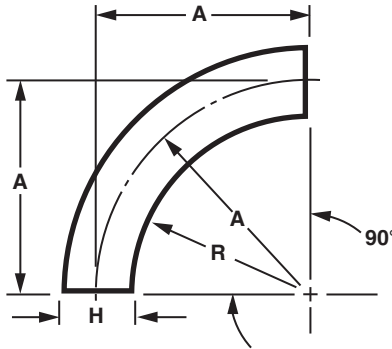
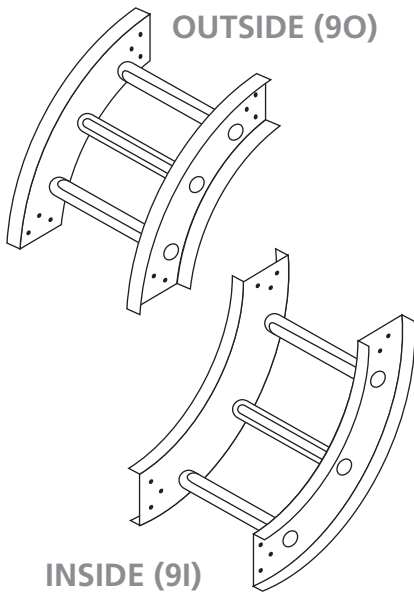




LADDER CABLE TRAY SYSTEM

Reference COPE™ WIRE BASKET COPE™ GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

90° Vertical Elbow Outside [90] & Inside [9I]

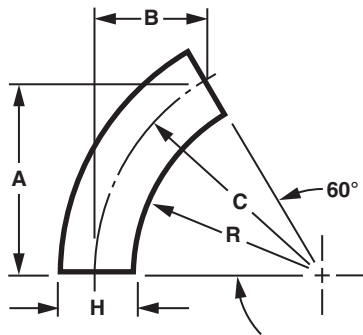


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Radius - R	"H" Dim.	"A" Dim.
12" (305mm)	4 1/4" (108mm)	14 1/8" (359mm)
	5 1/4" (133mm)	14 5/8" (372mm)
	6 1/4" (159mm)	15 1/8" (384mm)
	7 1/4" (184mm)	15 5/8" (397mm)
24" (610mm)	4 1/4" (108mm)	26 1/8" (664mm)
	5 1/4" (133mm)	26 5/8" (676mm)
	6 1/4" (159mm)	27 1/8" (689mm)
	7 1/4" (184mm)	27 5/8" (702mm)
36" (914mm)	4 1/4" (108mm)	38 1/8" (969mm)
	5 1/4" (133mm)	38 5/8" (981mm)
	6 1/4" (159mm)	39 1/8" (994mm)
	7 1/4" (184mm)	39 5/8" (1007mm)

EXAMPLE: 238-1290-12

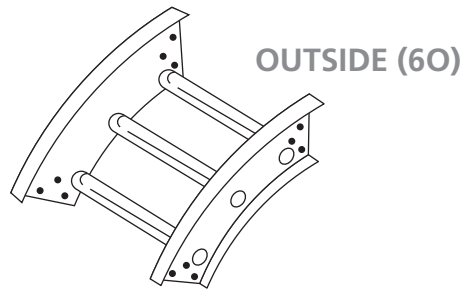
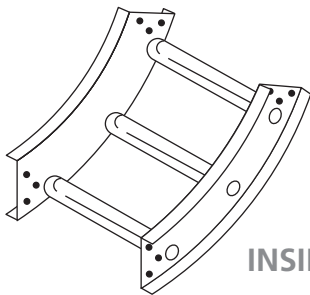
60° Vertical Elbow Outside [60] & Inside [6I]



CSA Certified for CSA Systems

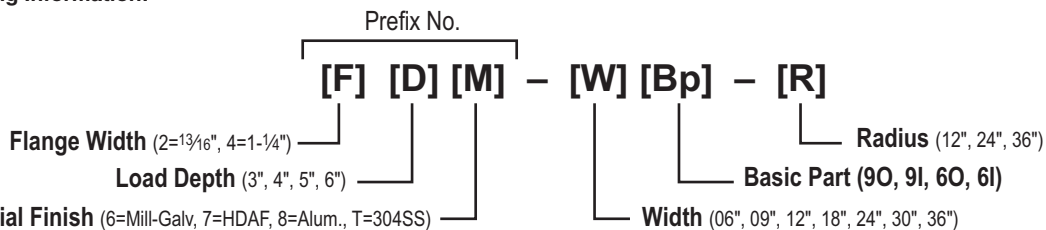
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	4 1/4" (108mm)	12 1/4" (311mm)	7 1/8" (181mm)	14 1/8" (359mm)
	5 1/4" (133mm)	12 5/8" (321mm)	7 3/8" (187mm)	14 5/8" (372mm)
	6 1/4" (159mm)	13 1/8" (334mm)	7 5/8" (194mm)	15 1/8" (384mm)
	7 1/4" (184mm)	13 1/2" (343mm)	7 7/8" (200mm)	15 5/8" (397mm)
24" (610mm)	4 1/4" (108mm)	22 5/8" (575mm)	13 1/8" (334mm)	26 1/8" (664mm)
	5 1/4" (133mm)	23 1/8" (588mm)	13 3/8" (340mm)	26 5/8" (676mm)
	6 1/4" (159mm)	23 1/2" (597mm)	13" (330mm)	27 1/8" (689mm)
	7 1/4" (184mm)	24" (610mm)	1 7/8" (353mm)	27 5/8" (702mm)
36" (914mm)	4 1/4" (108mm)	33" (838mm)	19 1/8" (486mm)	38 1/8" (969mm)
	5 1/4" (133mm)	33 1/2" (851mm)	19 3/8" (492mm)	38 5/8" (981mm)
	6 1/4" (159mm)	33 7/8" (861mm)	19 5/8" (499mm)	39 1/8" (994mm)
	7 1/4" (184mm)	34 3/8" (873mm)	19 7/8" (505mm)	39 5/8" (1007mm)

EXAMPLE: 238-1260-12



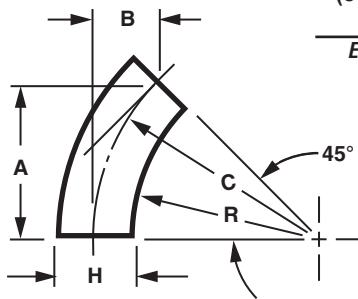
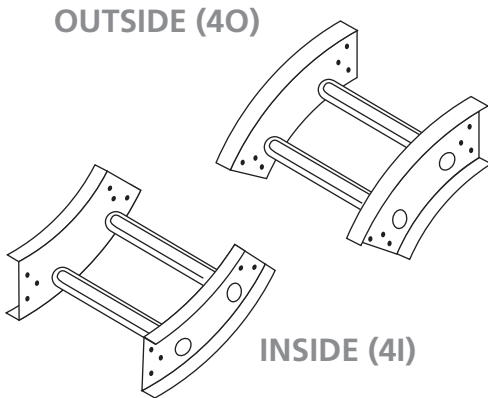
Note: Use Adjustable Connectors for odd angles. Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 61 for Electrical Grounding Chart

45° Vertical Elbow Outside [40] & Inside [41]

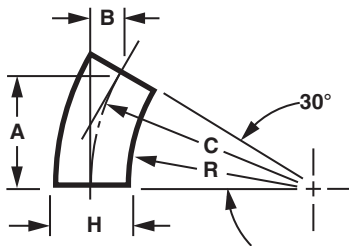
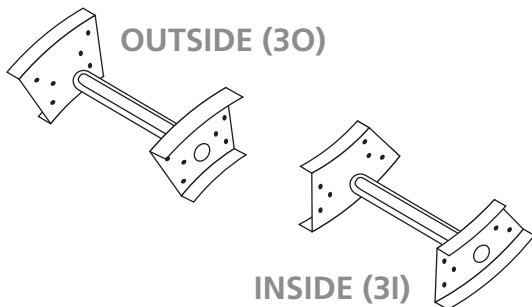


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Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	4 1/4" (108mm)	10" (254mm)	4 1/8" (105mm)	14 1/8" (359mm)
	5 1/4" (133mm)	10 3/8" (264mm)	4 1/4" (108mm)	14 5/8" (372mm)
	6 1/4" (159mm)	10 3/4" (273mm)	4 1/2" (114mm)	15 1/8" (384mm)
	7 1/4" (184mm)	11 1/8" (283mm)	4 5/8" (118mm)	15 1/8" (397mm)
24" (610mm)	4 1/4" (108mm)	18 1/2" (470mm)	7 5/8" (194mm)	26 1/8" (664mm)
	5 1/4" (133mm)	18 7/8" (480mm)	7 1/8" (200mm)	26 5/8" (676mm)
	6 1/4" (159mm)	19 1/4" (489mm)	8" (203mm)	27 1/8" (689mm)
	7 1/4" (184mm)	19 1/2" (495mm)	8 7/8" (207mm)	27 5/8" (702mm)
36" (914mm)	4 1/4" (108mm)	27" (686mm)	11 1/8" (283mm)	38 1/8" (969mm)
	5 1/4" (133mm)	27 3/8" (695mm)	11 3/8" (289mm)	38 5/8" (981mm)
	6 1/4" (159mm)	27 5/8" (702mm)	11 1/2" (292mm)	39 1/8" (994mm)
	7 1/4" (184mm)	8" (711mm)	11 5/8" (295mm)	39 5/8" (1007mm)

EXAMPLE: 238-1240-12

30° Vertical Elbow Outside [30] & Inside [31]



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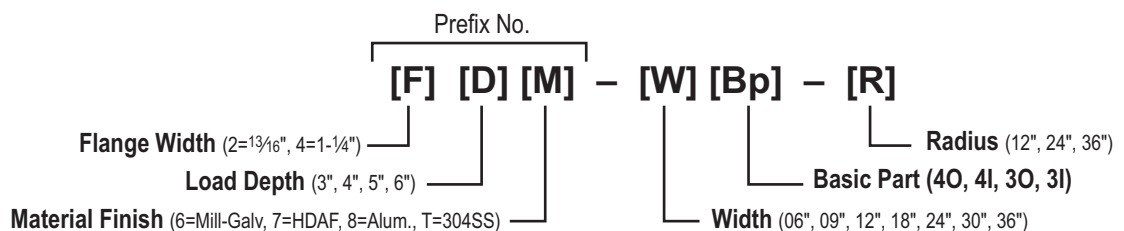
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	4 1/4" (108mm)	7 1/8" (181mm)	1 7/8" (48mm)	14 1/8" (359mm)
	5 1/4" (133mm)	7 3/8" (187mm)	2" (51mm)	14 5/8" (372mm)
	6 1/4" (159mm)	7 5/8" (194mm)	2" (51mm)	15 1/8" (384mm)
	7 1/4" (184mm)	7 7/8" (200mm)	2 1/8" (54mm)	15 5/8" (397mm)
24" (610mm)	4 1/4" (108mm)	13 1/8" (334mm)	3 1/2" (89mm)	26 1/8" (664mm)
	5 1/4" (133mm)	13 3/8" (340mm)	3 5/8" (92mm)	26 5/8" (676mm)
	6 1/4" (159mm)	13 5/8" (346mm)	3 5/8" (92mm)	27 1/8" (689mm)
	7 1/4" (184mm)	13 7/8" (353mm)	3 3/4" (95mm)	27 5/8" (702mm)
36" (914mm)	4 1/4" (108mm)	19 1/8" (486mm)	5 1/8" (130mm)	38 1/8" (969mm)
	5 1/4" (133mm)	19 3/8" (492mm)	5 1/4" (133mm)	38 5/8" (981mm)
	6 1/4" (159mm)	19 5/8" (499mm)	5 1/4" (133mm)	39 1/8" (994mm)
	7 1/4" (184mm)	19 7/8" (505mm)	5 3/8" (137mm)	39 5/8" (1007mm)

EXAMPLE: 238-1230-12

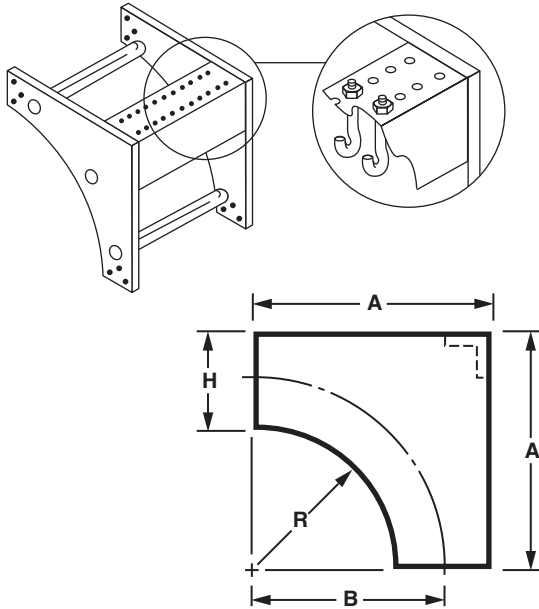
Note: Use Adjustable Connectors for odd angles. Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61
for Electrical
Grounding Chart



90° Vertical Cable Support Elbow [SR]



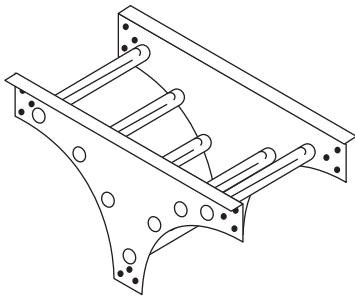
CSA Certified for CSA Systems

Radius - R	"H" Dim.	"A" Dim.	"B" Dim.
12" (305mm)	4 1/4" (108mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	17 1/4" (438mm)	14 5/8" (371mm)
	6 1/4" (159mm)	18 1/4" (464mm)	15 1/8" (384mm)
24" (610mm)	4 1/4" (108mm)	28 1/4" (718mm)	26 1/8" (664mm)
	5 1/4" (133mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	30 1/4" (768mm)	27 1/8" (689mm)
36" (914mm)	4 1/4" (108mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	42 1/4" (1073mm)	39 1/8" (994mm)
	7 1/4" (814mm)	43 1/4" (1099mm)	39 5/8" (1006mm)

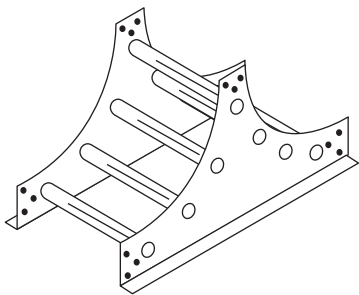
EXAMPLE: 238-12SR-12

Vertical Tee Down [VT] & Up [OT]

VERTICAL TEE - DOWN (VT)



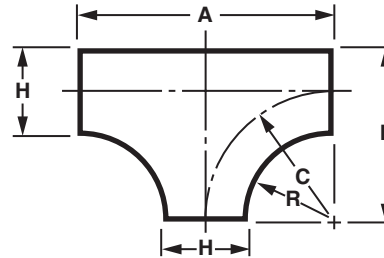
VERTICAL TEE - UP (OT)



CSA Certified for CSA Systems

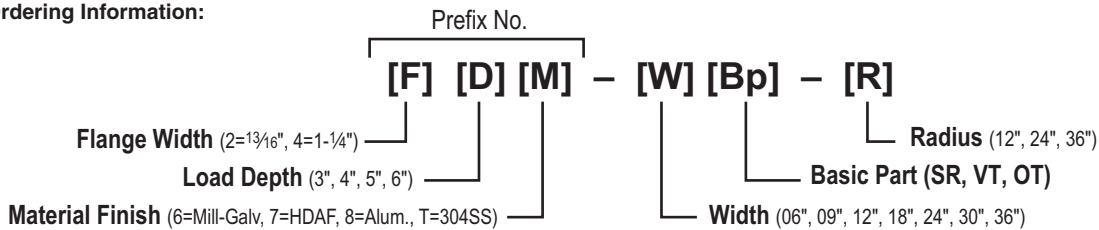
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	4 1/4" (108mm)	28 1/4" (718mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	29 1/4" (743mm)	17 1/4" (438mm)	14 5/8" (371mm)
	6 1/4" (159mm)	30 1/4" (768mm)	18 1/4" (464mm)	15 1/8" (384mm)
24" (610mm)	4 1/4" (108mm)	52 1/4" (1327mm)	28 1/4" (718mm)	26 1/8" (664mm)
	5 1/4" (133mm)	53 1/4" (1353mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	54 1/4" (1378mm)	30 1/4" (768mm)	27 1/8" (689mm)
36" (914mm)	4 1/4" (108mm)	76 1/4" (1937mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	77 1/4" (1962mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	78 1/4" (1988mm)	42 1/4" (1073mm)	39 1/8" (994mm)
	7 1/4" (814mm)	79 1/4" (2013mm)	43 1/4" (1099mm)	39 5/8" (1006mm)

EXAMPLE: 238-12VT-12



Note: Use Adjustable Connectors for odd angles. Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 61 for Electrical Grounding Chart

LADDER CABLE TRAY SYSTEM



CONNECTOR PLATES

Tray Connectors

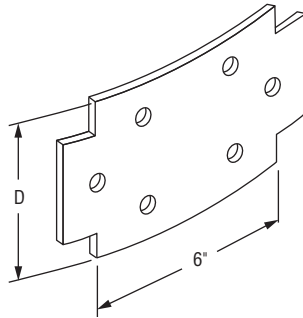
Catalog Number		
Load Depth	Finish	Basic No.
3"	6 (Mill Galv.)	-02RC
4"	7 (HDGAF)	-02CE
5"	8 (Alum.)	-02CV
6"	T (304SS)	-02CH -02CA

EXAMPLE: 38 -02RC for 3" load depth, aluminum, universal curvilinear connector.

NOTE: Hole patterns match corresponding tray.
Three-hole pattern illustrated.

Universal Curvilinear Connector [RC]

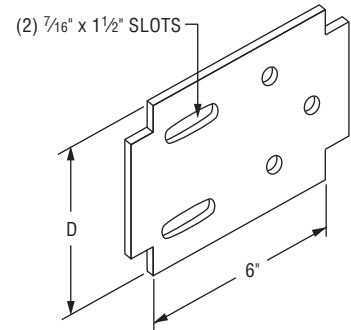
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.

Expansion Connector [CE]

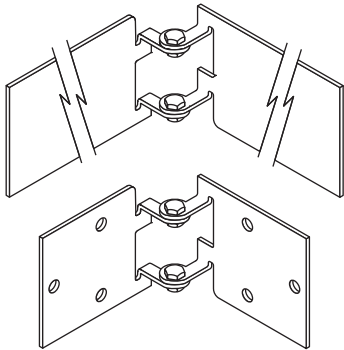
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 cap screws & Nylok nuts furnished and
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are
sold separately.

Horizontal Adjustable Connector [CH]

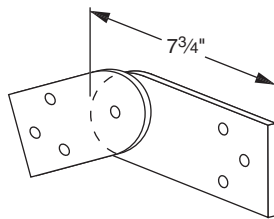
Note: Sold in pairs – inner & outer



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are
sold separately.

Vertical Adjustable Connector [CV]

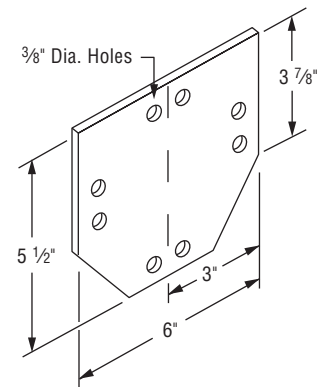
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are
sold separately.

Mid-Span Splice Plate [RC]

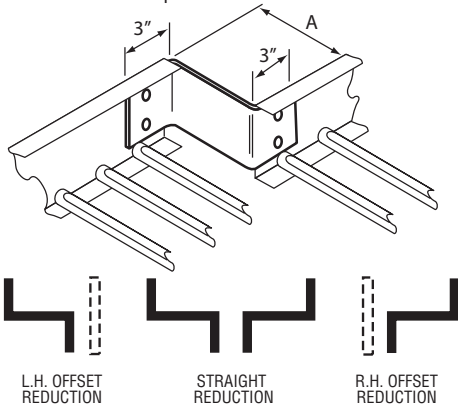
Catalog Number: 58-02RC-MID



3/8" - Aluminum
For use with 7D58 and 7G58 Systems.

Reducing Connector [CO]

Note: Not sold in pairs



12 Gage Steel, 0.125" Aluminum
For offset reductions – use 1 of above with standard
connector plate.
For straight reductions– use 2 (of 1/2 reduction dim.).
3/8"-16 spline bolts and flange nuts furnished.

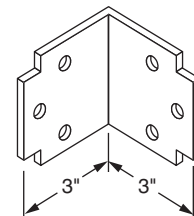
Catalog Number

Load Depth	Finish	Basic Number	"A" Dimension
3"	6 (Mill Galv.)	-30CO	30" (762mm)
4"	7 (HDGAF)	-27CO	27" (686mm)
5"	8 (Alum.)	-24CO	24" (610mm)
6"	T (304SS)	-21CO	21" (533mm)
		-18CO	18" (457mm)
		-15CO	15" (381mm)
		-13CO	13 1/2" (343mm)
		-12CO	12" (305mm)
		-10CO	10 1/2" (267mm)
		-09CO	9" (229mm)
		-07CO	7 1/2" (191mm)
		-06CO	6" (152mm)
		-04CO	4 1/2" (114mm)
		-03CO	3" (76mm)
		-01CO	1 1/2" (38mm)

EXAMPLE: 38-03CO for 3" load depth, aluminum,
3" Reducer Connector. Typical Use: 9" to 6", or
use 2 for 12" to 6", etc.

90° Angle Connector [CA]

Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts and flange nuts furnished.



LADDER CABLE TRAY SYSTEM

HARDWARE

MATERIAL/FINISH

Electrogalvanized finish standard. Other finishes available; consult factory.

*Use following suffix when applicable - use only where indicated.

No Suffix Electrogalvanized carbon steel only

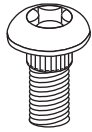
-SS..... 302/304 Stainless Steel

-S1 316 Stainless Steel (check factory for availability)

Example: PS 6024 3/8 x 1 1/2 SS, 3/8 x 1 1/2 hex head bolt, 304 stainless steel

Connector Hardware

(Case-hardened steel electrogalvanized)



Part No. 5003-1
3/8"-16 x 1" spline bolt



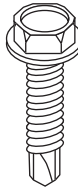
Part No. 5009-1
3/8"-16 hex-flanged nut with serrated washer face.

Cover Screw [EM]

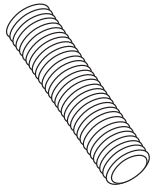
Part No. EM-CC (electrogalv. steel)
Part No. EM-CC-SS (stainless steel)

No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
Indoor: 8 per 12";
Outdoor: 10 per 12'



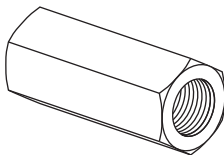
Continuous Threaded Rod [PS 146]



Cat. No.	Size (Diameter x Length)
PS 146*	1/4" x 10'
PS 146*	3/8" x 10'
PS 146*	1/2" x 10'
PS 146*	5/8" x 10'
PS 146*	3/4" x 10'

(Hot Dip Galvanized not available)

Rod Coupler [PS 135]



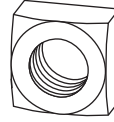
Cat. No.	Size
PS 135*	1/4"
PS 135*	3/8"
PS 135*	1/2"
PS 135*	5/8"
PS 135*	3/4"

Hex Nuts [PS 83]



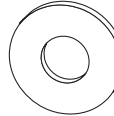
Cat. No.	Size
PS 83*	1/4"
PS 83*	3/8"
PS 83*	1/2"
PS 83*	5/8"
PS 83*	3/4"

Square Nuts [PS 6108]



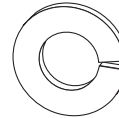
Cat. No.	Size
PS 6108*	1/4"
PS 6108*	3/8"
PS 6108*	1/2"
PS 6108*	5/8"
PS 6108*	3/4"

Flat Washers [PS 209]



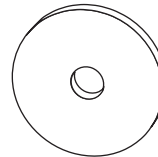
Cat. No.	Size
PS 209*	1/4"
PS 209*	3/8"
PS 209*	1/2"
PS 209*	5/8"
PS 209*	3/4"

Split-Lock Washers [PS 211]



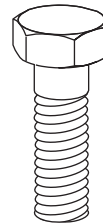
Cat. No.	Size
PS 211*	1/4"
PS 211*	3/8"
PS 211*	1/2"
PS 211*	5/8"
PS 211*	3/4"

Fender Washers [PS 230]

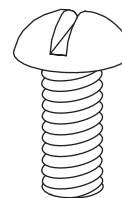


Cat. No.	Size (I.D. x O.D.)
PS 230*	1/4" x 1 1/4" O.D.
PS 230*	3/8" x 1 1/2" O.D.
PS 230*	1/2" x 2" O.D.

Hex Head Cap Screw / Round Head, Slotted Cap Screw [PS 6024]



Catalog No. PS 6024



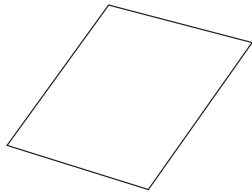
Catalog No. PS 6072

Hex Head Cap Screw Cat. No.	Round Head Cap Screw Cat. No.	Size (Dia. x Len.)
PS 6024*	PS 6072*	1/4" x 1"
PS 6024*	PS 6072*	1/4" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 1"
PS 6024*	PS 6072*	3/8" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 3"
PS 6024*	PS 6072*	1/2" x 1"
PS 6024*	PS 6072*	1/2" x 1 1/2"
PS 6024*	PS 6072*	1/2" x 2"
PS 6024*	PS 6072*	1/2" x 2 1/2"
PS 6024*	PS 6072*	1/2" x 3"
PS 6024*	PS 6072*	1/2" x 3 1/2"
PS 6024*	PS 6072*	5/8" x 1 1/2"
PS 6024*	PS 6072*	5/8" x 2"
PS 6024*	PS 6072*	5/8" x 3"
PS 6024*	PS 6072*	5/8" x 4"
PS 6024*	PS 6072*	3/4" x 2"
PS 6024*	PS 6072*	3/4" x 3"
PS 6024*	PS 6072*	3/4" x 4"

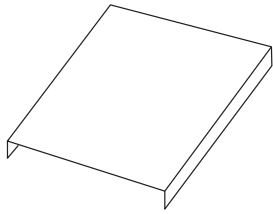
LADDER CABLE TRAY SYSTEM



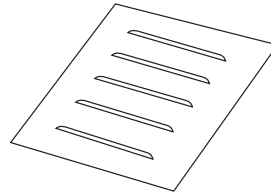
COVERS for straight sections shown. Standard fitting covers are flat solid type (NF). Aluminum covers are fabricated from 0.040" aluminum AA-3150-H14; steel covers are fabricated from 20 gage ASTM A-653-G90 CQ, mill-galvanized steel.



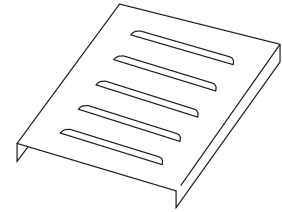
NF – Flat Solid



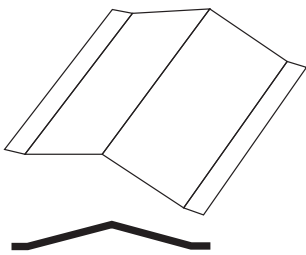
FS – Flat Solid
w/ $\frac{3}{8}$ " Flange



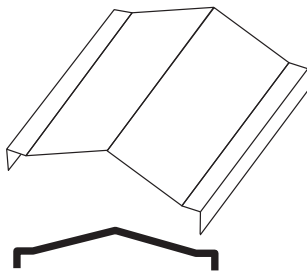
NL – Flat Louvered



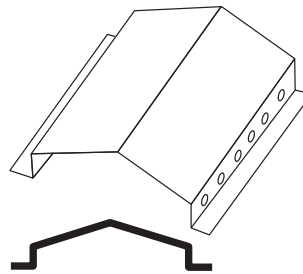
FL – Louvered
w/ $\frac{3}{8}$ " Flange



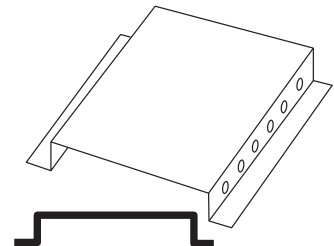
PS –Peaked Solid
(suffix height)



PF – Peaked Flanged Solid
w/ $\frac{3}{8}$ " Flange
(suffix height)



PH – Peaked Hat Solid
PV – Peaked Hat Vent
(suffix height)



HS –Hat Solid
HV –Hat Vent
(suffix height)

Note: Use EM-CC Cover Screws (see pg. 57) to attach PH, PV, HS & HV covers.

Hot dip covers - straights only 6'

Cover Catalog Number – Straight Sections

Type	Flange	Finish	Basic No. (Width)	Length	Height*
HS, HV,	2 - $\frac{13}{16}$ "	6 - Mill Galv.	-06SL = 6" (152mm)	-06'	-2"
FL, FS,	4 - $1\frac{1}{4}$ "	7 - HDGAF	-09SL = 9" (229mm)	-10'	
NF, NL,	5 - $1\frac{1}{2}$ "	8 - Alum.	-12SL = 12" (305mm)	-12'	
PS, PF,	6 - $1\frac{3}{4}$ "	T - 304SS	-18SL = 18" (457mm)		
PH, PV	7 - 2"		-24SL = 24" (610mm)		
			-30SL = 30" (762mm)		
			-36SL = 36" (914mm)		

*peak and hat only, 2" height standard. Consult factory for other heights.

EXAMPLE: NL46-09SL-10 is a flat louvered mill-galv. steel cover for a 9" wide mill galvanized ladder 10' long with a $1\frac{1}{4}$ " flange.

Cover Catalog Number – Fittings

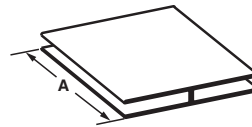
Type	Flange	Load Depth	Finish	Width/Basic No.	Radius
NF	2 - $\frac{13}{16}$ "	3	6 - Mill Galv.	-06 XX **	12"
FS	4 - $1\frac{1}{4}$ "	4	7 - HDGAF	-09 XX **	24"
		5	8 - Alum.*	-12 XX **	36"
		6	T - 304SS	-18 XX **	
				-24 XX **	
				-30 XX **	
				-36 XX **	

* Load depth for outside riser or vertical tee only.

** XX from fitting selection page 32

EXAMPLE: NF26-369F-24 is a mill galvanized non-flanged solid cover for a 36" wide horizontal 90° elbow with a 24" radius.

Joint Plate

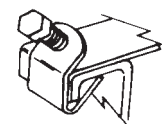


Joint plate is black PVC and is offered in 10' lengths to be field cut to desired length, or in pre-cut lengths for specified covers (e.g., PJ-06 is a joint plate for 6" wide tray).

Part No.	Tray Size
JP-06	6" (152mm)
JP-09	9" (229mm)
JP-12	12" (305mm)
JP-18	18" (457mm)

Part No.	Tray Size
JP-24	24" (610mm)
JP-30	30" (762mm)
JP-36	36" (914mm)
JP-120	10' for field cut

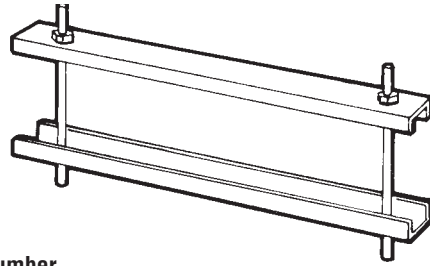
Stainless Steel Cover Clip [CCS-SS]



$\frac{1}{4}$ " - 28 stainless steel cone point machine screw.
Use with any width tray and cover. Not sold in pairs.

Indoor use only. Suggest spacing 6' max.

Double Clamp Connector [(W) DC]



Catalog Number

Flange	Load Depth	Finish	Width	Type
2=1 ³ / ₁₆ "	3	6=Mill Galv.	-06	DC
4=1 ¹ / ₄ "	4	7=HDGAF	-09	
5=1 ¹ / ₂ "	5	8=Alum.	-12	
6=1 ³ / ₄ "	6	T=304SS	-18	
7=2"			-24	
			-30	
			-36	

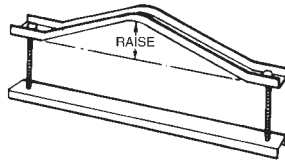
EXAMPLE: 238-12DC for 3" load depth, 1³/₁₆" flange, aluminum, Double Clamp Connector

For all covers except hat & peak type. Furnished with:
(2) 1/4"-20 all-thread rods
(4) hex nuts, flat washers and lock washers

Suggested spacing:
Indoor: 2 per 12'
Outdoor: 3 per 12'
High Wind: 5 per 12'

Peak Cover Connector [PC]

Note: For PS & PF Covers



Catalog Number

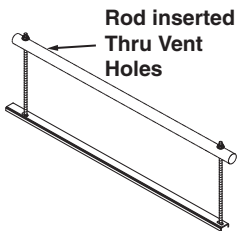
Flange	Load Depth	Finish	Width	Type	Raise (in)*
2=1 ³ / ₁₆ "	3	6=Mill Galv.	-06	PC	-2
4=1 ¹ / ₄ "	4	7=HDGAF	-09		
5=1 ¹ / ₂ "	5	8=Alum.	-12		
6=1 ³ / ₄ "	6	T=304SS	-18		
7=2"			-24		
			-30		
			-36		

*2" standard raise. Consult factory for other peak heights.

EXAMPLE: 238-12PC-2 for 3" load depth, 1³/₁₆" flange, aluminum, 12" wide, Peak Cover Connector with 2" peak.

Peak Vent Cover Connector [VC]

Note: For PV Covers

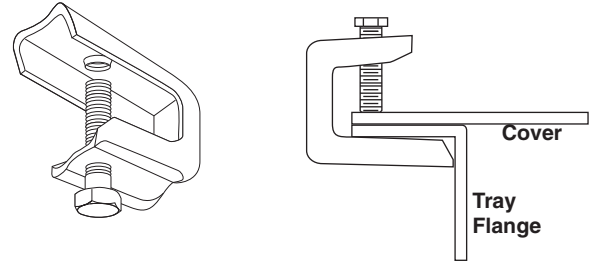


Catalog Number

Flange	Load Depth	Finish	Width	Type
2=1 ³ / ₁₆ "	3	6=Mill Galv.	-06	VC
4=1 ¹ / ₄ "	4	7=HDGAF	-09	
5=1 ¹ / ₂ "	5	8=Alum.	-12	
6=1 ³ / ₄ "	6	T=304SS	-18	
7=2"			-24	
			-30	
			-36	

EXAMPLE: 238-12VC for 3" load depth, 1³/₁₆" flange, aluminum, 12" wide, Peak Vented Cover Connector

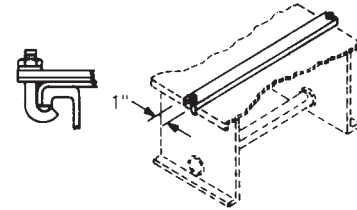
Electro-Galv. Steel Cover Clip [PS 135X]



Use with any width tray. Not sold in pairs.
Indoor use only. Suggest spacing 6' max.

Cover Connector [CC]

Note: For all covers except hat & peak type

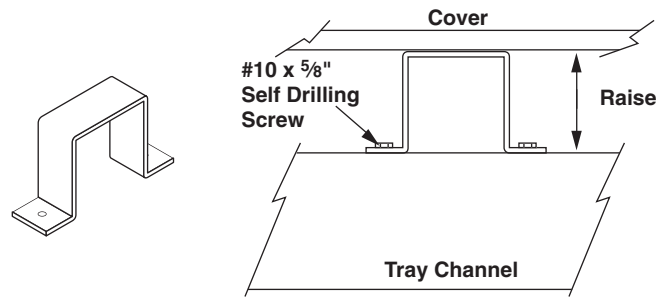


Catalog Number

Flange	Finish	Width	Type
2=1 ³ / ₁₆ "	6=Mill Galv.	-06	CC
4=1 ¹ / ₄ "	7=HDGAF	-09	
5=1 ¹ / ₂ "	8=Alum.	-12	
6=1 ³ / ₄ "	T=304SS	-18	
7=2"		-24	
		-30	
		-36	

EXAMPLE: 28-12CC for aluminum, 12" wide Cover Connector

Elevated Cover Connectors [EM-CC]



Catalog Number

Finish	Type	Height*
6=Mill Galv.	EM-CC	- Raise* (in.)
7=HDGAF		
8=Alum.		
T=304SS		

Includes:
(3) #10 x 5/8 Self drilling screws.

Suggested spacing:
Indoor: 3/Side
(6 tot.) per 12';

*1", 2" or 3" standard.

EXAMPLE: 7-EM-CC-2 for hot dipped galvanized, Elevated Cover Connector with a 2" raise

LADDER CABLE TRAY SYSTEM

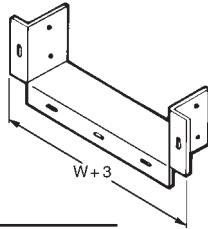


ACCESSORIES

Box Connector [CB]

14 Gage Steel
.080" Aluminum

Note: 1/4"-20 carriage bolts, flat washers, hex nuts furnished.



Catalog Number

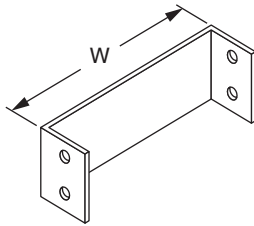
Load Depth	Finish	Width
3	6 (Mill Galv.)	-06CB = 6" (152mm)
4	7 (HDGAF)	-09CB = 9" (229mm)
5	8 (Alum.)	-12CB = 12" (305mm)
6	T (304SS)	-18CB = 18" (457mm)
		-24CB = 24" (610mm)
		-30CB = 30" (762mm)
		-36CB = 36" (914mm)

EXAMPLE: 38-12CB for 3" load depth, aluminum, 12" wide, Box Connector.

Blind End [BE]

22 Gage Steel, .040" Aluminum

Note: 3/8"-16 spline bolts and flange nuts furnished.



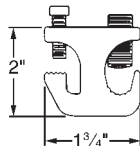
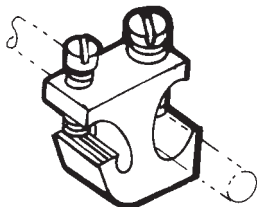
Catalog Number

Load Depth	Finish	Width
3	6 (Mill Galv.)	-06BE = 6" (152mm)
4	7 (HDGAF)	-09BE = 9" (229mm)
5	8 (Alum.)	-12BE = 12" (305mm)
6	T (304SS)	-18BE = 18" (457mm)
		-24BE = 24" (610mm)
		-30BE = 30" (762mm)
		-36BE = 36" (914mm)

EXAMPLE: 38-12BE for 3" load depth, aluminum, 12" wide Blind End.

Cable Tray Ground Clamp [9156]

Extruded Alum. with ElectroGalvanized Hex Head Screws
Capacity: #6 AWG to 250 kcmil



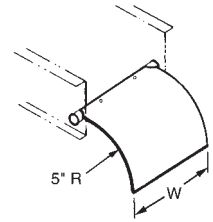
UL Listed E-24264

Certified File No. LR 9795

Drop Out [DO]

14 Gage Steel
.080" Aluminum

Note: (2) #10 x 5/8" self tapping screws furnished.

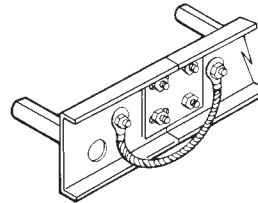


Catalog Number

Basic Finish	Width
6 (Mill Galv.)	-06DO = 6" (152mm)
7 (HDGAF)	-09DO = 9" (229mm)
8 (Alum.)	-12DO = 12" (305mm)
T (304SS)	-18DO = 18" (457mm)
	-24DO = 24" (610mm)
	-30DO = 30" (762mm)
	-36DO = 36" (914mm)

EXAMPLE: 8-12DO for aluminum, 12" wide, Drop Out.

Bonding Jumper [CBJ]



Catalog No.	Dimensional Data	Amperes as Equipment Ground
CBJ-C	AWG 1/0 copper wire 15 1/2" long overall	800 amperes
CBJ-4C	AWG 4/0 copper wire 15 1/2" long overall	1,600 amperes
CBJ-250C	250 MCM copper wire 15 1/2" long overall	2,000 amperes

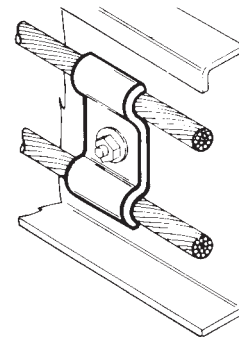
NOTE:

No hardware supplied

For hardware kit add -HDW:

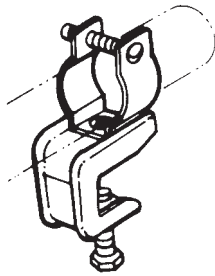
Ex: CBJ-C-HDW includes
2ea CBJ-C
4ea 5003-1
4ea 5009-1

Ground Cable Retainer Clamp



Catalog No.	Capacity	Metal & Finish	Dimensions
9056-EP	1/0 2/0 3/0	Electro-Galv. Steel	1" w x 2" long
9057-EP	4/0 250 MCM		1" w x 2 3/8" long
9056-SS	1/0 2/0 3/0	Stainless Steel	1" w x 2" long
9057-SS	4/0 250 MCM		1" w x 2 3/8" long

Conduit Clamp Bracket

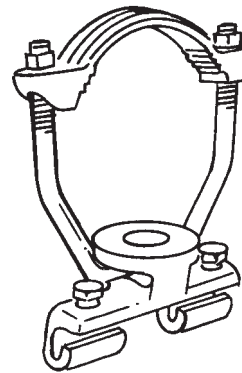


Catalog No.	Size-Rigid	Size-EMT
CCB-050	3/8" to 1/2"	1/2"
CCB-075	3/4"	3/4"
CCB-100	1"	1"
CCB-125	-	1 1/4"
CCB-150	1 1/4"	1 1/2"
CCB-200	2"	2"

Conduit-to-Cable Tray Clamp Swivel Type

Malleable iron hub and steel "U" bolt. For connecting and grounding rigid conduit to tray at any angle within 90° arc. U.L. listed as a grounding means.

Catalog No.	Size	Std. Pkg.
TB6209	1/2"-3/4"	10
TB6211	1"-1 1/4"	10
TB6214	1 1/2"-2"	5
TB6216	2 1/2"-3"	5
TB6218	3 1/2"-4"	2

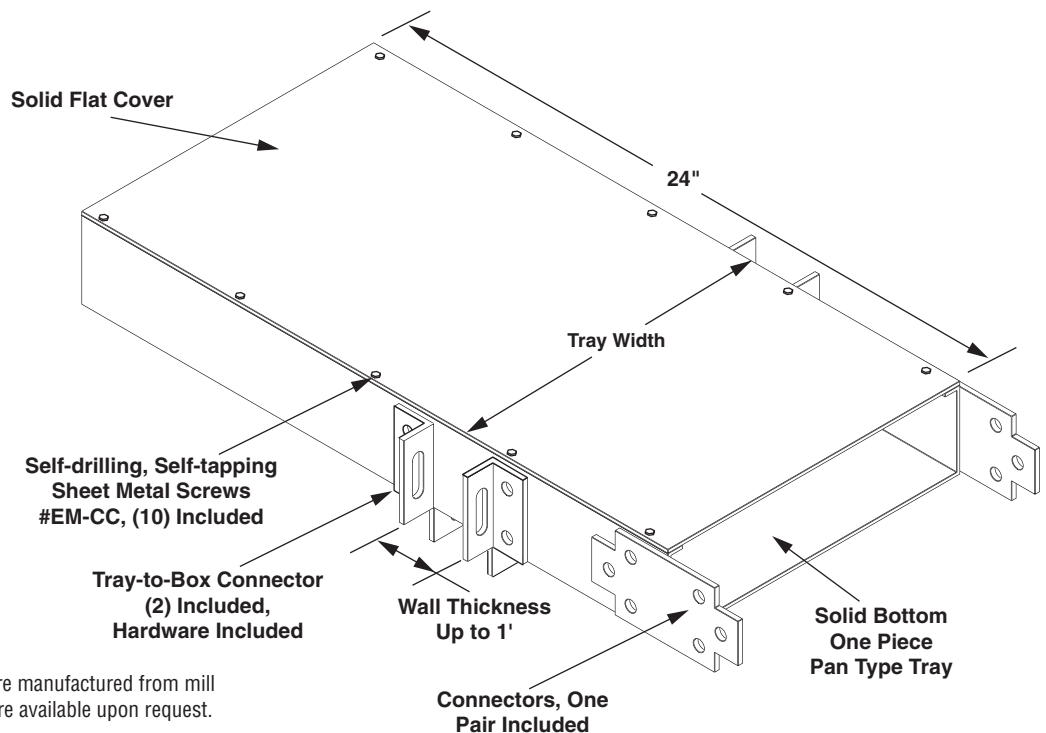


Wall Penetrating Sleeve Assembly

Part No. SS89042(W)*

W = Tray Width

*=Fitting 3-Digit Prefix



Note: Standard penetration sleeves are manufactured from mill galvanized steel. Aluminum sleeves are available upon request.

LADDER CABLE TRAY SYSTEM



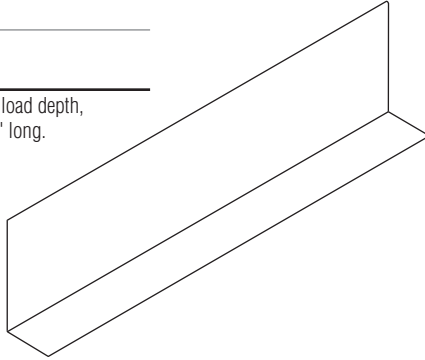
BARRIER STRIPS

Universal Aluminum Barrier Strip - Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. 12' Length
3	A (Alum.)	-01SB-12
4		
5		
6		

EXAMPLE: 3A-01SB-12 for 3" load depth, aluminum straight barrier, 12' long.

Furnished with 8 self tapping screws.



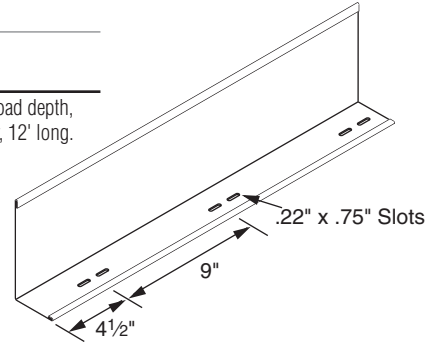
Barrier Strip - Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. 12' Length
3	6 (Mill Galv.)	-01SB-12
4	7 (HDGAF)	
5	8 (Alum.) *	
6	T (304 SS)	

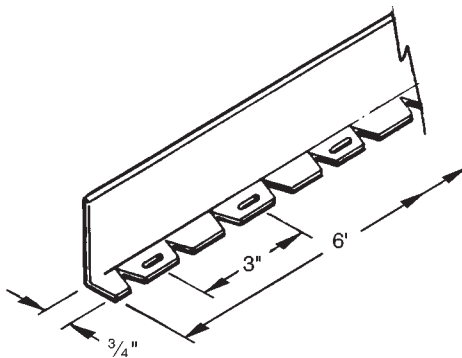
EXAMPLE: 46-01SB-12 for 4" load depth, mill galvanized straight barrier, 12' long.

Furnished with 4 barrier strip clamps and necessary hardware. (SB-HDW)

* Long lead time item - See Universal aluminum barrier strip to the left



Barrier Strip - Horizontal Fitting [FB]



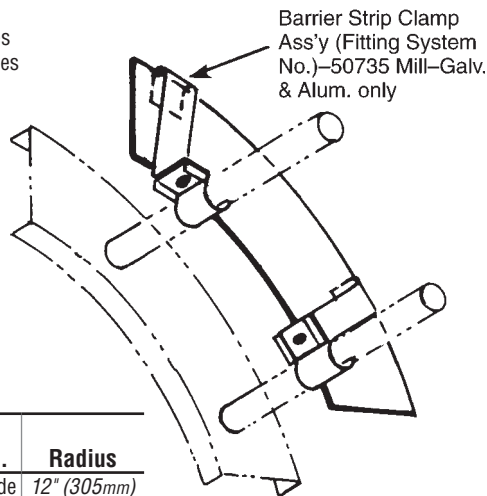
Catalog Number		
Load Depth	Finish	Basic No. 6' Length
3	6 (Mill Galv.)	-01FB-06
4	7 (HDGAF)	
5	8 (Alum.)	
6	T (304 SS)	

EXAMPLE: 38-01FB-06 for 3" load depth, aluminum fitting barrier, 6' long.

Furnished with 4 barrier strip clamps and necessary hardware.

Barrier Strip Vertical Elbow Outside [OB] & Inside [IB] (OB shown)

Furnished with sufficient clamp assemblies for installation. Additional clamp assemblies may be ordered separately.



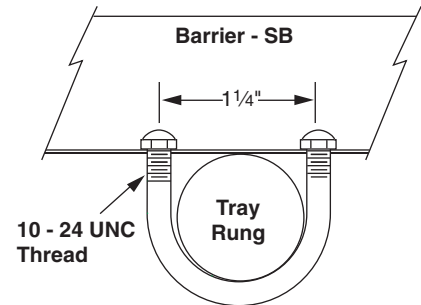
Barrier Strip Clamp Ass'y (Fitting System No.)-50735 Mill-Galv. & Alum. only

Catalog Number				
Load Depth	Finish	Bend (deg.)	Basic No.	Radius
3	6 (Mill Galv.)	90	OB = Outside	12" (305mm)
4	7 (HDGAF)	60	IB = Inside	24" (610mm)
5	8 (Alum.)	45		36" (914mm)
6	T (304 SS)	30		

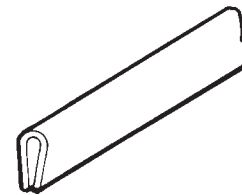
EXAMPLE: 38-90OB-12 for 3" load depth, aluminum 90° outside vertical barrier with 12" radius.

Barrier Strip Clamp [SB-HDW]

Includes: (1) U-Bolt 707981505
(2) Acorn Nuts 707671500



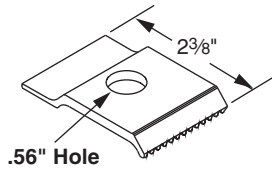
Nylon Barrier Splice & Protector [BSP-L]



Catalog Number	
Prefix	Length (L)
BSP	-5 (5' Splice)
	-144 (144" Protector)
	-1200 (100' Roll)

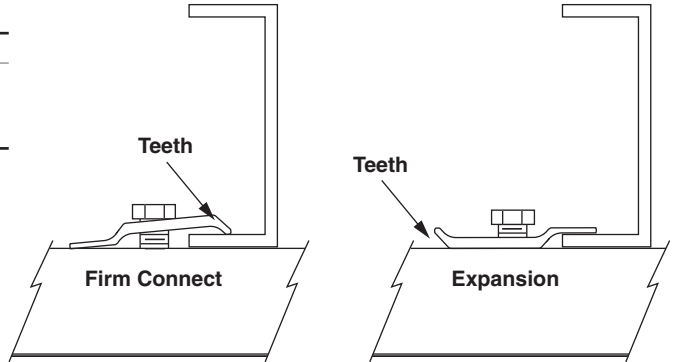
EXAMPLE: BSP-1200 for 100' roll

Combination Hold-Down Clamp & Expansion Guide [9131]



Catalog No.	Material
9131	Cast Zinc
9131L	316 Type Stainless Steel
9131A	Aluminum

Hardware purchased separately to suit support system.

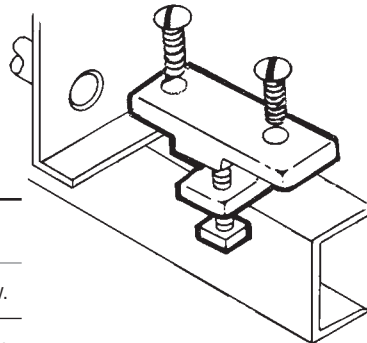


Catalog No. 9131-HDW (Complete Hardware Kit)
 Hardware list:
 (2) Combination hold-down clamp & expansion guide
 (2) 1/2" - 13 x 1 1/4" Cap Screw
 (2) 1/2" Flat Washer
 (2) Clamping Nut (Strut Nut)

Combination Hold-Down / Expansion Guide [9053]

Universal Guide: for either side of ladder. Use when tray is mounted on I-beams or channels. No drilling required.

Note: Use set screws for firm hold down

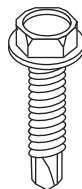


Type	Catalog No.	Finish
Combination Guide	6-9053	Elec. Galv.
Combination Guide	8-9053	Aluminum

Note: Electroplated set screws included

Cover Screw

Part No. EM-CC (electro galv. steel)
 Part No. EM-CC-SS (stainless steel)

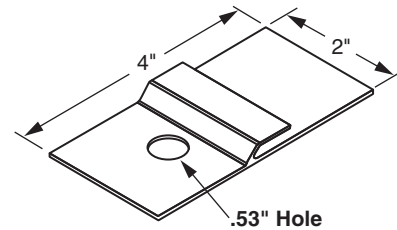


No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
 Indoor: 8 per 12';
 Outdoor: 10 per 12'

Isolation Pad [9131-IP]

The Isolation pad provides protection from galvanic corrosion when Aluminum tray is mounted on steel supports.

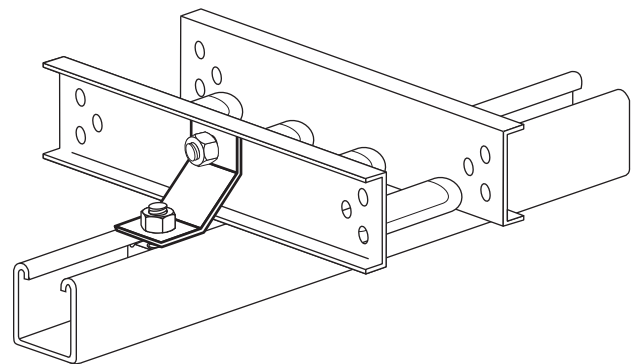


Note: For use with the 9131A shown above.

Hardware purchased separately

Seismic Hold-Down [9132]

Note: Preferred for seismic applications or other bolted connections.



Catalog No.	Material
9132	Mill Galvanized
9133	Stainless Steel

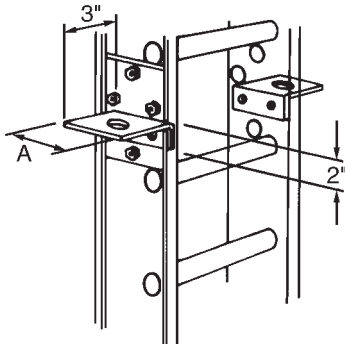
Hardware purchased separately to suit support system.

LADDER CABLE TRAY SYSTEM



SUPPORTS

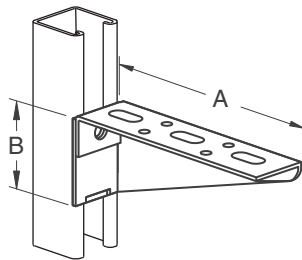
Vertical Supports



Catalog No.	For Use With
9043-37	4 1/4" Overall Height Side Members
9043	5 1/4" Overall Height Side Members
9025-98	6 1/4" & 7 1/4" Overall Height Side Members

Ladder Supports can be bolted anywhere along the straight runs. They can be bolted directly onto the coupler plates at splices of straight runs and riser fittings, or they can be bolted at any place in the run by field-drilling side rails. Ladder supports are used with either 3/8" or 1/2" hanger rods. Finish is electrogalvanized.

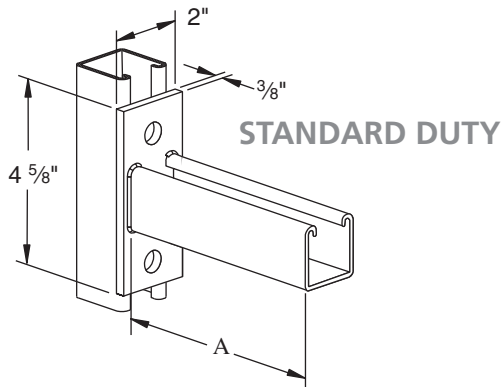
Gusset-Type Supports



For use with all types of Cope Ladder and Trof systems. Finish is electro-galvanized. Order hardware separately.

Catalog No.	Ladder Width	Dimension		Uniform-Load Rating
		A	B	
PS 838R-6	-	6"	1 15/16"	275 lbs.
PS 838R-8	-	8"	2 7/16"	275 lbs.
PS 838R-10	-	10"	2 15/16"	275 lbs.
PS 838R-12	6"	12"	3 7/16"	275 lbs.
PS 838R-16	9"	16"	4 7/16"	275 lbs.
PS 838R-18	12"	18"	4 15/16"	275 lbs.
PS 838R-24	18"	24"	6 7/16"	275 lbs.
PS 838R-30	24"	30"	7 15/16"	275 lbs.

Channel-Type Supports



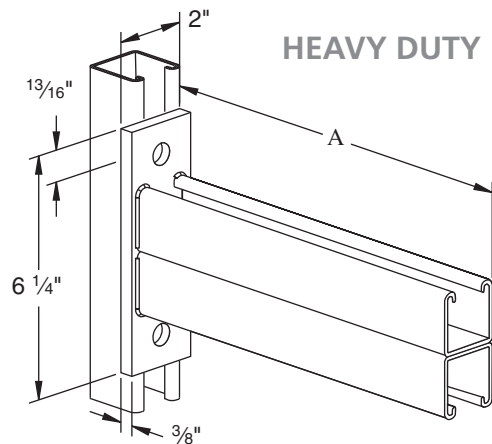
For use with all types of Cope Ladder and Trof systems. Finish is electro-galvanized. Order hardware separately.

Standard Duty for Lighter Loads.

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 651-6	-	6"	1,200 lbs.
PS 651-12	6"	12"	600 lbs.
PS 651-15	9"	15"	480 lbs.
PS 651-18	12"	18"	400 lbs.
PS 651-24	18"	24"	300 lbs.
PS 651-30	24"	30"	240 lbs.
PS 651-36	30"	36"	-

* Mounted on 12 Ga. Channel.

Double Channel-Type Supports



For use with all types of Cope Ladder and Trof systems. Finish is electro-galvanized. Order hardware separately.

Heavy Duty for Heavier Loads

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 809-12	6"	12"	2,000 lbs.
PS 809-15	9"	15"	1,600 lbs.
PS 809-18	12"	18"	1,330 lbs.
PS 809-24	18"	24"	1,000 lbs.
PS 809-30	24"	30"	800 lbs.
PS 809-36	30"	36"	660 lbs.
PS 809-42	36"	42"	570 lbs.

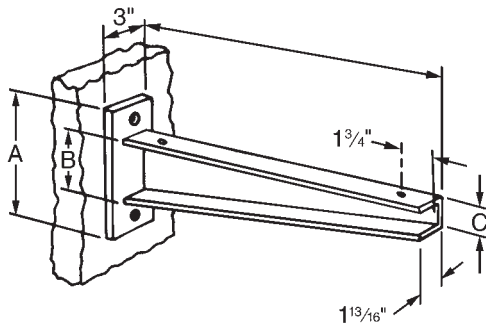
* Mounted on 12 Ga. Channel.



LADDER CABLE TRAY SYSTEM

SUPPORT BRACKETS & TRAY HANGERS

Wall Support Brackets



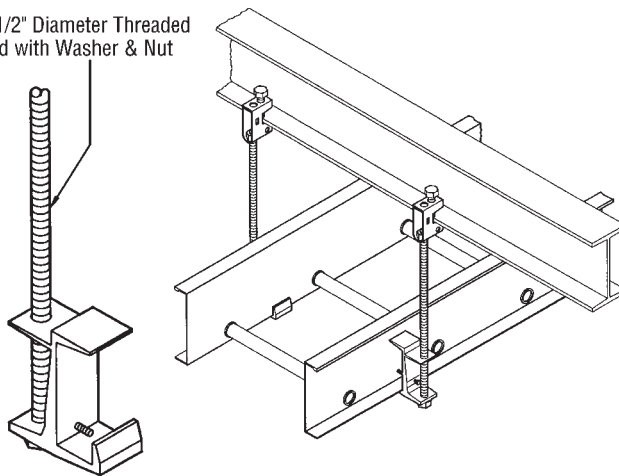
Catalog Number	Ladder Width	Length "L"	Dimensions			End-Load Rating*
			"A"	"B"	"C"	
9037-12	6"	12 1/4"	10"	6"	2"	2000 lbs.
9037-18	12"	18 1/4"	11"	7"	2 1/2"	2000 lbs.
9037-24	18"	24 1/4"	11"	7"	2 1/2"	1600 lbs.
9037-30	24"	30 1/4"	12"	8"	4"	1300 lbs.
9037-36	30"	36 1/4"	12"	8"	4"	1100 lbs.
9037-42	36"	42 1/4"	12"	8"	4"	900 lbs.

*Uniform load rating is normally twice the end-load rating.
Finish is hot-dip galvanized after fabrication.
Order hardware separately

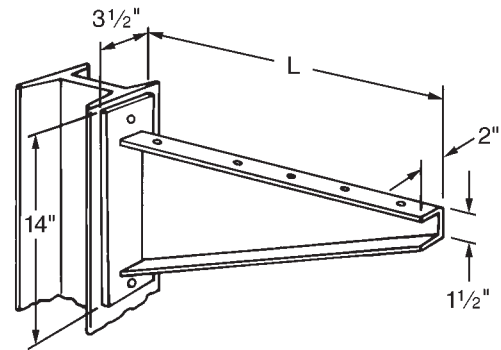
Tray Hanger

Part No. 7-HGR1 (Steel),
Part No. 8-HGR1 (Aluminum)
(Sold Individually)

Use 1/2" Diameter Threaded Rod with Washer & Nut



Structural Support Bracket



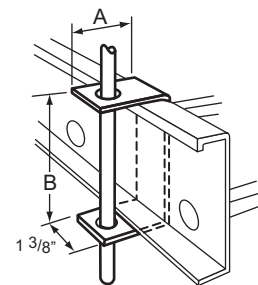
Catalog No.	Ladder Width	Length "L"	End-Load Rating*
9036-31	24"	31 1/4"	2000 lbs.
9036-37	30"	37 1/4"	1800 lbs.
9036-45	36"	45 1/4"	1500 lbs.

*Uniform load rating is normally twice the end-load rating.
For use with Cope Ladder 24" or wider. May be welded or bolted to building steel.
Finish is hot-dip galvanized after fabrication.
Order hardware separately.

Single Ladder Hangers

Cope Ladder Hangers are sized according to the side rail height and flange dimensions of various Cope ladders. The 17/32" holes accommodate either 3/8" or 1/2" diameter threaded rod.

Order hardware separately.
Finish is Mill-Galv., HDGAF, or Aluminum.



Basic No.	Catalog No.			Side Rail	"A" Dim.	"B" Dim.
	M.G.	Finish H.D.G.	Alum.			
9038-	236	237	238	4 1/4 x 1 3/16	2"	4 5/16"
9038-	246	247	248	5 1/4 x 1 3/16	2"	5 5/16"
9038-	256	257	258	6 1/4 x 1 3/16	2"	6 5/16"
9038-	266	267	268	7 1/4 x 1 3/16	2"	7 5/16"
9038-	436	437	438	4 1/4 x 1 1/4	2 9/16"	4 5/16"
9038-	446	447	448	5 1/4 x 1 1/4	2 9/16"	5 5/16"
9038-	456	457	458	6 1/4 x 1 1/4	2 9/16"	6 5/16"
9038-	466	467	468	7 1/4 x 1 1/4	2 9/16"	7 5/16"

Reference COPE™ WIRE BASKET COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

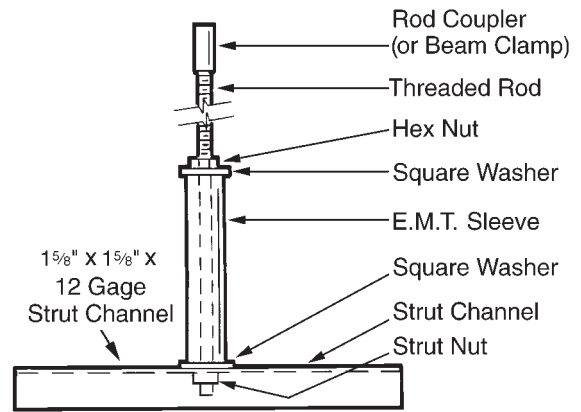
LADDER CABLE TRAY SYSTEM



TRAY HANGER & SUPPORTS

Single Rod Hanger Support

Catalog Number						
Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp	
P200	14" (356mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - Bridgeport	
	17" (432mm)		12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622	
	20" (508mm)			072 - 72" (1828mm)	O - No Clamp	
	26" (661mm)	HG (Hot Dipped Galv)		120 - 120" (3048mm)	R - Rod Coupler	
	32" (813mm)			144 - 144" (3658mm)	S - Special	
	38" (966mm)					
	44" (1118mm)					



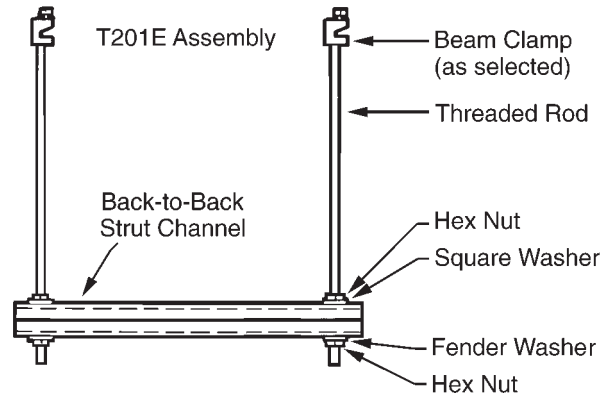
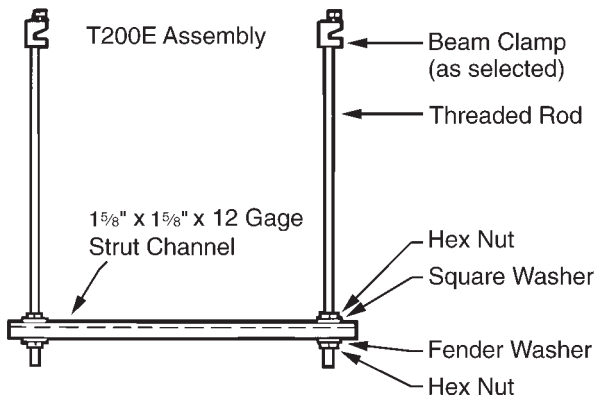
EXAMPLE:

P20020GV12036B is a Single 20" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

NOTE:

- *Order channel length 8" longer than tray width. For example, 44" channel for 36" tray.
- ** Other channel types and finishes available upon request. Contact factory.
- To order hardware only:
3/8" - PGV380000
1/2" - PGV120000

Trapeze Hanger Support



Catalog Number					
Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp
T200E	16" (407mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - PS 85
T201E	19" (483mm)	HG (Hot Dipped Galv)	12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	22" (559mm)			072 - 72" (1828mm)	O - No Clamp
	28" (712mm)			120 - 120" (3048mm)	R - Rod Coupler
	34" (864mm)			144 - 144" (3658mm)	S - Special
	40" (1017mm)				
	46" (1169mm)				

EXAMPLE: T200E22GV12036B is a Single 22" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

- NOTE:**
- *Order channel length 10" longer than tray width. For example, 46" channel for 36" tray.
 - ** Other channel types and finishes available upon request. Contact factory.
 - To order hardware only:
3/8" - PGV380000
1/2" - PGV120000



Electrical Grounding Chart

Table 1 below provides the Minimum Cross Sectional area for two side rails. Using the Fitting Prefix Number (248), the proper value is determined by the Material (column 3), the Flange Width (column 1), and Load Depth (column 2). Locate the line containing the Load Depth (column 1) and follow it to the right to the appropriate Flange Width and Material.

TABLE 1

Fitting Prefix Number			Min. X-Sect for 2 Rails (NEC® Table 392.7B)			
			Aluminum		Steel	
			13/16" Flange	11/4" Flange	13/16" Flange	11/4" Flange
Flange	Load Depth	Material	X-Sect Area	X-Sect Area	X-Sect Area	X-Sect Area
2 - 13/16"	3"	6 - Mill Gal	0.60	0.60	0.40	0.70
4 - 11/4"	4"	7 - HDGAF	0.60	0.60	0.40	0.70
	5"	8 - Alum.	0.60	1.00	0.70	0.70
	6"		0.60	1.00	0.70	1.00

Find that value in Table 2, follow it to the right to the Material column to determine the Maximum Ground Fault Amperage.

TABLE 2

Maximum Ground Fault Amperage (in Amps)		
X-Sect Area	Material	
	Aluminum	Steel
.40 sq in	-	100
.60 sq in	1000	-
.70 sq in	-	200
1.00 sq in	1200	400

For Example:

If the fitting prefix is 248, the Flange is 13/16", the Load Depth is 4", and the Material is Aluminum. The Minimum Cross Sectional Area (X-Sect Area) is 0.60 sq. in. The Amperage is 1000.

Typical Specifications

By specifying the NEMA class designation, you will use the simplest, clearest, and most complete method of specification available and automatically incorporate support span in feet, working (allowable) load in pounds per linear foot, a safety factor of 1.5, a concentrated load, if present; and, all other design, manufacturing, and test standards including electrical continuity.

All you need to do is add the desired load depth, rung spacing, radius of fittings, metal, and finish. You may add accessory information pursuant to your project. Here is a typical specification for an outdoor tray system where the working (allowable) load has been determined to be approximately 75 pounds per foot on support spans of 12'-0".

SPECIFICATION ALUMINUM COPE LADDER SYSTEM

Cable Ladder shall be manufactured by a company regularly engaged in the manufacture of metal cable trays and shall be a member of NEMA. Trays shall conform to NEMA Metal Cable Tray Standard Publication VE-1 (latest issue).

1. Cable ladder shall be NEMA Classification 12B of the widths indicated.
2. Material shall be aluminum alloy with side rails and rungs of 6063.
3. Finish shall be natural.
4. Inside load depth to be NEMA Standard 3".
5. Fittings shall be 12" radius for control cables and 24" radius for power cables. (This must be commensurate with the cable manufacturer's recommended minimum bending radius.)
6. All top level trays in stacks and single runs to have raised, peaked aluminum ventilated covers with heavy duty hold down clamps every 3'-0".
7. Install expansion connectors, expansion guides, and hold down clamps per NEMA Standard VE-1.
8. Where slopes or horizontal bends of trays are not at the Standard NEMA angles, use adjustable connectors. If the angle is too great for cable bending radius, use combinations of fitting and adjustable connectors.
9. Separate all cables of different volt ages in the same tray using the manufacturer's standard barriers and barrier hold down system.
10. The Cable Ladder system will be used as an equipment grounding conductor.
11. To save space fittings shall have no tangents. To facilitate field installation, use one pair of universal type connector plates for rigid joints.
12. Cable Ladder shall have outward facing side rails with tubular rungs assembled into side rails by cold swaging. Cable support surface on top of rungs to be flattened. Inside of tray shall not have flanges or other projections. Full access to the contents of the Cable Ladder shall be available.
13. Trays shall be Cope Cable Ladder System Number 3B38 as manufactured by Allied Tube & Conduit® Corporation.

LADDER CABLE TRAY SYSTEM



FITTINGS

Aluminum		Mill Galv.		HDGAF	
SYSTEM NUMBER	FITTING PREFIX	SYSTEM NUMBER	FITTING PREFIX	SYSTEM NUMBER	FITTING PREFIX
1B38	238	8236	236	6257	257
1B48	248	8246	246	6D37	437
3B58	258	8256	256	4D37	437
1B68	268	8266	266	6447	447
3B38	238	8B36	236	6457	457
5B38	238	8B66	266	6467	467
3B48	248	8B46	246	4D47	447
5B58	258	6256	256	6D57	457
5B68	268	8D36	436	6D67	467
7448	448	8D46	446	4D57	457
1D58	458	8D56	456	4467	467
1E68	468	8466	466	4B37	237
3D38	438	6D36	436	6B47	247
5D38	438	4D36	436	4B47	247
3D48	448	6446	446	2D37	437
3658	458	6456	456	2D47	447
5E38	438	8D66	466	2D57	457
5D48	448	6466	466	11D57	457
7D58	458	4D46	446		
9D58	458	6D56	456		
7G58	458	6D66	466		
7G58	758*	4D56	456		
5D58	458	4466	466		
5D68	468	4B36	236		
		6B46	246		
		4B46	246		
		2D36	436		
		2D46	446		
		2D56	456		
		11D56	456		

* Alternate Fitting



COPE™ I-BEAM™

4



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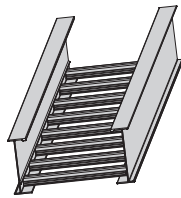
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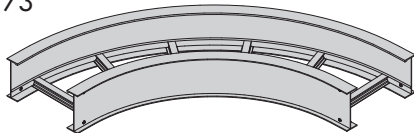
Straight Length

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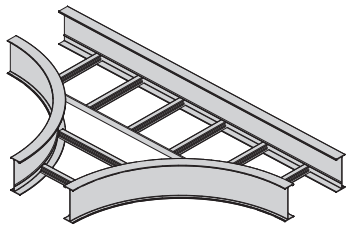
Horizontal Elbows

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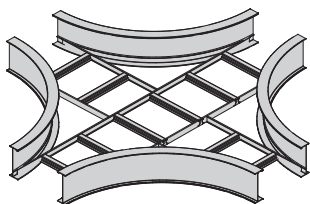
Horizontal Tee

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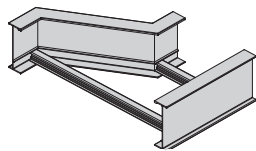
Horizontal Cross

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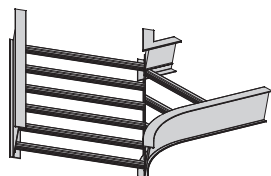
Reducers

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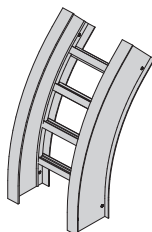
45° "Y" Branch

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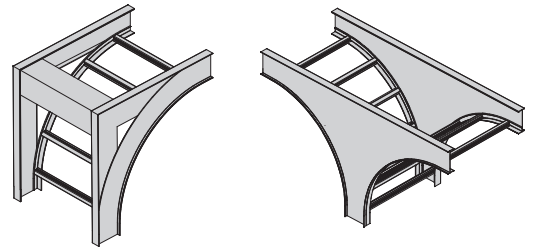
Vertical Elbows

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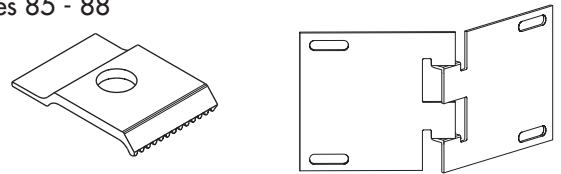
Vertical Tee & 90° Vertical Support Elbow

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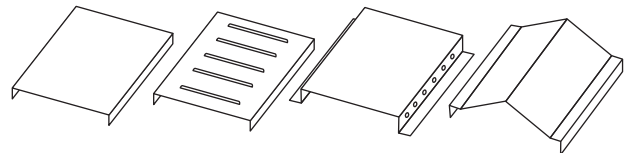
Connectors & Hardware

Pages 85 - 88



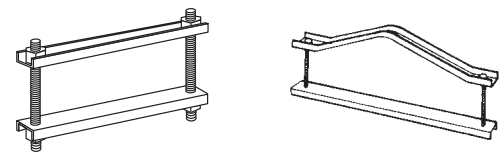
Covers

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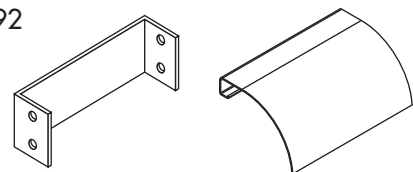
Cover Attachments

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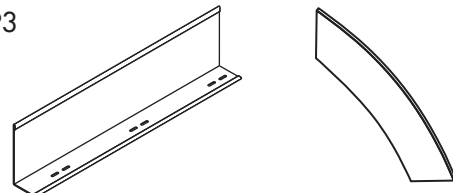
Accessories

Pages 91 - 92



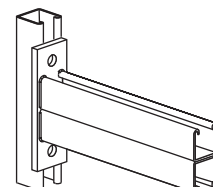
Barrier Strips & Accessories

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Brackets & Hangers

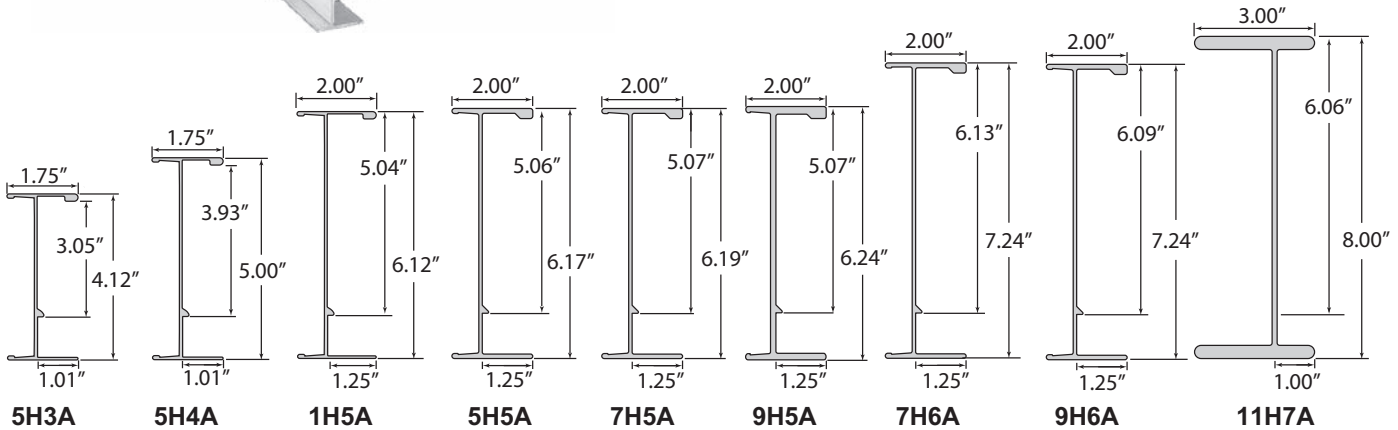
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I-BEAM™ CABLE TRAY SYSTEM



SELECTION CHART: Aluminum Tray



NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/ Span Class	NEMA Ld/Span	Cope System Number	Actual Load Depth	Side Rail Height	Flange Width (in.)	Sect. Mod. of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min X-Sect. Area of 2 Rails per NEC 392.7 (in. ²)
12C	100 lb./ft. 12' span	5H3A	3.05" (77mm)	4.12" (105mm)	1¾	1.48	3.10	1.18
12C	100 lb./ft. 12' span	5H4A	3.93" (100mm)	5" (127mm)	1¾	1.93	4.90	1.30
16A	50 lb./ft. 16' span	5H3A	3.05" (77mm)	4.12" (105mm)	1¾	1.48	3.10	1.18
16A	50 lb./ft. 16' span	5H4A	3.93" (100mm)	5" (127mm)	1¾	1.93	4.90	1.30
16B	75 lb./ft. 16' span	1H5A	5.04" (128mm)	6.12" (155mm)	2	2.53	7.92	1.41
16C	100 lb./ft. 16' span	5H5A	5.06" (129mm)	6.17" (157mm)	2	3.36	10.85	1.81
20A	50 lb./ft. 20' span	1H5A	5.04" (128mm)	6.12" (155mm)	2	2.53	7.92	1.41
20B	75 lb./ft. 20' span	5H5A	5.06" (129mm)	6.17" (157mm)	2	3.36	10.85	1.81
20C	100 lb./ft. 20' span	7H5A	5.07" (129mm)	6.19" (157mm)	2	3.85	12.44	2.00
20C	100 lb./ft. 20' span	7H6A	6.13" (156mm)	7.24" (184mm)	2	4.94	17.88	2.38
20C+	100 lb./ft. 24' span	9H5A	5.07" (129mm)	6.24" (158mm)	2	5.34	17.52	2.00
20C+	100 lb./ft. 24' span	9H6A	6.09" (155mm)	7.24" (184mm)	2	6.10	22.91	3.04
30C	100 lb./ft. 30' span	11H7A	6.06" (154mm)	8" (203mm)	3	16.17	64.69	5.67

Note: Special Applications Available. Please Contact Factory.

MATERIAL & FINISH SPECIFICATIONS (I-BEAM™ Cable Tray)

Item	Aluminum	Item	Aluminum
Siderails	AA-6063-T6 Extruded	Splice Plate Finish	AA-5052-H34
Rungs	AA-6063-T6 Extruded* AA-6063-T832 Extruded* AA-6063-T52 Extruded*	Connector Bolts	SAE J429 Grade 1 (ASTM A-307 Grade A)
Covers	AA-3003 H14 or 3150 H14	Bolt Plating	ASTM B-633.0002" Zinc

*Special High Strength 32 ksi Minimum Yield



I-BEAM™ CABLE TRAY SYSTEM

SELECTION CHART: Aluminum Tray

LOAD AND DEFLECTION DATA FOR ALUMINUM LADDER Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1, Simple Beam - SAFETY FACTOR 1.5

Cope System No.	NEMA	CLASSIFIED UL	CLASSIFIED c UL	SA	SPAN											
					6 Ft			8 Ft			10 Ft			12 Ft		
					w	d	k	w	d	k	w	d	k	w	d	k
5H3A	16A & 12C	✓			455	0.52	0.001	256	0.93	0.004	164	1.46	0.009	114	2.10	0.018
5H4A	16A & 12C	✓			505	0.33	0.001	284	0.58	0.002	182	0.91	0.005	126	1.31	0.010
1H5A	16B & 20A	✓	✓		555	0.21	0.0004	319	0.36	0.001	204	0.57	0.003	142	0.85	0.006
5H5A	16C & 20B	✓	✓		917	0.25	0.0003	527	0.44	0.001	337	0.69	0.002	233	1.00	0.004
7H5A	20C	✓	✓	✓	1,178	0.27	0.0002	663	0.47	0.001	424	0.74	0.002	294	1.07	0.004
9H5A	20C+	✓	✓	✓	1,889	0.32	0.0002	1,063	0.57	0.001	680	0.89	0.001	472	1.28	0.003
7H6A	20C	✓	✓		1,105	0.18	0.0002	622	0.32	0.001	398	0.50	0.001	276	0.72	0.003
9H6A	20C+	✓	✓		1,656	0.21	0.0001	932	0.37	0.0004	596	0.58	0.001	413	0.84	0.002

Note: Contact your Cope representative for loading information on the 11H7A system
To convert 1.5 safety factor to 2.0 multiply w, d, k by .75
w = Pounds per linear foot
d = Deflections (inches)
k = Deflection (in.) for each pound of load
t = Denotes k is less than .001 inch

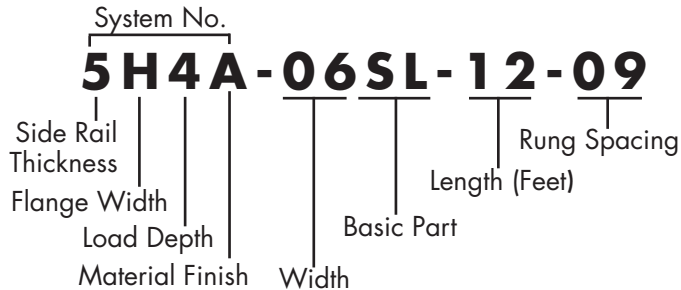
Cope System No.	NEMA	CLASSIFIED UL	CLASSIFIED c UL	SA	SPAN (cont.)											
					16 Ft			20 Ft			24 Ft			25 Ft		
					w	d	k	w	d	k	w	d	k	w	d	k
5H3A	16A & 12C	✓			64	3.73	0.058	-	-	-	-	-	-	-	-	-
5H4A	16A & 12C	✓			71	2.33	0.033	-	-	-	-	-	-	-	-	-
1H5A	16B & 20A	✓	✓		80	1.52	0.019	51	2.30	0.045	-	-	-	-	-	-
5H5A	16C & 20B	✓	✓		131	1.83	0.014	84	2.77	0.033	-	-	-	-	-	-
7H5A	20C	✓	✓	✓	166	1.89	0.011	106	2.96	0.028	73	4.20	0.058	-	-	-
9H5A	20C+	✓	✓	✓	266	2.27	0.009	170	3.55	0.021	117	5.04	0.043	108	5.48	0.51
7H6A	20C	✓	✓		156	1.28	0.008	100	2.01	0.020	69	2.88	0.042	-	-	-
9H6A	20C+	✓	✓		233	1.49	0.006	149	2.38	0.016	103	3.40	0.033	95	3.61	0.038

Note: Contact your Cope representative for loading information on the 11H7A system
To convert 1.5 safety factor to 2.0 multiply w, d, k by .75
w = Pounds per linear foot
d = Deflections (inches)
k = Deflection (in.) for each pound of load
t = Denotes k is less than .001 inch

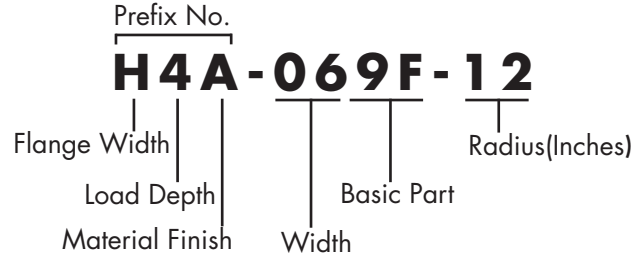
PART NUMBERING SYSTEM:

Please pay careful attention to the part numbering structure. Example: Catalog No. 5H4A-06SL-12-09 is a 4" load depth aluminum ladder with an I-Beam flange, 6 inches wide, straight length 12 feet long, rungs on 9" centers. Please make sure to use the system numbers from pages 66 and 67 when ordering.

Straight Length



Fittings



SYSTEM NUMBER (STRAIGHT SECTION ONLY) –

The first four digits make up the system number which identifies the structural, dimensional and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange design, the load depth (inside, in inches) and material finish (aluminum).

- 1H5A:** 3 Thick, I-Beam Rail, 5" Load Depth, Aluminum
- 5H3A:** 5 Thick, I-Beam Rail, 3" Load Depth, Aluminum
- 5H4A:** 5 Thick, I-Beam Rail, 4" Load Depth, Aluminum
- 5H5A:** 5 Thick, I-Beam Rail, 5" Load Depth, Aluminum
- 7H5A:** 7 Thick, I-Beam Rail, 5" Load Depth, Aluminum
- 7H6A:** 7 Thick, I-Beam Rail, 6" Load Depth, Aluminum
- 9H5A:** 9 Thick, I-Beam Rail, 5" Load Depth, Aluminum
- 9H6A:** 9 Thick, I-Beam Rail, 6" Load Depth, Aluminum
- 11H7A:** 11 Thick, I-Beam Rail, 7" Load Depth, Aluminum

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages.

- H3A:** I-Beam Rail, 3" Load Depth, Aluminum
- H4A:** I-Beam Rail, 4" Load Depth, Aluminum
- H5A:** I-Beam Rail, 5" Load Depth, Aluminum
- H6A:** I-Beam Rail, 6" Load Depth, Aluminum
- H7A:** I-Beam Rail, 7" Load Depth, Aluminum

WIDTH – The inside width of the tray.

- 06:** 6" Width (152mm)
- 09:** 9" Width (229mm)
- 12:** 12" Width (305mm)
- 18:** 18" Width (457mm)
- 24:** 24" Width (610mm)
- 30:** 30" Width (762mm)
- 36:** 36" Width (914mm)

Length (STRAIGHT SECTION ONLY) – The length of the tray in feet.

- 12:** 12' Length (3.7m)
- 20:** 20' Length (6.1m)
- 24:** 24' Length (7.3m)
- 30:** 30' Length (9.1m)

BASIC PART NUMBER – Identifies the straight length, fitting, or accessory.

- SL:** Straight Length
- 9F:** 90° Horizontal Elbow
- 6F:** 60° Horizontal Elbow
- 4F:** 45° Horizontal Elbow
- 3F:** 30° Horizontal Elbow
- 9O:** 90° Vertical Outside Elbow
- 6O:** 60° Vertical Outside Elbow
- 4O:** 45° Vertical Outside Elbow
- 3O:** 30° Vertical Outside Elbow
- 9I:** 90° Vertical Inside Elbow
- 6I:** 60° Vertical Inside Elbow
- 4I:** 45° Vertical Inside Elbow
- 3I:** 30° Vertical Inside Elbow
- FT:** Horizontal Tee
- TT:** Horizontal Tapped Tee
- FC:** Horizontal Cross
- TC:** Horizontal Tapped Cross
- VT:** Vertical Tee
- SR:** Vertical Cable Support Elbow
- ST:** Straight Reducer
- RH:** Right Hand Reducer
- LH:** Left Hand Reducer
- RY:** 45°"Y" Right Hand Branch
- LY:** 45°"Y" Left Hand Branch

RUNG SPACING – The center-to-center distance between rungs on straight length. Rung spacing is maintained through centerline of all fittings.

- 09:** 9" Nominal (229_{mm}) rung spacing

Radius (FITTINGS ONLY) – The radius of bend.

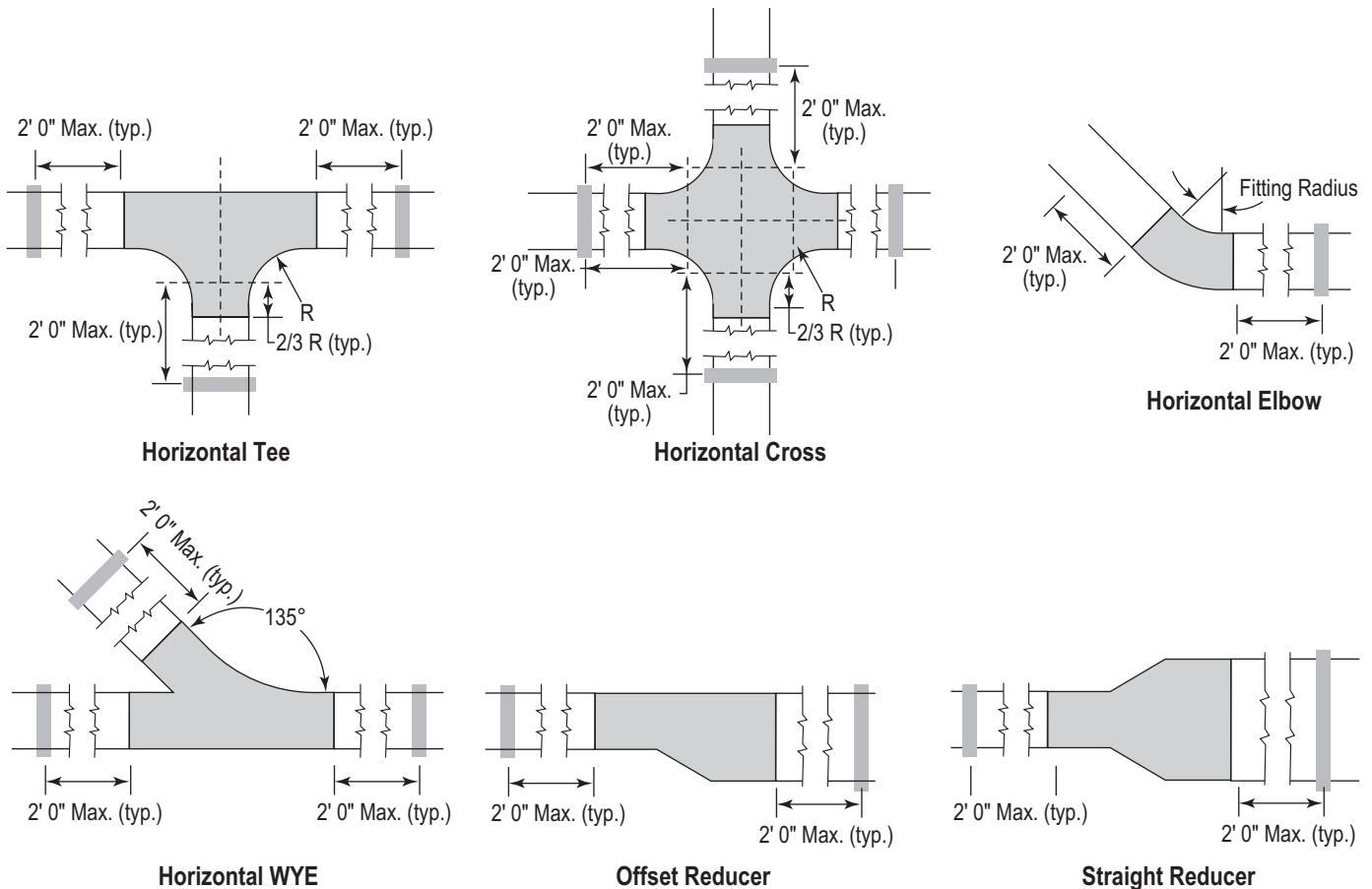
- 12:** 12" Length (305mm)
- 24:** 24" Length (610mm)
- 36:** 36" Length (914mm)

I-Beam™ Fittings

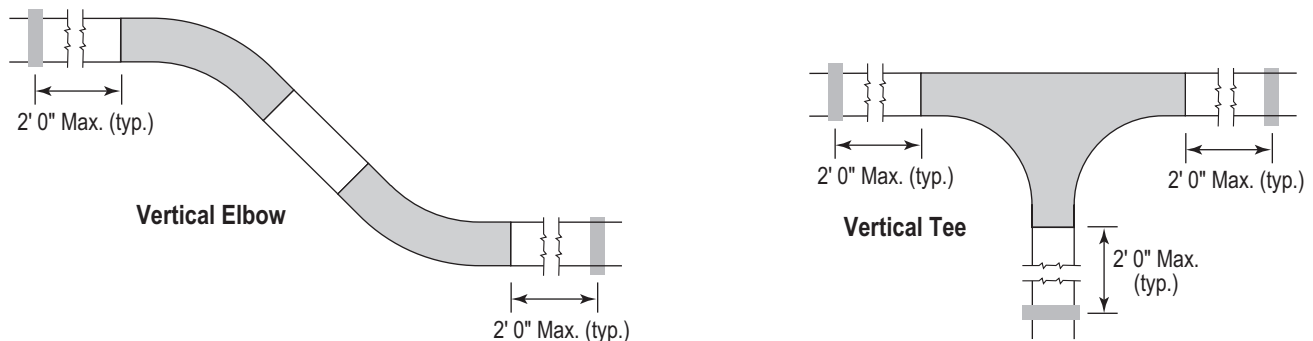
Fittings are used to change the size or direction of the cable tray. A wide variety of standard fittings are offered to simplify installation of a tray system. Horizontal or vertical bends are offered for each tray width and with angles of 30°, 45°, 60° or 90°. The radius of the bend, whether horizontal or vertical, can be 12", 24", 36", or even greater on a custom basis. Specification of the radius of the bend involves a trade-off between available space, minimum bending radius of cables, ease of cable pulling, and cost. The most common radius is 24 in. Fittings are not subject to NEMA/CSA load ratings and the diagrams below illustrate how the tray should be supported near the fittings.

When a standard angle will not work, field fittings or adjustable elbows can be used. Refer to NEMA VE2 Installation Guidelines for suggested support locations for these situations.

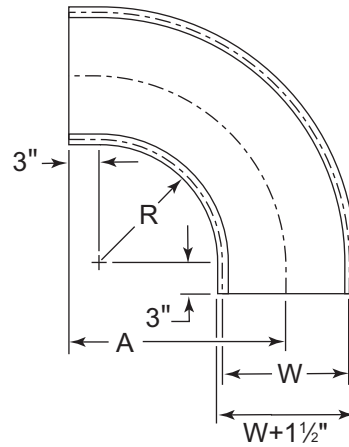
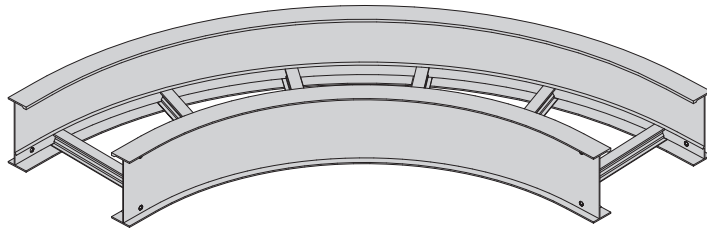
Support for Flat Fittings



Support for Vertical Fittings



90° Horizontal Elbow [9F]

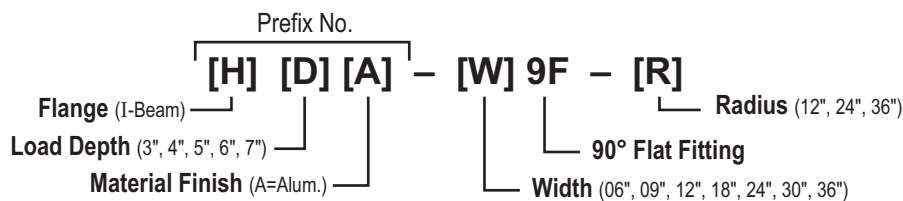


Radius - R	Width - W	"A" Dimension
12" (305mm)	6" (152mm)	18" (457mm)
	9" (229mm)	19 1/2" (495mm)
	12" (305mm)	21" (533mm)
	18" (457mm)	24" (610mm)
	24" (610mm)	27" (686mm)
	30" (762mm)	30" (762mm)
24" (610mm)	6" (152mm)	30" (762mm)
	9" (229mm)	31 1/2" (800mm)
	12" (305mm)	33" (838mm)
	18" (457mm)	36" (914mm)
	24" (610mm)	39" (991mm)
	30" (762mm)	42" (1067mm)
36" (914mm)	6" (152mm)	42" (1067mm)
	9" (229mm)	43 1/2" (1105mm)
	12" (305mm)	45" (1143mm)
	18" (457mm)	48" (1219mm)
	24" (610mm)	51" (1295mm)
	30" (762mm)	54" (1372mm)
36" (914mm)	57" (1448mm)	

EXAMPLE: H4A-129F-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

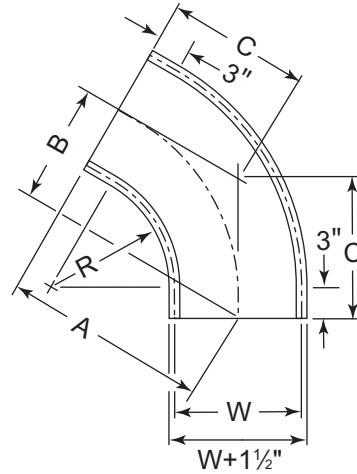
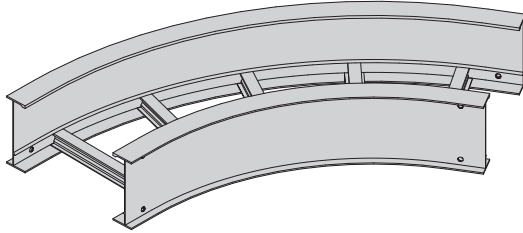


See Page 97
for Electrical
Grounding Chart



I-BEAM™ CABLE TRAY SYSTEM

60° Horizontal Elbow [6F]



Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	17 1/2" (445mm)	10 1/8" (257mm)	11 11/16" (297mm)
	9" (229mm)	18 13/16" (478mm)	10 7/8" (276mm)	12 1/2" (318mm)
	12" (305mm)	20 1/16" (510mm)	11 5/8" (295mm)	13 3/8" (340mm)
	18" (457mm)	22 11/16" (576mm)	13 1/8" (333mm)	15 1/8" (384mm)
	24" (610mm)	25 5/16" (643mm)	14 5/8" (371mm)	16 7/8" (429mm)
	30" (762mm)	27 7/8" (708mm)	16 1/8" (410mm)	18 9/16" (471mm)
	36" (914mm)	30 1/2" (775mm)	17 5/8" (448mm)	20 5/16" (516mm)
24" (610mm)	6" (152mm)	27 7/8" (708mm)	16 1/8" (410mm)	18 9/16" (471mm)
	9" (229mm)	29 3/16" (741mm)	16 7/8" (429mm)	19 7/16" (494mm)
	12" (305mm)	30 1/2" (775mm)	17 5/8" (448mm)	20 5/16" (516mm)
	18" (457mm)	33 1/16" (840mm)	19 1/8" (486mm)	22 1/16" (560mm)
	24" (610mm)	35 11/16" (906mm)	20 5/8" (524mm)	23 13/16" (605mm)
	30" (762mm)	38 1/4" (972mm)	22 1/8" (562mm)	25 1/2" (648mm)
	36" (914mm)	40 7/8" (1038mm)	23 5/8" (600mm)	27 1/4" (692mm)
36" (914mm)	6" (152mm)	38 1/4" (972mm)	22 1/8" (562mm)	25 1/2" (648mm)
	9" (229mm)	39 9/16" (1005mm)	22 7/8" (581mm)	26 3/8" (670mm)
	12" (305mm)	40 7/8" (1038mm)	23 5/8" (600mm)	27 1/4" (692mm)
	18" (457mm)	43 1/2" (1105mm)	25 1/8" (638mm)	29" (737mm)
	24" (610mm)	46 1/16" (1170mm)	26 5/8" (676mm)	30 11/16" (779mm)
	30" (762mm)	48 11/16" (1237mm)	28 1/8" (714mm)	32 7/16" (824mm)
	36" (914mm)	51 1/4" (1302mm)	29 5/8" (752mm)	34 3/16" (868mm)

EXAMPLE: H4A-126F-12

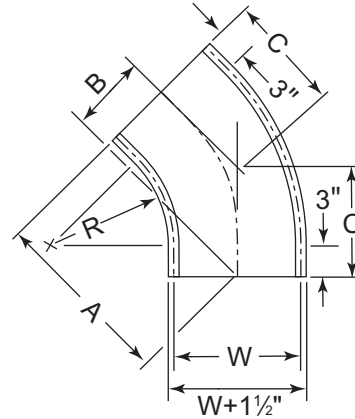
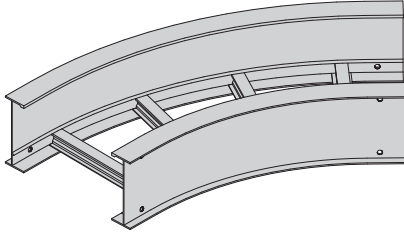
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

45° Horizontal Elbow [4F]



Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	15 3/4" (400mm)	6 1/2" (165mm)	9 3/16" (233mm)
	9" (229mm)	16 13/16" (427mm)	6 15/16" (176mm)	9 13/16" (249mm)
	12" (305mm)	17 7/8" (454mm)	7 3/8" (187mm)	10 7/16" (265mm)
	18" (457mm)	20" (508mm)	8 1/4" (210mm)	11 1/16" (297mm)
	24" (610mm)	22 1/4" (560mm)	9 1/8" (232mm)	12 15/16" (329mm)
	30" (762mm)	24 3/16" (614mm)	10" (254mm)	14 3/16" (360mm)
24" (610mm)	36" (914mm)	26 5/16" (668mm)	10 15/16" (278mm)	15 7/16" (392mm)
	6" (152mm)	24 3/16" (614mm)	10" (254mm)	14 3/16" (360mm)
	9" (229mm)	25 1/4" (641mm)	10 1/2" (267mm)	14 13/16" (376mm)
	12" (305mm)	26 5/16" (668mm)	10 15/16" (278mm)	15 7/16" (392mm)
	18" (457mm)	28 7/16" (722mm)	11 13/16" (300mm)	16 1/16" (424mm)
	24" (610mm)	30 9/16" (776mm)	12 11/16" (322mm)	17 15/16" (456mm)
36" (914mm)	30" (762mm)	32 11/16" (830mm)	13 9/16" (344mm)	19 1/8" (486mm)
	36" (914mm)	34 13/16" (884mm)	14 7/16" (367mm)	20 3/8" (518mm)
	6" (152mm)	32 11/16" (830mm)	13 9/16" (344mm)	19 1/8" (486mm)
	9" (229mm)	33 3/4" (857mm)	14" (356mm)	19 3/4" (502mm)
	12" (305mm)	34 13/16" (884mm)	14 7/16" (367mm)	20 3/8" (518mm)
	18" (457mm)	36 15/16" (938mm)	15 5/16" (389mm)	21 5/8" (549mm)
36" (914mm)	24" (610mm)	39 1/16" (992mm)	16 3/16" (411mm)	22 7/8" (581mm)
	30" (762mm)	41 3/16" (1046mm)	17 1/16" (433mm)	24 1/8" (613mm)
	36" (914mm)	43 5/16" (1100mm)	17 15/16" (456mm)	25 3/8" (645mm)

EXAMPLE: H4A-124F-12

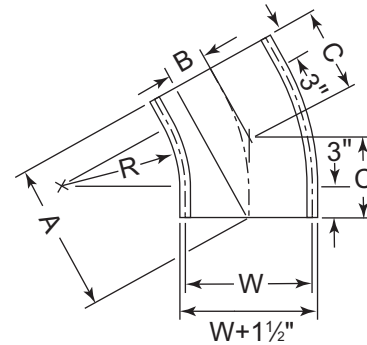
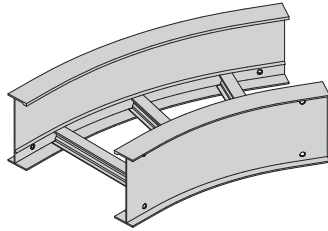
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

30° Horizontal Elbow [3F]



Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	13 1/8" (333mm)	3 1/2" (89mm)	7" (178mm)
	9" (229mm)	13 7/8" (352mm)	3 11/16" (94mm)	7 7/16" (189mm)
	12" (305mm)	14 5/8" (371mm)	3 15/16" (100mm)	7 13/16" (198mm)
	18" (457mm)	16 1/8" (410mm)	4 5/16" (110mm)	8 5/8" (219mm)
	24" (610mm)	17 5/8" (448mm)	4 11/16" (119mm)	9 7/16" (240mm)
	30" (762mm)	19 1/8" (486mm)	5 1/8" (130mm)	10 1/4" (260mm)
24" (610mm)	36" (914mm)	20 5/8" (524mm)	5 1/2" (140mm)	11 1/16" (281mm)
	6" (152mm)	19 1/8" (486mm)	5 1/8" (130mm)	10 1/4" (260mm)
	9" (229mm)	19 7/8" (505mm)	5 5/16" (135mm)	10 5/8" (270mm)
	12" (305mm)	20 5/8" (524mm)	5 1/2" (140mm)	11 1/16" (281mm)
	18" (457mm)	22 1/8" (562mm)	5 15/16" (151mm)	11 13/16" (300mm)
	24" (610mm)	23 5/8" (600mm)	6 5/16" (160mm)	12 5/8" (321mm)
36" (914mm)	30" (762mm)	25 1/8" (638mm)	6 3/4" (171mm)	13 7/16" (341mm)
	36" (914mm)	26 5/8" (676mm)	7 1/8" (181mm)	14 1/4" (362mm)
	6" (152mm)	25 1/8" (638mm)	6 3/4" (171mm)	13 7/16" (341mm)
	9" (229mm)	25 7/8" (657mm)	6 15/16" (176mm)	13 7/8" (352mm)
	12" (305mm)	26 5/8" (676mm)	7 1/8" (181mm)	14 1/4" (362mm)
	18" (457mm)	28 1/8" (714mm)	7 1/2" (191mm)	15 1/16" (383mm)
36" (914mm)	24" (610mm)	29 5/8" (752mm)	7 15/16" (202mm)	15 7/8" (403mm)
	30" (762mm)	31 1/8" (791mm)	8 5/16" (211mm)	16 11/16" (424mm)
	36" (914mm)	32 5/8" (829mm)	8 3/4" (222mm)	17 1/2" (445mm)

EXAMPLE: H4A-123F-12

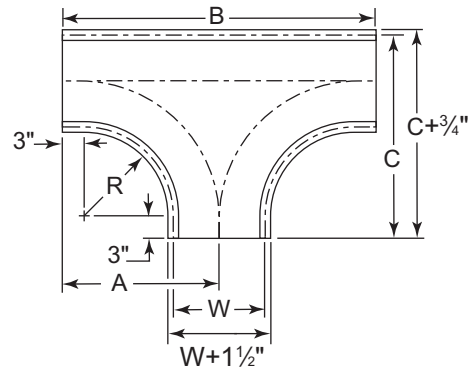
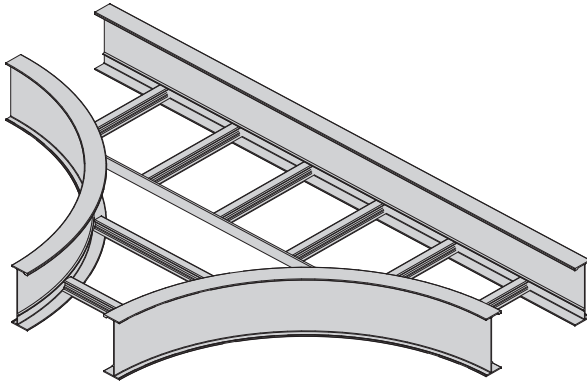
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

Horizontal Tee [FT]



Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	18" (457mm)	36" (914mm)	21" (533mm)
	9" (229mm)	19 1/2" (495mm)	39" (991mm)	24" (610mm)
	12" (305mm)	21" (533mm)	42" (1067mm)	27" (686mm)
	18" (457mm)	24" (610mm)	48" (1219mm)	33" (838mm)
	24" (610mm)	27" (686mm)	54" (1372mm)	39" (991mm)
	30" (762mm)	30" (762mm)	60" (1524mm)	45" (1143mm)
	36" (914mm)	33" (838mm)	66" (1676mm)	51" (1295mm)
24" (610mm)	6" (152mm)	30" (762mm)	60" (1524mm)	33" (838mm)
	9" (229mm)	31 1/2" (800mm)	63" (1600mm)	36" (914mm)
	12" (305mm)	33" (838mm)	66" (1676mm)	39" (991mm)
	18" (457mm)	36" (914mm)	72" (1829mm)	45" (1143mm)
	24" (610mm)	39" (991mm)	78" (1981mm)	51" (1295mm)
	30" (762mm)	42" (1067mm)	84" (2134mm)	57" (1448mm)
	36" (914mm)	45" (1143mm)	90" (2286mm)	63" (1600mm)
36" (914mm)	6" (152mm)	42" (1067mm)	84" (2134mm)	45" (1143mm)
	9" (229mm)	43 1/2" (1105mm)	87" (2210mm)	48" (1219mm)
	12" (305mm)	45" (1143mm)	90" (2286mm)	51" (1295mm)
	18" (457mm)	48" (1219mm)	96" (2438mm)	57" (1448mm)
	24" (610mm)	51" (1295mm)	102" (2591mm)	63" (1600mm)
	30" (762mm)	54" (1372mm)	108" (2743mm)	69" (1753mm)
	36" (914mm)	57" (1448mm)	114" (2896mm)	75" (1905mm)

EXAMPLE: H4A-12FT-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



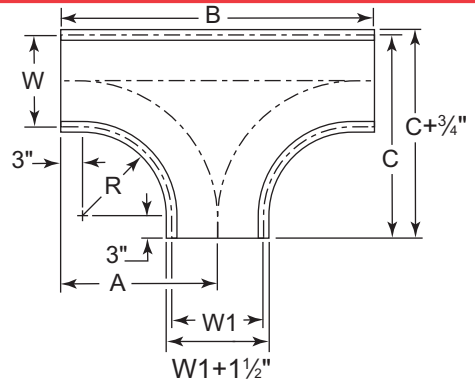
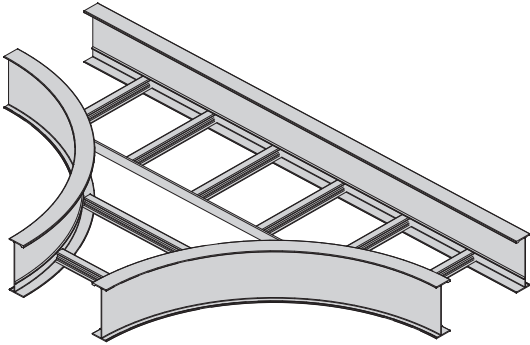
See Page 97
for Electrical
Grounding Chart



I-BEAM™ CABLE TRAY SYSTEM

Reference COPE™ WIRE BASKET COPE-GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

Horizontal Tapped Tee [TT]

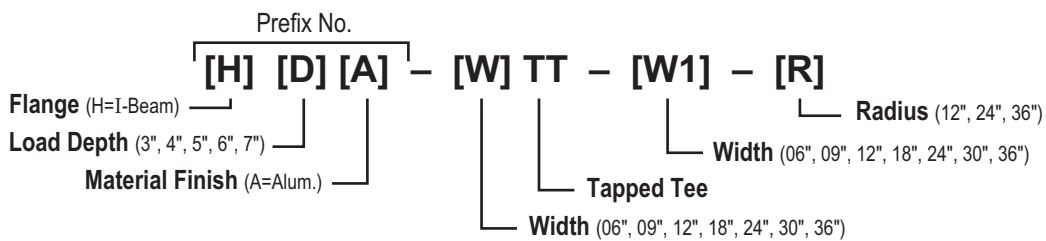


R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	48" (1219mm)
	36" (914mm)	24" (610mm)	24" (610mm)	48" (1219mm)
	36" (914mm)	18" (457mm)	21" (533mm)	48" (1219mm)
	36" (914mm)	12" (305mm)	18" (457mm)	48" (1219mm)
	36" (914mm)	9" (229mm)	16 1/2" (419mm)	48" (1219mm)
	36" (914mm)	6" (152mm)	15" (381mm)	48" (1219mm)
	30" (762mm)	24" (610mm)	24" (610mm)	42" (1067mm)
	30" (762mm)	18" (457mm)	21" (533mm)	42" (1067mm)
	30" (762mm)	12" (305mm)	18" (457mm)	42" (1067mm)
	30" (762mm)	9" (229mm)	16 1/2" (419mm)	42" (1067mm)
	30" (762mm)	6" (152mm)	15" (381mm)	42" (1067mm)
	24" (610mm)	18" (457mm)	21" (533mm)	36" (914mm)
24" (610mm)	12" (305mm)	18" (457mm)	36" (914mm)	
24" (610mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)	
24" (610mm)	6" (152mm)	15" (381mm)	36" (914mm)	
18" (457mm)	12" (305mm)	18" (457mm)	30" (762mm)	
18" (457mm)	9" (229mm)	16 1/2" (419mm)	30" (762mm)	
18" (457mm)	6" (152mm)	15" (381mm)	30" (762mm)	
12" (305mm)	9" (229mm)	16 1/2" (419mm)	24" (610mm)	
12" (305mm)	6" (152mm)	15" (381mm)	24" (610mm)	
9" (229mm)	6" (152mm)	15" (381mm)	21" (533mm)	
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	60" (1524mm)
	36" (914mm)	24" (610mm)	36" (914mm)	60" (1524mm)
	36" (914mm)	18" (457mm)	33" (838mm)	60" (1524mm)
	36" (914mm)	12" (305mm)	30" (762mm)	60" (1524mm)
	36" (914mm)	9" (229mm)	28 1/2" (724mm)	60" (1524mm)
	36" (914mm)	6" (152mm)	27" (686mm)	60" (1524mm)
	30" (762mm)	24" (610mm)	36" (914mm)	54" (1372mm)
	30" (762mm)	18" (457mm)	33" (838mm)	54" (1372mm)
	30" (762mm)	12" (305mm)	30" (762mm)	54" (1372mm)
	30" (762mm)	9" (229mm)	28 1/2" (724mm)	54" (1372mm)
	30" (762mm)	6" (152mm)	27" (686mm)	54" (1372mm)

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
24" (610mm) (Cont.)	24" (610mm)	18" (457mm)	33" (838mm)	48" (1219mm)	
	24" (610mm)	12" (305mm)	30" (762mm)	48" (1219mm)	
	24" (610mm)	9" (229mm)	28 1/2" (724mm)	48" (1219mm)	
	24" (610mm)	6" (152mm)	27" (686mm)	48" (1219mm)	
	18" (457mm)	12" (305mm)	30" (762mm)	42" (1067mm)	
	18" (457mm)	9" (229mm)	28 1/2" (724mm)	42" (1067mm)	
	18" (457mm)	6" (152mm)	27" (686mm)	42" (1067mm)	
	12" (305mm)	9" (229mm)	28 1/2" (724mm)	36" (914mm)	
	12" (305mm)	6" (152mm)	27" (686mm)	36" (914mm)	
	9" (229mm)	6" (152mm)	27" (686mm)	33" (838mm)	
	36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	72" (1829mm)
		36" (914mm)	24" (610mm)	48" (1219mm)	72" (1829mm)
36" (914mm)		18" (457mm)	45" (1143mm)	72" (1829mm)	
36" (914mm)		12" (305mm)	42" (1067mm)	72" (1829mm)	
36" (914mm)		9" (229mm)	40 1/2" (1029mm)	72" (1829mm)	
36" (914mm)		6" (152mm)	39" (991mm)	72" (1829mm)	
30" (762mm)		24" (610mm)	48" (1219mm)	66" (1676mm)	
30" (762mm)		18" (457mm)	45" (1143mm)	66" (1676mm)	
30" (762mm)		12" (305mm)	42" (1067mm)	66" (1676mm)	
30" (762mm)		9" (229mm)	40 1/2" (1029mm)	66" (1676mm)	
30" (762mm)		6" (152mm)	39" (991mm)	66" (1676mm)	
24" (610mm)		18" (457mm)	45" (1143mm)	60" (1524mm)	
24" (610mm)	12" (305mm)	42" (1067mm)	60" (1524mm)		
24" (610mm)	9" (229mm)	40 1/2" (1029mm)	60" (1524mm)		
24" (610mm)	6" (152mm)	39" (991mm)	60" (1524mm)		
18" (457mm)	12" (305mm)	42" (1067mm)	54" (1372mm)		
18" (457mm)	9" (229mm)	40 1/2" (1029mm)	54" (1372mm)		
18" (457mm)	6" (152mm)	39" (991mm)	54" (1372mm)		
12" (305mm)	9" (229mm)	40 1/2" (1029mm)	48" (1219mm)		
12" (305mm)	6" (152mm)	39" (991mm)	48" (1219mm)		
9" (229mm)	6" (152mm)	39" (991mm)	45" (1143mm)		

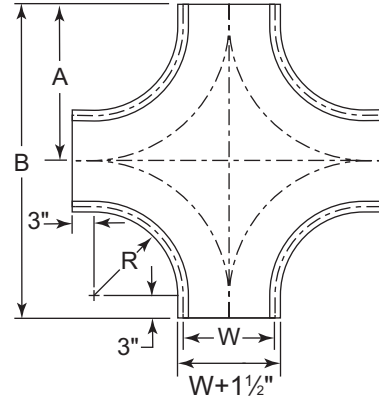
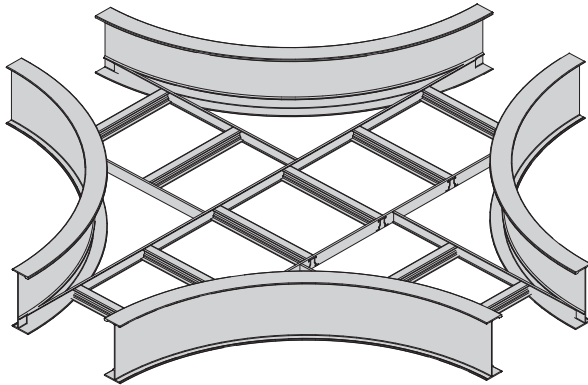
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97 for Electrical Grounding Chart

Horizontal Cross [FC]

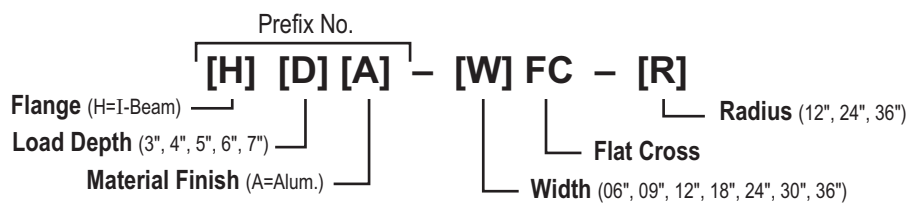


Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	18" (457mm)	36" (914mm)
	9" (229mm)	19 1/2" (495mm)	39" (991mm)
	12" (305mm)	21" (533mm)	42" (1067mm)
	18" (457mm)	24" (610mm)	48" (1219mm)
	24" (610mm)	27" (686mm)	54" (1372mm)
	30" (762mm)	30" (762mm)	60" (1524mm)
	36" (914mm)	33" (838mm)	66" (1676mm)
24" (610mm)	6" (152mm)	30" (762mm)	60" (1524mm)
	9" (229mm)	31 1/2" (800mm)	63" (1600mm)
	12" (305mm)	33" (838mm)	66" (1676mm)
	18" (457mm)	36" (914mm)	72" (1829mm)
	24" (610mm)	39" (991mm)	78" (1981mm)
	30" (762mm)	42" (1067mm)	84" (2134mm)
	36" (914mm)	45" (1143mm)	90" (2286mm)
36" (914mm)	6" (152mm)	42" (1067mm)	84" (2134mm)
	9" (229mm)	43 1/2" (1105mm)	87" (2210mm)
	12" (305mm)	45" (1143mm)	90" (2286mm)
	18" (457mm)	48" (1219mm)	96" (2438mm)
	24" (610mm)	51" (1295mm)	102" (2591mm)
	30" (762mm)	54" (1372mm)	108" (2743mm)
	36" (914mm)	57" (1448mm)	114" (2896mm)

EXAMPLE: H4A-12FC-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



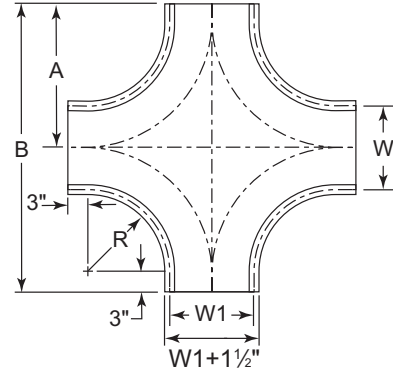
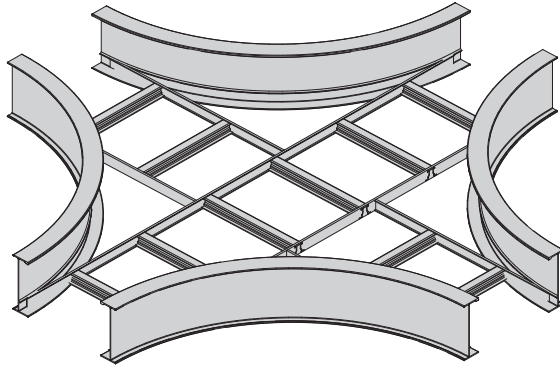
See Page 97
 for Electrical
 Grounding Chart



I-BEAM™ CABLE TRAY SYSTEM

Reference COPE™ WIRE BASKET COPE™ GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

Horizontal Tapped Cross [TC]



R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	60" (1524mm)
	36" (914mm)	24" (610mm)	24" (610mm)	60" (1524mm)
	36" (914mm)	18" (457mm)	21" (533mm)	60" (1524mm)
	36" (914mm)	12" (305mm)	18" (457mm)	60" (1524mm)
	36" (914mm)	9" (229mm)	16 1/2" (419mm)	60" (1524mm)
	36" (914mm)	6" (152mm)	15" (381mm)	60" (1524mm)
	30" (762mm)	24" (610mm)	24" (610mm)	54" (1372mm)
	30" (762mm)	18" (457mm)	21" (533mm)	54" (1372mm)
	30" (762mm)	12" (305mm)	18" (457mm)	54" (1372mm)
	30" (762mm)	9" (229mm)	16 1/2" (419mm)	54" (1372mm)
	30" (762mm)	6" (152mm)	15" (381mm)	54" (1372mm)
	24" (610mm)	18" (457mm)	21" (533mm)	48" (1219mm)
	24" (610mm)	12" (305mm)	18" (457mm)	48" (1219mm)
	24" (610mm)	9" (229mm)	16 1/2" (419mm)	48" (1219mm)
	24" (610mm)	6" (152mm)	15" (381mm)	48" (1219mm)
	18" (457mm)	12" (305mm)	18" (457mm)	42" (1067mm)
	18" (457mm)	9" (229mm)	16 1/2" (419mm)	42" (1067mm)
	18" (457mm)	6" (152mm)	15" (381mm)	42" (1067mm)
	12" (305mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)
	12" (305mm)	6" (152mm)	15" (381mm)	36" (914mm)
9" (229mm)	6" (152mm)	15" (381mm)	33" (838mm)	
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	84" (2134mm)
	36" (914mm)	24" (610mm)	36" (914mm)	84" (2134mm)
	36" (914mm)	18" (457mm)	33" (838mm)	84" (2134mm)
	36" (914mm)	12" (305mm)	30" (762mm)	84" (2134mm)
	36" (914mm)	9" (229mm)	28 1/2" (724mm)	84" (2134mm)
	36" (914mm)	6" (152mm)	27" (686mm)	84" (2134mm)
	30" (762mm)	24" (610mm)	36" (914mm)	78" (1981mm)
	30" (762mm)	18" (457mm)	33" (838mm)	78" (1981mm)
	30" (762mm)	12" (305mm)	30" (762mm)	78" (1981mm)
	30" (762mm)	9" (229mm)	28 1/2" (724mm)	78" (1981mm)
	30" (762mm)	6" (152mm)	27" (686mm)	78" (1981mm)

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
24" (610mm) (Cont.)	24" (610mm)	18" (457mm)	33" (838mm)	72" (1829mm)
	24" (610mm)	12" (305mm)	30" (762mm)	72" (1829mm)
	24" (610mm)	9" (229mm)	28 1/2" (724mm)	72" (1829mm)
	24" (610mm)	6" (152mm)	27" (686mm)	72" (1829mm)
	18" (457mm)	12" (305mm)	30" (762mm)	66" (1676mm)
	18" (457mm)	9" (229mm)	28 1/2" (724mm)	66" (1676mm)
	18" (457mm)	6" (152mm)	27" (686mm)	66" (1676mm)
	12" (305mm)	9" (229mm)	28 1/2" (724mm)	60" (1524mm)
	12" (305mm)	6" (152mm)	27" (686mm)	60" (1524mm)
	9" (229mm)	6" (152mm)	27" (686mm)	57" (1448mm)
36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	108" (2743mm)
	36" (914mm)	24" (610mm)	48" (1219mm)	108" (2743mm)
	36" (914mm)	18" (457mm)	45" (1143mm)	108" (2743mm)
	36" (914mm)	12" (305mm)	42" (1067mm)	108" (2743mm)
	36" (914mm)	9" (229mm)	40 1/2" (1029mm)	108" (2743mm)
	36" (914mm)	6" (152mm)	39" (991mm)	108" (2743mm)
	30" (762mm)	24" (610mm)	48" (1219mm)	102" (2591mm)
	30" (762mm)	18" (457mm)	45" (1143mm)	102" (2591mm)
	30" (762mm)	12" (305mm)	42" (1067mm)	102" (2591mm)
	30" (762mm)	9" (229mm)	40 1/2" (1029mm)	102" (2591mm)
	30" (762mm)	6" (152mm)	39" (991mm)	102" (2591mm)
	24" (610mm)	18" (457mm)	45" (1143mm)	96" (2438mm)
	24" (610mm)	12" (305mm)	42" (1067mm)	96" (2438mm)
	24" (610mm)	9" (229mm)	40 1/2" (1029mm)	96" (2438mm)
	24" (610mm)	6" (152mm)	39" (991mm)	96" (2438mm)
18" (457mm)	12" (305mm)	42" (1067mm)	90" (2286mm)	
18" (457mm)	9" (229mm)	40 1/2" (1029mm)	90" (2286mm)	
18" (457mm)	6" (152mm)	39" (991mm)	90" (2286mm)	
12" (305mm)	9" (229mm)	40 1/2" (1029mm)	84" (2134mm)	
12" (305mm)	6" (152mm)	39" (991mm)	84" (2134mm)	
9" (229mm)	6" (152mm)	39" (991mm)	81" (2057mm)	

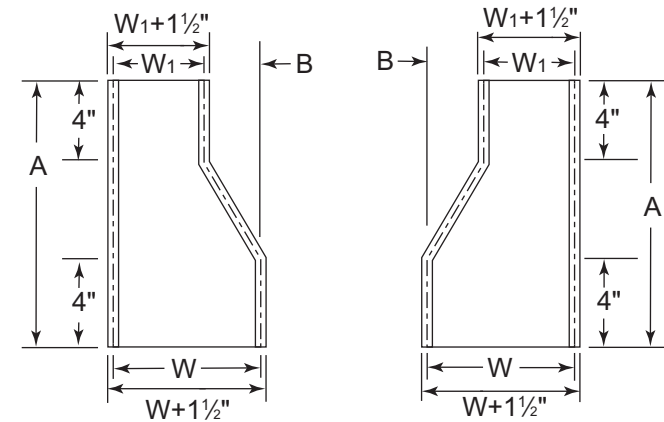
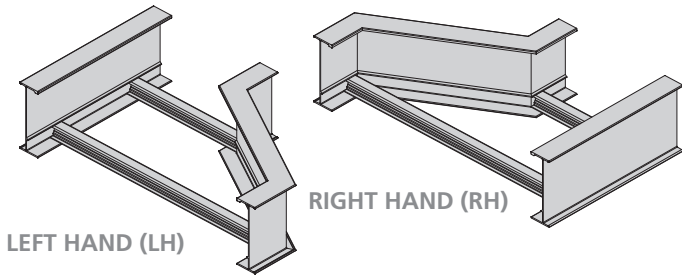
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

Left Hand [LH] & Right Hand [RH] Reducer

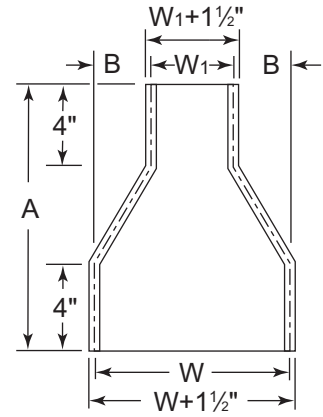
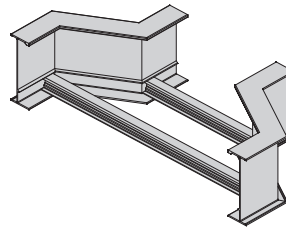


W	W1	"A" Dimension	"B" Dimension
9" (229mm)	6" (152mm)	9 3/4" (248mm)	3" (76mm)
12" (305mm)	6" (152mm)	11 7/16" (291mm)	6" (152mm)
	9" (229mm)	9 3/4" (248mm)	3" (76mm)
18" (457mm)	6" (152mm)	14 15/16" (379mm)	12" (305mm)
	9" (229mm)	13 3/16" (335mm)	9" (229mm)
	12" (305mm)	11 7/16" (291mm)	6" (152mm)
24" (610mm)	6" (152mm)	18 3/8" (467mm)	18" (457mm)
	9" (229mm)	16 11/16" (424mm)	15" (381mm)
	12" (305mm)	14 15/16" (379mm)	12" (305mm)
	18" (457mm)	11 7/16" (291mm)	6" (152mm)
30" (762mm)	6" (152mm)	21 7/8" (556mm)	24" (610mm)
	9" (229mm)	20 1/8" (511mm)	21" (533mm)
	12" (305mm)	18 3/8" (467mm)	18" (457mm)
	18" (457mm)	14 15/16" (379mm)	12" (305mm)
	24" (610mm)	11 7/16" (291mm)	6" (152mm)
36" (914mm)	6" (152mm)	25 5/16" (643mm)	30" (762mm)
	9" (229mm)	23 9/16" (598mm)	27" (686mm)
	12" (305mm)	21 7/8" (556mm)	24" (610mm)
	18" (457mm)	18 3/8" (467mm)	18" (457mm)
	24" (610mm)	14 15/16" (379mm)	12" (305mm)
	30" (762mm)	11 7/16" (291mm)	6" (152mm)

EXAMPLE: H4A-12LH-06

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

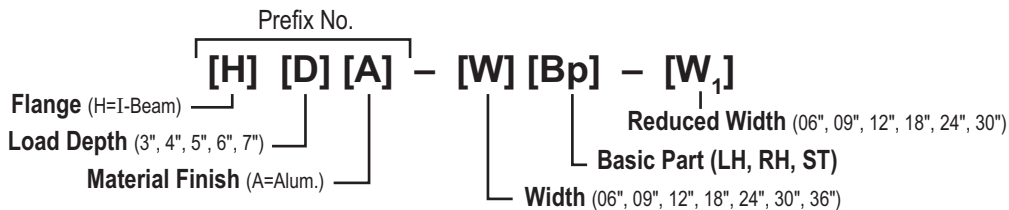
Straight Reducer [ST]



W	W1	"A" Dimension	"B" Dimension
9" (229mm)	6" (152mm)	8 7/8" (225mm)	1 1/2" (38mm)
12" (305mm)	6" (152mm)	9 3/4" (248mm)	3" (76mm)
	9" (229mm)	8 7/8" (225mm)	1 1/2" (38mm)
18" (457mm)	6" (152mm)	11 7/16" (291mm)	6" (152mm)
	9" (229mm)	10 5/8" (270mm)	4 1/2" (114mm)
	12" (305mm)	9 3/4" (248mm)	3" (76mm)
24" (610mm)	6" (152mm)	13 3/16" (335mm)	9" (229mm)
	9" (229mm)	12 5/16" (313mm)	7 1/2" (191mm)
	12" (305mm)	11 7/16" (291mm)	6" (152mm)
	18" (457mm)	9 3/4" (248mm)	3" (76mm)
30" (762mm)	6" (152mm)	14 15/16" (379mm)	12" (305mm)
	9" (229mm)	14 1/16" (357mm)	10 1/2" (267mm)
	12" (305mm)	13 3/16" (335mm)	9" (229mm)
	18" (457mm)	11 7/16" (291mm)	6" (152mm)
	24" (610mm)	9 3/4" (248mm)	3" (76mm)
36" (914mm)	6" (152mm)	16 11/16" (424mm)	15" (381mm)
	9" (229mm)	15 13/16" (402mm)	13 1/2" (343mm)
	12" (305mm)	14 15/16" (379mm)	12" (305mm)
	18" (457mm)	13 3/16" (335mm)	9" (229mm)
	24" (610mm)	11 7/16" (291mm)	6" (152mm)
	30" (762mm)	9 3/4" (248mm)	3" (76mm)

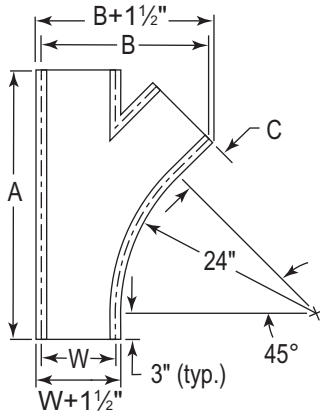
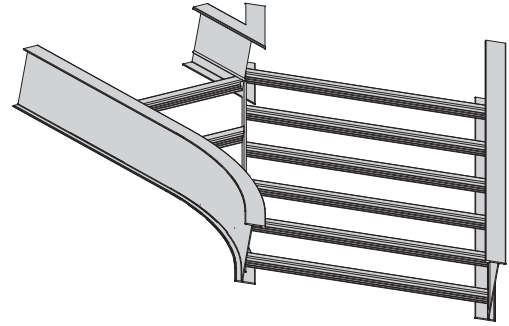
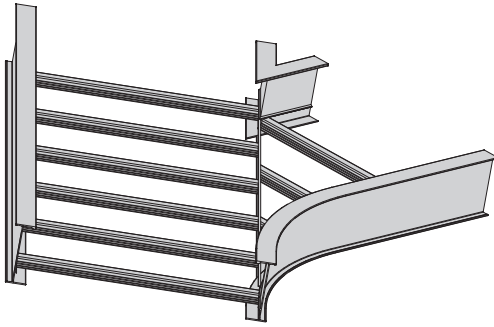
EXAMPLE: H4A-12ST-06

Ordering Information:

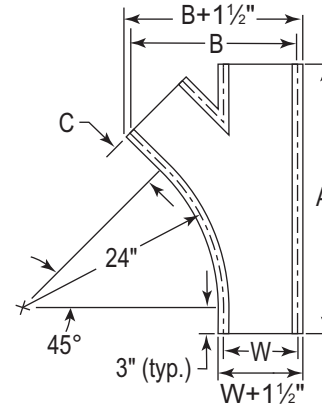


See Page 97 for Electrical Grounding Chart

45°"Y" Branch Left Hand [LY] & Right Hand [RY]



RIGHT HAND (RY)



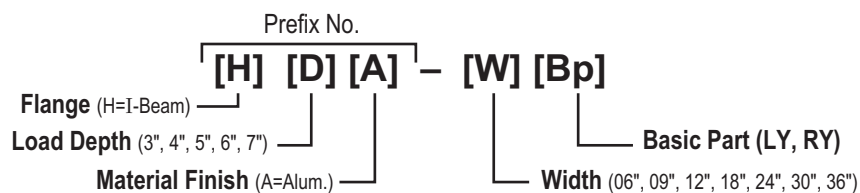
LEFT HAND (LY)

W	"A" Dimension	"B" Dimension	"C" Dimension
6" (152mm)	28 7/16" (722mm)	15 3/16" (386mm)	3 1/16" (78mm)
9" (229mm)	32 11/16" (830mm)	20 5/16" (516mm)	6 1/16" (154mm)
12" (305mm)	36 15/16" (938mm)	25 7/16" (646mm)	9 1/16" (230mm)
18" (457mm)	45 3/8" (1153mm)	35 13/16" (910mm)	15 1/16" (383mm)
24" (610mm)	53 7/8" (1368mm)	45 15/16" (1167mm)	21 1/16" (535mm)
30" (762mm)	62 3/8" (1584mm)	56 3/16" (1427mm)	27 1/16" (687mm)
36" (914mm)	70 13/16" (1799mm)	66 7/16" (1688mm)	33 1/16" (840mm)

EXAMPLE: H4A-12LY

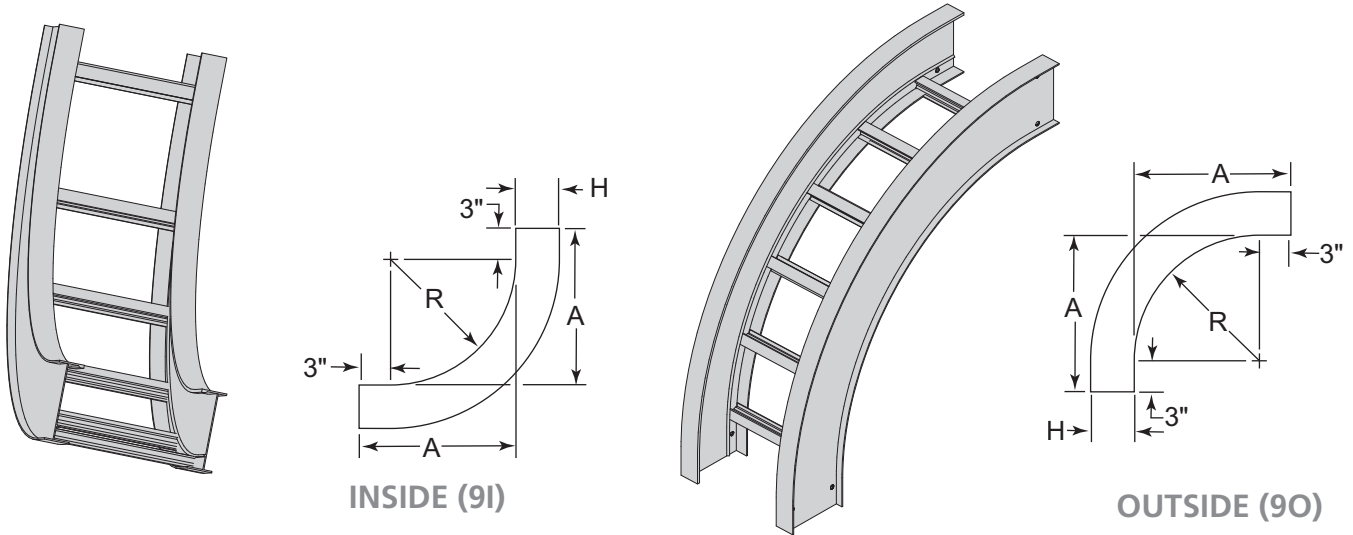
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
 for Electrical
 Grounding Chart

90° Vertical Elbow Outside [90] & Inside [91]



Radius - R	Load Depth	"H" Dimension	A (Outside 90)	A (Inside 91)
12" (305mm)	3" (76mm)	4 1/8" (105mm)	15" (381mm)	19 1/8" (486mm)
	4" (102mm)	5" (127mm)	15" (381mm)	20" (508mm)
	5" (127mm)	6 1/4" (159mm)	15" (381mm)	21 1/4" (540mm)
	6" (152mm)	7 1/4" (184mm)	15" (381mm)	22 1/4" (565mm)
	7" (179mm)	8" (203mm)	15" (381mm)	23" (584mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)	27" (686mm)	31 1/8" (791mm)
	4" (102mm)	5" (127mm)	27" (686mm)	32" (813mm)
	5" (127mm)	6 1/4" (159mm)	27" (686mm)	33 1/4" (845mm)
	6" (152mm)	7 1/4" (184mm)	27" (686mm)	34 1/4" (870mm)
	7" (1579mm)	8" (203mm)	27" (686mm)	35" (889mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)	39" (991mm)	43 1/8" (1095mm)
	4" (102mm)	5" (127mm)	39" (991mm)	44" (1118mm)
	5" (127mm)	6 1/4" (159mm)	39" (991mm)	45 1/4" (1149mm)
	6" (152mm)	7 1/4" (184mm)	39" (991mm)	46 1/4" (1175mm)
	7" (179mm)	8" (203mm)	39" (991mm)	47" (1194mm)

EXAMPLE: H4A-1290-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

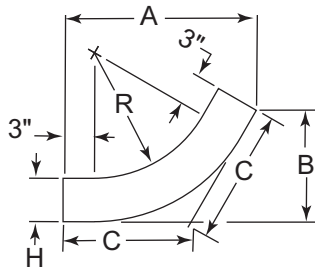
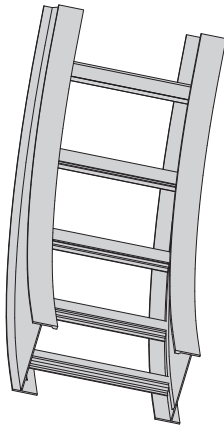


See Page 97
for Electrical
Grounding Chart

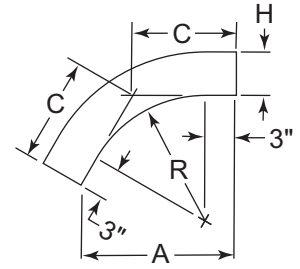
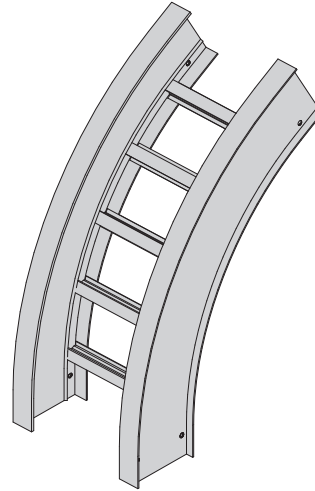


I-BEAM™ CABLE TRAY SYSTEM

60° Vertical Elbow Outside [60] & Inside [61]



INSIDE (61)



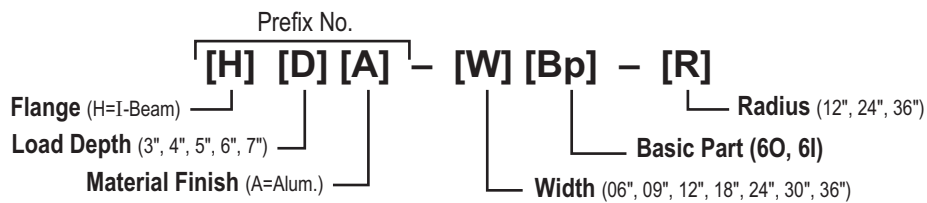
OUTSIDE (60)

Radius R	Load Depth	H	Outside (60)			Inside (61)		
			A	B	C	A	B	C
12" (305mm)	3" (76mm)	4 1/8" (105mm)	14 7/8" (378mm)	8 5/8" (219mm)	9 15/16" (252mm)	18 7/16" (468mm)	10 11/16" (271mm)	12 5/16" (313mm)
	4" (102mm)	5" (127mm)				19 1/4" (489mm)	11 1/8" (283mm)	12 13/16" (325mm)
	5" (127mm)	6 1/4" (159mm)				20 5/16" (516mm)	11 3/4" (298mm)	13 9/16" (344mm)
	6" (152mm)	7 1/4" (184mm)				21 3/16" (538mm)	12 1/4" (311mm)	14 1/8" (359mm)
	7" (179mm)	8" (203mm)				21 19/16" (554mm)	12 5/8" (321mm)	14 9/16" (370mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)	25 5/16" (643mm)	14 5/8" (371mm)	16 7/8" (429mm)	28 7/8" (733mm)	16 11/16" (424mm)	19 1/4" (489mm)
	4" (102mm)	5" (127mm)				29 5/8" (752mm)	17 1/8" (435mm)	19 3/4" (502mm)
	5" (127mm)	6 1/4" (159mm)				30 11/16" (779mm)	17 3/4" (451mm)	20 7/16" (519mm)
	6" (152mm)	7 1/4" (184mm)				31 9/16" (802mm)	18 1/4" (464mm)	21 1/16" (535mm)
	7" (179mm)	8" (203mm)				32 3/16" (818mm)	18 5/8" (473mm)	21 1/2" (546mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)	35 11/16" (906mm)	20 5/8" (524mm)	23 13/16" (605mm)	39 1/4" (997mm)	22 11/16" (576mm)	26 3/16" (665mm)
	4" (102mm)	5" (127mm)				40" (1016mm)	23 1/8" (587mm)	26 11/16" (678mm)
	5" (127mm)	6 1/4" (159mm)				41 1/16" (1043mm)	23 3/4" (603mm)	27 3/8" (695mm)
	6" (152mm)	7 1/4" (184mm)				41 15/16" (1065mm)	24 1/4" (616mm)	28" (711mm)
	7" (179mm)	8" (203mm)				42 5/8" (1083mm)	24 5/8" (625mm)	28 3/8" (721mm)

EXAMPLE: H4A-1260-12

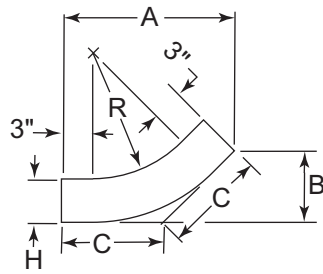
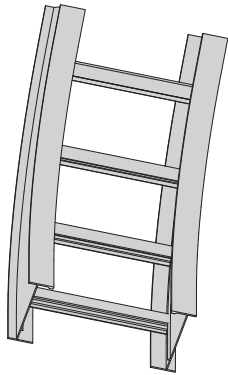
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

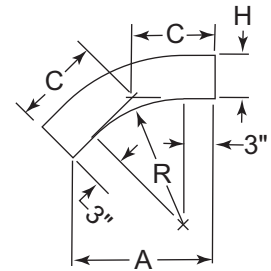
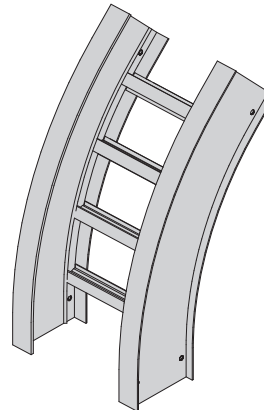


See Page 97
for Electrical
Grounding Chart

45° Vertical Elbow Outside [40] & Inside [41]



INSIDE (41)



OUTSIDE (40)

Radius R	Load Depth	H	Outside (40)			Inside (41)		
			A	B	C	A	B	C
12" (305mm)	3" (76mm)	4 1/8" (105mm)	13 5/8" (346mm)	5 5/8" (143mm)	8" (203mm)	16 1/2" (419mm)	6 7/8" (175mm)	9 11/16" (246mm)
	4" (102mm)	5" (127mm)				17 1/8" (435mm)	7 1/8" (181mm)	10 1/4" (256mm)
	5" (127mm)	6 1/4" (159mm)				18" (457mm)	7 7/16" (189mm)	10 9/16" (268mm)
	6" (152mm)	7 1/4" (184mm)				18 3/4" (476mm)	7 3/4" (197mm)	11" (279mm)
	7" (179mm)	8" (203mm)				19 1/4" (489mm)	8" (203mm)	11 5/16" (287mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)	22 1/16" (560mm)	9 1/8" (232mm)	12 15/16" (329mm)	25" (635mm)	10 3/8" (264mm)	14 5/8" (371mm)
	4" (102mm)	5" (127mm)				25 5/8" (651mm)	10 5/8" (270mm)	15" (381mm)
	5" (127mm)	6 1/4" (159mm)				26 1/2" (673mm)	11" (279mm)	15 1/2" (394mm)
	6" (152mm)	7 1/4" (184mm)				27 3/16" (691mm)	11 1/4" (286mm)	15 15/16" (405mm)
	7" (179mm)	8" (203mm)				27 3/4" (705mm)	11 1/2" (292mm)	16 1/4" (413mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)	30 9/16" (776mm)	12 11/16" (322mm)	17 15/16" (456mm)	33 1/2" (851mm)	13 7/8" (352mm)	19 5/8" (498mm)
	4" (102mm)	5" (127mm)				34 1/8" (867mm)	14 1/8" (359mm)	20" (508mm)
	5" (127mm)	6 1/4" (159mm)				35" (889mm)	14 1/2" (368mm)	20 1/2" (521mm)
	6" (152mm)	7 1/4" (184mm)				35 11/16" (906mm)	14 13/16" (376mm)	20 15/16" (532mm)
	7" (179mm)	8" (203mm)				36 1/4" (921mm)	15" (381mm)	21 1/4" (540mm)

EXAMPLE: H4A-1240-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

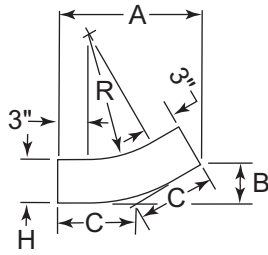
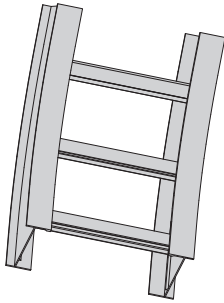


See Page 97
 for Electrical
 Grounding Chart

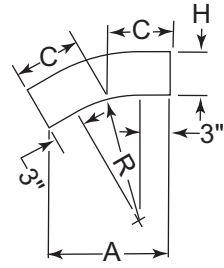
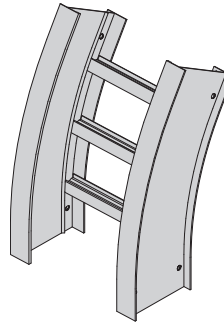


I-BEAM™ CABLE TRAY SYSTEM

30° Vertical Elbow Outside [30] & Inside [31]



INSIDE (31)



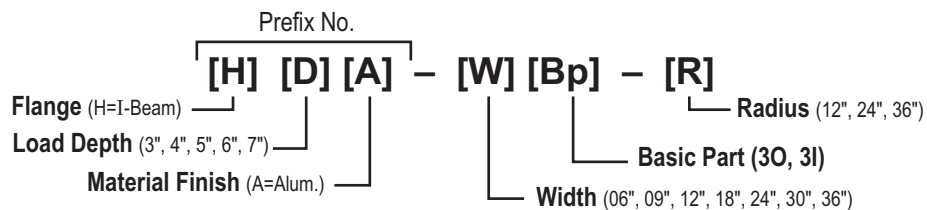
OUTSIDE (30)

Radius - R	Load Depth	H	Outside (30)			Inside (31)		
			A	B	C	A	B	C
12" (305mm)	3" (76mm)	4 1/8" (105mm)				13 11/16" (348mm)	3 1/16" (94mm)	7 5/16" (186mm)
	4" (102mm)	5" (127mm)				14 1/8" (359mm)	3 3/4" (95mm)	7 9/16" (192mm)
	5" (127mm)	6 1/4" (159mm)	11 5/8" (295mm)	3 1/8" (79mm)	6 3/16" (157mm)	14 3/4" (375mm)	3 15/16" (100mm)	7 7/8" (200mm)
	6" (152mm)	7 1/4" (184mm)				15 1/4" (387mm)	4 1/16" (103mm)	8 3/16" (208mm)
	7" (179mm)	8" (203mm)				15 5/8" (397mm)	4 3/16" (106mm)	8 3/8" (213mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)				19 11/16" (500mm)	5 1/4" (133mm)	10 9/16" (268mm)
	4" (102mm)	5" (127mm)				20 1/8" (511mm)	5 3/8" (137mm)	10 3/4" (273mm)
	5" (127mm)	6 1/4" (159mm)	17 5/8" (448mm)	4 1/16" (119mm)	9 7/16" (240mm)	20 3/4" (527mm)	5 9/16" (141mm)	11 1/8" (283mm)
	6" (152mm)	7 1/4" (184mm)				21 1/4" (540mm)	5 11/16" (144mm)	11 3/8" (289mm)
	7" (179mm)	8" (203mm)				21 5/8" (549mm)	5 13/16" (148mm)	11 9/16" (294mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)				25 11/16" (652mm)	6 7/8" (175mm)	13 3/4" (349mm)
	4" (102mm)	5" (127mm)				26 1/8" (664mm)	7" (178mm)	14" (356mm)
	5" (127mm)	6 1/4" (159mm)	23 5/8" (600mm)	6 5/16" (160mm)	12 5/8" (321mm)	26 3/4" (679mm)	7 3/16" (183mm)	14 5/16" (364mm)
	6" (152mm)	7 1/4" (184mm)				27 1/4" (692mm)	7 5/16" (186mm)	14 9/16" (376mm)
	7" (179mm)	8" (203mm)				27 5/8" (702mm)	7 3/8" (187mm)	14 13/16" (370mm)

EXAMPLE: H4A-1231-12

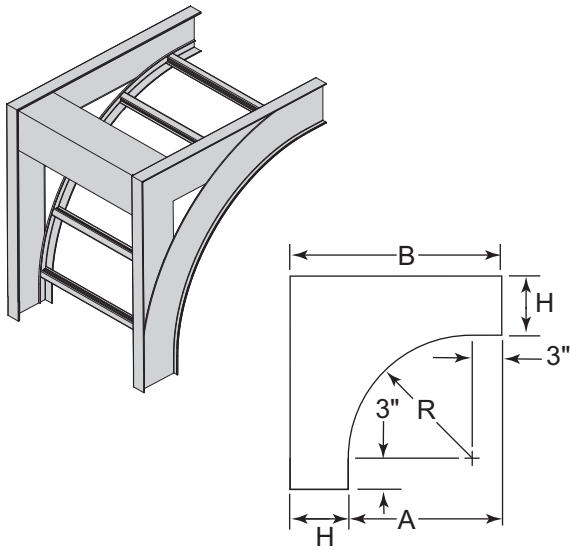
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

90° Vertical Cable Support Elbow [SR]

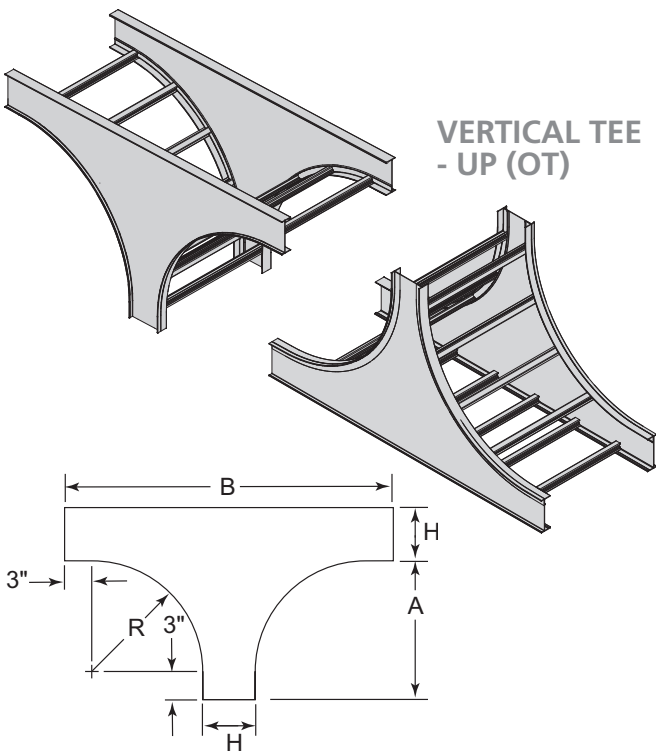


Radius - R	Load Depth	H	A	B
12" (305mm)	3" (76mm)	4 1/8" (105mm)	15" (381mm)	19 1/8" (486mm)
	4" (102mm)	5" (127mm)		20" (508mm)
	5" (127mm)	6 1/4" (159mm)		21 1/4" (540mm)
	6" (152mm)	7 1/4" (184mm)		22 1/4" (565mm)
	7" (179mm)	8" (203mm)		23" (584mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)	27" (686mm)	21 1/8" (537mm)
	4" (102mm)	5" (127mm)		32" (813mm)
	5" (127mm)	6 1/4" (159mm)		33 1/4" (845mm)
	6" (152mm)	7 1/4" (184mm)		34 1/4" (870mm)
	7" (179mm)	8" (203mm)		35" (889mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)	39" (991mm)	43 1/8" (1095mm)
	4" (102mm)	5" (127mm)		44" (1118mm)
	5" (127mm)	6 1/4" (159mm)		45 1/4" (1149mm)
	6" (152mm)	7 1/4" (184mm)		46 1/4" (1175mm)
	7" (179mm)	8" (203mm)		47" (1194mm)

EXAMPLE: H4A-12SR-12

Vertical Tee Down [VT] & Up [OT]

VERTICAL TEE - DOWN (VT)

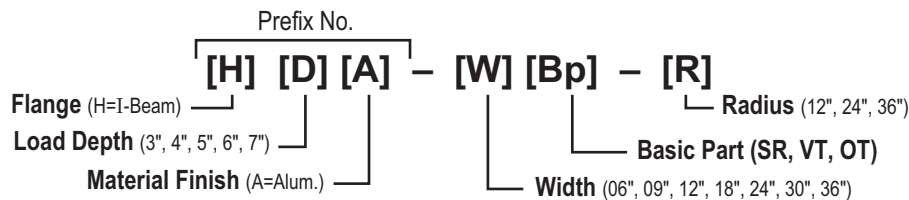


Radius - R	Load Depth	H	A	B
12" (305mm)	3" (76mm)	4 1/8" (105mm)	15" (381mm)	34 1/8" (867mm)
	4" (102mm)	5" (127mm)		35" (889mm)
	5" (127mm)	6 1/4" (159mm)		36 1/4" (921mm)
	6" (152mm)	7 1/4" (184mm)		37 1/4" (946mm)
	7" (179mm)	8" (203mm)		38" (965mm)
24" (610mm)	3" (76mm)	4 1/8" (105mm)	27" (686mm)	58 1/8" (1476mm)
	4" (102mm)	5" (127mm)		59" (1499mm)
	5" (127mm)	6 1/4" (159mm)		60 1/4" (1530mm)
	6" (152mm)	7 1/4" (184mm)		61 1/4" (1556mm)
	7" (179mm)	8" (203mm)		62" (1575mm)
36" (914mm)	3" (76mm)	4 1/8" (105mm)	39" (991mm)	82 1/8" (2086mm)
	4" (102mm)	5" (127mm)		83" (2108mm)
	5" (127mm)	6 1/4" (159mm)		84 1/4" (2140mm)
	6" (152mm)	7 1/4" (184mm)		85 1/4" (2165mm)
	7" (179mm)	8" (203mm)		86" (2184mm)

EXAMPLE: H4A-12VT-12

Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:



See Page 97
for Electrical
Grounding Chart

Tray Connectors

Catalog Number (Aluminum)

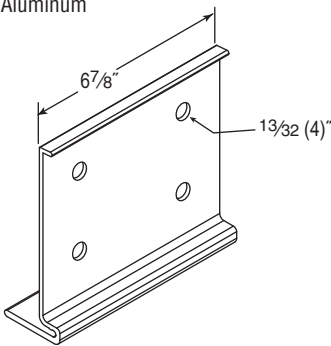
Part	Load Depth	Basic No.
H3A	3"	-02RC
H4A	4"	-02CE
H5A	5"	-02CV
H6A	6"	-02CH
H7A	7"	-02CA

EXAMPLE: H3A -02RC for I-Beam flange, 3" load depth, aluminum, universal curvilinear connector.

NOTE: Hole patterns match corresponding tray. Three-hole pattern illustrated.

Mid-Span Splice Plate [RC]

3/8" - Aluminum

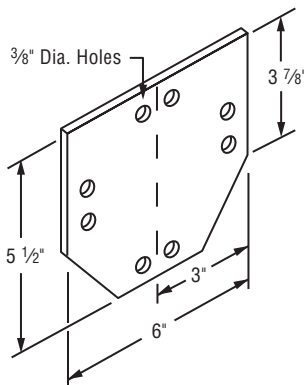


Catalog Number

Part	Use With System
H5A-02RC-MID	7H5A, 9H5A
H6A-02RC-MID	7H6A, 9H6A

Mid-Span Splice Plate [RC]

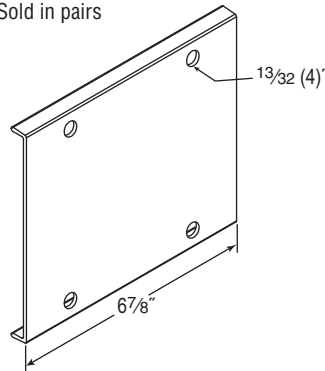
Catalog Number: H7A-02RC-MID



3/8" - Aluminum
For use with 11H7A Systems.

Universal Connector [RC]

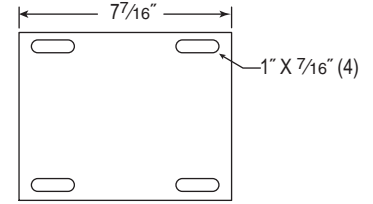
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.

Expansion Connector [CE]

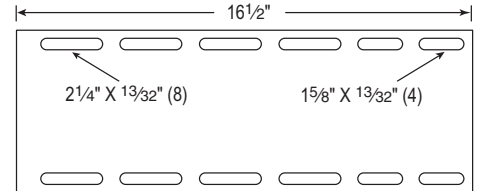
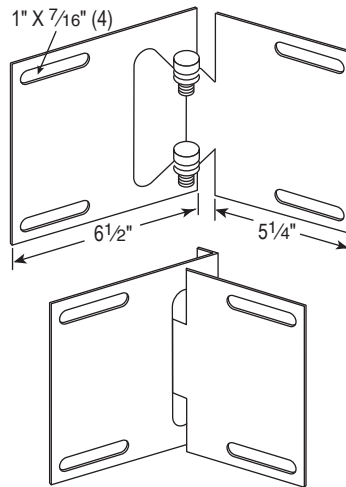
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 cap screws & Nylok nuts furnished and
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are sold separately.

Horizontal Adjustable Connector [CH]

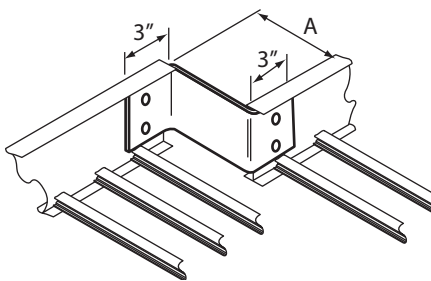
Note: Sold in pairs – inner & outer



0.125" Aluminum
Horizontal Adjustable Splice Plate to be used with HCH hinge
3/8"-16 spline bolts and flange nuts furnished.

Reducing Connector [CO]

Note: Not sold in pairs



0.125" Aluminum
For offset reductions – use 1 of above with standard connector plate.
For straight reductions– use 2 (of 1/2 reduction dim.).
3/8"-16 spline bolts and flange nuts furnished.

Catalog Number (Aluminum)

Part	Load Depth	Basic Number	"A" Dimension
H3A	3"	-30CO	30" (762mm)
H4A	4"	-27CO	27" (686mm)
H5A	5"	-24CO	24" (610mm)
H6A	6"	-21CO	21" (533mm)
H7A	7"	-18CO	18" (457mm)
		-15CO	15" (381mm)
		-13CO	13 1/2" (343mm)
		-12CO	12" (305mm)
		-10CO	10 1/2" (267mm)
		-09CO	9" (229mm)
		-07CO	7 1/2" (191mm)
		-06CO	6" (152mm)
		-04CO	4 1/2" (114mm)
		-03CO	3" (76mm)
		-01CO	1 1/2" (38mm)

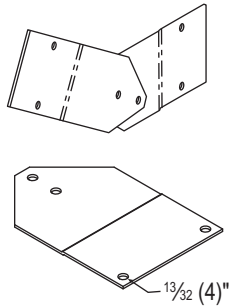
EXAMPLE: H3A-03CO for I-Beam flange, 3" load depth, aluminum, 3" Reducer Connector. Typical Use: 9" to 6", or use 2 for 12" to 6", etc.

CONNECTOR PLATES

Vertical Adjustable Connector [CV]

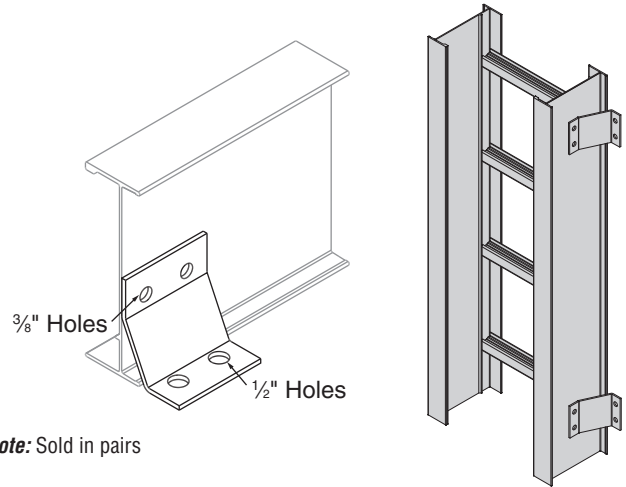
11 Gage Steel, 0.125" Aluminum
 3/8"-16 spline bolts & flange nuts furnished.

Note: Sold in pairs



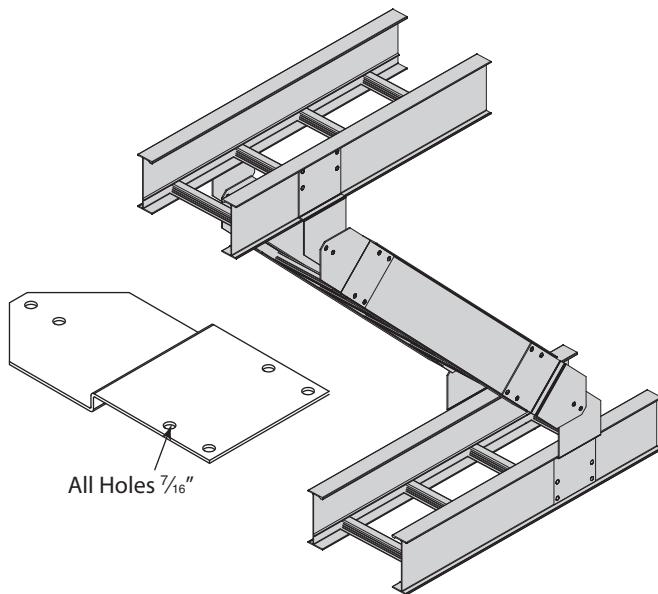
Heavy Duty Hold Down Bracket [7-HDHDB]

2 - 3/8" Holes & 2 - 1/2" Holes.



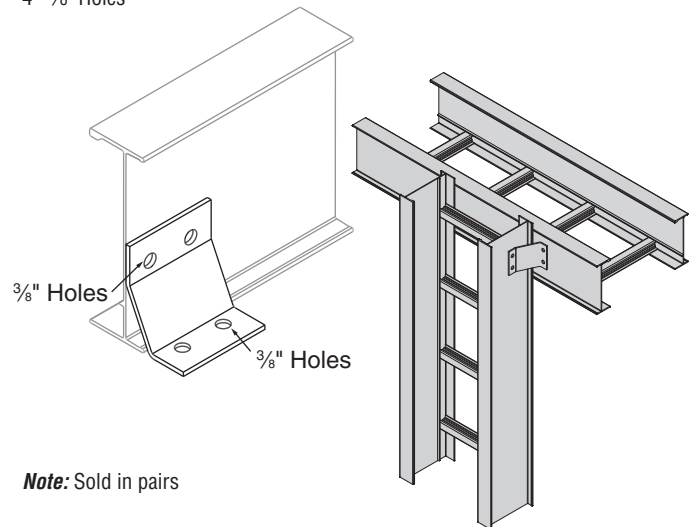
Note: Sold in pairs

Vertical Adj. Branch Pivot Connector [BPC]



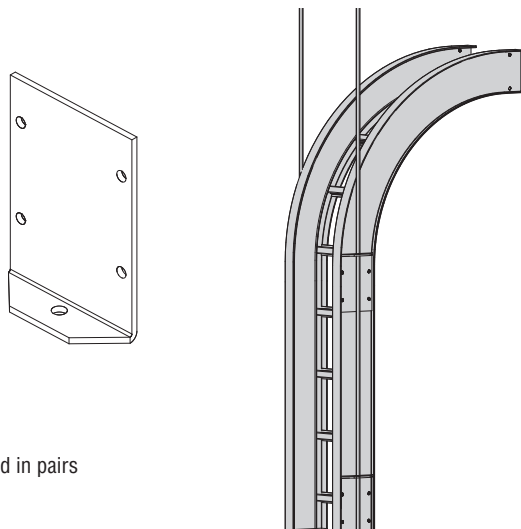
Cross Connection Bracket [CCB]

4 - 3/8" Holes



Note: Sold in pairs

Vertical Hanger Splice Plate [VH]

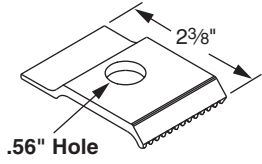


Note: Sold in pairs

Catalog No.	For Use With Cope System Number
H-9043-412	5H3A
H-9043-500	5H4A
H-9043-619	7H5A
H-9043-724	7H6A
H-9043-624	9H5A
H-9043-724	9H6A
H-9043-800	11H7A

I-Beam Supports can be bolted anywhere along the straight runs. They can be bolted directly onto the coupler plates at splices of straight runs and riser fittings, or they can be bolted at any place in the run by field-drilling side rails. I-Beam supports are used with either 3/8" or 1/2" hanger rods. Finish is aluminum.

Combination Hold-Down Clamp & Expansion Guide [9131A]



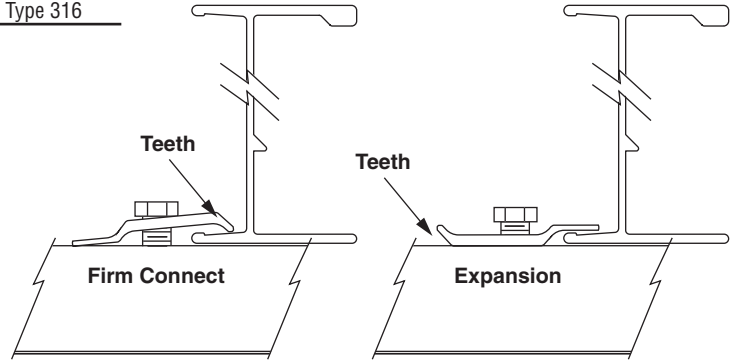
9131A

Catalog No.	Material
9131A	Aluminum
9131L	Stainless Steel Type 316

Hardware purchased separately to suit support system.



PS NS



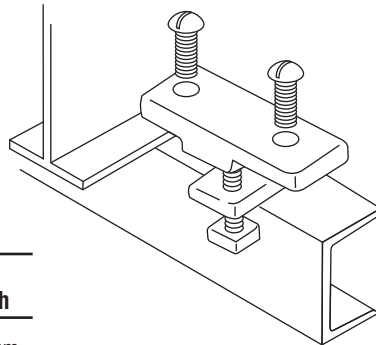
Catalog No. 9131A-HDW (Complete Hardware Kit)

Hardware list:

- (2) 9131A Combination hold-down clamp & expansion guides
- (2) PS 6024 - 1/2" - 13 x 1 1/4" Cap Screw
- (2) PS 209 - 1/2" Flat Washer
- (2) PS NS - Clamping Nut (Strut Nut)

Combination Hold-Down / Expansion Guide [9053]

Universal Guide: for either side of ladder. Use when tray is mounted on I-beams or channels. No drilling required.



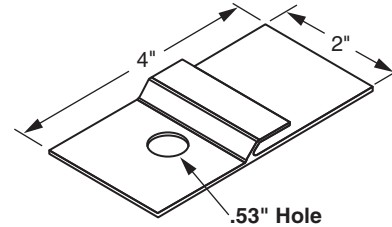
Note: Use set screws for firm hold down

Type	Catalog No.	Finish
Combination Guide	8-9053	Cast Alum.

Note: Electroplated set screws included

Isolation Pad [9131-IP]

The Isolation pad provides protection from galvanic corrosion when Aluminum tray is mounted on steel supports.

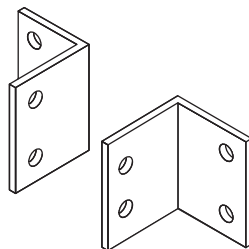


Note: For use with the 9131A-HDW shown above.

Hardware purchased separately

Box Splice Plate [CA]

Note: Sold in pairs



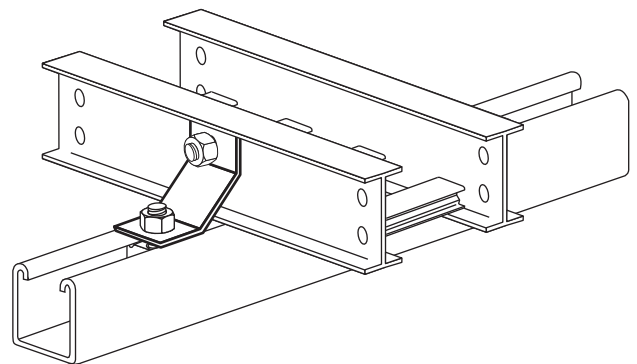
Use to attach the end of a cable tray to a distribution box or control panel.

Catalog Number			
Part	Load Depth	Finish	Basic No.
H3A	3"	A - Alum.	-02CA
H4A	4"		
H5A	5"		
H6A	6"		
H7A	7"		

EXAMPLE: H4A -02CA for 4" load depth, aluminum Box Splice Plate.

Hold-Down [9132]

Note: For seismic applications or other bolted connections is preferred.



Catalog No.	Material
9132	Mill Galvanized
9133	Stainless Steel

Hardware purchased separately to suit support system.

I-BEAM™ CABLE TRAY SYSTEM



HARDWARE

MATERIAL/FINISH

Electrogalvanized finish standard. Other finishes available; consult factory.

*Use following suffix when applicable - use only where indicated.

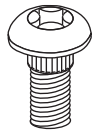
No Suffix Electrogalvanized carbon steel only

-SS..... 302/304 Stainless Steel

-S1 316 Stainless Steel (check factory for availability)

Example: PS 6024 3/8 x 1 1/2 SS, 3/8 x 1 1/2 hex head bolt, 304 stainless steel

Connector Hardware



Spline Bolt



Hex-Flanged Nut with Serrated Washer Face

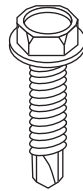
Cat. No.	Item	Size	Material
5003-1	Spline Bolt	3/8"-16 x 1"	Case-Hardened Steel electrogalvanized
5003-2-S1	Spline Bolt	1/2"-13 x 1"	Stainless Steel
5009-1	Hex Nut	3/8"-16	Case-Hardened Steel electrogalvanized
5009-2-S1	Hex Nut	1/2"-13	Stainless Steel

Cover Screw [EM]

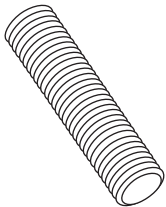
Part No. EM-CC (electrogalv. steel)
Part No. EM-CC-SS (stainless steel)

No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
Indoor: 8 per 12';
Outdoor: 10 per 12'



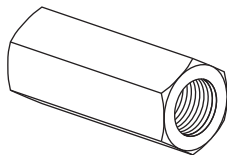
Continuous Threaded Rod [PS 146]



Cat. No.	Size (Diameter x Length)
PS 146*	1/4" x 10'
PS 146*	3/8" x 10'
PS 146*	1/2" x 10'
PS 146*	5/8" x 10'
PS 146*	3/4" x 10'

(Hot Dip Galvanized not available)

Rod Coupler [PS 135]



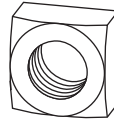
Cat. No.	Size
PS 135*	1/4"
PS 135*	3/8"
PS 135*	1/2"
PS 135*	5/8"
PS 135*	3/4"

Hex Nuts [PS 83]



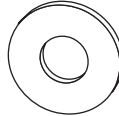
Cat. No.	Size
PS 83*	1/4"
PS 83*	3/8"
PS 83*	1/2"
PS 83*	5/8"
PS 83*	3/4"

Square Nuts [PS 6108]



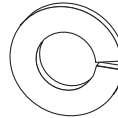
Cat. No.	Size
PS 6108*	1/4"
PS 6108*	3/8"
PS 6108*	1/2"
PS 6108*	5/8"
PS 6108*	3/4"

Flat Washers [PS 209]



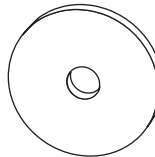
Cat. No.	Size
PS 209*	1/4"
PS 209*	3/8"
PS 209*	1/2"
PS 209*	5/8"
PS 209*	3/4"

Split-Lock Washers [PS 211]



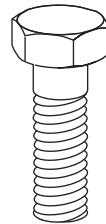
Cat. No.	Size
PS 211*	1/4"
PS 211*	3/8"
PS 211*	1/2"
PS 211*	5/8"
PS 211*	3/4"

Fender Washers [PS 230]

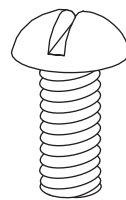


Cat. No.	Size (I.D. x O.D.)
PS 230*	1/4" x 1 1/4" O.D.
PS 230*	3/8" x 1 1/2" O.D.
PS 230*	1/2" x 2" O.D.

Hex Head Cap Screw / Round Head, Slotted Cap Screw [PS 6024]



Catalog No. PS 6024

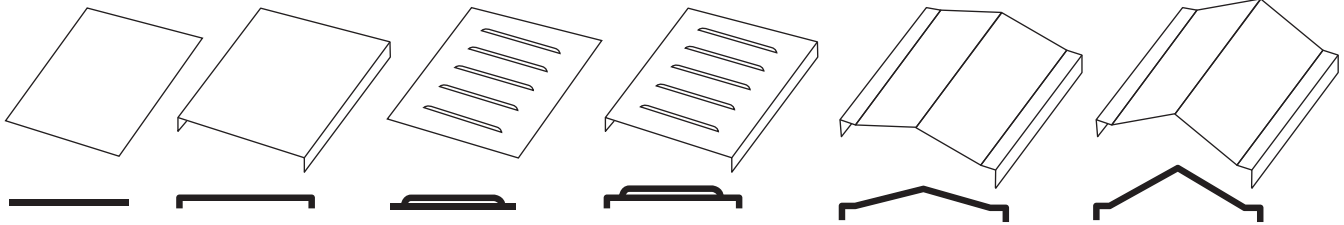


Catalog No. PS 6072

Hex Head Cap Screw Cat. No.	Round Head Cap Screw Cat. No.	Size (Dia. x Len.)
PS 6024*	PS 6072*	1/4" x 1"
PS 6024*	PS 6072*	1/4" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 1"
PS 6024*	PS 6072*	3/8" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 3"
PS 6024*	PS 6072*	1/2" x 1"
PS 6024*	PS 6072*	1/2" x 1 1/2"
PS 6024*	PS 6072*	1/2" x 2"
PS 6024*	PS 6072*	1/2" x 2 1/2"
PS 6024*	PS 6072*	1/2" x 3"
PS 6024*	PS 6072*	1/2" x 3 1/2"
PS 6024*	PS 6072*	5/8" x 1 1/2"
PS 6024*	PS 6072*	5/8" x 2"
PS 6024*	PS 6072*	5/8" x 3"
PS 6024*	PS 6072*	5/8" x 4"
PS 6024*	PS 6072*	3/4" x 2"
PS 6024*	PS 6072*	3/4" x 3"
PS 6024*	PS 6072*	3/4" x 4"

Covers

COVERS for straight sections shown. Standard fitting covers are flat solid type (NF). Aluminum covers are fabricated from 0.040" aluminum AA-3150-H14.



- NF** – Flat Solid
- FS** – Flat Solid w/ 3/8" Flange
- NL** – Flat Louvered
- PF** – Peaked Flanged Solid w/ 3/8" Flange (suffix height)
- PP** – Peaked 2 to 3 Pitch Flanged Solid w/ 3/8" Flange

Note: Use EM-CC Cover Screws (see pg. 88) to attach PH, PV, HS & HV covers.

Cover Catalog Number – Straight Sections (Aluminum)

Type	Basic No. (Width)	Length	Height*
NFHA	-06SL = 6" (152mm)	-12'	-2"
FSHA	-09SL = 9" (229mm)	-10'	
NLHA	-12SL = 12" (305mm)	-06'	
PFHA	-18SL = 18" (457mm)		
PPHA	-24SL = 24" (610mm)		
	-30SL = 30" (762mm)		
	-36SL = 36" (914mm)		

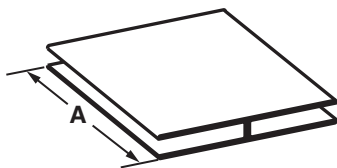
*PF only, 2" height standard. Consult factory for other heights.
EXAMPLE: NLHA-09SL-12 is a flat louvered aluminum cover for a 9" wide I-Beam 12' long.

Cover Catalog Number – Fittings (Aluminum)

Type	Load Depth	Width/Basic No.	Radius
NFHA	3"	-06 XX **	12"
FSHA	4"	-09 XX **	24"
	5"	-12 XX **	36"
	6"	-18 XX **	
		-24 XX **	
		-30 XX **	
		-36 XX **	

* Load depth for outside riser or vertical tee only.
 ** XX from fitting selection page 68
EXAMPLE: NFHG-369F-24 is a non-flanged solid cover for a 36" wide horizontal 90° elbow with a 24" radius.

Joint Plate



Joint plate is black PVC and is offered in 10' lengths to be field cut to desired length, or in precut lengths for specified covers.

JP-120 is joint plate in 10' lengths.

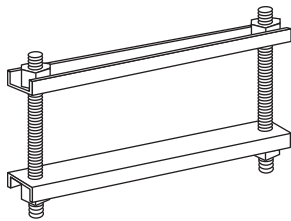
Joint plate for specified covers is specified as follows.

Tray Width -"A"	
JP-06 = 6"	(152mm)
JP-09 = 9"	(229mm)
JP-12 = 12"	(305mm)
JP-18 = 18"	(457mm)
JP-24 = 24"	(610mm)
JP-30 = 30"	(762mm)
JP-36 = 36"	(914mm)

EXAMPLE: JP-06 is a joint plate for 6" wide tray.

COVER ACCESSORIES

Double Clamp Connector [DC]



Catalog Number (Aluminum Clamp)

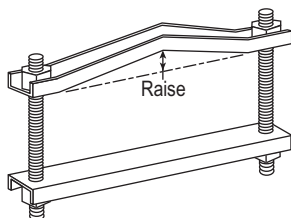
Part	Load Depth	Width	Type
H3A	3"	-06	DC
H4A	4"	-09	
H5A	5"	-12	
H6A	6"	-18	
H7A	7"	-24	
		-30	
		-36	

For all covers except peaked.
Furnished with:
(2) 1/4"-20 all-thread rods
(4) hex nuts, flat washers
and lock washers
Suggested spacing:
Indoor: 2 per 12'
Outdoor: 3 per 12'
High Wind: 5 per 12'

EXAMPLE: H4A-12DC for 4" load depth, I-Beam flange, aluminum, Double Clamp Connector

Peak Cover Connector [PC]

Note: For PF Covers



Catalog Number (Aluminum Clamp)

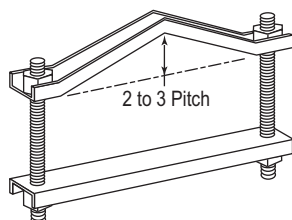
Part	Load Depth	Width	Type	Raise (in)*
H3A	3"	-06, -09,	PC	-2
H4A	4"	-12, -18,		
H5A	5"	-24, -30		
H6A	6"	-36		
H7A	7"			

*2" standard raise. Consult factory for other peak heights.

EXAMPLE: H4A-12PC-2 for 4" load depth, I-Beam flange, aluminum, 12" wide, Peak Cover Connector with 2" peak.

Peak Pitch Cover Connector [PP]

Note: For PP Covers



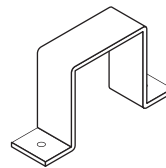
Catalog Number (Aluminum)

Part	Load Depth	Width	Type
H3A	3"	-06, -09,	PP
H4A	4"	-12, -18,	
H5A	5"	-24, -30,	
H6A	6"	-36	
H7A	7"		

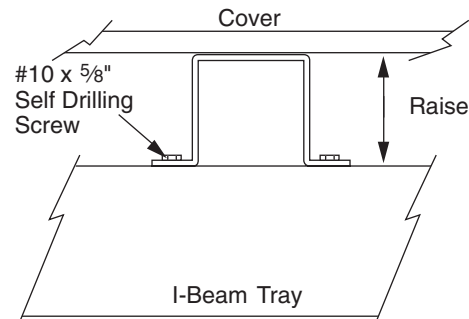
NOTE: 2 to 3 standard pitch.

EXAMPLE:
H4A-12PP for 4" load depth,
I-Beam flange, aluminum,
12" wide, Pitched Peak Cover

Elevated Cover Connectors [EM-CC]



Includes:
(3) #10 x 5/8" Self drilling screws.
Suggested spacing:
Indoor: 3/Side (6 tot.) per 12';



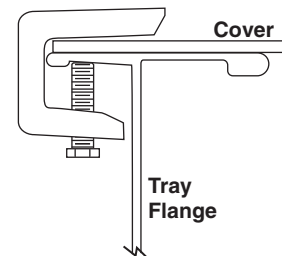
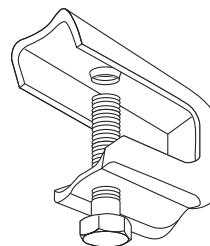
Catalog Number

Finish	Type	Height*
8 - Alum.	EM-CC	- Raise* (in.)

*1", 2" or 3" standard.

EXAMPLE: 8-EM-CC-2 for aluminum, Elevated Cover Connector with a 2" raise

Electro-Galv. Steel Cover Clip [PS 135X]

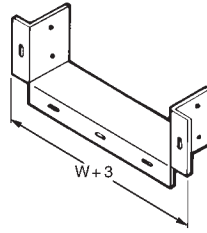


Use with any width tray. Not sold in pairs.
Indoor use only. Suggest spacing 6' max.

Box Connector [CB]

.080" Aluminum

Note: ¼"-20 carriage bolts, flat washers, hex nuts furnished.



Catalog Number (Aluminum)

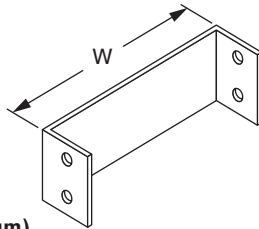
Part	Load Depth	Width
H3A	3"	-06CB = 6" (152mm)
H4A	4"	-09CB = 9" (229mm)
H5A	5"	-12CB = 12" (305mm)
H6A	6"	-18CB = 18" (457mm)
H7A	7"	-24CB = 24" (610mm)
		-30CB = 30" (762mm)
		-36CB = 36" (914mm)

EXAMPLE: H4A-12CB for I-Beam flange, 4" load depth, aluminum, 12" wide, Box Connector.

Blind End [BE]

.040" Aluminum

Note: ⅜"-16 spline bolts and flange nuts furnished.



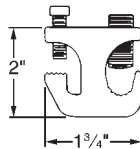
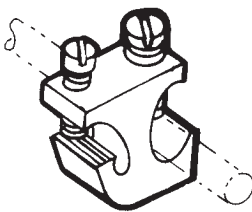
Catalog Number (Aluminum)

Part	Load Depth	Width
H3A	3"	-06BE = 6" (152mm)
H4A	4"	-09BE = 9" (229mm)
H5A	5"	-12BE = 12" (305mm)
H6A	6"	-18BE = 18" (457mm)
H7A	7"	-24BE = 24" (610mm)
		-30BE = 30" (762mm)
		-36BE = 36" (914mm)

EXAMPLE: H4A-12BE for I-Beam flange, 4" load depth, aluminum, 12" wide Blind End.

Cable Tray Ground Clamp [9156]

Extruded Alum. with ElectroGalvanized Hex Head Screws
Capacity: #6 AWG to 250 kcmil



UL Listed E-24264

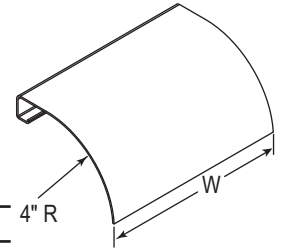


Certified File No. LR 9795

Drop Out [DO]

.080" Aluminum

Note: (2) #10 x ⅝" self tapping screws furnished.

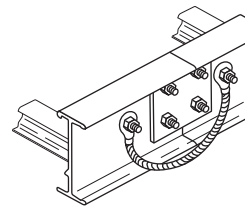


Catalog Number

Basic Finish	Width
A - Alum.	-06DO = 6" (152mm)
	-09DO = 9" (229mm)
	-12DO = 12" (305mm)
	-18DO = 18" (457mm)
	-24DO = 24" (610mm)
	-30DO = 30" (762mm)
	-36DO = 36" (914mm)

EXAMPLE: A-12DO for aluminum, 12" wide, Drop Out.

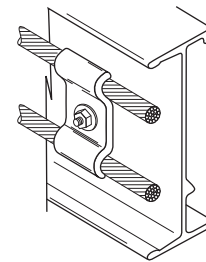
Bonding Jumper [CBJ]



Catalog No.	Dimensional Data	Amperes as Equipment Ground
CBJ-C	AWG 1/0 copper wire 15½" long overall	800 amperes
CBJ-4C	AWG 4/0 copper wire 15½" long overall	1,600 amperes
CBJ-250C	250 MCM copper wire 15½" long overall	2,000 amperes

NOTE:
No hardware supplied
For hardware kit add -HDW:
Ex: CBJ-C-HDW includes
2ea CBJ-C
4ea 5003-1
4ea 5009-1

Ground Cable Retainer Clamp



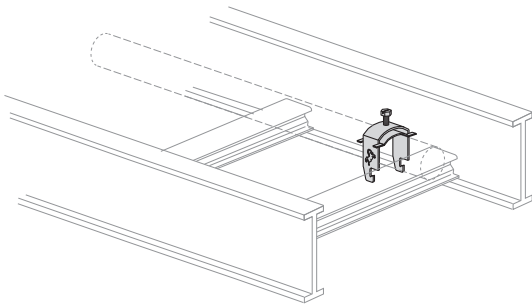
Catalog No.	Capacity	Metal & Finish	Dimensions
9056-EP	1/0 2/0 3/0	Electro-Galv. Steel	1" w x 2" long
9057-EP	4/0 250 MCM		1" w x 2⅝" long
9056-SS	1/0 2/0 3/0	Stainless Steel	1" w x 2" long
9057-SS	4/0 250 MCM		1" w x 2⅝" long

I-BEAM™ CABLE TRAY SYSTEM



ACCESSORIES

Mustang Universal One-Piece Pipe, Conduit (GRC, EMT & IMC) and Tubing Clamps [PS MU]



Part No.	Nominal Trade Size	OD		Height Above Channel"H"	
		Min	Max	Min	Max.
PS MU-1/4	1/4"	0.250"	0.540"	1 3/4"	2"
PS MU-3/8	3/8"	0.500"	0.675"	1 7/8"	2 1/8"
PS MU-1/2	1/2"	0.625"	0.840"	2"	2 1/4"
PS MU-3/4	3/4"	0.875"	1.050"	2 1/4"	2 1/2"
PS MU-1	1"	1.125"	1.315"	2 1/2"	2 3/4"
PS MU-1-1/4	1 1/4"	1.375"	1.660"	2 3/4"	3 1/8"
PS MU-1-1/2	1 1/2"	1.625"	1.900"	3"	3 3/8"
PS MU-2	2"	2.000"	2.375"	3 1/2"	3 7/8"
PS MU-2-1/2	2 1/2"	2.500"	2.875"	4 1/4"	4 5/8"
PS MU-3	3"	3.000"	3.500"	4 7/8"	5 3/8"
PS MU-3-1/2	3 1/2"	3.625"	4.000"	5 3/8"	5 7/8"
PS MU-4	4"	4.125"	4.500"	5 7/8"	6 3/8"

Note:
Available in 14 ga. Electro-galvanized steel

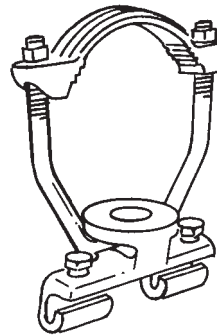
Conduit Clamp Bracket [CCB]



Catalog No.	Size-Rigid	Size-EMT
CCB-050	3/8" to 1/2"	1/2"
CCB-075	3/4"	3/4"
CCB-100	1"	1"
CCB-125	-	1 1/4"
CCB-150	1 1/4"	1 1/2"
CCB-200	2"	2"

Conduit-to-Cable Tray Clamp Swivel Type [TB]

Malleable iron hub and steel"U" bolt. For connecting and grounding rigid conduit to tray at any angle within 90° arc. U.L. listed as a grounding means.

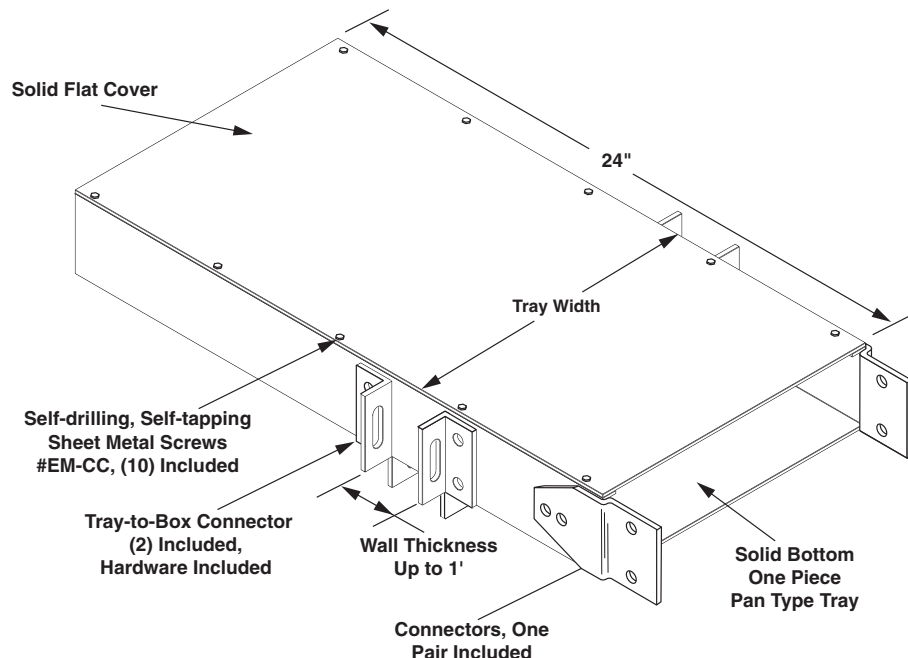


Catalog No.	Size	Std. Pkg.
TB6209	1/2"-3/4"	10
TB6211	1"-1 1/4"	10
TB6214	1 1/2"-2"	5
TB6216	2 1/2"-3"	5
TB6218	3 1/2"-4"	2

Wall Penetrating Sleeve Assembly

Part No. SS89042(W)*

W = Tray Width
* = Fitting 3-Digit Prefix



Note: Standard penetration sleeves are manufactured from mill galvanized steel. Aluminum sleeves are available upon request.

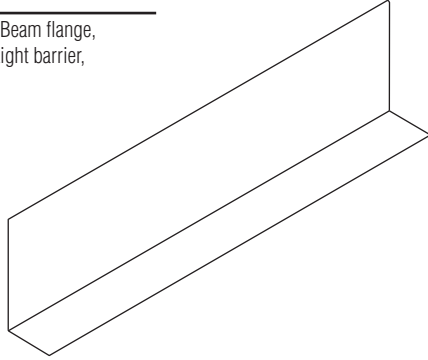
Universal Aluminum Barrier Strip - Straight Section [SB]

Catalog Number (Aluminum)

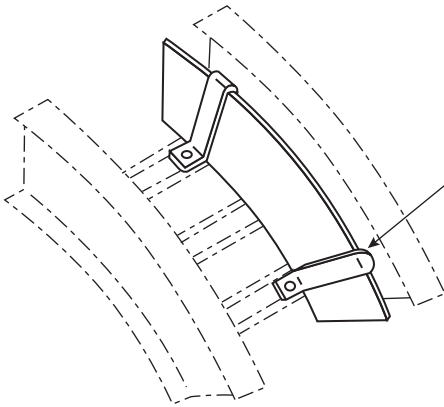
Part	Load Depth	Basic No. - Length
3A	3"	-01SB-10 = 10'
4A	4"	-01SB-12 = 12'
5A	5"	
6A	6"	
7A	7"	

EXAMPLE: 4A-01SB-12 for I-Beam flange, 4" load depth, aluminum straight barrier, 12' long.

Furnished with 8 self tapping screws.



Barrier Strip Vertical Elbow Outside [OB] & Inside [IB]



Barrier Strip Clamp
Part No. 50172
Furnished with vertical elbow barriers

Catalog Number (Aluminum)

Part	Load Depth	Bend (deg.)	Basic No.	Radius
3A	3"	90°	OB = Outside	12" (305mm)
4A	4"	60°	IB = Inside	24" (610mm)
5A	5"	45°		36" (914mm)
6A	6"	30°		
7A	7"			

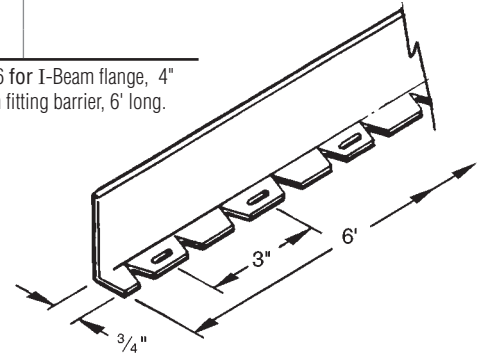
EXAMPLE: 3A-90OB-12 for I-Beam flange, 3" load depth, aluminum 90° outside vertical barrier with 12" radius. (OB Vert. Elbow outside shown)
Furnished with sufficient clamp assemblies for installation.
Additional clamp assemblies may be ordered separately.

Barrier Strip - Horizontal Fitting [FB]

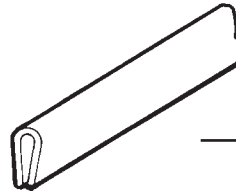
Catalog Number (Aluminum)

Part	Load Depth	Basic No. 6' Length
3A	3"	-01FB-06
4A	4"	
5A	5"	
6A	6"	
7A	7"	

EXAMPLE: 4A-01FB-06 for I-Beam flange, 4" load depth, aluminum fitting barrier, 6' long.



Nylon Barrier Splice & Protector [BSP-L]

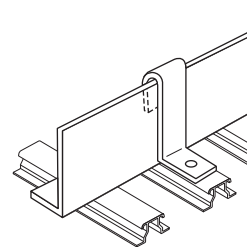


Catalog Number

Prefix	Length (L)
BSP	-5 (5" Splice)
	-144 (144" Protector)
	-1200 (100' Roll)

EXAMPLE: BSP-1200 for 100' roll

Barrier Strip Clamp (Optional) [50172]



No. 10 bolt, nut, washer and lockwasher furnished.

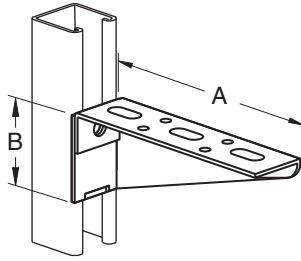
Catalog Number (Aluminum)

Part	Load Depth	Basic No.
H3A	3"	-50172
H4A	4"	
H5A	5"	
H6A	6"	
H7A	7"	

EXAMPLE: H3A-5072 for I-Beam flange, 3" load depth, aluminum clamp.

SUPPORTS

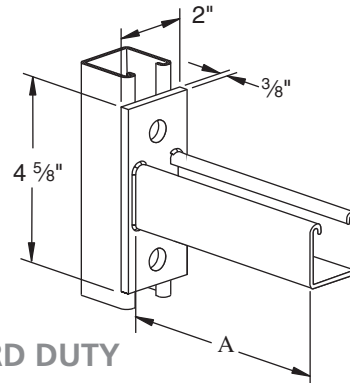
Gusset-Type Supports



For use with all types of Cope I-Beam systems. Finish is electro-galvanized. Order hardware separately.

Catalog No.	I-Beam Width	Dimension		Uniform-Load Rating
		A	B	
PS 838R-12	6"	12"	3 ⁷ / ₁₆ "	275 lbs.
PS 838R-16	9"	16"	4 ⁷ / ₁₆ "	275 lbs.
PS 838R-18	12"	18"	4 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-24	18"	24"	6 ⁷ / ₁₆ "	275 lbs.
PS 838R-30	24"	30"	7 ¹⁵ / ₁₆ "	275 lbs.

Channel-Type Supports



STANDARD DUTY

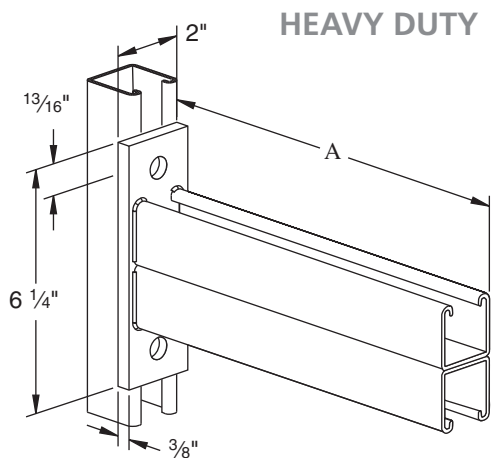
For use with all types of Cope I-Beam systems. Finish is electro-galvanized. Order hardware separately.

Standard Duty for Lighter Loads.

Catalog No.	I-Beam Width	Dimension A	Uniform-Load Rating*
PS 651-12	6"	12"	600 lbs.
PS 651-15	9"	15"	480 lbs.
PS 651-18	12"	18"	400 lbs.
PS 651-24	18"	24"	300 lbs.
PS 651-30	24"	30"	240 lbs.

* Mounted on 12 Ga. Channel.

Double Channel-Type Supports



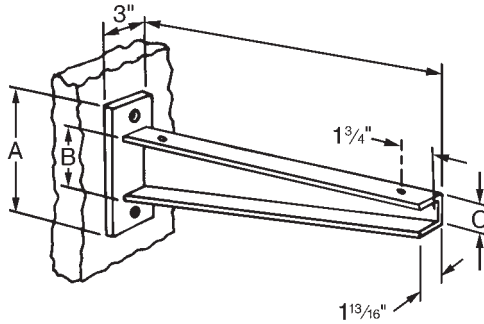
For use with all types of Cope I-Beam systems. Finish is electro-galvanized. Order hardware separately.

Heavy Duty for Heavier Loads

Catalog No.	I-Beam Width	Dimension A	Uniform-Load Rating*
PS 809-12	6"	12"	2,000 lbs.
PS 809-15	9"	15"	1,600 lbs.
PS 809-18	12"	18"	1,330 lbs.
PS 809-24	18"	24"	1,000 lbs.
PS 809-30	24"	30"	800 lbs.
PS 809-36	30"	36"	660 lbs.
PS 809-42	36"	42"	570 lbs.

* Mounted on 12 Ga. Channel.

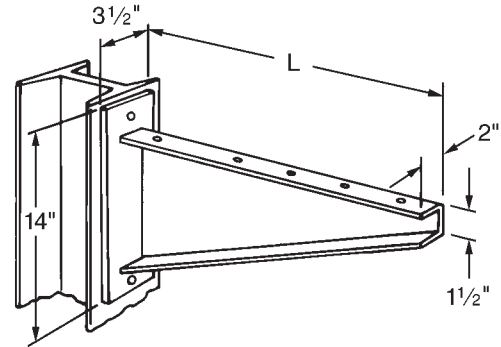
Wall Support Brackets



Catalog Number	Ladder Width	Length "L"	Dimensions			End-Load Rating*
			"A"	"B"	"C"	
9037-12	6"	12 1/4"	10"	6"	2"	2000 lbs.
9037-18	12"	18 1/4"	11"	7"	2 1/2"	2000 lbs.
9037-24	18"	24 1/4"	11"	7"	2 1/2"	1600 lbs.
9037-30	24"	30 1/4"	12"	8"	4"	1300 lbs.
9037-36	30"	36 1/4"	12"	8"	4"	1100 lbs.
9037-42	36"	42 1/4"	12"	8"	4"	900 lbs.

*Uniform load rating is normally twice the end-load rating.
Finish is hot-dip galvanized after fabrication.
Order hardware separately.

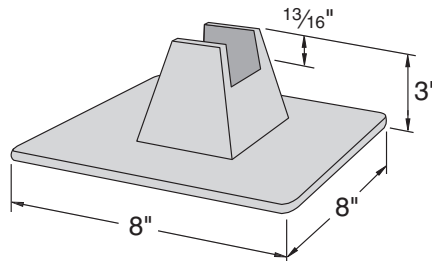
Structural Support Bracket



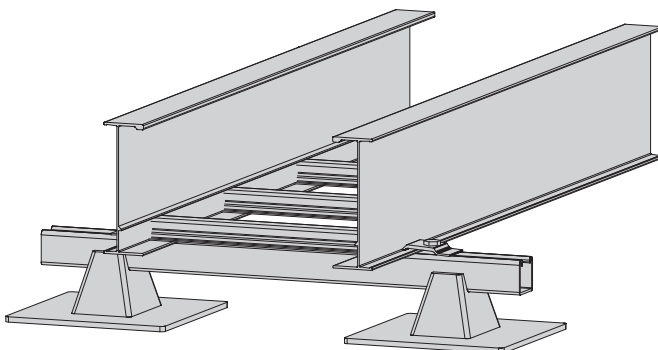
Catalog No.	Ladder Width	Length "L"	End-Load Rating*
9036-31	24"	31 1/4"	2000 lbs.
9036-37	30"	37 1/4"	1800 lbs.
9036-45	36"	45 1/4"	1500 lbs.

*Uniform load rating is normally twice the end-load rating.
For use with Cope I-Beam 24" or wider. May be welded or bolted to building steel.
Finish is hot-dip galvanized after fabrication.
Order hardware separately.

Power-Pier Rooftop Support System



The Power-Pier Rooftop support system provides a simple and versatile way to support and manage pipe, tubing, conduit, HVAC systems, and the like. The Power-Pier system supports without roof surface penetration and allows the parts to remain off the surface.

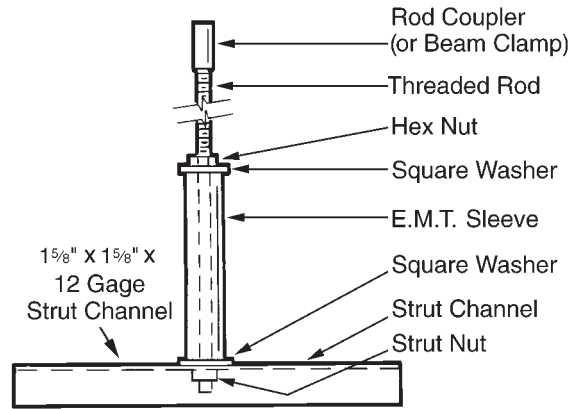


Part Number	Power-Pier Bases Qty.	I-Beam Width	Description
PS PP	4	-	Power-Pier Base Only (4 Bases & Hardware)
PS-SPSS-10HG	4	6"	PS PP + 4 Pcs PS 500 EH HG @ 10" Long for 4" to 8" Pipe
PS-MPDS-13HG	4	9"	PS PP + 2 Pcs PS 200 EH HG @ 13" Long for Trapeze
PS-MPDS-16HG	4	12"	PS PP + 2 Pcs PS 200 EH HG @ 16" Long for Trapeze
PS-MPDS-22HG	4	18"	PS PP + 2 Pcs PS 200 EH HG @ 22" Long for Trapeze
PS-MPDS-28HG	4	24"	PS PP + 2 Pcs PS 200 EH HG @ 28" Long for Trapeze
PS-MPDS-34HG	4	30"	PS PP + 2 Pcs PS 200 EH HG @ 34" Long for Trapeze
PS-MPDS-40HG	4	36"	PS PP + 2 Pcs PS 200 EH HG @ 40" Long for Trapeze

TRAY HANGER & SUPPORTS

Single Rod Hanger Support

Catalog Number					
Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp
P200	14" (356mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - Bridgeport
	17" (432mm)		12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	20" (508mm)	HG (Hot Dipped Galv)		072 - 72" (1828mm)	O - No Clamp
26" (661mm)	120 - 120" (3048mm)		R - Rod Coupler		
32" (813mm)	144 - 144" (3658mm)		S - Special		
38" (966mm)					
	44" (1118mm)				



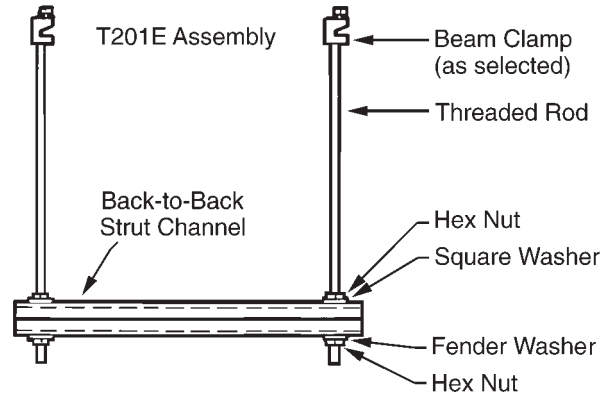
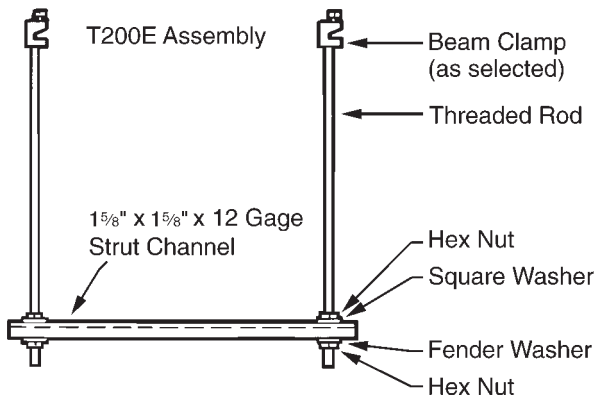
EXAMPLE:

P20020GV12036B is a Single 20" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

NOTE:

- *Order channel length 8" longer than tray width. For example, 44" channel for 36" tray.
- ** Other channel types and finishes available upon request. Contact factory.
- To order hardware only:
3/8" - PGV380000
1/2" - PGV120000

Trapeze Hanger Support



Catalog Number						
Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length		Beam Clamp
T200E	16" (407mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 -	No Rod	A - PS 85
T201E	19" (483mm)	HG (Hot Dipped Galv)	12=1/2" (12.7mm)	036 - 36"	(914mm)	B - P2622
	22" (559mm)			072 - 72"	(1828mm)	O - No Clamp
	28" (712mm)			120 - 120"	(3048mm)	R - Rod Coupler
	34" (864mm)			144 - 144"	(3658mm)	S - Special
	40" (1017mm)					
	46" (1169mm)					

EXAMPLE: T200E22GV12036B is a Single 22" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

- NOTE:**
- *Order channel length 10" longer than tray width. For example, 46" channel for 36" tray.
 - ** Other channel types and finishes available upon request. Contact factory.
 - To order hardware only:
3/8" - PGV380000
1/2" - PGV120000



Electrical Grounding Chart

Fitting Prefix Number		Min. X-Sect for 2 Rails (NEC Table 392.7B) Aluminum I-Beam X-Sect Area	Maximum Ground Fault Amperage (in Amps) Aluminum
System	Load Depth		
5H3A	3"	1.00	1,200
5H4A	4"	1.00	1,200
1H5A	5"	1.50	1,600
5H5A	5"	1.50	1,600
7H5A	5"	2.00	2,000
9H5A	5"	2.00	2,000
7H6A	6"	2.00	2,000
9H6A	6"	2.00	2,000
11H7A	7"	2.00	2,000

The table to the left provides the Minimum Cross Sectional area for two side rails. Using the Fitting Prefix Number (H4A), the proper value is determined by the Material (column 3), the Flange (column 1) and Load Depth (column 2). Locate the line containing the Load Depth (column 1) and follow it to the right to the appropriate Flange and Material.

Find that value in Maximum Ground Fault (column 4), follow it to the right to the Material column to determine the Maximum Ground Fault Amperage.

For Example:
 If the fitting prefix is H4A, the Flange is I-Beam, the Load Depth is 4", and the Material is Aluminum. The Minimum Cross Sectional Area (X-Sect Area) is 1.00 sq. in. The Amperage is 1,200.

Typical Specifications

By specifying the NEMA class designation, you will use the simplest, clearest, and most complete method of specification available and automatically incorporate support span in feet, working (allowable) load in pounds per linear foot, a safety factor of 1.5, a concentrated load if present; and, all other design, manufacturing and test standards including electrical continuity.

All you need to do is add the desired load depth, rung spacing, radius of fittings, metal and finish. You may add accessory information pursuant to your project. Here is a typical specification for an outdoor tray system where the working (allowable) load has been determined to be approximately 75 pounds per foot on support spans of 12'-0".

SPECIFICATION ALUMINUM COPE I-BEAM SYSTEM

Cable I-Beam shall be manufactured by a company regularly engaged in the manufacture of metal cable trays and shall be a member of NEMA. Trays shall conform to NEMA Metal Cable Tray Standard Publication VE-1 (latest issue).

1. Cable I-Beam shall be NEMA Classification 12B of the widths indicated.
2. Material shall be aluminum alloy with side rails and rungs of 6063.
3. Finish shall be natural.
4. Inside load depth to be NEMA Standard 4".
5. Fittings shall be 12" radius for control cables and 24" radius for power cables. (This must be commensurate with the cable manufacturers' recommended minimum bending radius.)
6. All top level trays in stacks, and single runs to have raised peaked, aluminum ventilated covers with heavy duty hold down clamps every 3'-0".
7. Install expansion connectors, expansion guides, and hold down clamps per NEMA Standard VE-1.
8. Where slopes or horizontal bends of trays are not at the Standard NEMA angles, use adjustable connectors. If the angle is too great for cable bending radius, use combinations of fitting and adjustable connectors.
9. Separate all cables of different volt ages in the same tray using the manufacturer's standard barriers and barrier hold down system.
10. The Cable I-Beam system will be used as an equipment grounding conductor.
11. To save space fittings shall have 3" tangents. To facilitate field installation use one pair of universal type connector plates for rigid joints.
12. Trays shall be Cope Cable I-Beam System Number 5H4A as manufactured by Allied Tube & Conduit® Corporation





COPE™ HAT

5



Economical Flange in Welded Cable Ladder/Trof System for Electrical, Telephone, Computer Control & Instrumentation Cable

Slotted Rungs provided on trays 6", 9", 12", 18" and 24" wide.
Solid Rungs provided on trays 30" and 36" wide.

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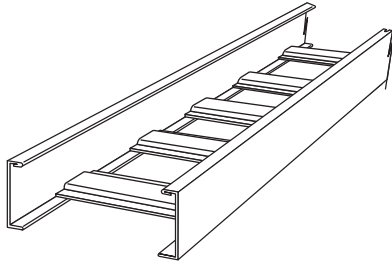
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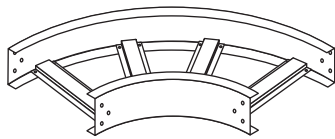
Straight Length

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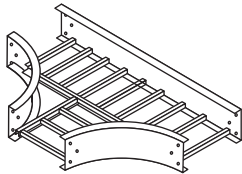
Horizontal Elbows

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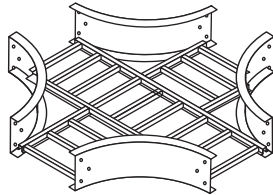
Horizontal Tee

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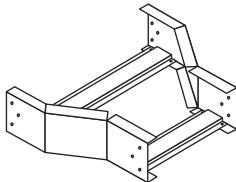
Horizontal Cross

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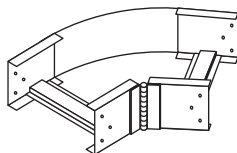
Reducers

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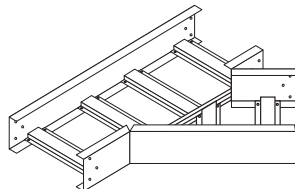
Adjustable Elbows

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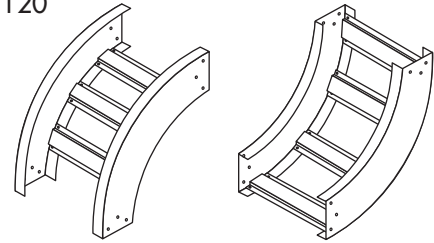
45° "Y" Branch

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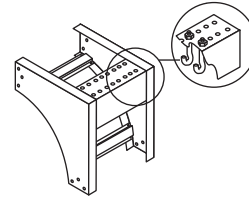
Vertical Elbows

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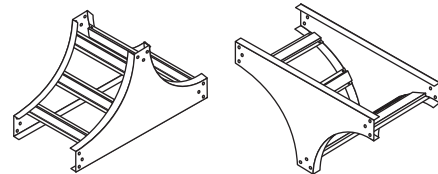
90° Vertical Cable Support Elbow

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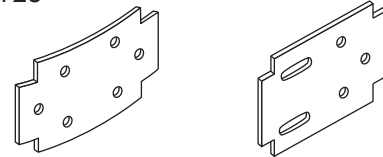
Vertical Tee

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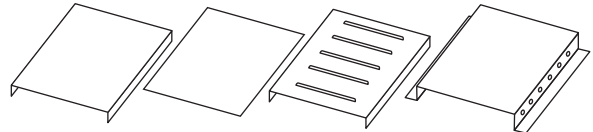
Connectors

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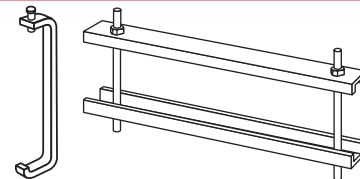
Covers

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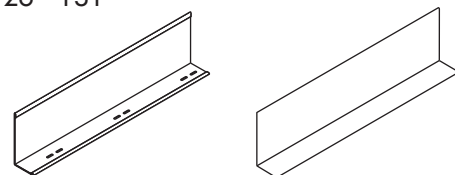
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HAT CABLE TRAY SYSTEM



SELECTION CHART: Aluminum Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/Span Class	Actual NEMA Load/Span	Cope System Number	Nominal Load Depth		Side Rail Height		Flange Width (in.)	Section Modulus of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min X-Sect. Area of 2 Rails per NEC 392.7 (in. ²)
8A-12A	50 lb./ft. 12' span	523A	3"	(76mm)	3 1/2"	(89mm)	1 3/16"	0.800	1.400	0.60
		1B4A	4"	(102mm)	4 1/4"	(108mm)	1 3/16"	1.898	1.822	0.60
		1B5A	5"	(127mm)	5 1/4"	(133mm)	1 3/16"	1.142	2.872	0.60
		3B6A	6"	(152mm)	6 1/4"	(159mm)	1 3/16"	1.614	4.720	1.00
12B	12' span	3B4A	4"	(102mm)	4 1/4"	(108mm)	1 3/16"	1.148	2.316	0.60
		1B5A	5"	(127mm)	5 1/4"	(133mm)	1 3/16"	1.142	2.872	0.60
		3B6A	6"	(152mm)	6 1/4"	(159mm)	1 3/16"	1.614	4.720	0.60
12C	100 lb./ft. 12' span	5B4A	4"	(102mm)	4 1/4"	(108mm)	1 3/16"	1.646	3.058	1.00
		3B5A	5"	(127mm)	5 1/4"	(133mm)	1 3/16"	1.522	3.734	1.00
		5B6A	6"	(152mm)	6 1/4"	(159mm)	1 3/16"	1.944	5.866	1.00
16A	50 lb./ft. 16' span	5B4A	4"	(102mm)	4 1/4"	(108mm)	1 3/16"	1.646	3.058	1.00
		745A	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	2.396	6.292	1.50
		1D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	2.378	7.202	1.00
16B	75 lb./ft. 16' span	3D4A	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	2.242	4.406	1.00
		745A	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	2.396	6.292	1.50
		1D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	2.378	7.202	1.00
16C	100 lb./ft. 16' span	5D4A	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	2.782	5.738	1.50
		3D5A	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	3.434	8.746	2.00
		7D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	4.186	12.024	2.00
20A	50 lb./ft. 20' span	3D4A	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	2.242	4.406	1.00
		745A	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	2.396	6.292	1.50
		1D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	2.378	7.202	1.00
20B	75 lb./ft. 20' span	3D5A	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	3.434	8.746	2.00
		7D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	4.186	12.024	2.00
20C	100 lb./ft. 20' span	5D5A	5"	(127mm)	5 1/4"	(108mm)	1 1/4"	3.910	10.020	2.00
		7D6A	6"	(152mm)	6 1/4"	(133mm)	1 1/4"	4.1860	12.024	2.00
EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS- 4", 6" OR 9" RUNG SPACING										
		9D6A	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	5.130	15.700	2.00
		7G6A	6"	(152mm)	6 1/4"	(159mm)	2"	5.804	17.456	2.00

Note: indicates most common systems. Consult factory for lead times on other systems.

Slotted Rungs provided on trays 6", 9", 12", 18" and 24" wide.

Solid Rungs provided on trays 30" and 36" wide.



HAT CABLE TRAY SYSTEM

SELECTION CHART: Aluminum Tray

LOAD AND DEFLECTION DATA FOR ALUMINUM HAT Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1, Simple Beam - SAFETY FACTOR 1.5

Cope Sys. No.	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Span			25 Ft. Span		
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k
523A	207	.43	.002	117	.77	.007	75	1.20	.016	52	1.73	.033												
1B4A	222	.35	.002	125	.63	.005	80	.99	.012	55	1.42	.026												
1B5A	324	.33	.001	182	.59	.003	117	.87	.007	77	1.26	.016												
3B6A	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010												
3B4A	354	.45	.001	191	.76	.004	117	1.14	.010	78	1.57	.020												
1B5A	324	.33	.001	182	.59	.003	117	.87	.007	77	1.26	.016												
3B6A	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010												
5B4A	362	.32	†	251	.69	.003	161	1.08	.007	112	1.55	.014												
3B5A	394	.31	†	222	.55	.002	142	.86	.006	100	1.24	.012												
5B6A	480	.24	†	257	.40	.002	156	.60	.004	102	.81	.008												
5B4A				251	.69	.003	161	1.08	.007	112	1.55	.014	51	2.26	.044	25	2.75	.110						
745A				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D6A				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050						
3D4A				342	.72	.002	219	1.12	.005	152	1.61	.011	82	2.74	.033	52	4.27	.082						
745A				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D6A				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050						
5D4A				444	.71	.002	284	.70	.002	188	1.53	.008	106	2.73	.026	65	4.07	.063						
3D5A				525	.55	.001	336	.86	.003	233	1.24	.005	119	2.01	.017	76	3.14	.041						
7D6A										229	1.00	.004	116	1.60	.014	75	2.50	.033						
3D4A										152	1.61	.011	82	2.74	.033	52	4.27	.082						
745A										155	1.15	.007	79	1.85	.023	51	2.89	.057						
1D6A										154	1.00	.006	78	1.61	.021	50	2.51	.050						
3D5A										233	1.24	.005	119	2.01	.017	76	3.14	.041						
7D6A										229	1.00	.004	116	1.60	.014	75	2.50	.033						
5D5A										290	1.35	.005	156	2.30	.015	100	3.59	.036						
7D6A										284	1.09	.004	158	1.94	.012	101	3.02	.030						
9D6A										412	1.22	.003	214	2.00	.009	131	3.01	.023	68	3.23	.048			
7G6A										451	1.20	.003	253	2.14	.008	162	3.35	.020	112	4.79	.043	104	5.24	.050

Note: To convert 1.5 safety factor to 2.0 multiply w,d,k by .75.

W=Pounds per linear foot

Metric: for kg/m multiply w by 1.48

d=Deflection (inches)

k= Deflection (in.) for each pound of load

†= Denotes k is less than .001 inch

HAT CABLE TRAY SYSTEM



SELECTION CHART: Steel Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/Span Class	NEMA Load/Span	Mill Galv. System Number	HDGAF System Number	Type 304 SS System Number	Nominal Load Depth		Side Rail Height		Flange Width (in.)	Section Modulus of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min. X-Sect. Area of 2 Rails per NEC 392-7 (in. ²)
8A-12A	50 lb./ft. 12' span	823P	623G	823S	3"	(76mm)	3 1/2"	(89mm)	13/16"	0.444	0.778	.40
		824P	624G	824S	4"	(102mm)	4 1/4"	(108mm)	13/16"	0.592	1.258	.40
		825P	625G	825S	5"	(127mm)	5 1/4"	(133mm)	13/16"	0.816	2.142	.40
		826P	626G	826S	6"	(152mm)	6 1/4"	(159mm)	13/16"	1.072	3.352	.70
12B	75 lb./ft. 12' span	423P	423G	423S	3"	(76mm)	3 1/2"	(89mm)	13/16"	0.674	1.180	.70
		8B4P	6B4G	8B4S	4"	(102mm)	4 1/4"	(108mm)	13/16"	0.678	1.370	.40
		825P	625G	825S	5"	(127mm)	5 1/4"	(133mm)	13/16"	0.816	2.142	.40
		826P	626G	826S	6"	(152mm)	6 1/4"	(159mm)	13/16"	1.072	3.352	.70
12C	100 lb./ft. 12' span	6B4P	6B4G	6B4S	4"	(102mm)	4 1/4"	(108mm)	13/16"	0.834	1.690	.70
		6B5P	6B5G	6B5S	5"	(127mm)	5 1/4"	(133mm)	13/16"	1.140	2.872	.70
		626P	626G	626S	6"	(152mm)	6 1/4"	(159mm)	13/16"	1.330	4.158	.70
16A	50 lb./ft. 16' span	8D4P	6D4G	8D4S	4"	(102mm)	4 1/4"	(108mm)	13/16"	0.852	1.736	.40
		645P	645G	645S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	1.280	3.360	.70
		646P	646G	646S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	1.652	5.160	.70
16B	75 lb./ft. 16' span	6D4P	6D4G	6D4S	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	1.056	2.152	.70
		645P	645G	645S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	1.280	3.360	.70
		646P	646G	646S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	1.652	5.160	.70
16C	100 lb./ft. 16' span	4D4P	4D4G	4D4S	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	1.298	2.652	1.00
		645P	645G	645S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	1.280	3.360	.70
		646P	646G	646S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	1.652	5.160	.70
20A	50 lb./ft. 20' span	6D4P	6D4G	6D4S	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	1.056	2.152	.70
		645P	645G	645S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	1.280	3.360	.70
		646P	646G	646S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	1.652	5.160	1.00
20B	75 lb./ft. 20' span	2D4P	2D4G	2D4S	4"	(102mm)	4 1/4"	(108mm)	1 1/4"	1.758	3.604	1.00
		4D5P	4D5G	4D5S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	1.744	4.418	1.00
		6D6P	6D6G	6D6S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	1.814	5.486	1.00
20C	100 lb./ft. 20' span	2D5P	2D5G	2D5S	5"	(127mm)	5 1/4"	(133mm)	1 1/4"	2.370	6.026	1.50
		4D6P	4D6G	4D6S	6"	(143mm)	6 1/4"	(159mm)	1 1/4"	2.240	6.778	1.00
EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS- 4", 6" OR 9" RUNG SPACING												
		2D6P	2D6G	2D6S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	3.052	9.270	1.50
		11D6P	11D6G	11D6S	6"	(152mm)	6 1/4"	(159mm)	1 1/4"	3.536	10.630	1.50

Note: indicates most common systems. Consult factory for lead times on other systems.

Slotted Rungs provided on trays 6", 9", 12", 18" and 24" wide.

Solid Rungs provided on trays 30" and 36" wide.



HAT CABLE TRAY SYSTEM

SELECTION CHART: Steel Tray

LOAD AND DEFLECTION DATA FOR STEEL HAT Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1, Simple Beam - SAFETY FACTOR 1.5

Cope Sys. No.	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Span			25 Ft. Span		
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k
823P/G/S	230	.30	.001	126	.52	.004	79	.79	.010	53	1.11	.021												
824P/G/S	292	.23	†	164	.42	.003	103	.63	.006	69	.89	.013												
825P/G/S	383	.18	†	210	.31	.001	127	.46	.004	83	.62	.007												
826P/G/S	357	.11	†	194	.18	†	119	.28	.002	79	.38	.005												
423P/G/S	358	.30	†	197	.53	.003	124	.81	.007	83	1.13	.014												
8B4P/G/S	360	.26	†	198	.46	.002	124	.70	.006	84	.98	.012												
825P/G/S	383	.18	†	210	.31	.001	127	.46	.004	83	.62	.007												
826P/G/S	357	.11	†	194	.18	†	119	.28	.002	79	.38	.005												
6B4P/G/S	453	.27	†	249	.47	.002	156	.71	.005	106	1.00	.009												
6B5P/G/S	591	.21	†	325	.36	.001	203	.55	.003	137	.77	.006												
626P/G/S	460	.11	†	250	.19	†	154	.29	.002	103	.40	.004												
8D4P/G/S				290	.53	.002	182	.81	.004	126	1.17	.009	65	1.91	.029									
645P/G/S				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
646P/G/S				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
6D4P/G/S				381	.56	.001	244	.88	.004	169	1.27	.008	88	2.08	.024									
645P/G/S				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
646P/G/S				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
4D4P/G/S				487	.58	.001	312	.91	.003	216	1.31	.006	113	2.16	.019									
645P/G/S				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
646P/G/S				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
6D4P/G/S										169	1.27	.008	88	2.08	.024	52	2.98	.057						
645P/G/S										186	.89	.005	100	1.51	.015	53	1.94	.037						
646P/G/S										245	.76	.003	123	1.22	.010	66	1.59	.024						
2D4P/G/S										304	1.36	.004	159	2.24	.014	94	3.23	.034						
4D5P/G/S										280	1.02	.004	145	1.67	.012	85	2.40	.028						
6D6P/G/S										269	.80	.003	139	1.28	.009	81	1.82	.022						
2D5P/G/S										395	1.05	.003	206	1.74	.008	121	2.50	.021						
4D6P/G/S										296	.79	.003	152	1.28	.008	105	1.91	.018						
2D6P/G/S										300	.85	.002	221	1.40	.006	149	2.00	.013	79	1.91	.024	73	2.38	.033
11D6P/G/S										434	.66	†	244	1.17	.005	156	1.82	.012	108	2.62	.024	100	2.85	.029

Note: To convert 1.5 safety factor to 2.0 multiply w, d, k by .75

W=Pounds per linear foot

Metric: for kg/m multiply w by 1.48

d=Deflection (inches)

k= Deflection (in.) for each pound of load

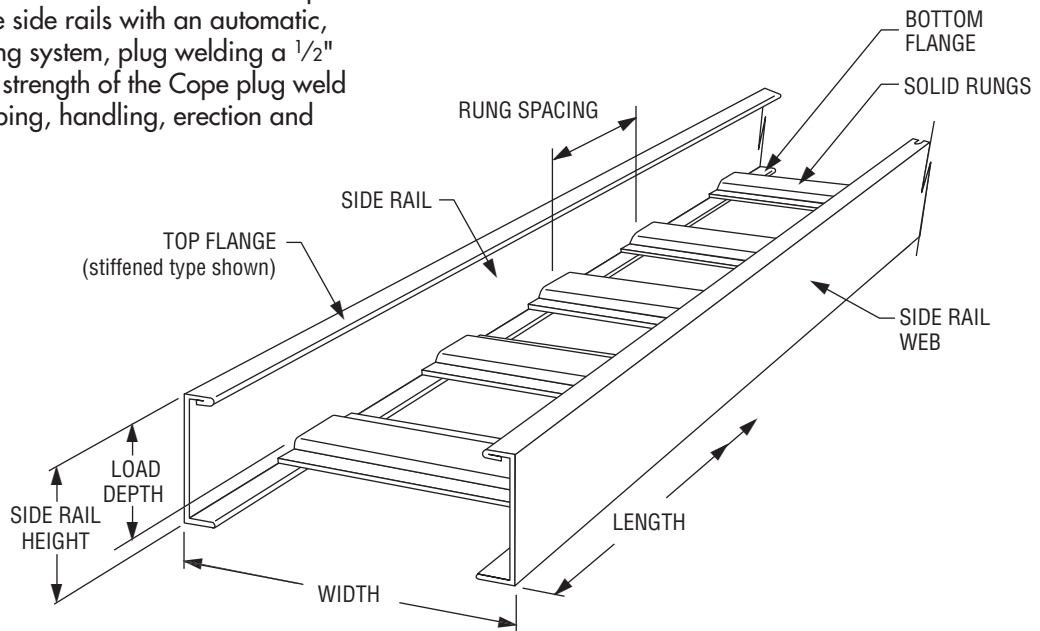
†= Denotes k is less than .001 inch

HAT CABLE TRAY SYSTEM



OVERVIEW

COPE HAT is a prefabricated metal structure consisting of reinforced hat-shaped rungs, arc-welded to the side rails, and is manufactured to NEMA Standard VE-1. Cope Hat rungs are fastened to the side rails with an automatic, self-indexing MIG-arc-welding system, plug welding a 1/2" diameter zone. The superior strength of the Cope plug weld withstands the rigors of shipping, handling, erection and cable support service.



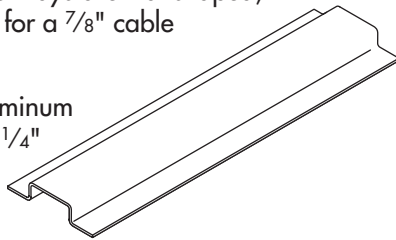
Side Members - Cope Hat side members are designed with top and bottom flanges turned inward. This minimizes the space requirements of the cable tray system, and allows a very low side rail height for each NEMA Standard VE-1 load depth.

Rungs - Cope Hat provides for hat shaped rungs.

SOLID RUNGS — Solid Hat shaped Rungs are standard on all tray widths.

Solid Hat Rungs for Steel trays are Hat shaped, 2 1/4" wide and provide for a 7/8" cable bearing surface.

Solid Hat Rungs for Aluminum trays are Hat shaped, 3 1/4" wide and provide for a 1 1/2" cable bearing surface.



SLOTTED RUNGS — are offered as a special order. Please contact Cope for more information

Rung Spacing — Cope manufactures straight lengths with four standard rung spacings; 6", 9", 12", and 18". The 6" rung spacing results in a 3 3/4" opening between rungs allowing the tray to be classified as a ventilated trof per NEMA Standard VE-1.

Length — The longitudinal dimensions of standard Cope Hat cable tray are 10', 12', 20', and 24'.

Width — The transverse dimensions of Cope Hat cable tray are measured inside, (from side member web to side member web), and are furnished in seven standard widths: 6", 9", 12", 18", 24", 30" and 36".

Overall Width — Overall tray width is equal to the inside or nominal width plus the thickness of the two side rail webs.

$$\text{Overall Tray Width} = \text{Nominal} + \frac{3}{16}" \text{ Width}$$

Load Depth — Measured from the top surface of the rungs to the top of the side member. Cope manufactures four loading depths; 2 7/8", 3 5/8", 4 5/8", and 5 5/8" corresponding to the four nominal loading depths in NEMA Standard VE-1; 3", 4", 5" and 6".

Overall Height — Cope Hat cable tray overall height is equal to the loading depth plus 5/8".

Fittings — For changing direction both horizontally and vertically, Cope manufactures elbows, tees, and crosses in all widths and loading depths. Fittings are available in three standard radii; 12", 24", and 36". Standard fittings maintain a nominal 9" rung spacing through the centerline of the fitting. Cope manufactures all standard fittings with zero tangents.

COPE HAT CABLE TRAY WITH FOUR IMPORTANT INDUSTRY-LEADING FEATURES:

1. Compact Economical System –

Cope Hat cable tray is an extremely compact economical flange in cable tray system which allows the designer to utilize this cable tray in tight locations. The extremely low profile Hat Rungs ($\frac{5}{8}$ " high) minimize the required side rail height while maintaining NEMA Standard VE-1 nominal load depths. Overall system height is only $\frac{5}{8}$ " greater than the actual loading depth.

2. Universal Curvilinear Splice Plate System –

The splice plates for rigid connections have a slight curve so they can be used on straight sections or fittings. Tightening of the fastener pulls the plate flush with the side rail. The fasteners are snug and the joint is superior structurally and electrically. Even when hand-tightened, there is pressure on the fastener to hold it securely.

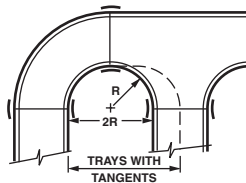
Note: Heavy Duty, Mid Span Splice Plates available upon request.

3. Zero Tangent Fittings –

Tangent as referred to on cable tray fittings is the straight at the end of the curve to accommodate a flat splice plate. This wastes space in tightly packed areas, such as spreader rooms, where the heat of thousands of cables accumulate. Eliminating tangents allow more tray runs to distribute the heat.

COPE ZERO TANGENT FITTINGS CAN SAVE UP TO 12" PER ROW OF TRAY.

BONUS: Inspection for proper installation of splice plate is visual. If the plate is bowed away from the rail, nuts must be tightened.



4. The Exclusive Auto MIG-Arc-Welded Assembly System –

Cope Hat rungs on straight sections are assembled to the side rails using an automatic, self indexing MIG-arc-welding system fusing a $\frac{1}{2}$ " diameter zone. These welds are 700% larger and stronger than the common resistance (spot) weld in use today. Electrical properties of the assembly are unequalled; are well within the NEMA requirements due to the continuous electrical path. The mechanical strength of this welded assembly withstands the rigors of shipping, handling, installation, and service. The size of the weld keeps the vertical axis of the side rail from sloping inward under load. The weld maintains the 90° angle between the side rail and bottom. This allows full use of the section properties. Spot welds do not permit this. Also, stresses on spot welds (barely $\frac{1}{8}$ " in diameter) are so severe that breakage often occurs during shipping and installation. Cope Hat fittings are also assembled by MIG-arc welding.

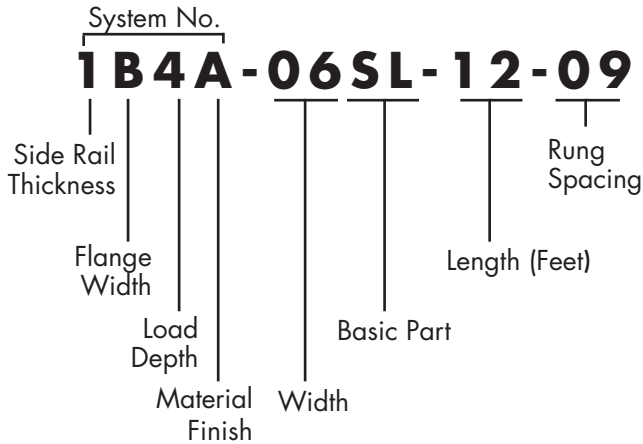
HAT CABLE TRAY SYSTEM



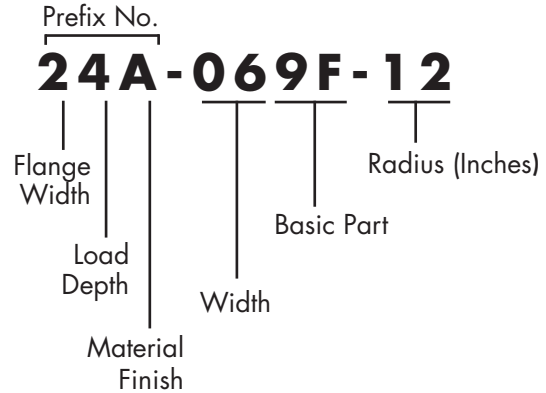
PART NUMBERING SYSTEM:

Please pay careful attention to the part numbering structure. Example: Catalog No. 1B4A-06SL-12-09 is a 4" load depth aluminum ladder with a 13/16" flange, 6 inches wide, straight length 12 feet long, rungs on 9" centers. Please make sure you use the system numbers from pages 102 through 105 when ordering.

Straight Length



Fittings



SYSTEM NUMBER (STRAIGHT SECTION ONLY)

The first four digits make up the system number which identifies the structural, dimensional, and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange width, the load depth (inside, in inches) and material finish (galvanized, aluminum or coated).

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages. Fittings do not have stiffened upper flanges.

WIDTH – Identifies the inside width of the tray in inches.

BASIC PART NUMBER – Identifies the straight length, fitting, or accessory.

SECONDARY DIMENSION NUMBER – Identifies the length of a straight section in feet, the radius of a fitting in inches, or the second width of a reducer in inches.

RUNG SPACING – Identifies the center-to-center distance between rungs on straight length. Nominal 9" (229mm) rung spacing maintained through centerline of all fittings.

Thickness Steel (Ga.)	Flange Width	Load Depth	Material Finish
8 - 18 ga.	2 - 13/16" (21mm)	3" (76mm)	P - Mill-Galv.
6 - 16 ga.	4 - 1 1/4" (32mm)	4" (102mm)	G - HDGAF
4 - 14 ga.	7 - 2" (51mm)	5" (127mm)	A - Aluminum
2 - 12 ga.		6" (152mm)	S - 304SS
11 - 11 ga.			
Thickness Alum (in.)			
1 - Thinner	B - 13/16" (21mm)		
3 -	D - 1 1/4" (32mm)		
5 - ** ↓	G - 2" (51mm)		
7 -			
9 - Thicker			

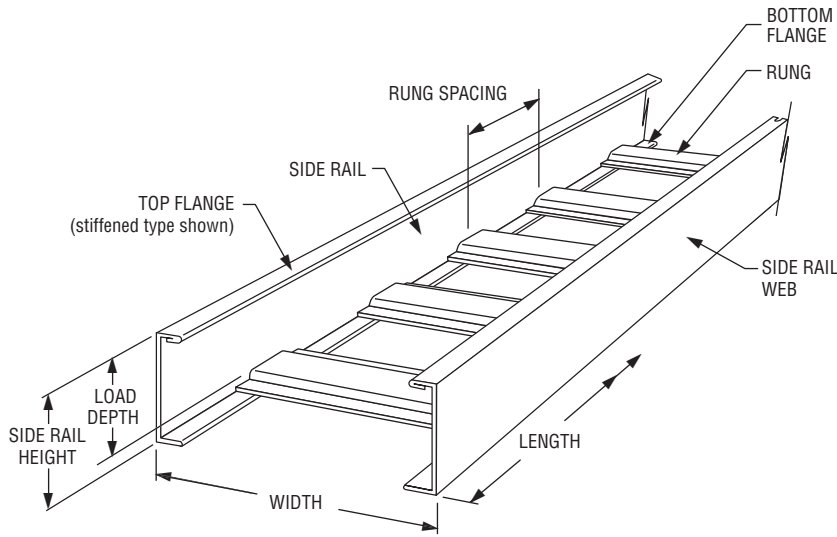
**Alum. extruded side rails are individually engineered to loads and spans.

Slotted Rungs provided on trays 6", 9", 12", 18" and 24" wide

Solid Rungs provided on trays 30" and 36" wide.

Description			
Width (in.)	Basic Part Number	Length	Rung Spacing
-06=6" (152mm)	SL (Straight Len.)	- 12' (3.7m)	06=6" (152mm)
-09=9" (229mm)	9F (90° Horiz. El.)	- 24' (7.3m)	09=9" (229mm)
-12=12" (305mm)	6F (60° Horiz. El.)	- 10' (3m)	12=12" (305mm)
-18=18" (457mm)	4F (45° Horiz. El.)	- 20' (6m)	18=18" (457mm)
-24=24" (610mm)	3F (30° Horiz. El.)		
-30=30" (762mm)	90 (90° Out. Vert. El.)		
-36=36" (914mm)	60 (60° Out. Vert. El.)		
	40 (45° Out. Vert. El.)		
	30 (30° Out. Vert. El.)		
	9I (90° In. Vert. El.)		
	6I (60° In. Vert. El.)		
	4I (45° In. Vert. El.)		
	3I (30° In. Vert. El.)		
	FT (Horiz. Tee)		
	FC (Horiz. Cross)		
	VT (Vert. Tee)		
	SR (Vert. Cable Support Elbow)		
	ST (Straight Reducer)		
	RH (Right Hand Reducer)		
	LH (Left Hand Reducer)		
	AF (Adjustable Elbow)		
	RY & LY (45° Y Branch)		
			Radius (in.)
			-12=12" (205mm)
			-24=24" (610mm)
			-36=36" (914mm)

Straight Length [SL]

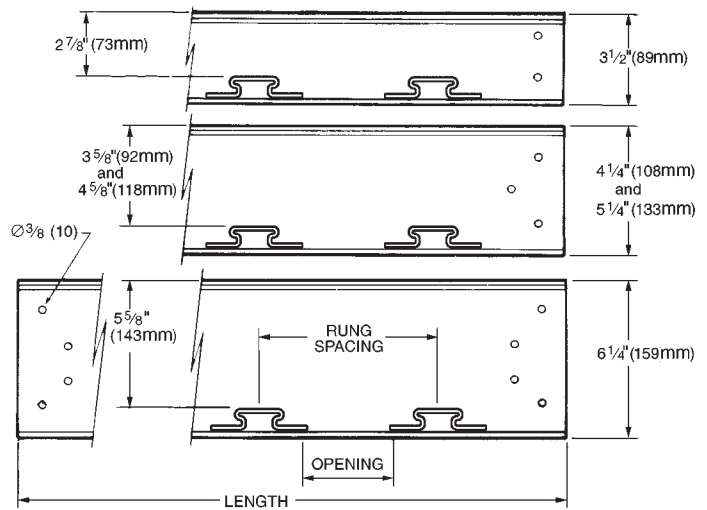
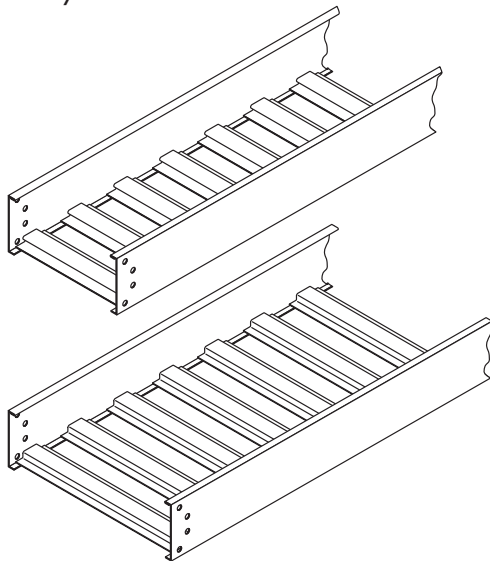


Catalog Number				
System	Basic Width	Basic No.	Length (ft.)	Rung Spacing
See Pages 102 – 105	-06	SL	-10	-04
	-09		-12	-06
	-12		-20	-09
	-18		-24	-12
	-24			-18
	-30			
	-36			

EXAMPLE: 1B4A-06SL-12-09 is a 4" load depth aluminum Hat with a 1³/₁₆" flange, 6" wide, 12' long, with 9" rung spacing.

Cope Hat cable tray is manufactured in 10', 12', 20' and 24' lengths; 6", 9", 12", 18", 24", 30" and 36" widths and 3", 4", 5", and 6" nominal load depths. Sufficient connectors are supplied to assemble straight sections and fittings for each other. Connectors for field cuts must be ordered separately.

Conversion Table											
English	6"	9"	12"	18"	24"	30"	36"	12'	24'	10'	20'
Metric (mm)	152	229	305	457	610	762	914	3.7m	7.3m	3m	6m



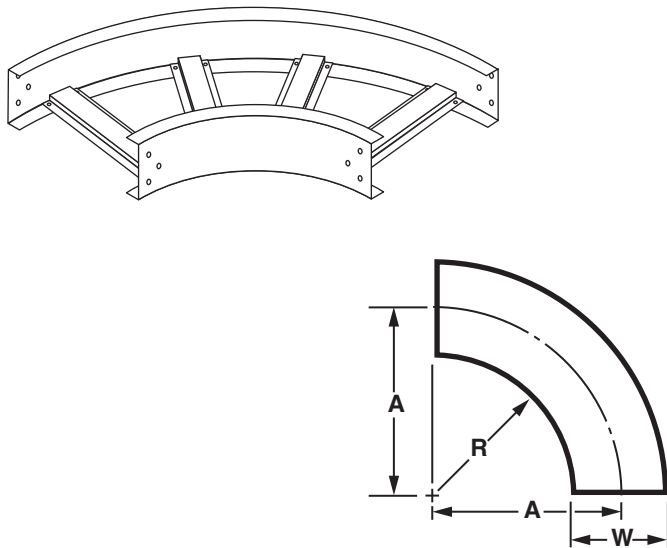
MATERIAL & FINISH SPECIFICATIONS (Ladder Cable Tray)

	Pre-Galvanized Steel	Hot-Dip Galvanized after Fabrication ASTM A-123	Aluminum	Type 304 Stainless Steel
Siderails	ASTM A-653-G90 CS (18 & 16 Gage) ASTM A-653-G90 CS (14 & 12 Gage)	ASTM A-1008 (18 & 16 Gage) ASTM A-1011 (14 & 12 Gage)	AA-6063-T6 Extruded	ASTM A-240; Type 304
Rungs	ASTM A-653-G90 CS	ASTM A-1008	AA-6063-H34	ASTM A-269; Type 304
Splice Plate Finish	ASTM A-1011 ASTM A-591 Class C	ASTM A-1011 ASTM A-123 Grade 65	AA-5052-H34	ASTM A-240; Type 304 2B Finish (Typical)
Connector Bolts	SAE J429 Grade 1 (ASTM A-307 Grade A)	SAE J429 Grade 1 (ASTM A-307 Grade A)	SAE J429 Grade 1 (ASTM A-307 Grade A)	AISI Type 304 Stainless Steel
Bolt Plating	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	
Covers	ASTM A-653-G90 CQ	ASTM A-653-G90 CQ	AA-3003 H14 or 3150 H14	ASTM A-240; Type 304

HAT CABLE TRAY SYSTEM



90° Horizontal Elbow [9F]

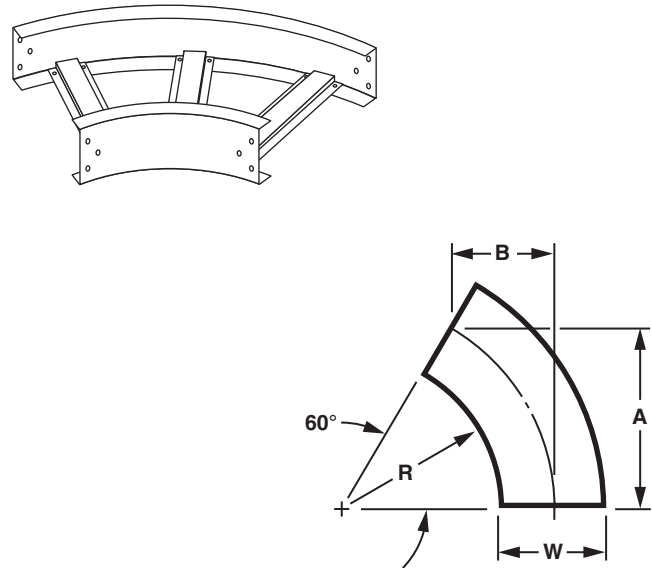


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Radius - R	Width - W	"A" Dimension
12" (305mm)	6" (152mm)	15" (381mm)
	9" (229mm)	16 1/2" (419mm)
	12" (305mm)	18" (457mm)
	18" (457mm)	21" (533mm)
	24" (610mm)	24" (610mm)
	30" (762mm)	27" (686mm)
24" (610mm)	36" (914mm)	30" (762mm)
	6" (152mm)	27" (686mm)
	9" (229mm)	28 1/2" (724mm)
	12" (305mm)	30" (762mm)
	18" (457mm)	33" (838mm)
	24" (610mm)	36" (914mm)
36" (914mm)	30" (762mm)	39" (991mm)
	36" (914mm)	42" (1067mm)
	6" (152mm)	39" (991mm)
	9" (229mm)	40 1/2" (1029mm)
	12" (305mm)	42" (1067mm)
	18" (457mm)	45" (1143mm)
24" (610mm)	48" (1219mm)	
30" (762mm)	51" (1295mm)	
36" (914mm)	54" (1372mm)	

EXAMPLE: 24A-129F-12

60° Horizontal Elbow [6F]



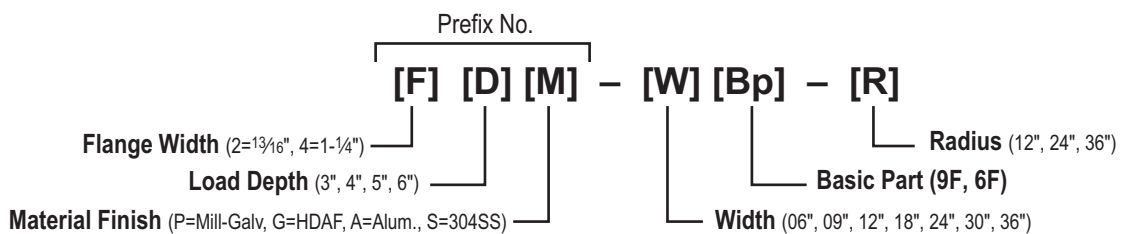
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Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	13" (330mm)	7 1/2" (191mm)
	9" (229mm)	14 1/4" (362mm)	8 1/4" (210mm)
	12" (305mm)	15 5/8" (397mm)	9" (229mm)
	18" (457mm)	18 1/4" (464mm)	10 1/2" (267mm)
	24" (610mm)	20 3/4" (527mm)	12" (305mm)
	30" (762mm)	23 3/8" (594mm)	13 1/2" (343mm)
24" (610mm)	36" (914mm)	26" (660mm)	15" (381mm)
	6" (152mm)	23 3/8" (594mm)	13 1/2" (343mm)
	9" (229mm)	24 3/4" (629mm)	14 1/4" (362mm)
	12" (305mm)	26" (660mm)	15" (381mm)
	18" (457mm)	28 5/8" (727mm)	16 1/2" (416mm)
	24" (610mm)	31 1/4" (794mm)	18" (457mm)
36" (914mm)	30" (762mm)	33 3/4" (857mm)	19 1/2" (495mm)
	36" (914mm)	36 3/8" (924mm)	21" (533mm)
	6" (152mm)	33 3/4" (857mm)	19 1/2" (495mm)
	9" (229mm)	35 1/8" (892mm)	20 1/4" (514mm)
	12" (305mm)	36 3/8" (924mm)	21" (533mm)
	18" (457mm)	39" (991mm)	22 1/2" (572mm)
24" (610mm)	41 5/8" (1057mm)	24" (610mm)	
30" (762mm)	44 1/8" (1121mm)	25 1/2" (648mm)	
36" (914mm)	46 3/4" (1187mm)	27" (686mm)	

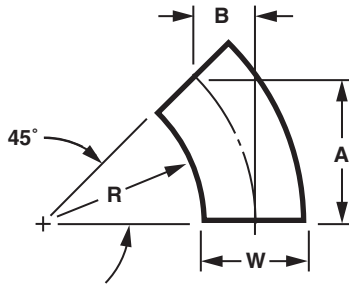
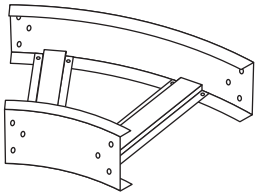
EXAMPLE: 24A-126F-12

Ordering Information:

See Page 132
for Electrical
Grounding Chart



45° Horizontal Elbow [4F]

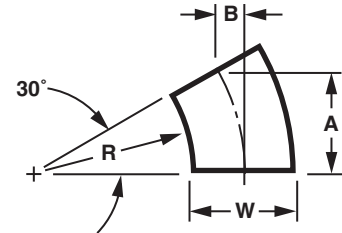
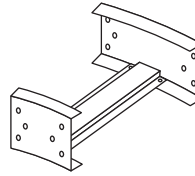


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Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	10 ⁵ / ₈ " (270mm)	4 ³ / ₈ " (111mm)
	9" (229mm)	11 ⁵ / ₈ " (295mm)	4 ⁷ / ₈ " (124mm)
	12" (305mm)	12 ³ / ₄ " (324mm)	5 ¹ / ₄ " (133mm)
	18" (457mm)	14 ⁷ / ₈ " (378mm)	6 ¹ / ₈ " (156mm)
	24" (610mm)	17" (432mm)	7" (178mm)
	30" (762mm)	19 ⁷ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
24" (610mm)	36" (914mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	6" (152mm)	19 ¹ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
	9" (229mm)	20 ¹ / ₈ " (511mm)	8 ³ / ₈ " (213mm)
	12" (305mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	18" (457mm)	23 ³ / ₈ " (594mm)	9 ⁵ / ₈ " (244mm)
	24" (610mm)	25 ¹ / ₂ " (648mm)	10 ¹ / ₂ " (267mm)
36" (914mm)	30" (762mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	36" (914mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
	6" (152mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	9" (229mm)	28 ⁵ / ₈ " (727mm)	11 ⁷ / ₈ " (302mm)
	12" (305mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
	18" (457mm)	31 ⁷ / ₈ " (810mm)	13 ¹ / ₄ " (337mm)
36" (914mm)	24" (610mm)	34" (864mm)	14 ¹ / ₈ " (359mm)
	30" (762mm)	36 ¹ / ₈ " (918mm)	15" (381mm)
	36" (914mm)	38 ¹ / ₄ " (972mm)	15 ⁷ / ₈ " (403mm)

EXAMPLE: 24A-124F-12

30° Horizontal Elbow [3F]

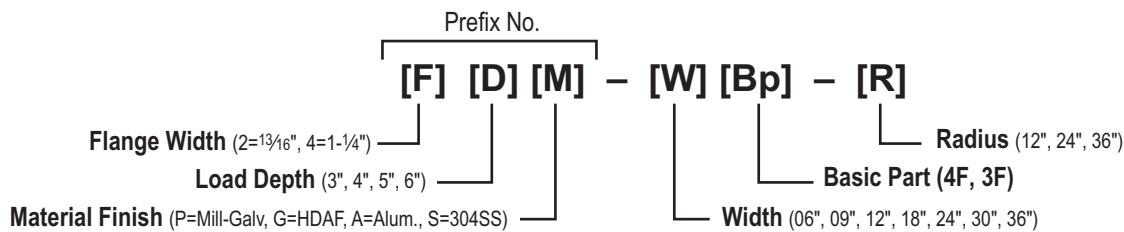


CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	7 ¹ / ₂ " (191mm)	2" (51mm)
	9" (229mm)	8 ¹ / ₄ " (210mm)	2 ¹ / ₄ " (57mm)
	12" (305mm)	9" (229mm)	2 ³ / ₈ " (60mm)
	18" (457mm)	10 ¹ / ₂ " (267mm)	2 ⁷ / ₈ " (73mm)
	24" (610mm)	12" (305mm)	3 ¹ / ₄ " (83mm)
	30" (762mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
24" (610mm)	36" (914mm)	15" (381mm)	4" (102mm)
	6" (152mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
	9" (229mm)	14 ¹ / ₄ " (362mm)	3 ⁷ / ₈ " (98mm)
	12" (305mm)	15" (381mm)	4" (102mm)
	18" (457mm)	16 ¹ / ₂ " (419mm)	4 ³ / ₈ " (111mm)
	24" (610mm)	18" (457mm)	4 ⁷ / ₈ " (124mm)
36" (914mm)	30" (762mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	36" (914mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
	6" (152mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	9" (229mm)	20 ¹ / ₄ " (514mm)	5 ¹ / ₂ " (140mm)
	12" (305mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
	18" (457mm)	22 ¹ / ₂ " (572mm)	6" (152mm)
36" (914mm)	24" (610mm)	24" (610mm)	6 ¹ / ₂ " (165mm)
	30" (762mm)	25 ¹ / ₂ " (648mm)	6 ⁷ / ₈ " (175mm)
	36" (914mm)	27" (686mm)	7 ¹ / ₄ " (184mm)

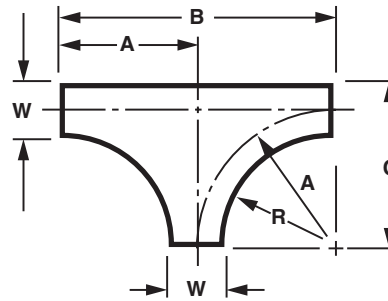
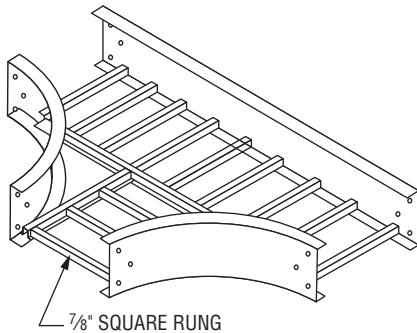
EXAMPLE: 24A-123F-12

Ordering Information:



See Page 132
for Electrical
Grounding Chart

Horizontal Tee [FT]



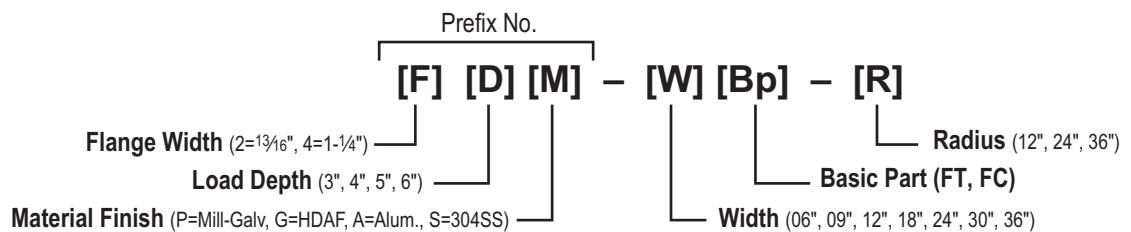
CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	15" (381mm)	30" (762mm)	18" (457mm)
	9" (229mm)	16½" (419mm)	33" (838mm)	21" (533mm)
	12" (305mm)	18" (457mm)	36" (914mm)	24" (610mm)
	18" (457mm)	21" (533mm)	42" (1067mm)	30" (762mm)
	24" (610mm)	24" (610mm)	48" (1219mm)	36" (914mm)
	30" (762mm)	27" (686mm)	54" (1372mm)	42" (1067mm)
24" (610mm)	36" (914mm)	30" (762mm)	60" (1524mm)	48" (1219mm)
	6" (152mm)	27" (686mm)	54" (1372mm)	30" (762mm)
	9" (229mm)	28½" (724mm)	57" (1448mm)	33" (838mm)
	12" (305mm)	30" (762mm)	60" (1524mm)	36" (914mm)
	18" (457mm)	33" (838mm)	66" (1676mm)	42" (1067mm)
	24" (610mm)	36" (914mm)	72" (1829mm)	48" (1219mm)
36" (914mm)	30" (762mm)	39" (991mm)	78" (1981mm)	54" (1372mm)
	36" (914mm)	42" (1067mm)	84" (2134mm)	60" (1524mm)
	6" (152mm)	39" (991mm)	78" (1981mm)	42" (1067mm)
	9" (229mm)	40½" (1029mm)	81" (2057mm)	45" (1143mm)
	12" (305mm)	42" (1067mm)	84" (2134mm)	48" (1219mm)
	18" (457mm)	45" (1143mm)	90" (2286mm)	54" (1372mm)
	24" (610mm)	48" (1219mm)	96" (2438mm)	60" (1524mm)
	30" (762mm)	51" (1295mm)	102" (2591mm)	66" (1676mm)
	36" (914mm)	54" (1372mm)	108" (2743mm)	72" (1829mm)

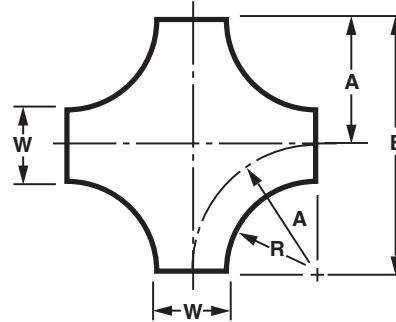
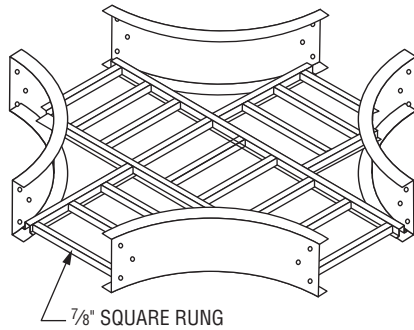
Example: 24A-12FT-12

Ordering Information:

See Page 132
for Electrical
Grounding Chart



Horizontal Cross [FC]



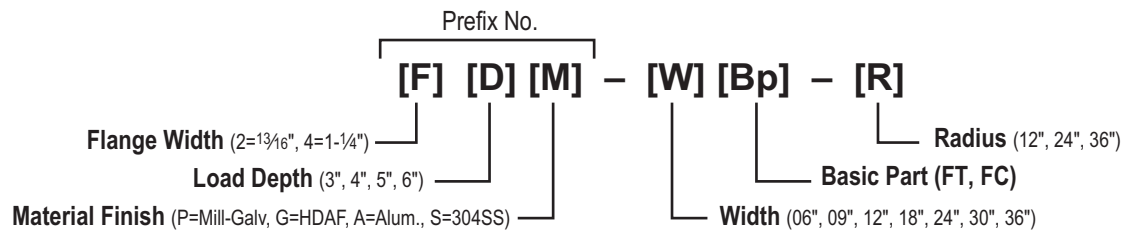
CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	15" (381mm)	30" (762mm)
	9" (229mm)	16½" (419mm)	33" (838mm)
	12" (305mm)	18" (457mm)	36" (914mm)
	18" (457mm)	21" (533mm)	42" (1067mm)
	24" (610mm)	24" (610mm)	48" (1219mm)
	30" (762mm)	27" (686mm)	54" (1372mm)
24" (610mm)	36" (914mm)	30" (762mm)	60" (1524mm)
	6" (152mm)	27" (686mm)	54" (1372mm)
	9" (229mm)	28½" (724mm)	57" (1448mm)
	12" (305mm)	30" (762mm)	60" (1524mm)
	18" (457mm)	33" (838mm)	66" (1676mm)
	24" (610mm)	36" (914mm)	72" (1829mm)
36" (914mm)	30" (762mm)	39" (991mm)	78" (1981mm)
	36" (914mm)	42" (1067mm)	84" (2134mm)
	6" (152mm)	39" (991mm)	78" (1981mm)
	9" (229mm)	40½" (1029mm)	81" (2057mm)
	12" (305mm)	42" (1067mm)	84" (2134mm)
	18" (457mm)	45" (1143mm)	90" (2286mm)
24" (610mm)	24" (610mm)	48" (1219mm)	96" (2438mm)
	30" (762mm)	51" (1295mm)	102" (2591mm)
	36" (914mm)	54" (1372mm)	108" (2743mm)

Example: 24A-12FC-12

Ordering Information:

See Page 132 for Electrical Grounding Chart



HAT CABLE TRAY SYSTEM

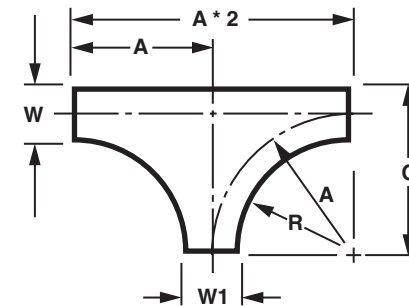
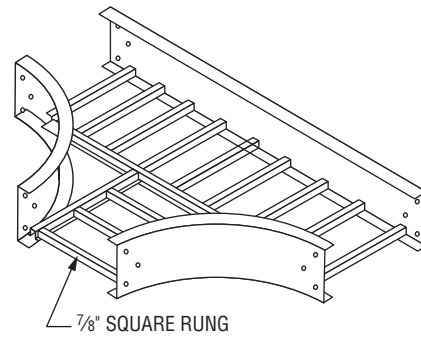


Horizontal Tapped Tee [TT]

CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension		
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	48" (1219mm)		
		24" (610mm)	24" (610mm)			
		18" (457mm)	21" (533mm)			
		12" (305mm)	18" (457mm)			
		9" (229mm)	16 1/2" (419mm)			
		6" (152mm)	15" (381mm)			
	30" (762mm)	24" (610mm)	24" (610mm)	42" (1067mm)		
		18" (457mm)	21" (533mm)			
		12" (305mm)	18" (457mm)			
		9" (229mm)	16 1/2" (419mm)			
		6" (152mm)	15" (381mm)			
		24" (610mm)	18" (457mm)		21" (533mm)	36" (914mm)
	12" (305mm)		18" (457mm)			
	9" (229mm)		16 1/2" (419mm)			
	6" (152mm)		15" (381mm)			
	18" (457mm)		12" (305mm)	18" (457mm)	30" (762mm)	
			9" (229mm)	16 1/2" (419mm)		
		6" (152mm)	15" (381mm)			
	12" (305mm)	9" (229mm)	16 1/2" (419mm)	24" (610mm)		
		6" (152mm)	15" (381mm)			
	9" (229mm)	6" (152mm)	15" (381mm)	21" (533mm)		
	36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	72" (1829mm)	
			24" (610mm)	48" (1219mm)		
			18" (457mm)	45" (1143mm)		
12" (305mm)			42" (1067mm)			
9" (229mm)			40 1/2" (1029mm)			
6" (152mm)			39" (991mm)			
30" (762mm)		24" (610mm)	48" (1219mm)	66" (1676mm)		
		18" (457mm)	45" (1143mm)			
		12" (305mm)	42" (1067mm)			
		9" (229mm)	40 1/2" (1029mm)			
		6" (152mm)	39" (991mm)			
		24" (610mm)	18" (457mm)		45" (1143mm)	60" (1524mm)
12" (305mm)			42" (1067mm)			
9" (229mm)			40 1/2" (1029mm)			
6" (152mm)			39" (991mm)			
18" (457mm)			12" (305mm)	42" (1067mm)	54" (1372mm)	
			9" (229mm)	40 1/2" (1029mm)		
		6" (152mm)	39" (991mm)			
12" (305mm)		9" (229mm)	40 1/2" (1029mm)	48" (1219mm)		
		6" (152mm)	39" (991mm)			
9" (229mm)		6" (152mm)	39" (991mm)	45" (1143mm)		

EXAMPLE: 24A-12TT-09-12



CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension		
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	60" (1524mm)		
		24" (610mm)	36" (914mm)			
		18" (457mm)	33" (838mm)			
		12" (305mm)	30" (762mm)			
		9" (229mm)	28 1/2" (724mm)			
		6" (152mm)	27" (686mm)			
	30" (762mm)	24" (610mm)	36" (914mm)	54" (1372mm)		
		18" (457mm)	33" (838mm)			
		12" (305mm)	30" (762mm)			
		9" (229mm)	28 1/2" (724mm)			
		6" (152mm)	27" (686mm)			
		24" (610mm)	18" (457mm)		33" (838mm)	48" (1219mm)
	12" (305mm)		30" (762mm)			
	9" (229mm)		28 1/2" (724mm)			
	6" (152mm)		27" (686mm)			
	18" (457mm)		12" (305mm)	30" (762mm)	42" (1067mm)	
			9" (229mm)	28 1/2" (724mm)		
		6" (152mm)	27" (686mm)			
	12" (305mm)	9" (229mm)	28 1/2" (724mm)	36" (914mm)		
		6" (152mm)	27" (686mm)			
	9" (229mm)	6" (152mm)	27" (686mm)	33" (838mm)		

Ordering Information:

Prefix No.

[F] [D] [M] - [W] [Bp] - [W1]- [R]

Flange Width

(2=13/16", 4=1-1/4")

Load Depth (3", 4", 5", 6")

Material Finish

(P=Mill-Galv, G=HDAF, A=Alum., S=304SS)

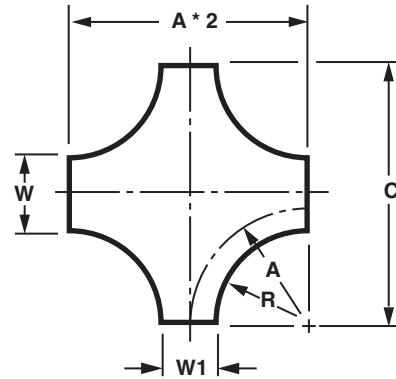
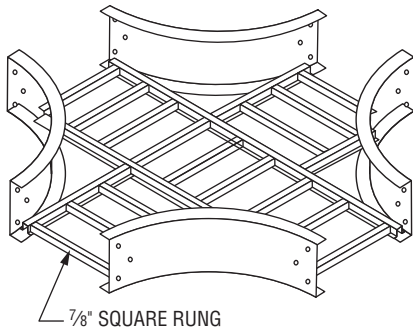
Radius (12", 24", 36")

Width (06", 09", 12", 18", 24", 30", 36")

Basic Part (TT)

Width (06", 09", 12", 18", 24", 30", 36")

See Page 132
for Electrical
Grounding Chart



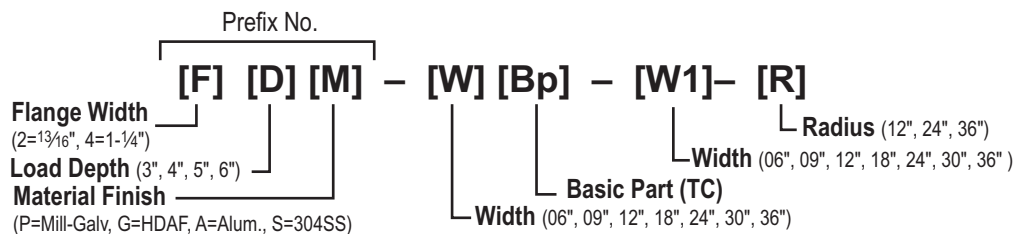
CSA Certified for CSA Systems

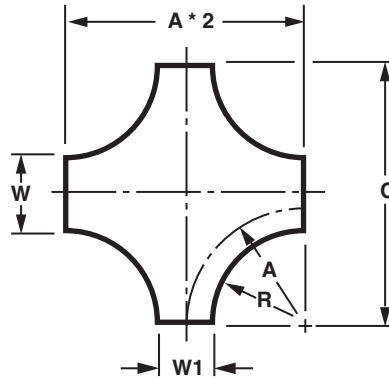
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	60" (1524mm)	
		24" (610mm)	24" (610mm)		
		18" (457mm)	21" (533mm)		
		12" (305mm)	18" (457mm)		
		9" (229mm)	16 1/2" (419mm)		
		6" (152mm)	15" (381mm)		
	30" (762mm)	24" (610mm)	24" (610mm)	54" (1372mm)	
		18" (457mm)	21" (533mm)		
		12" (305mm)	18" (457mm)		
		9" (229mm)	16 1/2" (419mm)		
		6" (152mm)	15" (381mm)		
		24" (610mm)	18" (457mm)		21" (533mm)
12" (305mm)	18" (457mm)				
9" (229mm)	16 1/2" (419mm)				
6" (152mm)	15" (381mm)				
18" (457mm)	12" (305mm)		18" (457mm)	42" (1067mm)	
	9" (229mm)		16 1/2" (419mm)		
	6" (152mm)	15" (381mm)			
12" (305mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)		
	6" (152mm)	15" (381mm)			
9" (229mm)	6" (152mm)	15" (381mm)	33" (838mm)		

EXAMPLE: 24A-36TC-18-12

Ordering Information:

See Page 132 for Electrical Grounding Chart





CSA Certified for CSA Systems

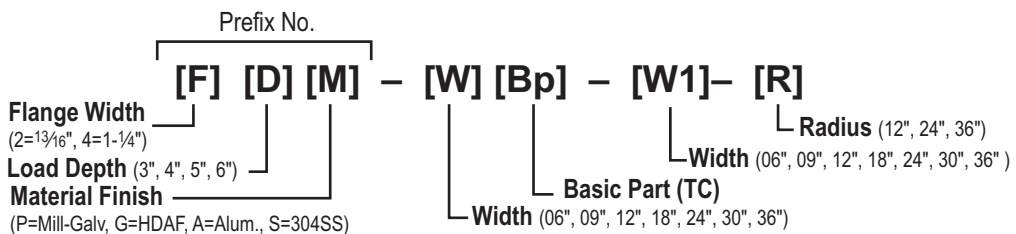
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension		
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	84" (2134mm)		
		24" (610mm)	36" (914mm)			
		18" (457mm)	33" (838mm)			
		12" (305mm)	30" (762mm)			
		9" (229mm)	28 1/2" (724mm)			
	30" (762mm)	24" (610mm)	36" (914mm)	78" (1981mm)		
		18" (457mm)	33" (838mm)			
		12" (305mm)	30" (762mm)			
	24" (610mm)	18" (457mm)	12" (305mm)	28 1/2" (724mm)	72" (1829mm)	
			9" (229mm)	27" (686mm)		
		12" (305mm)	9" (229mm)	28 1/2" (724mm)		66" (1676mm)
			6" (152mm)	27" (686mm)		
18" (457mm)	12" (305mm)	9" (229mm)	28 1/2" (724mm)	60" (1524mm)		
		6" (152mm)	27" (686mm)			
	9" (229mm)	27" (686mm)	57" (1448mm)			

CSA Certified for CSA Systems

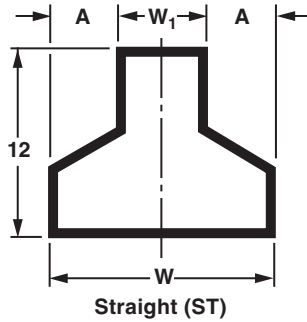
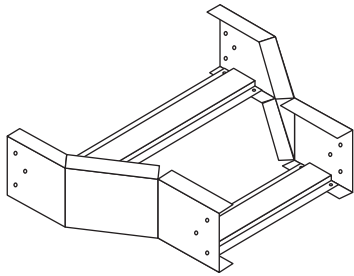
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension		
36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	108" (2743mm)		
		24" (610mm)	48" (1219mm)			
		18" (457mm)	45" (1143mm)			
		12" (305mm)	42" (1067mm)			
		9" (229mm)	40 1/2" (1029mm)			
	30" (762mm)	24" (610mm)	48" (1219mm)	102" (2591mm)		
		18" (457mm)	45" (1143mm)			
		12" (305mm)	42" (1067mm)			
	24" (610mm)	18" (457mm)	12" (305mm)	40 1/2" (1029mm)	96" (2438mm)	
			9" (229mm)	39" (991mm)		
		12" (305mm)	9" (229mm)	40 1/2" (1029mm)		90" (2286mm)
			6" (152mm)	39" (991mm)		
18" (457mm)	12" (305mm)	9" (229mm)	40 1/2" (1029mm)	84" (2134mm)		
		6" (152mm)	39" (991mm)			
	9" (229mm)	39" (991mm)	81" (2057mm)			

Ordering Information:

See Page 132
for Electrical
Grounding Chart



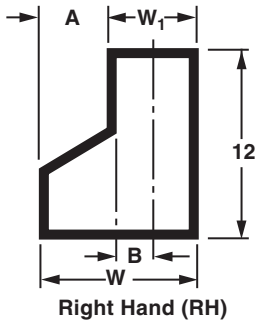
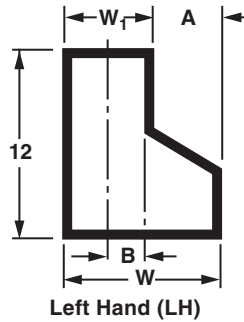
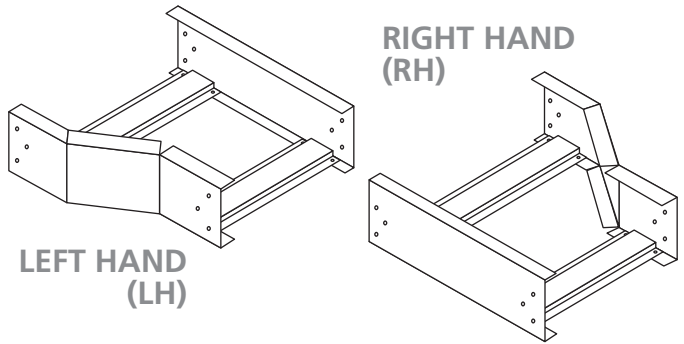
Straight Reducer [ST]



CSA Certified for CSA Systems		
Width - W	Width - W1	"A" Dimension
36" (914mm)	30" (762mm)	3" (76mm)
	24" (610mm)	6" (152mm)
	18" (457mm)	9" (229mm)
	12" (305mm)	12" (305mm)
	9" (229mm)	13 1/2" (343mm)
	6" (152mm)	15" (381mm)
30" (762mm)	24" (610mm)	3" (76mm)
	18" (457mm)	6" (152mm)
	12" (305mm)	9" (229mm)
	9" (229mm)	10 1/2" (267mm)
	6" (152mm)	12" (304mm)
24" (610mm)	18" (457mm)	3" (76mm)
	12" (305mm)	6" (152mm)
	9" (229mm)	7 1/2" (191mm)
	6" (152mm)	9" (229mm)
18" (457mm)	12" (305mm)	3" (76mm)
	9" (229mm)	4 1/2" (114mm)
	6" (152mm)	6" (152mm)
12" (305mm)	9" (229mm)	1 1/2" (38mm)
	6" (152mm)	3" (76mm)
9" (229mm)	6" (152mm)	1 1/2" (38mm)

EXAMPLE: 24A-12ST-06

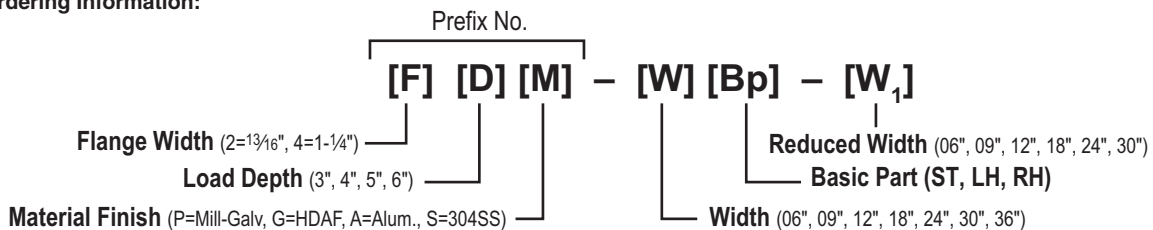
Left Hand [LH] & Right Hand [RH] Reducer



CSA Certified for CSA Systems				
Width - W	"W1" Dim.	"A" Dim.	"B" Dim.	
36" (914mm)	30" (914mm)	6" (152mm)	15" (381mm)	
	24" (610mm)	12" (305mm)	12" (305mm)	
	18" (457mm)	18" (457mm)	9" (229mm)	
	12" (305mm)	24" (610mm)	6" (152mm)	
	9" (229mm)	27" (686mm)	4 1/2" (114mm)	
	6" (152mm)	30" (762mm)	3" (76mm)	
30" (762mm)	24" (610mm)	6" (152mm)	12" (305mm)	
	18" (457mm)	12" (305mm)	9" (229mm)	
	12" (305mm)	18" (457mm)	6" (152mm)	
	9" (229mm)	21" (533mm)	4 1/2" (114mm)	
	6" (152mm)	24" (610mm)	3" (76mm)	
24" (610mm)	18" (457mm)	6" (152mm)	9" (229mm)	
	12" (305mm)	12" (305mm)	6" (152mm)	
	9" (229mm)	15" (381mm)	4 1/2" (114mm)	
	6" (152mm)	18" (457mm)	3" (76mm)	
18" (457mm)	12" (305mm)	6" (152mm)	6" (152mm)	
	9" (229mm)	9" (229mm)	4 1/2" (114mm)	
	6" (152mm)	12" (305mm)	3" (76mm)	
12" (305mm)	9" (229mm)	3" (76mm)	4 1/2" (114mm)	
	6" (152mm)	6" (152mm)	3" (76mm)	
9" (229mm)	6" (152mm)	3" (76mm)	3" (76mm)	

EXAMPLE: 238-12LH-06

Ordering Information:

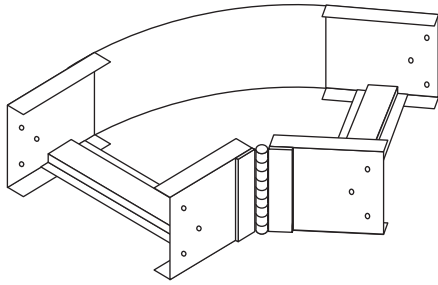


See Page 132
for Electrical
Grounding Chart

HAT CABLE TRAY SYSTEM

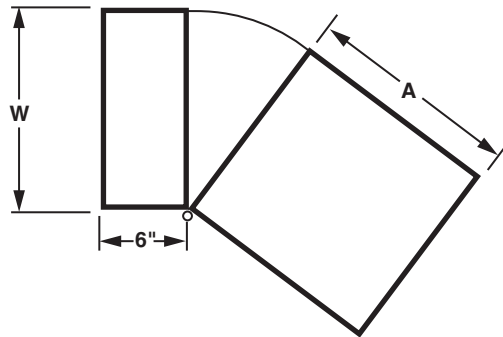


Adjustable Elbow [AF]

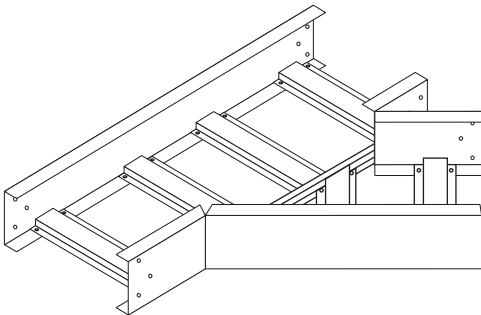


Width - W		"A" Dimension	
6"	(152mm)	8"	(203mm)
9"	(229mm)	11"	(279mm)
12"	(305mm)	14"	(356mm)
18"	(457mm)	20"	(508mm)
24"	(610mm)	26"	(660mm)
30"	(762mm)	32"	(813mm)
36"	(914mm)	38"	(965mm)

Both rails at hinge break to be bonded if fitting is used as equipment grounding conductor.
EXAMPLE: 24A-12AF



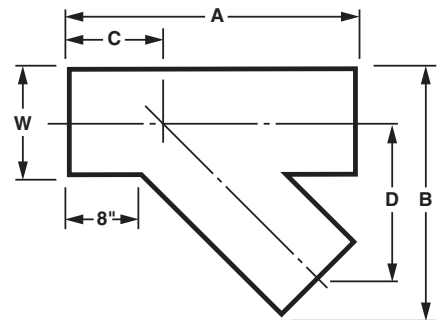
45° "Y" Branch Left [LY] & Right [RY]



CSA Certified for CSA Systems

Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
6" (152mm)	22 1/2" (571mm)	16 1/4" (413mm)	9 1/4" (289mm)	11 1/8" (283mm)
9" (229mm)	26 3/4" (679mm)	21 3/8" (543mm)	9 13/16" (330mm)	13 3/4" (349mm)
12" (305mm)	31" (787mm)	26 1/2" (673mm)	10 1/2" (375mm)	16 1/4" (412mm)
18" (457mm)	39 1/2" (1003mm)	36 3/4" (933mm)	11 3/4" (460mm)	21 3/8" (543mm)
24" (610mm)	48" (1219mm)	47" (1193mm)	13" (546mm)	26 1/2" (673mm)
30" (762mm)	56 3/8" (1432mm)	57 1/4" (1454mm)	14 1/8" (629mm)	31 5/8" (803mm)
36" (914mm)	65" (1651mm)	67 1/2" (1714mm)	15 1/2" (718mm)	36 3/4" (933mm)

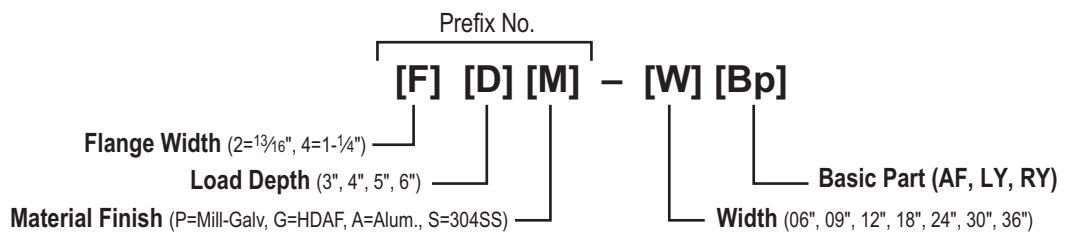
EXAMPLE: 24A-12RY



RIGHT SIDE [RY]
SHOWN

Ordering Information:

See Page 132
for Electrical
Grounding Chart

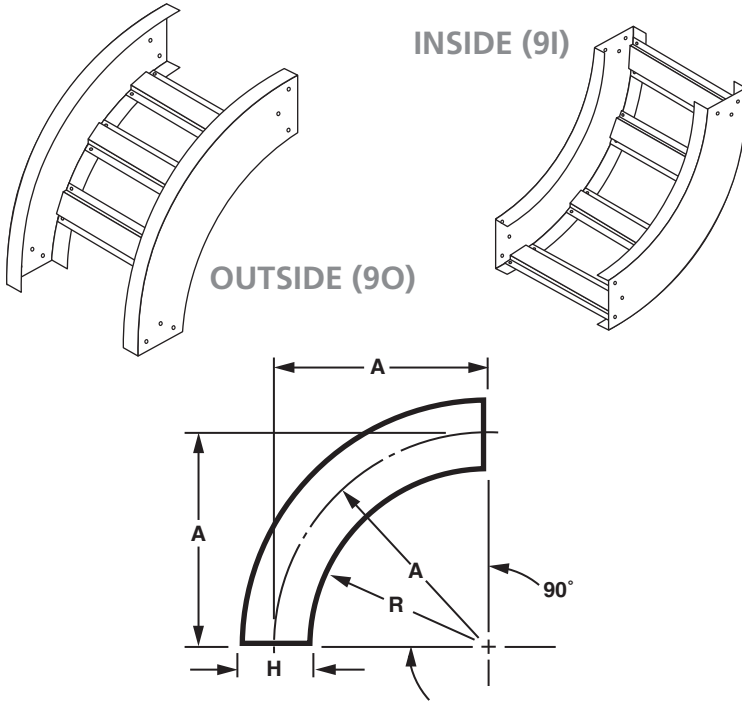




HAT CABLE TRAY SYSTEM

Reference **COPE™ WIRE BASKET** **COPE™ GLAS™** **COPE™ CHANNEL** **COPE™ TROF** **COPE™ HAT** **COPE™ I-BEAM™** **COPE™ LADDER** **NEMA** **Intro.**

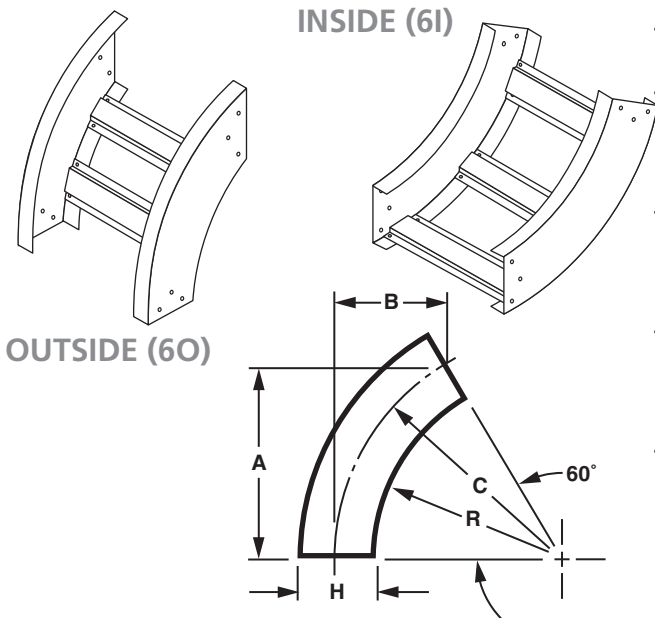
90° Vertical Elbow Outside [90] & Inside [9I]



CSA Certified for CSA Systems			
Radius - R	"H" Dim.	"A" Dim.	
12" (305mm)	3 1/2" (89mm)	13 3/4" (349mm)	
	4 1/4" (108mm)	14 1/8" (359mm)	
	5 1/4" (133mm)	14 5/8" (372mm)	
24" (610mm)	6 1/4" (159mm)	15 1/8" (384mm)	
	3 1/2" (89mm)	25 3/4" (349mm)	
	4 1/4" (108mm)	26 1/8" (664mm)	
36" (914mm)	5 1/4" (133mm)	26 5/8" (676mm)	
	6 1/4" (159mm)	27 1/8" (689mm)	
	7 1/4" (184mm)	37 3/4" (702mm)	
	4 1/4" (108mm)	38 1/8" (969mm)	
	5 1/4" (133mm)	38 5/8" (981mm)	
	6 1/4" (159mm)	39 1/8" (994mm)	

EXAMPLE: 24A-1290-12

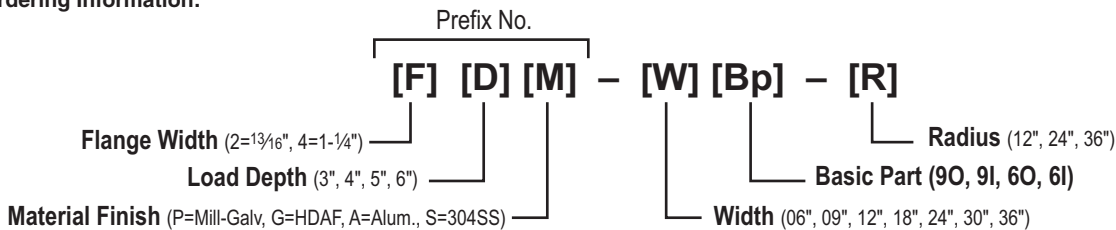
60° Vertical Elbow Outside [60] & Inside [6I]



CSA Certified for CSA Systems				
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	11 7/8" (302mm)	6 7/8" (175mm)	13 3/4" (349mm)
	4 1/4" (108mm)	12 1/4" (311mm)	7 1/8" (181mm)	14 1/8" (359mm)
	5 1/4" (133mm)	12 5/8" (321mm)	7 3/8" (187mm)	14 5/8" (372mm)
24" (610mm)	6 1/4" (159mm)	13 1/8" (334mm)	7 5/8" (194mm)	15 1/8" (384mm)
	3 1/2" (89mm)	22 1/4" (565mm)	12 7/8" (327mm)	25 3/4" (654mm)
	4 1/4" (108mm)	22 5/8" (575mm)	13 1/8" (334mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	23 1/8" (588mm)	13 3/8" (340mm)	26 5/8" (676mm)
	6 1/4" (159mm)	23 1/2" (597mm)	13" (330mm)	27 1/8" (689mm)
	3 1/2" (89mm)	32 3/4" (832mm)	18 7/8" (480mm)	37 3/4" (959mm)
	4 1/4" (108mm)	33" (838mm)	19 1/8" (486mm)	38 1/8" (969mm)
	5 1/4" (133mm)	33 1/2" (851mm)	19 3/8" (492mm)	38 5/8" (981mm)
	6 1/4" (159mm)	33 3/8" (861mm)	19 5/8" (499mm)	39 1/8" (994mm)

EXAMPLE: 24A-1260-12

Ordering Information:



See Page 132
for Electrical
Grounding Chart

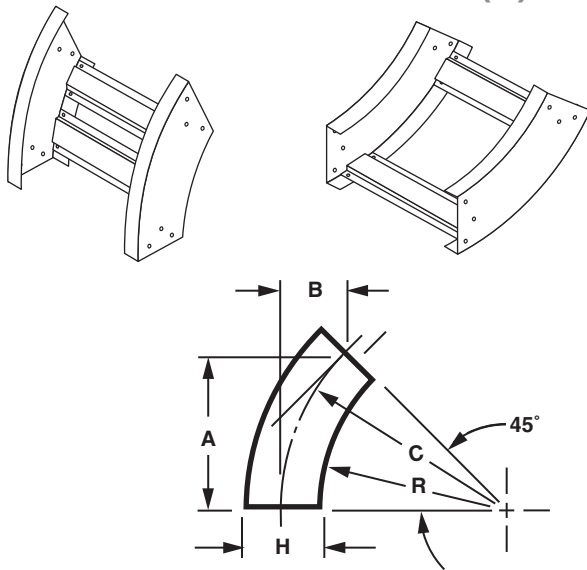
HAT CABLE TRAY SYSTEM



45° Vertical Elbow Outside [40] & Inside [41]

OUTSIDE (40)

INSIDE (41)



CSA Certified for CSA Systems

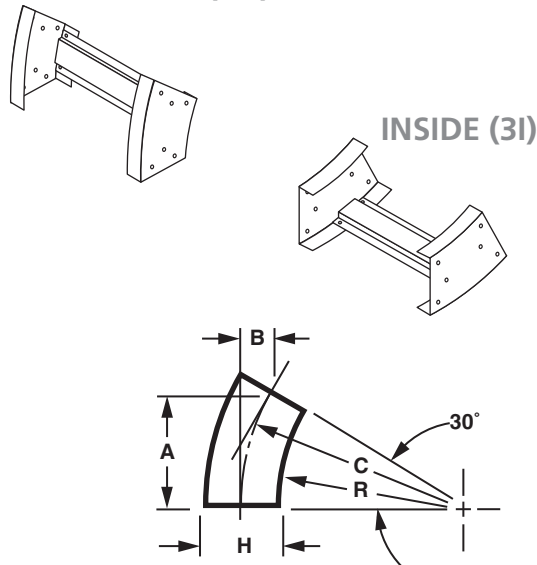
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	9 3/4" (248mm)	4" (102mm)	13 3/4" (349mm)
	4 1/4" (108mm)	10" (254mm)	4 1/8" (105mm)	14 1/8" (359mm)
	5 1/4" (133mm)	10 3/8" (264mm)	4 1/4" (108mm)	14 5/8" (372mm)
	6 1/4" (159mm)	10 3/4" (273mm)	4 1/2" (114mm)	15 1/8" (384mm)
24" (610mm)	4 1/4" (108mm)	18 1/2" (470mm)	7 5/8" (194mm)	26 1/8" (664mm)
	5 1/4" (133mm)	18 7/8" (480mm)	7 7/8" (200mm)	26 5/8" (676mm)
	6 1/4" (159mm)	19 1/4" (489mm)	8" (203mm)	27 1/8" (689mm)
	3 1/2" (89mm)	18 1/4" (464mm)	7 1/2" (191mm)	25 3/4" (654mm)
36" (914mm)	3 1/2" (89mm)	9 3/4" (248mm)	4" (102mm)	13 3/4" (349mm)
	4 1/4" (108mm)	27" (686mm)	11 1/8" (283mm)	38 1/8" (969mm)
	5 1/4" (133mm)	27 3/8" (695mm)	11 3/8" (289mm)	38 5/8" (981mm)
	6 1/4" (159mm)	27 5/8" (702mm)	11 1/2" (292mm)	39 1/8" (994mm)

EXAMPLE: 24A-1240-12

30° Vertical Elbow Outside [30] & Inside [31]

OUTSIDE (30)

INSIDE (31)



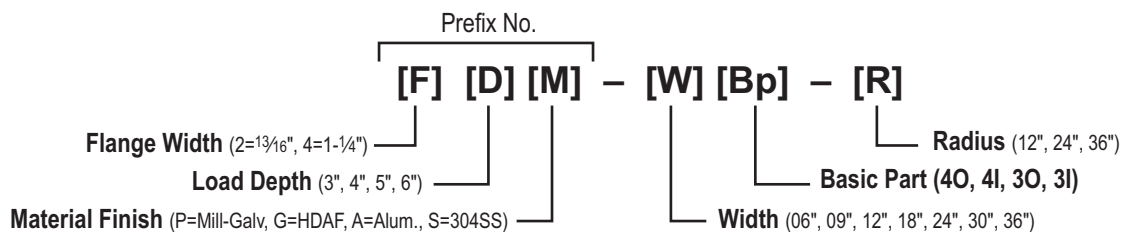
CSA Certified for CSA Systems

Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	6 7/8" (175mm)	1 7/8" (48mm)	13 3/4" (349mm)
	4 1/4" (108mm)	7 1/8" (181mm)	1 7/8" (48mm)	14 1/8" (359mm)
	5 1/4" (133mm)	7 3/8" (187mm)	2" (51mm)	14 5/8" (372mm)
	6 1/4" (159mm)	7 5/8" (194mm)	2" (51mm)	15 1/8" (384mm)
24" (610mm)	3 1/2" (89mm)	12 7/8" (327mm)	3 1/2" (89mm)	24 3/4" (654mm)
	4 1/4" (108mm)	13 1/8" (334mm)	3 1/2" (89mm)	26 1/8" (664mm)
	5 1/4" (133mm)	13 3/8" (340mm)	3 5/8" (92mm)	26 5/8" (676mm)
	6 1/4" (159mm)	13 5/8" (346mm)	3 5/8" (92mm)	27 1/8" (689mm)
36" (914mm)	3 1/2" (89mm)	18 7/8" (480mm)	5 1/8" (130mm)	37 3/4" (959mm)
	4 1/4" (108mm)	19 1/8" (486mm)	5 1/8" (130mm)	38 1/8" (969mm)
	5 1/4" (133mm)	19 3/8" (492mm)	5 1/4" (133mm)	38 5/8" (981mm)
	6 1/4" (159mm)	19 5/8" (499mm)	5 1/4" (133mm)	39 1/8" (994mm)

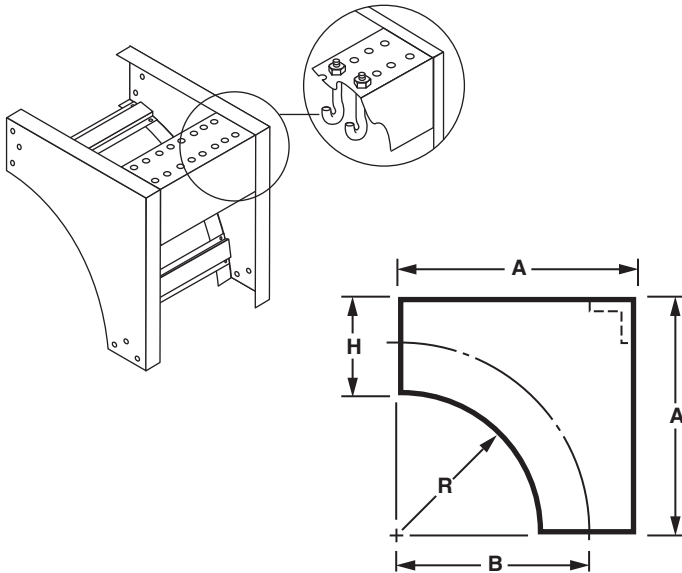
EXAMPLE: 24A-1230-12

Ordering Information:

See Page 132
for Electrical
Grounding Chart



90° Vertical Cable Support Elbow (SR)



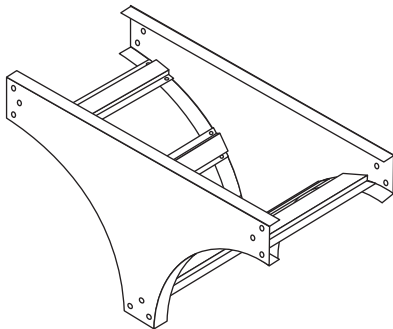
CSA Certified for CSA Systems

Radius - R	"H" Dim.	"A" Dim.	"B" Dim.
12" (305mm)	3 1/2" (89mm)	15 1/2" (394mm)	13 3/4" (349mm)
	4 1/4" (108mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	17 1/4" (438mm)	14 5/8" (371mm)
	6 1/4" (159mm)	18 1/4" (464mm)	15 1/8" (384mm)
24" (610mm)	3 1/2" (89mm)	27 1/2" (699mm)	25 3/4" (654mm)
	4 1/4" (108mm)	28 1/4" (718mm)	26 1/8" (664mm)
	5 1/4" (133mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	30 1/4" (768mm)	27 1/8" (689mm)
36" (914mm)	3 1/2" (89mm)	39 1/2" (1003mm)	37 3/4" (959mm)
	4 1/4" (108mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	42 1/4" (1073mm)	39 1/8" (994mm)

EXAMPLE: 24A-12SR-12

Vertical Tee Down [VT] & Up [OT]

VERTICAL TEE - DOWN (VT)

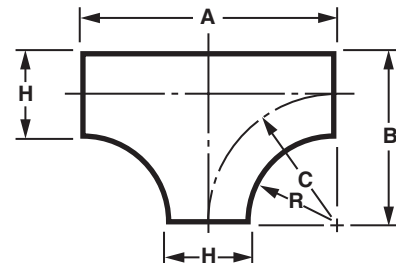
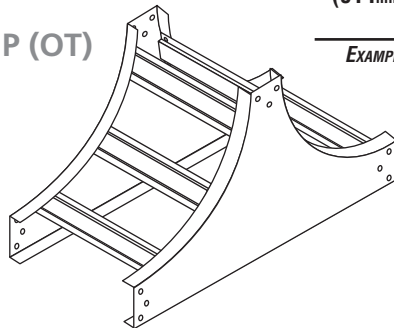


CSA Certified for CSA Systems

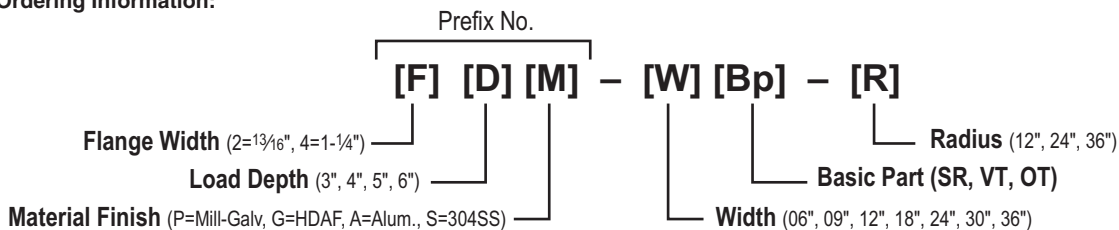
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	27 1/2" (718mm)	15 1/2" (394mm)	13 3/4" (349mm)
	4 1/4" (108mm)	28 1/4" (743mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	29 1/4" (768mm)	17 1/4" (438mm)	14 5/8" (371mm)
	6 1/4" (159mm)	30 1/4" (794mm)	18 1/4" (464mm)	15 1/8" (384mm)
24" (610mm)	3 1/2" (89mm)	51 1/2" (1327mm)	27 1/2" (699mm)	25 3/4" (654mm)
	4 1/4" (108mm)	52 1/4" (1353mm)	28 1/4" (718mm)	26 1/8" (664mm)
	5 1/4" (133mm)	53 1/4" (1378mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	54 1/4" (1403mm)	30 1/4" (768mm)	27 1/8" (689mm)
36" (914mm)	3 1/2" (89mm)	75 1/2" (1937mm)	39 1/2" (1003mm)	37 3/4" (959mm)
	4 1/4" (108mm)	76 1/4" (1962mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	77 1/4" (1988mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	78 1/4" (2013mm)	42 1/4" (1073mm)	39 1/8" (994mm)

EXAMPLE: 24A-12VT-12

VERTICAL TEE - UP (OT)



Ordering Information:



See Page 132
for Electrical
Grounding Chart

HAT CABLE TRAY SYSTEM



CONNECTOR PLATES

Tray Connectors

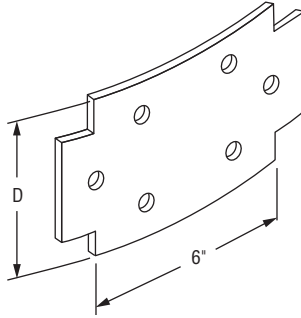
Catalog Number		
Load Depth	Finish	Basic No.
3"	2 (Mill Galv.)	-02RC
4"	3 (HDGAF)	-02CE
5"	4 (Alum.)	-02CV
6"	U (304SS)	-02CH
		-02CA

EXAMPLE: 34 -02RC for 3" load depth, aluminum, universal curvilinear connector.

NOTE: Hole patterns match corresponding tray.
Three-hole pattern illustrated.

Universal Curvilinear Connectors [RC]

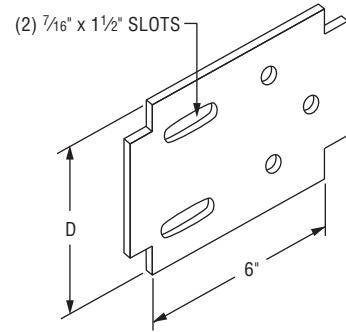
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.

Expansion Connectors [CE]

Note: Sold in pairs

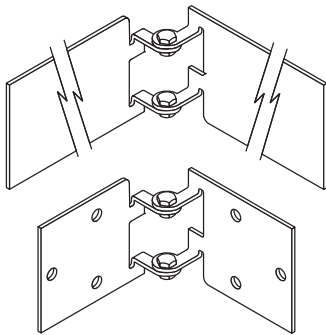


11 Gage Steel, 0.125" Aluminum
3/8"-16 cap screws & Nylok nuts furnished and
3/8"-16 spline bolts & flange nuts furnished.

Note: Bounding jumpers are required and are sold separately.

Horizontal Adjustable Connectors [CH]

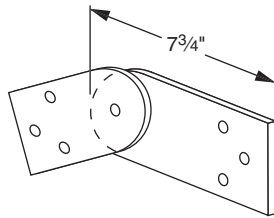
Note: Sold in pairs – inner & outer



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bounding jumpers are required and are sold separately.

Vertical Adjustable Connectors [CV]

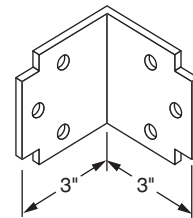
Note: Sold in pairs)



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bounding jumpers are required and are sold separately.

90° Angle Connectors [CA]

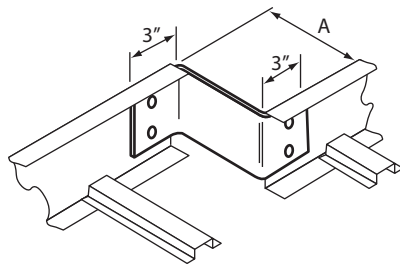
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts and flange nuts furnished.

Reducing Connector [CO]

Note: Not sold in pairs



L.H. OFFSET REDUCTION



STRAIGHT REDUCTION



R.H. OFFSET REDUCTION

12 Gage Steel, 0.125" Aluminum
For offset reductions – use 1 of above with standard connector plate.
For straight reductions – use 2 (of 1/2 reduction dim.).
3/8"-16 spline bolts and flange nuts furnished.

Catalog Number

Load Depth	Finish	Basic No.	"A" Dimension
3"	2 (Mill Galv.)	-30CO	30" (762mm)
4"	3 (HDGAF)	-27CO	27" (686mm)
5"	4 (Alum.)	-24CO	24" (610mm)
6"	U (304SS)	-21CO	21" (533mm)
		-18CO	18" (457mm)
		-15CO	15" (381mm)
		-13CO	13 1/2" (343mm)
		-12CO	12" (305mm)
		-10CO	10 1/2" (267mm)
		-09CO	9" (229mm)
		-07CO	7 1/2" (191mm)
		-06CO	6" (152mm)
		-04CO	4 1/2" (114mm)
-03CO	3" (76mm)		
-01CO	1 1/2" (38mm)		

EXAMPLE: 34-03CO for 3" load depth, aluminum, 3" Reducer Connector. Typical Use: 9" to 6", or use 2 for 12" to 6", etc.



HAT CABLE TRAY SYSTEM

HARDWARE

MATERIAL/FINISH

Electrogalvanized finish standard. Other finishes available; consult factory.

*Use following suffix when applicable - use only where indicated.

No Suffix Electrogalvanized carbon steel only

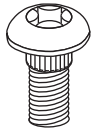
-SS..... 302/304 Stainless Steel

-S1 316 Stainless Steel (check factory for availability)

Example: PS 6024-SS, 3/8" x 1 1/2" hex head bolt, 304 stainless steel

Connector Hardware [5003]

(Case-hardened steel electrogalvanized)



Part No. 5003-1
3/8"-16 x 1" spline bolt



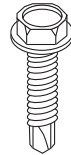
Part No. 5009-1
3/8"-16 hex-flanged nut with serrated washer face.

Cover Screw [EM]

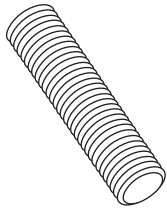
Part No. EM-CC (electrogalv. steel)
Part No. EM-CC-SS (stainless steel)

No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
Indoor: 8 per 12';
Outdoor: 10 per 12'



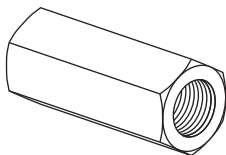
Continuous Threaded Rod [PS 146]



Cat. No.	Size (Diameter x Length)
PS 146*	1/4" x 10'
PS 146*	3/8" x 10'
PS 146*	1/2" x 10'
PS 146*	5/8" x 10'
PS 146*	3/4" x 10'

(Hot Dip Galvanized not available)

Rod Coupler [PS 135]



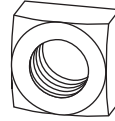
Cat. No.	Size
PS 135*	1/4"
PS 135*	3/8"
PS 135*	1/2"
PS 135*	5/8"
PS 135*	3/4"

Hex Nuts [PS 83]



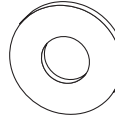
Cat. No.	Size
PS 83*	1/4"
PS 83*	3/8"
PS 83*	1/2"
PS 83*	5/8"
PS 83*	3/4"

Square Nuts [PS 6108]



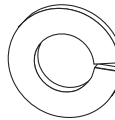
Cat. No.	Size
PS 6108*	1/4"
PS 6108*	3/8"
PS 6108*	1/2"
PS 6108*	5/8"
PS 6108*	3/4"

Flat Washers [PS 209]



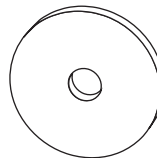
Cat. No.	Size
PS 209*	1/4"
PS 209*	3/8"
PS 209*	1/2"
PS 209*	5/8"
PS 209*	3/4"

Split-Lock Washers [PS 211]



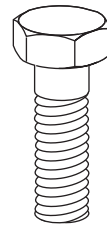
Cat. No.	Size
PS 211*	1/4"
PS 211*	3/8"
PS 211*	1/2"
PS 211*	5/8"
PS 211*	3/4"

Fender Washers [PS 230]

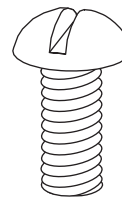


Cat. No.	Size (I.D. x O.D.)
PS 230*	1/4" x 1 1/4" O.D.
PS 230*	3/8" x 1 1/2" O.D.
PS 230*	1/2" x 2" O.D.

Hex Head Cap Screw [PS 6024] / Round Head, Slotted Cap Screw [PS 6072]



Catalog No.
PS 6024



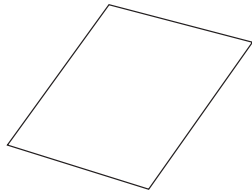
Catalog No.
PS 6072

Hex Head Cap Screw Cat. No.	Round Head Cap Screw Cat. No.	Size (Dia. x Len.)
PS 6024*	PS 6072*	1/4" x 1"
PS 6024*	PS 6072*	1/4" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 1"
PS 6024*	PS 6072*	3/8" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 3"
PS 6024*	PS 6072*	1/2" x 1"
PS 6024*	PS 6072*	1/2" x 1 1/2"
PS 6024*	PS 6072*	1/2" x 2"
PS 6024*	PS 6072*	1/2" x 2 1/2"
PS 6024*	PS 6072*	1/2" x 3"
PS 6024*	PS 6072*	1/2" x 3 1/2"
PS 6024*	PS 6072*	5/8" x 1 1/2"
PS 6024*	PS 6072*	5/8" x 2"
PS 6024*	PS 6072*	5/8" x 3"
PS 6024*	PS 6072*	5/8" x 4"
PS 6024*	PS 6072*	3/4" x 2"
PS 6024*	PS 6072*	3/4" x 3"
PS 6024*	PS 6072*	3/4" x 4"

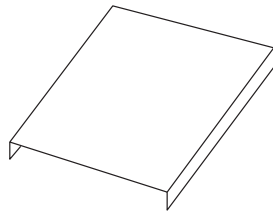
HAT CABLE TRAY SYSTEM



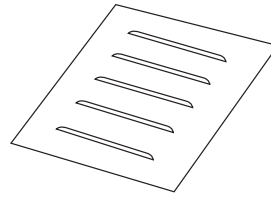
COVERS for straight sections shown. Standard fitting covers are flat solid type (NF). Aluminum covers are fabricated from 0.040" aluminum AA-3150-H14; steel covers are fabricated from 20 gage ASTM A-653-G90 CQ, mill-galvanized steel.



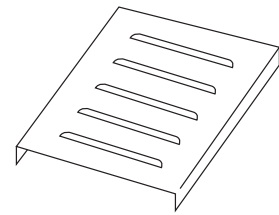
NF – Flat Solid



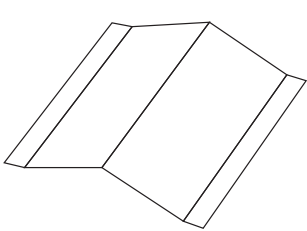
FS – Flat Solid
w/3/8" Flange



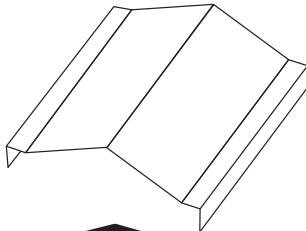
NL – Flat Louvered



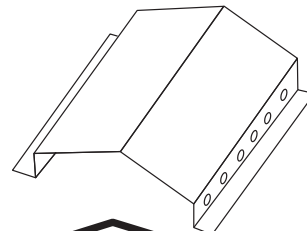
FL – Louvered
w/3/8" Flange



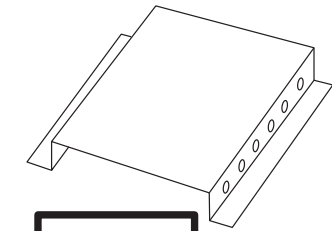
PS –Peaked Solid
(suffix height)



PF – Peaked Flanged Solid
(suffix height)



PV –Peaked Hat Vent
PH – Peaked Hat Solid
(suffix height)



HS –Hat Solid
HV –Hat Vent
(suffix height)

Note: Use EM-CC Cover Screws (see pg. 123) to attach PH, PV, HS & HV covers.

HDGAF straights only available in 6' sections.

Cover Catalog Number – Straight Sections

Type	Finish	Basic No. (Width)	Length	Height*
HS, HV,	2 - Mill Galv.	-06SL = 6" (152mm)	-12'	-2"
FL, FS,	3 - HDGAF	-09SL = 9" (229mm)	-10'	
NF, NL,	4 - Alum.	-12SL = 12" (305mm)	-06'	
PS, PF,	U - 304SS	-18SL = 18" (457mm)		
PH, PV		-24SL = 24" (610mm)		
		-30SL = 30" (762mm)		
		-36SL = 36" (914mm)		

*Peak and hat only, 2" height standard. Consult factory for other heights.

EXAMPLE: NL2-09SL-12 is a flat louvered mill-galv. steel cover for a 9" wide mill galvanized hat 12' long.

Cover Catalog Number – Fittings

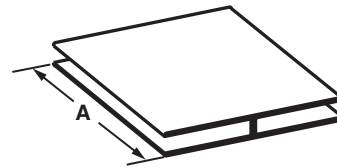
Type	Load Depth	Finish	Width/Basic No.	Radius
NF	3	2 - Mill Galv.	-06 XX**	12"
FS	4	3 - HDGAF	-09 XX**	24"
	5	4 - Alum.	-12 XX**	36"
	6	U - 304SS	-18 XX**	
			-24 XX**	
			-30 XX**	
			-36 XX**	

*Load depth for outside riser or vertical tee only.

**XX from fitting selection page 108

EXAMPLE: NF2-369F-24 is a mill galvanized non-flanged solid cover for a 36" wide horizontal 90° elbow with a 24" radius.

Joint Plate



Joint plate is black PVC and is offered in 10' lengths to be field cut to desired length, or in precut lengths for specified covers.

JP-120 is joint plate in 10' lengths.

Joint plate for specified covers is specified as follows.

Tray Width	Flange Type
JP-06 = 6" (152mm)	
JP-09 = 9" (229mm)	
JP-12 = 12" (305mm)	-2=13/16" Flange
JP-18 = 18" (457mm)	-4=1 1/4" Flange
JP-24 = 24" (610mm)	-7=2" Flange
JP-30 = 30" (762mm)	
JP-36 = 36" (914mm)	

EXAMPLE: JP-06 is a joint plate for 6" wide tray with a 13/16" Flange.

Single Side Connector [01CC]



Furnished with 1/4"-28 stainless steel cone point machine screw.

For use with any width tray.

Not sold in pairs.

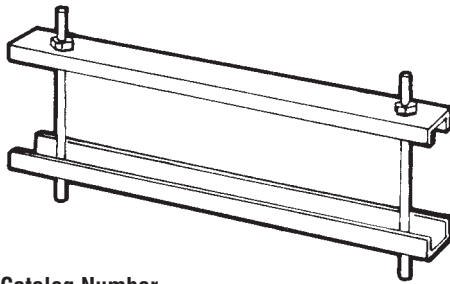
Suggested spacing:
Indoor Use Only;
4 per 12' section

Catalog Number [Basic No -01CC]

Flange	Load Depth	Finish
2 - 1 ³ / ₁₆ "	3	2 - Mill Galv.
4 - 1 ¹ / ₄ "	4	3 - HDGAF
5 - 1 ¹ / ₂ "	5	4 - Alum.
7 - 2"	6	U - 304SS

EXAMPLE: 234-01CC for 3" load depth, aluminum single side connector.

Double Clamp Connector [(W) DC]



Catalog Number

Load Depth	Finish	Width	Type
3	2 - Mill Galv.	-06	DC
4	3 - HDGAF	-09	
5	4 - Alum.	-12	
6	U - 304SS	-18	
		-24	
		-30	
		-36	

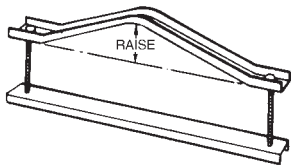
EXAMPLE: 34-12DC for 3" load depth, aluminum, Double Clamp Connector

For all covers except hat & peak type. Furnished with:
(2) 1/4"-20 all-thread rods
(4) hex nuts, flat washers and lock washers

Suggested spacing:
Indoor: 2 per 12'
Outdoor: 3 per 12'
High Wind: 5 per 12'

Peak Cover Connector [PC]

Note: For PS & PF Cover



Catalog Number

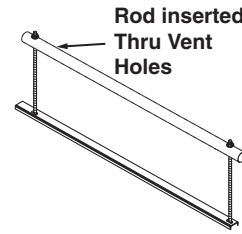
Load Depth	Finish	Width	Type	Raise (in)*
3	2 - Mill Galv.	-06	PC	-2
4	3 - HDGAF	-09	VC	
5	4 - Alum.	-12		
6	U - 304SS	-18		
		-24		
		-30		
		-36		

*2" standard raise. Consult factory for other peak heights.

EXAMPLE: 34-12VC-2 for 3" load depth, aluminum, 12" wide, Peak Cover Connector (vented cover) with 2" peak.

Peak Vent Cover Connector [VC]

Note: For PV Covers



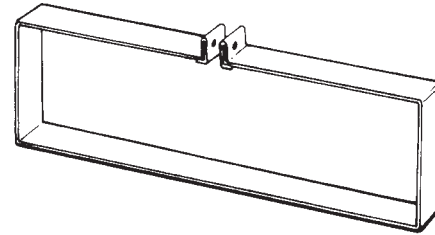
Catalog Number

Flange	Load Depth	Finish	Width	Type
2=1 ³ / ₁₆ "	3	6=Mill Galv.	-06	VC
4=1 ¹ / ₄ "	4	7=HDGAF	-09	
5=1 ¹ / ₂ "	5	8=Alum.	-12	
6=1 ³ / ₄ "	6	T=304SS	-18	
			-24	
			-30	
			-36	

EXAMPLE: 238-12VC for 3" load depth, 1³/₁₆" flange, aluminum, 12" wide, Peak Vented Cover Connector

Cover Connector [CC]

Note: For all covers except hat & peak type



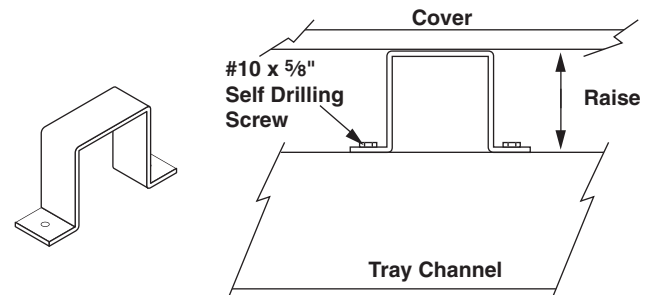
Catalog Number

Load Depth	Finish	Width	Type
3	2 - Mill Galv.	-06	CC
4	3 - HDGAF	-09	
5	4 - Alum.	-12	
6	U - 304SS	-18	
		-24	
		-30	
		-36	

EXAMPLE: 34-12CC for aluminum, 12" wide Connector

Elevated Cover Connectors [EM-CC]

HDGAF for Outdoor Use



Catalog Number

Finish	Type	Height*
2 - Mill Galv.	EM-CC	- Raise* (in.)
3 - HDGAF		
4 - Alum.		
U - 304SS		

Includes:

(3) #10 x 5/8" Self drilling screws.

Suggested spacing:

Indoor: 3/5 (6 tot.) per 12';

*1", 2" or 3" standard.

EXAMPLE: 3-EM-CC-2 for hot dipped galvanized, Elevated Cover Connector with a 2" raise

HAT CABLE TRAY SYSTEM



ACCESSORIES

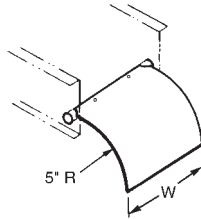
Drop Out [DO]

14 Gage Steel, .080" Aluminum

NOTE: (2) #10 x 5/8" self tapping screws furnished.

Catalog Number		
Basic Finish	Width	
2 (Mill Galv.)	-06DO = 6"	(152mm)
3 (HDGAF)	-09DO = 9"	(229mm)
4 (Alum.)	-12DO = 12"	(305mm)
U (304SS)	-18DO = 18"	(457mm)
	-24DO = 24"	(610mm)
	-30DO = 30"	(762mm)
	-36DO = 36"	(914mm)

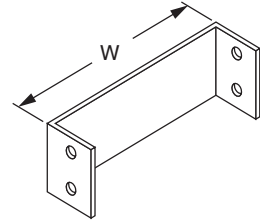
EXAMPLE: 4-12DO for aluminum, 12" wide, Drop Out.



Blind End [BE]

22 Gage Steel, .040" Aluminum

NOTE: 3/8"-16 spline bolts and flange nuts furnished.



Catalog Number		
Load Depth	Finish	Width
3	2 (Mill Galv.)	-06BE = 6" (152mm)
4	3 (HDGAF)	-09BE = 9" (229mm)
5	4 (Alum.)	-12BE = 12" (305mm)
6	U (304SS)	-18BE = 18" (457mm)
		-24BE = 24" (610mm)
		-30BE = 30" (762mm)
		-36BE = 36" (914mm)

EXAMPLE: 34-12BE for 3" load depth, aluminum, 12" wide Blind End.

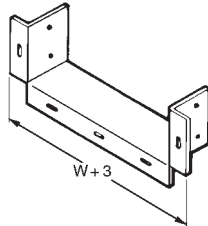
Box Connector [CB]

14 Gage Steel
.080" Aluminum

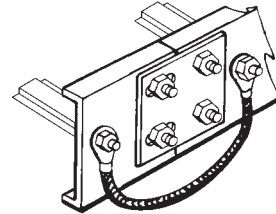
NOTE: 1/4"-20 carriage bolts, flat washers, hex nuts furnished.

Catalog Number		
Load Depth	Finish	Width
3	2 (Mill Galv.)	-06CB = 6" (152mm)
4	3 (HDGAF)	-09CB = 9" (229mm)
5	4 (Alum.)	-12CB = 12" (305mm)
6	U (304SS)	-18CB = 18" (457mm)
		-24CB = 24" (610mm)
		-30CB = 30" (762mm)
		-36CB = 36" (914mm)

EXAMPLE: 34-12CB for 3" load depth, aluminum, 12" wide, Box Connector.



Bonding Jumper [CBJ]



Catalog No.	Dimensional Data	Amperes as Equipment Ground
CBJ-C	AWG 1/0 copper wire 15 1/2" long overall	800 amperes
CBJ-4C	AWG 4/0 copper wire 15 1/2" long overall	1,600 amperes
CBJ-250C	250 MCM copper wire 15 1/2" long overall	2,000 amperes

NOTE:

No hardware supplied

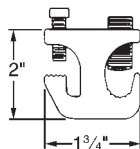
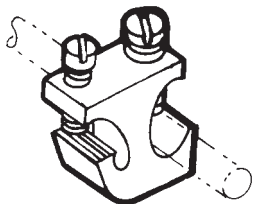
For hardware kit add -HDW:

Ex: CBJ-C-HDW includes
2ea CBJ-C
4ea 5003-1
4ea 5009-1

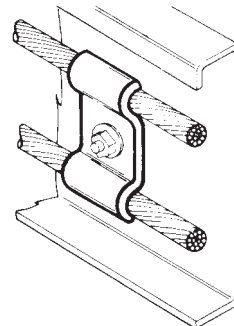
Cable Tray Ground Clamp [9156]

Extruded Alum. with ElectroGalvanized Hex Head Screws

Capacity: #6 AWG to 250 kcmil



Ground Cable Retainer Clamp

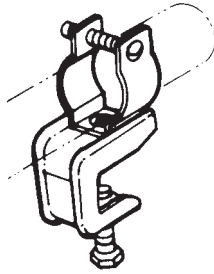


Catalog No.	Capacity	Metal & Finish	Dimensions
9056-EP	1/0 2/0 3/0	Electro-Galv. Steel	1" w x 2" long
9057-EP	4/0 250 MCM		1" w x 2 3/8" long
9056-SS	1/0 2/0 3/0	Stainless Steel	1" w x 2" long
9057-SS	4/0 250 MCM		1" w x 2 3/8" long

UL Listed E-24264

Certified File No. LR 9795

Conduit Clamp Bracket

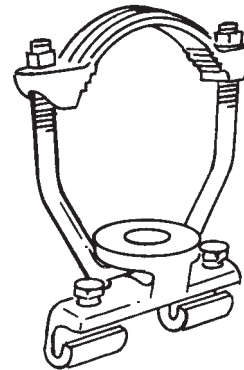


Catalog No.	Size-Rigid	Size-EMT
CCB-050	3/8" to 1/2"	1/2"
CCB-075	3/4"	3/4"
CCB-100	1"	1"
CCB-125	-	1 1/4"
CCB-150	1 1/4"	1 1/2"
CCB-200	2"	2"

Conduit-to-Cable Tray Clamp - Swivel Type

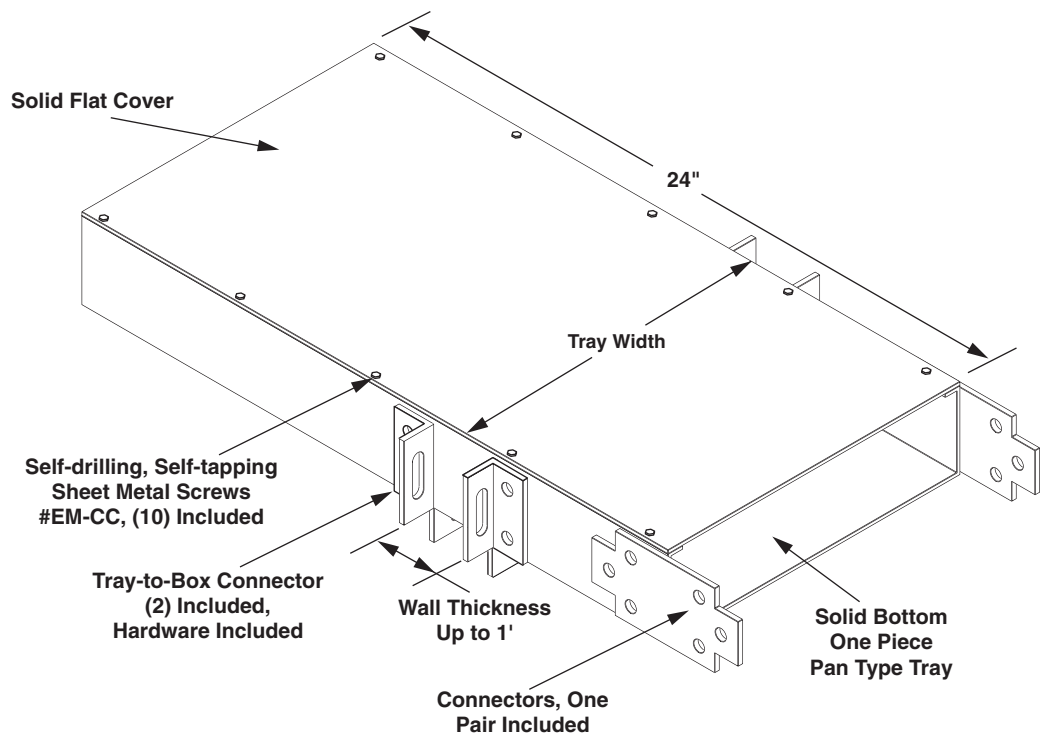
Malleable iron hub and steel "U" bolt. For connecting and grounding rigid conduit to tray at any angle within 90° arc. U.L. listed as a grounding means.

Catalog No.	Size	Std. Pkg.
TB6209	1/2"-3/4"	10
TB6211	1"-1 1/4"	10
TB6214	1 1/2"-2"	5
TB6216	2 1/2"-3"	5
TB6218	3 1/2"-4"	2



Wall Penetrating Sleeve Assembly [SS89042(W) *]

W = Tray Width
 *=Fitting 3-Digit Prefix



Note: Standard penetration sleeves are manufactured from mill galvanized steel. Aluminum sleeves are available upon request.

HAT CABLE TRAY SYSTEM



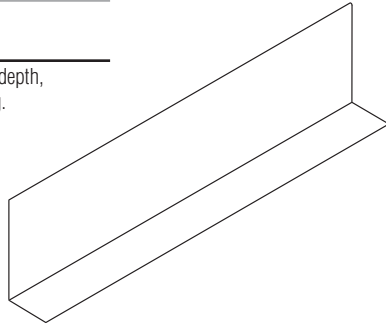
BARRIER STRIPS

Universal Aluminum Barrier Strip - Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. 12' Length
3	A (Alum.)	-01SB-12
4		
5		
6		

EXAMPLE: 3A-01SB-12 for 3" load depth, aluminum straight barrier, 12' long.

Furnished with 8 self tapping screws.



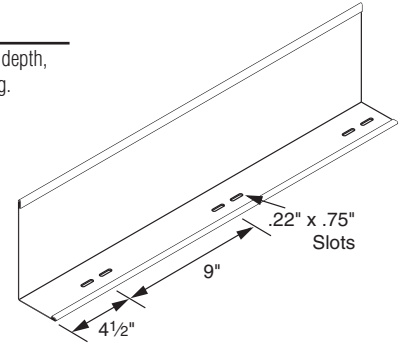
Barrier Strip—Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. 12' Length
3	2 (Mill Galv.)	-01SB-12
4	3 (HDGAF)	
5	4 (Alum.) *	
6	U (304 SS)	

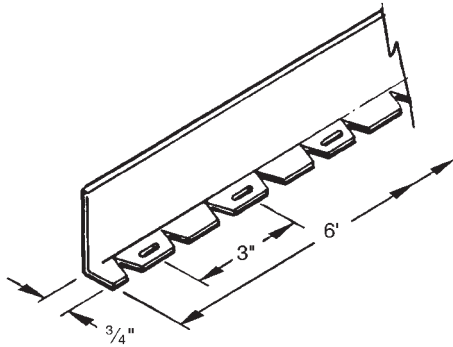
EXAMPLE: 34-01SB-12 for 3" load depth, aluminum straight barrier, 12' long.

Furnished with 8 self tapping screws.

* Long lead time item - See Universal aluminum barrier strip to the left



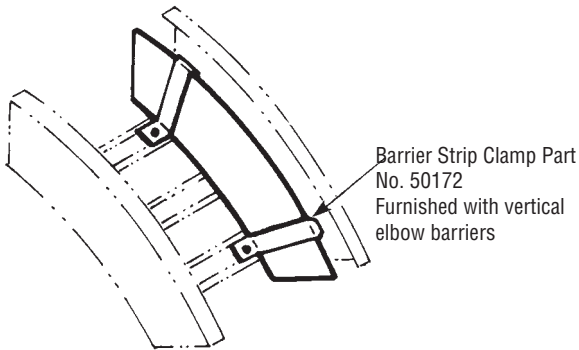
Barrier Strip—Horizontal Fitting [FB]



Catalog Number		
Load Depth	Finish	Basic No. 6' Length
3	2 (Mill Galv.)	-01FB-06
4	3 (HDGAF)	
5	4 (Alum.)	
6	U (304 SS)	

EXAMPLE: 34-01FB-06 for 3" load depth, aluminum fitting barrier, 6' long. Furnished with 4 self tapping screws.

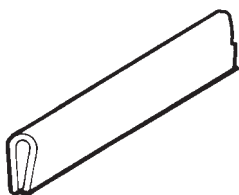
Barrier Strip Vertical Elbow Outside [OB] & Inside [IB]



Catalog Number				
Load Depth	Finish	Bend (deg.)	Basic No.	Radius
3	2 (Mill Galv.)	90	OB = Outside	12" (305mm)
4	3 (HDGAF)	60	IB = Inside	24" (610mm)
5	4 (Alum.)	45		36" (914mm)
6	U (304 SS)	30		

EXAMPLE: 34-90OB-12 for 3" load depth, aluminum 90° outside vertical barrier with 12" radius. (OB Vert. Elbow outside shown) Furnished with sufficient clamp assemblies for installation. Additional clamp assemblies may be ordered separately.

Nylon Barrier Splice & Protector [BSP-L]

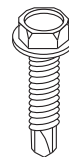


Catalog Number	
Prefix	Length (L)
BSP	-5 (5' Splice)
	-144 (144" Protector)
	-1200 (100' Roll)

EXAMPLE: BSP-1200 for 100' roll

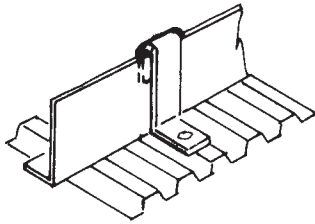
Cover Screw

Part No. EM-CC (electro galv. steel)
Part No. EM-CC-SS (stainless steel)



No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw. Suggested spacing: Indoor: 8 per 12'; Outdoor: 10 per 12'

Barrier Strip Clamp (Optional) [50172]

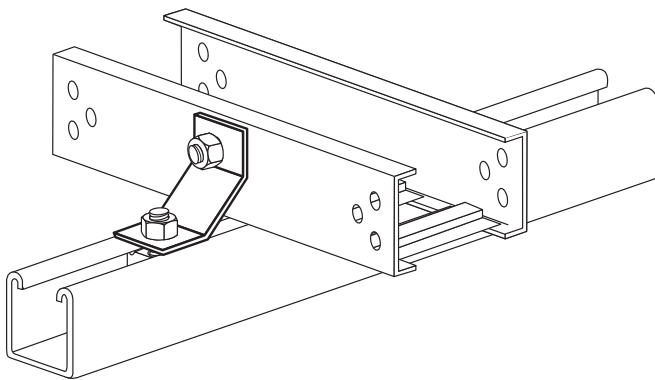


No. 10 bolt, nut, washer and lock washer furnished.

Catalog Number		
Load Depth	Finish	Basic No.
3	2 (Mill Galv.)	-50172
4	3 (HDGAF)	
5	4 (Alum.)	
6	U (304 SS)	

EXAMPLE: 34-5072 for 3" load depth, aluminum clamp.

Hold-Down [9132]



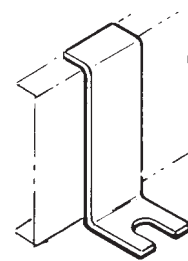
Catalog No.	Material
9132	Mill Galvanized
9133	Stainless Steel

Hardware purchased separately to suit support system.

Note: For seismic applications or other bolted connections is preferred.

Hold-Down Clamp & Expansion Guide

(For expansion guide clamp, add suffix "EX" to catalog number.)



Catalog Number	
Load Depth	Basic No.
3	-9039 (Aluminum)
4	-9040 (Electrogalv.Steel)
5	-9041 (HDGAF)
6	-9042 (316SS)

EXAMPLE: 3-9039-EX for 3" load depth, expansion guide.

Hardware purchased separately to suit support system.

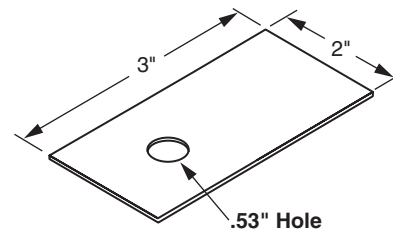
Complete Kit add "-HDW" to Part Number above.

Hardware Kit List:

- (2) Hold-Down Clamps
- (2) 1/2" - 13 x 1 1/2" Cap Screws
- (2) 1/2" Flat Washer
- (2) Clamping Nut (Strut Nut)

Isolation Pad [PVC-PAD]

The Isolation pad provides protection from galvanic corrosion when Aluminum tray is mounted on steel supports.



The PVC-PAD is a 2"x3" plain isolation pad with no hole.

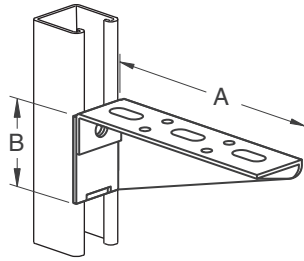
Note: For use with the 9039 series of Hold-Down Clamp & Expansion Guide. Hardware purchased separately

HAT CABLE TRAY SYSTEM



SUPPORT BRACKETS

Gusset-Type Supports

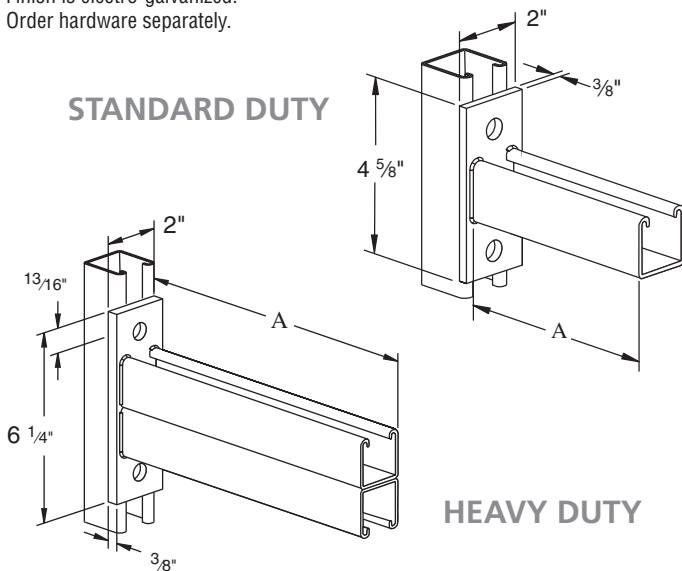


For use with all types of Cope Ladder and Trof systems.
Finish is electro-galvanized.
Order hardware separately.

Catalog No.	Ladder Width	Dimension		Uniform-Load Rating
		A	B	
PS 838R-6	-	6"	1 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-8	-	8"	2 ⁷ / ₁₆ "	275 lbs.
PS 838R-10	-	10"	2 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-12	6"	12"	3 ⁷ / ₁₆ "	275 lbs.
PS 838R-16	9"	16"	4 ⁷ / ₁₆ "	275 lbs.
PS 838R-18	12"	18"	4 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-24	18"	24"	6 ⁷ / ₁₆ "	275 lbs.
PS 838R-30	24"	30"	7 ¹⁵ / ₁₆ "	275 lbs.

Channel-Type Supports

For use with all types of Cope Ladder and Trof systems.
Finish is electro-galvanized.
Order hardware separately.



Standard Duty for Lighter Loads.

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 651-6	-	6"	1,200 lbs.
PS 651-12	6"	12"	600 lbs.
PS 651-15	9"	15"	480 lbs.
PS 651-18	12"	18"	400 lbs.
PS 651-24	18"	24"	300 lbs.
PS 651-30	24"	30"	240 lbs.

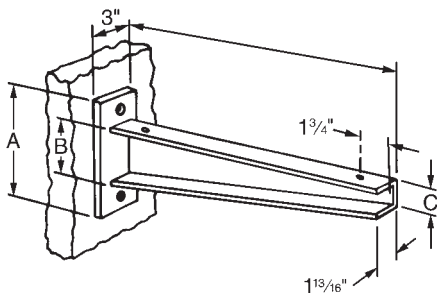
* Mounted on 12 Ga. Channel.

Heavy Duty for Heavier Loads

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 809-12	6"	12"	2,000 lbs.
PS 809-15	9"	15"	1,600 lbs.
PS 809-18	12"	18"	1,330 lbs.
PS 809-24	18"	24"	1,000 lbs.
PS 809-30	24"	30"	800 lbs.
PS 809-36	30"	36"	660 lbs.
PS 809-42	36"	42"	570 lbs.

* Mounted on 12 Ga. Channel.

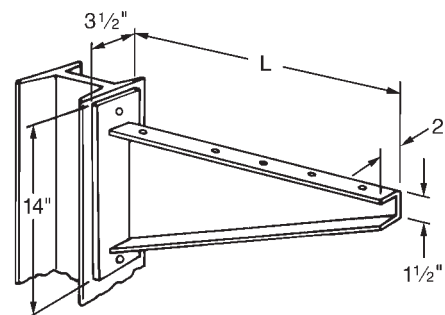
Wall Support Brackets



Catalog No.	Tray Width	Length "L"	Dimensions			End-Load Rating*
			"A"	"B"	"C"	
9037-12	6"	12 ¹ / ₄ "	10"	6"	2"	2000 lbs.
9037-18	12"	18 ¹ / ₄ "	11"	7"	2 ¹ / ₂ "	2000 lbs.
9037-24	18"	24 ¹ / ₄ "	11"	7"	2 ¹ / ₂ "	1600 lbs.
9037-30	24"	30 ¹ / ₄ "	12"	8"	4"	1300 lbs.
9037-36	30"	36 ¹ / ₄ "	12"	8"	4"	1100 lbs.
9037-42	36"	42 ¹ / ₄ "	12"	8"	4"	900 lbs.

*Uniform load rating is normally twice the end-load rating.
Finish is hot-dip galvanized after fabrication. Order hardware separately.

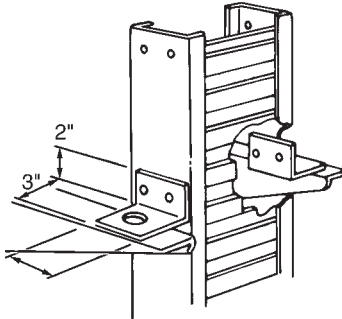
Structural Support Bracket



Catalog No.	Tray Width	Length "L"	End-Load Rating*
9036-31	24"	31 ¹ / ₄ "	2000 lbs.
9036-37	30"	37 ¹ / ₄ "	1800 lbs.
9036-45	36"	45 ¹ / ₄ "	1500 lbs.

*Uniform load rating is normally twice the end-load rating.
For use with Trof 24" or wider. May be welded or bolted to building steel.
Finish is hot-dip galvanized after fabrication. Order hardware separately.

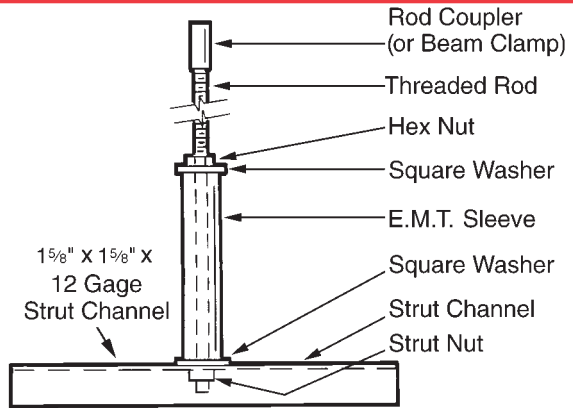
Vertical Supports



Cat. No.	For Use With
9045	3 1/4" Overall Height Side Members
9043-37	4 1/4" Overall Height Side Members
9043	5 1/4" Overall Height Side Members
9025-98	6 1/4" & 7 1/4" Overall Height Side Members

Tray Supports can be bolted anywhere along the straight runs. They can be bolted directly onto the coupler plates at splices of straight runs and riser fittings, or they can be bolted at any place in the run by field-drilling side rails. TROF supports are used with either 3/8" or 1/2" hanger rods. Finish is electrogalvanized.

Single Rod Hanger Support



Catalog Number

Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp
P200	14" (356mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - PS 85
	17" (432mm)	HG (Hot Dipped Galv)	12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	20" (508mm)			072 - 72" (1828mm)	O - No Clamp
	26" (661mm)			120 - 120" (3048mm)	R - Rod Coupler
	32" (813mm)			144 - 144" (3658mm)	S - Special
	38" (966mm)				
	44" (1118mm)				

EXAMPLE: P20020GV12036B is a Single 20" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

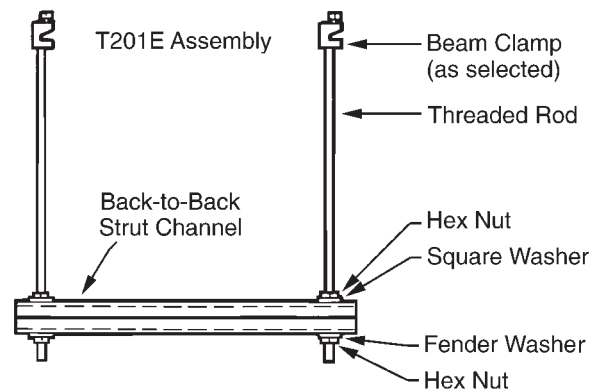
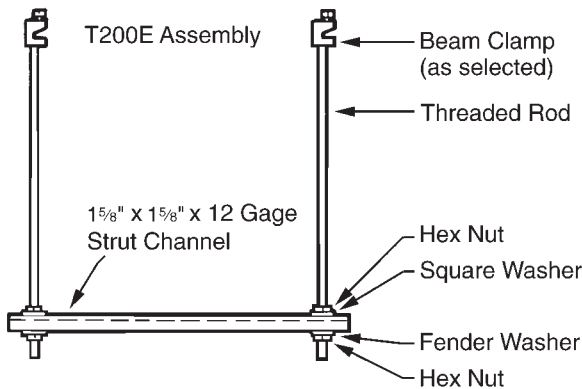
NOTE:

*Order channel length 8" longer than tray width. For example, 44" channel for 36" tray.

** Other channel types and finishes available upon request. Contact factory.

To order hardware only: 3/8" - PGV380000, 1/2" - PGV120000

Trapeze Hanger Support



Catalog Number

Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp
T200E	16" (407mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - PS 85
T201E	19" (483mm)	HG (Hot Dipped Galv)	12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	22" (559mm)			072 - 72" (1828mm)	O - No Clamp
	28" (712mm)			120 - 120" (3048mm)	R - Rod Coupler
	34" (864mm)			144 - 144" (3658mm)	S - Special
	40" (1017mm)				
	46" (1169mm)				

EXAMPLE: T200E22GV12036B is a Single 22" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

NOTE: *Order channel length 10" longer than tray width. For example, 46" channel for 36" tray.

** Other channel types and finishes available upon request. Contact factory.

To order hardware only: 3/8" - PGV380000, 1/2" - PGV120000

Electrical Grounding Chart

Table 1 below provides the Minimum Cross Sectional area for two side rails. Using the Fitting Prefix Number (24A), the proper value is determined by the Material (column 3), the Flange Width (column 1) and Load Depth (column 2). Locate the line containing the Load Depth (column 1) and follow it to the right to the appropriate Flange Width and Material.

TABLE 1

Fitting Prefix Number			Min. X-Sect for 2 Rails (NEC® Table 392.7B)			
			Aluminum		Steel	
			¹³ / ₁₆ " Flange	1 ¹ / ₄ " Flange	¹³ / ₁₆ " Flange	1 ¹ / ₄ " Flange
Flange	Load Depth	Material	X-Sect Area	X-Sect Area	X-Sect Area	X-Sect Area
2 - ¹³ / ₁₆ "	3"	P - Mill Gal	0.60	-	0.40	-
4 - 1 ¹ / ₄ "	4"	G - HDGAF	0.60	0.60	0.40	0.70
	5"	A - Alum.	0.60	1.00	0.70	0.70
	6"		0.60	1.00	0.70	1.00

Find that value in Table 2, follow it to the right to the Material column to determine the Maximum Ground Fault Amperage.

TABLE 2

X-Sect Area	Material	
	Aluminum	Steel
.40 sq in	-	100
.60 sq in	1000	-
.70 sq in	-	200
1.00 sq in	1200	400

For Example:

If the fitting prefix is 24A, the Flange is ¹³/₁₆", the Load Depth is 4", and the Material is Aluminum. The Minimum Cross Sectional Area (X-Sect Area) is 0.60 sq. in. The Amperage is 1000.

Typical Specifications

By specifying the NEMA class designation, you will use the simplest, clearest, and most complete method of specification available and automatically incorporate support span in feet, working (allowable) load in pounds per linear foot, a safety factor of 1.5, a concentrated load if present, and, all other design, manufacturing, and test standards including electrical continuity.

All you need to do is add the desired load depth, rung spacing, radius of fittings, metal and finish. You may add accessory information pursuant to your project. Here is a typical specification for an outdoor tray system where the working (allowable) load has been determined to be approximately 75 pounds per foot on support spans of 12'-0".

SPECIFICATION - COPE HAT LADDER SYSTEM

Cable Hat Ladder shall be manufactured by a company regularly engaged in the manufacture of metal cable trays and shall be a member of NEMA. Trays shall conform to NEMA Metal Cable Tray Standard Publication VE-1 (latest issue).

- Cable ladder shall be NEMA Classification 12B of the widths indicated.
- Material shall be aluminum alloy 6063-T6 for side rails and 5052-H34 for rungs.
- Finish shall be natural.
- Inside load depth to be NEMA Standard 4".
- Fittings shall be 12" radius for control cables and 24" radius for power cables. (This must be commensurate with the cable manufacturer's recommended minimum bending radius.)
- All top level trays in stacks, and single runs to have raised peaked, aluminum ventilated covers with heavy duty hold down clamps every 3'-0"
- Install expansion connectors, expansion guides, and hold down clamps per NEMA Standard VE-1.
- Where slopes or horizontal bends of trays are not at the Standard NEMA angles, use adjustable connectors. If the angle is too great for cable bending radius, use combinations of fitting and adjustable connectors.
- Separate all cables of different voltages in the same tray using the manufacturer's standard barriers and barrier hold down system.
- The Cable Hat Ladder system will be used as an equipment grounding conductor.
- To save space, fittings shall have no tangents. To facilitate field installation use one pair of universal type connector plates for rigid joints.
- Cable Ladder to have hat type rungs arc welded to side rails. Rungs shall not protrude below side rails. Outside depth shall not exceed inside depth by more than ⁵/₈". Side rails to have flanges facing in. Trays shall be Cope Hat Ladder System No. 3B4A as manufactured by Allied Tube & Conduit® Corporation.



COPE™ TROF

6



**Corrugated Bottom Cable TROF System for Power,
Control, Instrumentation Cable, & Pneumatic Tubing**

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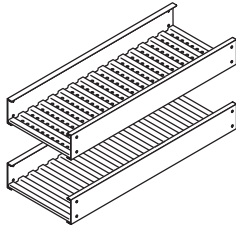
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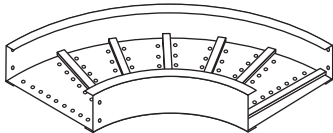
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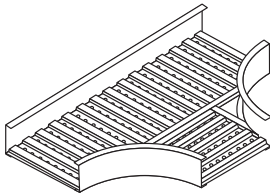
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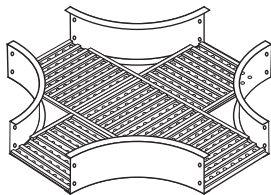
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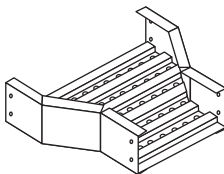
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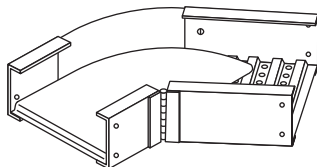
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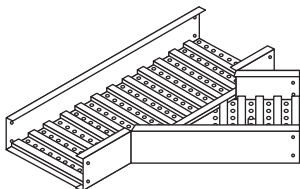
Adjustable Elbows

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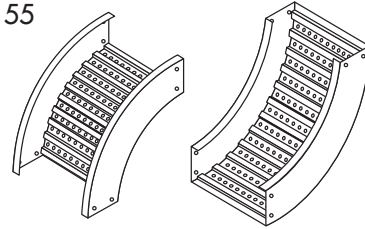
45° "Y" Branch

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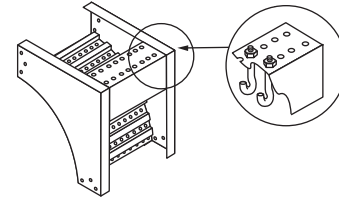
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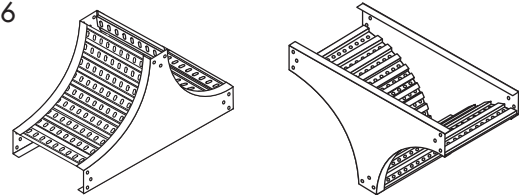
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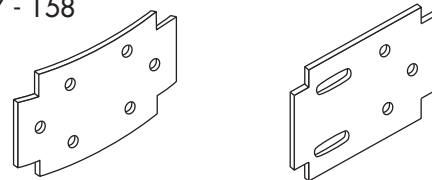
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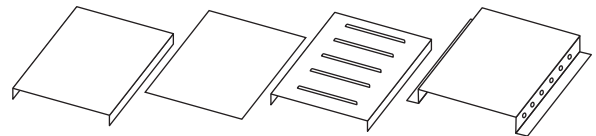
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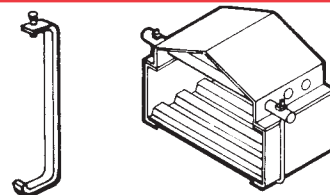
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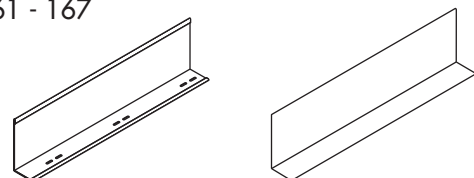
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TROF CABLE TRAY SYSTEM



SELECTION CHART: Aluminum Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/Span Class	NEMA Load/Span	Cope System Number	Cope Systems Certified by CSA	Nominal Load Depth	Side Rail Height	Flange Width (in.)	Section Modulus of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Min X-Sect. Area of 2 Rails per NEC 392.7 (in. ²)
8A-12A	50 lb./ft. 12' span	5234	-	3" (76mm)	3½" (89mm)	1¾"	0.800	1.400	.60
		1B44	1B44	4" (102mm)	4¼" (108mm)	1¾"	0.898	1.822	.60
		1B54	1B54	5" (127mm)	5¼" (133mm)	1¾"	1.142	2.872	.60
		3B64	-	6" (152mm)	6¼" (159mm)	1¾"	1.614	4.720	1.00
12B	75 lb./ft. 12' span	3B44	-	4" (102mm)	4¼" (108mm)	1¾"	1.148	2.316	.60
		1B54	1B54	5" (127mm)	5¼" (133mm)	1¾"	1.142	2.872	.60
		3B64	-	6" (152mm)	6¼" (159mm)	1¾"	1.614	4.720	.60
12C	100 lb./ft. 12' span	5B44	-	4" (102mm)	4¾" (108mm)	1¾"	1.646	3.058	1.00
		3B54	-	5" (127mm)	5¼" (133mm)	1¾"	1.522	3.734	1.00
		5B64	-	6" (152mm)	6¼" (159mm)	1¾"	1.944	5.866	1.00
16A	50 lb./ft. 16' span	5B44	-	4" (102mm)	4¼" (108mm)	1¾"	1.646	3.058	1.00
		7454	7454	5" (127mm)	5¼" (133mm)	1¼"	2.396	6.292	1.50
		1D64	1D64	6" (152mm)	6¼" (159mm)	1¼"	2.378	7.202	1.00
16B	75 lb./ft. 16' span	3D44	3D44	4" (102mm)	4¼" (108mm)	1¼"	2.242	4.406	1.00
		7454	7454	5" (127mm)	5¼" (133mm)	1¼"	2.396	6.292	1.50
		1D64	1D64	6" (152mm)	6¼" (159mm)	1¼"	2.378	7.202	1.00
16C	100 lb./ft. 16' span	5D44	5D44	4" (102mm)	4¼" (108mm)	1¼"	2.782	5.738	1.50
		3D54	3D54	5" (127mm)	5¼" (133mm)	1¼"	3.434	8.746	2.00
		7D64	-	6" (152mm)	6¼" (159mm)	1¼"	4.186	12.024	2.00
20A	50 lb./ft. 20' span	3D44	-	4" (102mm)	4¼" (108mm)	1¼"	2.242	4.406	1.00
		7454	7454	5" (127mm)	5¼" (133mm)	1¼"	2.396	6.292	1.50
		1D64	1D64	6" (152mm)	6¼" (159mm)	1¼"	2.378	7.202	1.00
20B	75 lb./ft. 20' span	3D54	3D54	5" (127mm)	5¼" (133mm)	1¼"	3.434	8.746	2.00
		7D64	7D64	6" (152mm)	6¼" (159mm)	1¼"	4.186	12.024	2.00
20C	100 lb./ft. 20' span	5E44	5E44	4" (102mm)	4¼" (108mm)	1½"	3.716	3.879	2.00
		5D54	-	5" (127mm)	5¼" (133mm)	1¼"	3.910	10.020	2.00
		7D64	7D64	6" (152mm)	6¼" (159mm)	1¼"	4.186	12.024	2.00
EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS - SOLID OR VENTILATED BOTTOMS									
		9D64	-	6" (152mm)	6¼" (159mm)	1¼"	5.130	15.700	2.00
		7G64	-	6" (152mm)	6¼" (159mm)	2"	5.804	17.456	2.00

NOTE: ■ indicates most common systems. Consult factory for lead times on other systems.



TROF CABLE TRAY SYSTEM

SELECTION CHART: Aluminum Tray

LOAD AND DEFLECTION DATA FOR ALUMINUM TROF

Working (Allowable) Load Capacity, Evenly Distributed - Tested per NEMA Standard VE-1

Span (Ft.) - Simple Beam - SAFETY FACTOR: 1.5

Cope Sys. No.	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Span			25 Ft. Span			
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	
5234	207	.43	.002	117	.77	.007	75	1.20	.016	52	1.73	.033													
1B44	222	.35	.002	125	.63	.005	80	.99	.012	55	1.42	.026													
1B54	324	.33	.001	182	.59	.003	117	.87	.007	77	1.26	.016													
3B64	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010													
3B44	354	.45	.001	191	.76	.004	117	1.14	.010	78	1.57	.020													
1B54	324	.33	.001	182	.59	.003	117	.87	.007	77	1.26	.016													
3B64	359	.22	†	191	.37	.002	115	.55	.005	75	.74	.010													
5B44	362	.32	†	251	.69	.003	161	1.08	.007	112	1.55	.014													
3B54	394	.31	†	222	.55	.002	142	.86	.006	100	1.24	.012													
5B64	480	.24	†	257	.40	.002	156	.60	.04	102	.81	.008													
5B44				251	.69	.003	161	1.08	.007	112	1.55	.014	51	2.26	.044	25	2.75	.110							
7454				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057							
1D64				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050							
3D44				342	.72	.002	219	1.12	.005	152	1.61	.011	82	2.74	.033	52	4.27	.082							
7454				349	.51	.001	223	.80	.004	155	1.15	.007	79	1.85	.023	51	2.89	.057							
1D64				380	.49	.001	222	.69	.003	154	1.00	.006	78	1.61	.021	50	2.51	.050							
5D44				444	.71	.002	284	1.10	.004	188	1.53	.008	106	2.73	.026	65	4.07	.063							
3D54				525	.55	.001	336	.86	.003	233	1.24	.005	119	2.01	.017	76	3.14	.041							
7D64							404	.76	.002	281	1.09	.004	158	1.94	.012	101	3.02	.030							
3D44										152	1.61	.011	82	2.74	.033	52	4.27	.082							
7454										155	1.15	.007	79	1.85	.023	51	2.89	.057							
1D64										154	1.00	.006	78	1.61	.021	50	2.51	.050							
3D54										233	1.24	.005	119	2.01	.017	76	3.14	.041							
7D64										281	1.09	.004	158	1.94	.012	101	3.02	.030							
5E44										298	1.79	.006	161	3.07	.019	103	4.79	.047							
5D54										290	1.35	.005	156	2.30	.015	100	3.59	.036							
7D64										281	1.09	.004	158	1.94	.012	101	3.02	.030							
9D64										412	1.22	.003	214	2.00	.009	131	3.01	.023	68	3.23	.048				
7G64										451	1.20	.003	253	2.14	.008	162	3.35	.020	112	4.79	.043	104	5.24	.050	

Note: To convert 1.5 safety factor to 2.0 multiply w, d, k by .75

w=Pounds per linear foot

Metric: for kg/m multiply w by 1.48

d=Deflection (inches)

k=Deflection (in.) for each pound of load

†=Denotes k is less than .001 inch

TROF CABLE TRAY SYSTEM



SELECTION CHART:

Steel Tray

NEMA CLASS, PHYSICAL AND STRUCTURAL PROPERTIES

NEMA Standard VE-1 Load/Span Class	NEMA Load/Span	Mill Galv. System No.	HDGAF System No.	Type 304 SS System No.	Cope HDGAF Systems Certified by CSA	Nominal Load Depth	Side Rail Height	Flange Width (in.)	Section Modulus of 2 Rails Sx (in. ³)	Moment of Inertia for 2 Rails Ix (in. ⁴)	Minimum X-Sect. Area of 2 Rails per NEC 392.7 (in. ²)
8A - 12A	50 lb./ft. 12' span	8232	6233	823U	-	3" (76mm)	3 1/2" (89mm)	13/16"	0.444	1.378	.40
		8242	6243	824U	8242/3	4" (102mm)	4 1/4" (108mm)	13/16"	0.592	1.258	.40
		8252	6253	825U	-	5" (127mm)	5 1/4" (133mm)	13/16"	0.816	2.142	.40
		8262	6263	826U	8262/3	6" (152mm)	6 1/4" (159mm)	13/16"	1.072	3.352	.70
12B	75 lb./ft. 12' span	4232	4233	423U	-	3" (76mm)	3 1/2" (89mm)	13/16"	0.674	1.180	.70
		8B42	6B43	8B4U	-	4" (102mm)	4 1/4" (108mm)	13/16"	0.678	1.370	.40
		8252	6253	825U	-	5" (127mm)	5 1/4" (133mm)	13/16"	0.816	2.142	.40
		8262	6263	826U	8262/3	6" (152mm)	6 1/4" (159mm)	13/16"	1.072	3.352	.70
12C	100 lb./ft. 12' span	6B42	6B43	6B4U	-	4" (102mm)	4 1/4" (108mm)	13/16"	0.834	1.690	.70
		6B52	6B53	6B5U	-	5" (127mm)	5 1/4" (133mm)	13/16"	1.140	2.872	.70
		6262	6263	626U	-	6" (152mm)	6 1/4" (159mm)	13/16"	1.330	4.158	.70
16A	50 lb./ft. 16' span	8D42	6D43	8D4U	-	4" (102mm)	4 1/4" (108mm)	1 1/4"	0.852	1.736	.40
		6452	6453	645U	6452/3	5" (127mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6462	6463	646U	6462/3	6" (152mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	.70
16B	75 lb./ft. 16' span	6D42	6D43	6D4U	-	4" (102mm)	4 1/4" (108mm)	1 1/4"	1.056	2.152	.70
		6452	6453	645U	6452/3	5" (127mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6462	6463	646U	6462/3	6" (152mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	.70
16C	100 lb./ft. 16' span	4D42	4D43	4D4U	-	4" (102mm)	4 1/4" (108mm)	1 1/4"	1.298	2.652	1.00
		6452	6453	645U	6452/3	5" (127mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6462	6463	646U	6462/3	6" (152mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	.70
20A	50 lb./ft. 20' span	6D42	6D43	6D4U	-	4" (102mm)	4 1/4" (108mm)	1 1/4"	1.056	2.152	.70
		6452	6453	645U	6452/3	5" (127mm)	5 1/4" (133mm)	1 1/4"	1.280	3.360	.70
		6462	6463	646U	6462/3	6" (152mm)	6 1/4" (159mm)	1 1/4"	1.652	5.160	1.00
20B	75 lb./ft. 20' span	2D42	2D43	2D4U	-	4" (102mm)	4 1/4" (108mm)	1 1/4"	1.758	3.604	1.00
		4D52	4D53	4D5U	4D52/3	5" (127mm)	5 1/4" (133mm)	1 1/4"	1.744	4.418	1.00
		6D62	6D63	6D6U	-	6" (152mm)	6 1/4" (159mm)	1 1/4"	1.814	5.486	1.00
20C	100 lb./ft. 20' span	2D52	2D53	2D5U	-	5" (127mm)	5 1/4" (133mm)	1 1/4"	2.370	6.026	1.50
		4D62	4D63	4D6U	4D62/3	6" (152mm)	6 1/4" (159mm)	1 1/4"	2.240	6.778	1.00
EXTRA HEAVY DUTY - VERY LONG SPAN TRAYS - SOLID OR VENTILATED BOTTOMS											
		2D62	2D63	2D6U	-	6" (152mm)	6 1/4" (159mm)	1 1/4"	3.056	9.270	1.50
		11D62	11D63	11D6U	-	6" (152mm)	6 1/4" (159mm)	1 1/4"	3.536	10.630	1.50

Note: indicates most common systems. Consult factory for lead times on other systems.



TROF CABLE TRAY SYSTEM

SELECTION CHART:

Steel Tray

LOAD AND DEFLECTION DATA FOR STEEL TROF

Working (Allowable) Load Capacity, Evenly Distributed-Tested per NEMA Standard VE-1

Span (ft.) - Simple Beam - SAFETY FACTOR: 1.5

Cope Sys. No.	6 Ft. Span			8 Ft. Span			10 Ft. Span			12 Ft. Span			16 Ft. Span			20 Ft. Span			24 Ft. Spa			25 Ft. Span		
	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k	w	d	k
8232/3/U	230	.30	.001	126	.52	.004	79	.79	.010	53	1.11	.021												
8242/3/U	292	.23	†	164	.42	.003	103	.63	.006	69	.89	.013												
8252/3/U	383	.18	†	210	.31	.001	127	.46	.004	83	.62	.007												
8262/3/U	357	.11	†	194	.18	†	119	.28	.002	79	.38	.005												
4232/3/U	358	.30	†	197	.53	.003	124	.81	.007	83	1.13	.014												
8B42/3/U	360	.26	†	198	.46	.002	124	.70	.006	84	.98	.012												
8252/3/U	383	.18	†	210	.31	.001	127	.46	.004	83	.62	.007												
8262/3/U	357	.11	†	194	.18	†	119	.28	.002	79	.38	.005												
6B42/3/U	453	.27	†	249	.47	.002	156	.71	.005	106	1.00	.009												
6B52/3/U	591	.21	†	325	.36	.001	203	.55	.003	137	.77	.006												
6262/3/U	460	.11	†	250	.19	†	154	.29	.002	103	.40	.004												
8D42/3/U				290	.53	.002	182	.81	.004	126	1.17	.009	65	1.91	.029									
6452/3/U				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
6462/3/U				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
6D42/3/U				381	.56	.001	244	.88	.004	169	1.27	.008	88	2.08	.024									
6452/3/U				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
6462/3/U				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
4D42/3/U				487	.58	.001	312	.91	.003	216	1.31	.006	113	2.16	.019									
6452/3/U				444	.42	†	273	.63	.002	186	.89	.005	100	1.51	.015									
6462/3/U				574	.42	†	367	.55	.001	245	.76	.003	123	1.22	.010									
6D42/3/U										169	1.27	.008	88	2.08	.024	52	2.98	.057						
6452/3/U										186	.89	.005	100	1.51	.015	53	1.94	.037						
6462/3/U										245	.76	.003	123	1.22	.010	66	1.59	.024						
2D42/3/U										304	1.36	.004	159	2.24	.014	94	3.23	.034						
4D52/3/U										280	1.02	.004	145	1.67	.012	85	2.40	.028						
6D62/3/U										269	.80	.003	139	1.28	.009	81	1.82	.022						
2D52/3/U										395	1.05	.003	206	1.74	.008	121	2.50	.021						
4D62/3/U										296	.79	.003	152	1.28	.008	105	1.91	.018						
2D62/3/U										390	.85	.002	221	1.40	.006	149	2.00	.013	79	1.91	.024	73	2.38	.033
11D62/3/U										434	.66	†	244	1.17	.005	156	1.82	.012	108	2.62	.024	100	2.85	.029

NOTE: To convert 1.5 safety factor to 2.0 multiply w, d, k by .75

w = Pounds per linear foot

Metric: for kg/m multiply by 1.48

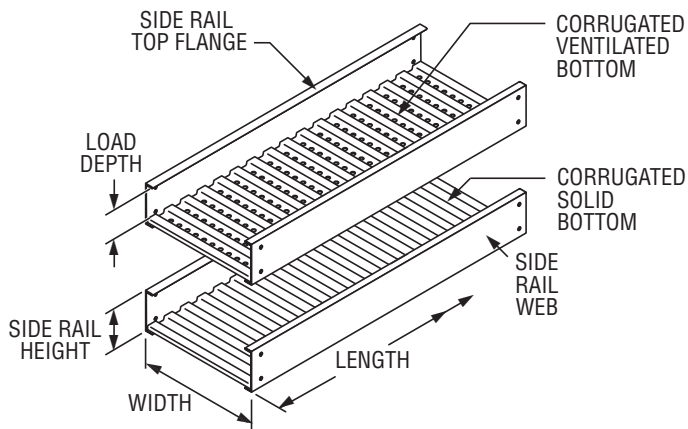
d = Deflection (inches)

k = Deflection (in.) for each pound of load

† = Denotes k is less than .001 inch

OVERVIEW

COPE TROF is a prefabricated metal structure consisting of ventilated or solid bottoms, welded to the side rails, and are manufactured and tested to NEMA Standard VE-1. Straight sections, fittings (elbows, tees, crosses, reducers, etc.) and a full line of matching and interfacing accessories are available. Corrugations give great lateral rigidity to the bottom transmitting the load to the side rails. Lateral (transverse) deflection is nearly eliminated compared to rung type trofs where the rails are not continuously braced by the bottom. Cope Corrugated bottoms do NOT limit the tray load capacity.



STRAIGHT SECTION

Corrugated bottoms have 1" wide ribs on 2" centers. Ventilation holes in the valleys of the corrugations are 1 1/16" diameter on one inch (1") centers. Free passage of air through the openings results in a 68% open area at the elevated cable support surface on top of ribs.

Solid Trof have the same corrugations but have no holes.

Note: Where drain holes are required, one can be placed in the center of each valley, if specified.

COPE TROF WITH THREE IMPORTANT INDUSTRY-LEADING FEATURES:

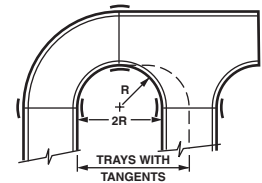
1. New Universal Curvilinear Splice Plate System

The splice plates for rigid connections have a slight curve so they can be used on straight sections or fittings. Tightening of the fastener pulls the plate flush with the side rail. The fasteners are snug and the joint is structurally and electrically superior. Even when hand-tightened, there is pressure on the fastener to hold it securely.

Note: Heavy Duty, Mid Span Splice Plates available upon request.

2. Zero Tangent Fittings

Tangent as referred to on cable tray fittings is the straight at the end of the curve to accommodate a flat splice plate. This wastes space in tightly packed areas, such as spreader rooms, where the heat of thousands of cables accumulate. Eliminating tangents allow more tray runs to distribute the heat. COPE ZERO TANGENT FITTINGS CAN SAVE UP TO 12" PER ROW OF TRAY.



BONUS: Inspection for proper installation of splice plate is visual. If the plate is bowed away from the rail, nuts must be tightened.

3. The Exclusive Auto Arc-Welded Assembly System

Corrugated bottoms on straight sections are assembled to the side rails using an automatic, self indexing MIG-arc-welding system fusing a 1/2" diameter zone. These welds are 700% larger and stronger than the common resistance (spot) weld in use today. Electrical properties of the assembly are unequalled; are well within the NEMA requirements due to the continuous electrical path. The mechanical strength of this welded assembly withstands the rigors of shipping, handling, installation and service. The size of the weld keeps the vertical axis of the side rail from sloping inward under load. The weld maintains the 90° angle between the side rail and bottom. This allows full use of the section properties. Spot welds do not permit this. Also, stresses on spot welds (barely 1/8" in diameter) are so severe that breakage often occurs during shipping and installation. Cope Trof fittings are also assembled by MIG-arc-welding.

USES OF COPE TROF

Generally, Cope Trof is optimum for ANY size cable. It offers continuous support with or without ventilation. The bottom design offers safety and security from unauthorized personnel. The vent holes may be bushed with a grommet for dropping out communication cables (Cat. DOG-2).



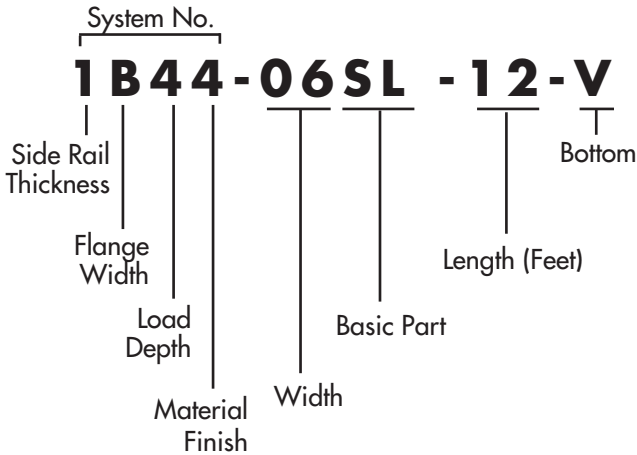
TROF CABLE TRAY SYSTEM

PART NUMBERING SYSTEM:

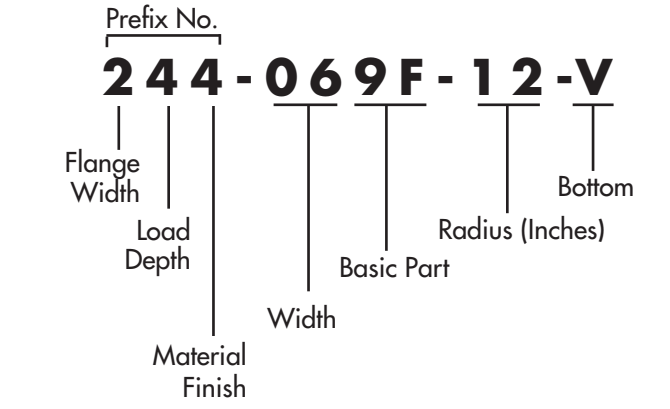
Please pay careful attention to the part numbering structure. Example: Catalog No. 1B44-06SL-12-V is a 4 inch load depth aluminum ladder with 1³/₁₆" flange, 6 inches wide, straight length 12 feet long, with ventilated bottom. Please make sure you use the system numbers from pages 136 through 139.

Intro. NEMA COPE™ LADDER COPE™ I-BEAM™ COPE™ HAT COPE™ TROF COPE™ CHANNEL COPE™ GLAS™ WIRE BASKET Reference

Straight Length



Fittings



SYSTEM NUMBER (STRAIGHT SECTION ONLY)

– The first four digits make up the system number which identifies the structural, dimensional, and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange width, the load depth (inside, in inches), and material finish (galvanized, aluminum or coated).

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages. Fittings do not have stiffened upper flanges.

WIDTH – Identifies the inside width of the tray in inches.

BASIC PART NUMBER – Identifies the straight length, fitting, or accessory.

SECONDARY DIMENSION NUMBER – Identifies the length of a straight section in feet, the radius of a fitting in inches, or the second width of a reducer in inches.

BOTTOM TYPE– Identifies the type bottom: V (Ventilated) or S (Solid). Example: 1B44-06SL-12-V is a 4" load depth aluminum Trof with a 1³/₁₆" flange, 6" wide, straight length 12' long with a ventilated bottom.

Thickness Steel (Ga.)	Flange Width	Load Depth	Material Finish
8 - 18 ga.	2 - 1 ³ / ₁₆ " (21mm)	3" (76mm)	2 - Mill-Galv.
6 - 16 ga.	4 - 1 ¹ / ₄ " (32mm)	4" (102mm)	3 - HDGAF
4 - 14 ga.	5 - 1 ¹ / ₂ " (38mm)	5" (127mm)	4 - Aluminum
2 - 12 ga.	7 - 2" (51mm)	6" (152mm)	U - 304SS
11 - 11 ga.			

Thickness Alum (in.)	Flange Width	Load Depth	Material Finish
1 - Thinner	B - 1 ³ / ₁₆ " (21mm)		
3 -	D - 1 ¹ / ₄ " (32mm)		
5 - ** ↓	E - 1 ¹ / ₂ " (38mm)		
7 -	G - 2" (51mm)		
9 - Thicker			

**Alum. extruded side rails are individually engineered to loads and spans.

Slotted Rungs provided on trays 6", 9", 12", 18", and 24" wide

Solid Rungs provided on trays 30" and 36" wide.

Width (in.)	Basic Part Number	Length	Bottom
06=6" (152mm)	SL (Straight Len.)	- 12' (3.7m)	-V (ventilated)
09=9" (229mm)	9F (90° Horiz. El.)	- 24' (7.3m)	-S (solid)
12=12" (305mm)	6F (60° Horiz. El.)	- 10' (3m, CSA)	
18=18" (457mm)	4F (45° Horiz. El.)	- 20' (6m, CSA)	
24=24" (610mm)	3F (30° Horiz. El.)		
30=30" (762mm)	90 (90° Out. Vert. El.)		
36=36" (914mm)	60 (60° Out. Vert. El.)		
	40 (45° Out. Vert. El.)		
	30 (30° Out. Vert. El.)		
	9I (90° In. Vert. El.)		
	6I (60° In. Vert. El.)		
	4I (45° In. Vert. El.)		
	3I (30° In. Vert. El.)		
	FT (Horiz. Tee)		
	FC (Horiz. Cross)		
	VT (Vert. Tee)		
	SR (Vert. Cable Support Elbow)		
	ST (Straight Reducer)		
	RH (Right Hand Reducer)		
	LH (Left Hand Reducer)		
	AF (Adjustable Elbow)		
	RY & LY (45° "Y" Branch)		

TROF CABLE TRAY SYSTEM



CSA ORDERING INFORMATION

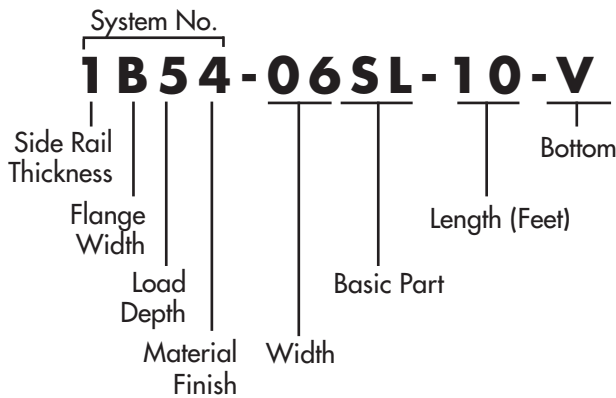
Cope CSA Standards C22-2 Cable Trof Ventilated & Solid Bottom Type

HOW TO ORDER:

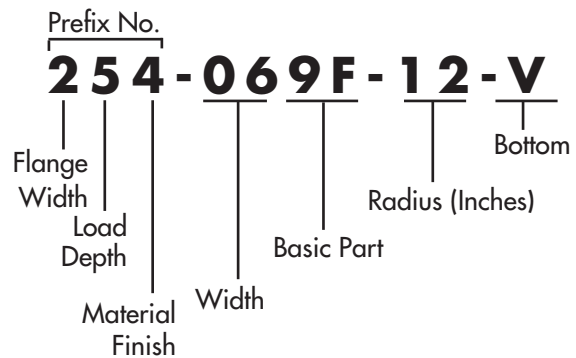
Explanation of Cope's Canadian Standards cable tray catalog numbers is described below. Use the system numbers given in selection charts for straight sections, or the fitting prefix numbers given in fitting tables. Be sure to follow system number or the fitting prefix with the item "description" number. The list below gives the CSA certified items carrying the CSA label.



Straight Length



Fittings



SYSTEM NUMBER (STRAIGHT SECTION ONLY) – The first four digits make up the system number which identifies the structural, dimensional, and material characteristics of the straight length. It is made up of the side rail digits indicating the side rail thickness and flange width, the load depth (inside, in inches), and material finish (galvanized, aluminum or coated).

PREFIX NUMBER (FITTINGS ONLY) – Fittings are ordered using the 3-digit prefix number given in the charts on the fitting pages. Fittings do not have stiffened upper flanges.

WIDTH – Identifies the inside width of the tray (in inches).

BASIC PART NUMBER – Identifies the straight length, fitting, or accessory.

SECONDARY DIMENSION NUMBER – Identifies the length of a straight section (in feet), the radius of a fitting (in inches), or the second width of a reducer (in inches).

BOTTOM TYPE – Identifies the type bottom: V (Ventilated) or S (Solid)

System Number			
Thickness Steel (Ga.)	Flange Width	Load Depth	Material Finish
8 - 18 ga.	2 - 1 ³ / ₁₆ " (21mm)	4" (102mm)	3 - HDGAF, CSA Class 1
6 - 16 ga.	4 - 1 ¹ / ₄ " (32mm)	5" (127mm)	4 - Aluminum Plain Finish
4 - 14 ga.		6" (152mm)	
Thickness Alum (in.)**			
1 - thinner	*B - 1 ³ / ₁₆ " (21mm)		
3 -	*D - 1 ¹ / ₄ " (32mm)		
5 - ** ↓	*E - 1 ¹ / ₂ " (38mm)		
7 -			
9 - thicker			

*Stiffened Upper Flange

**Alum. extruded side rails are individually engineered to loads and spans.

Description			
Width (in.)	Basic Part No.	Length	Bottom
06=6" (152mm)	SL (Straight Length)	10 - 10' (3m)	-V (ventilated)
09=9" (229mm)	9F (90° Horiz. Elbow)	20 - 20' (6m)	-S (solid)
12=12" (305mm)	6F (60° Horiz. Elbow)		
18=18" (457mm)	4F (45° Horiz. Elbow)		
24=24" (610mm)	3F (30° Horiz. Elbow)		
30=30" (762mm)	90 (90° Out. Vert. Elbow)		
36=36" (914mm)	60 (60° Out. Vert. Elbow)		
	40 (45° Out. Vert. Elbow)		
	30 (30° Out. Vert. Elbow)		
	9I (90° In. Vert. Elbow)		
	6I (60° In. Vert. Elbow)		
	4I (45° In. Vert. Elbow)		
	3I (30° In. Vert. Elbow)		
	FT (Horiz. Tee)		
	FC (Horiz. Cross)		
	VT (Vert. Tee)		
	SR (Vert. Cable Support Elbow)		
	ST (Straight Reducer)		
	RH (Right Hand Reducer)		
	LH (Left Hand Reducer)		
	AF (Adjustable Elbow)		
	RY & LY (45° "Y" Branch)		
			Radius (in.)
			12=12" (305mm)
			24=24" (610mm)
			36=36" (914mm)



TROF CABLE TRAY SYSTEM

CSA SYSTEM SELECTION CHART:

Cope Cable Trof



Certified COPE Systems That Meet Performance Class CSA Std. C22.2

CSA Class	Cope System	Load Depth	Side Rail	Flange Width	Max. Load Kg/m (lb/ft)	Maximum Support Span	Deflection at Max Support Span	Meets CSA Elec. Tests
ALUMINUM TROF TRAY - Safety Factor: 1.5								
C	1B44	4" (102mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	25.1mm	Yes
20A	3D44	4" (102mm)	4 1/4" (108mm)	1 1/4" (32mm)	74 (50)	6m (1)	108.5mm	Yes
16C	5D44	4" (102mm)	4 1/4" (108mm)	1 1/4" (32mm)	149 (100)	4.9m	71.4mm	Yes
20C	5E44	4" (102mm)	4 1/4" (108mm)	1 1/2" (38mm)	149 (100)	6m (1)	121.7mm	Yes
C	1B54	5" (127mm)	5 1/4" (133mm)	1 3/16" (21mm)	97 (65)	3m	22.1mm	Yes
20A	7454	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	74 (50)	6m (1)	73.4mm	Yes
20B	3D54	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	112 (75)	6m (1)	78.7mm	Yes
20A	1D64	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	63.8mm	Yes
20C	7D64	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	149 (100)	6m (1)	76.7mm	Yes
Mil Gal STEEL TROF TRAY Safety Factor: 1.5								
C	8242	3 3/4" (95mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	16.0mm	Yes
20A	6452	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	74 (50)	6m (1)	49.3mm	Yes
20B	4D52	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	112 (75)	6m (1)	61.0mm	Yes
12B	8262	6" (152mm)	6 1/4" (159mm)	1 3/16" (21mm)	112 (75)	3.7m	9.7mm	Yes
20A	6462	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	40.4mm	Yes
20C	4D62	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	149 (100)	6m	48.5mm	Yes
HDGAF STEEL TROF TRAY Safety Factor: 1.5								
C	8243	3 3/4" (95mm)	4 1/4" (108mm)	1 3/16" (21mm)	97 (65)	3m	16.0mm	Yes
20A	6453	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	74 (50)	6m (1)	49.3mm	Yes
20B	4D53	5" (127mm)	5 1/4" (133mm)	1 1/4" (32mm)	112 (75)	6m (1)	61.0mm	Yes
12B	8263	6" (152mm)	6 1/4" (159mm)	1 3/16" (21mm)	112 (75)	3.7m	9.7mm	Yes
20A	6463	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	74 (50)	6m (1)	40.4mm	Yes
20C	4D63	6" (152mm)	6 1/4" (159mm)	1 1/4" (32mm)	149 (100)	6m	48.5mm	Yes

Notes: (1) Also recommended for 3 meter support spans

Note: **■** indicates most common systems. Consult factory for lead times on other systems.

CSA LOADS

Identify the desired load designation needed for your project from the chart below. Both CSA Class and NEMA designations are listed by load capability and span. Then, select the CSA Certified Cope System from the table above. Where CSA C22.2 is not mandatory, you may want to consider one of the other Cope systems offered on the selection charts (page 142 thru 143).

Load, kg/m (lb/ft)	Historical Load/Span Class Designation				
	Span, m (ft)				
	2.4 (8)	3.0 (10)	3.7 (12)	4.9 (16)	6.0 (20)
37 (25)	—	A	—	—	—
67 (45)	—	—	—	—	D
74 (50)	8A	—	12A	16A	20A
97 (65)	—	C	—	—	—
112 (75)	8B	—	12B	16B	E or 20B
149 (100)	8C	—	12C	16C	20C
179 (120)	—	D	—	—	—
299 (200)	—	E	—	—	—

Note: 8A/B/C, 12A/B/C, 16A/B/C, and 20A/B/C have been NEMA designations. A, B, C, D and E have been CSA designations

RECEIVING, INSTALLING, AND MAINTENANCE

The proper care and handling of cable Trofs by the receiver and installers is very important to insure a safe installation that will meet the intended service life. Cope has an installation guide available to assist the installers and those who will maintain the installed system

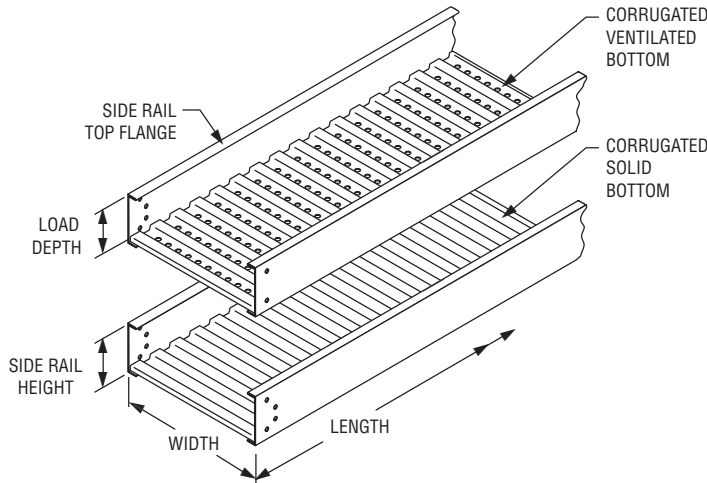
DIMENSIONS AND STRUCTURAL PROPERTIES: COPE CSA SYSTEMS

The performance of the Cope cable Trof systems certified by CSA is given above. Structural properties of straight sections, though not required to be listed, are given in the Cope NEMA selection charts, in English units. Dimensions of straight sections and certified fittings are furnished in English and metric units for use in layout and/or entry into computerized systems.

NOTE: For other CSA approved systems please contact the factory.

Intro. NEMA COPE™ LADDER COPE™ I-BEAM™ COPE™ HAT COPE™ TROF COPE™ CHANNEL COPE-GLAS™ WIRE BASKET Reference

Straight Length [SL]

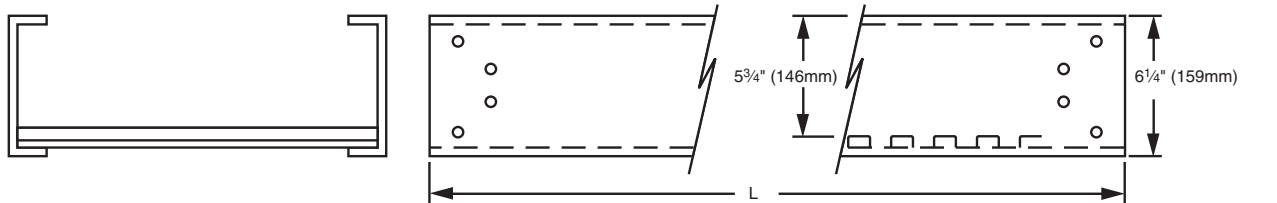


COPE TROF is manufactured in 10', 12', 20' (CSA) and 24' lengths; 6", 9", 12", 18", 24", 30" and 36" widths; and, 3", 4", 5", and 6" nominal load depths. A complete line of fittings and accessories are available.

Corrugated bottoms have 1" wide ribs on 2" centers. Ventilation holes in the valleys of the corrugations are 1 1/16" diameter on one inch (1") centers. Free passage of air through the openings results in a 68% open area. Corrugations give great lateral rigidity to the bottom transmitting the load to the side rails.

Solid Trof have the same corrugations but have no holes. Materials: Aluminum, Hot Dip-Mill galvanized (pre-galvanized) to ASTM A-924, Hot Dip Galvanized after Fabrication (HDGAF) to ASTM A-123.

Sufficient connectors are supplied to assemble straight sections and fittings for each order. Connectors for field cuts to be ordered separately.



Catalog Number

System	Width	Basic No.	Length	Bottom Type
See Pages 136 to 139	-06=6" (152mm)	SL	NEMA 12' (3.7m)* 24' (7.3m)* 10' (3m)* 20' (6m)*	-S (solid)
	-09=9" (229mm)			-V (ventilated)
	-12=12" (305mm)			
	-18=18" (457mm)		CSA -10' (3m) -20' (6m)	
	-24=24" (610mm)			
	-30=30" (762mm)			
	-36=36" (914mm)			

*10', 12' all NEMA Classes, 20', 24' NEMA Classes 16A, 16B, 16C, 20A, 20B, 20C.
EXAMPLE: 1B44-06SL-12-V is a 4" load depth aluminum Trof with 1 3/16" flange, 6" wide, 12' long, with ventilated bottom.

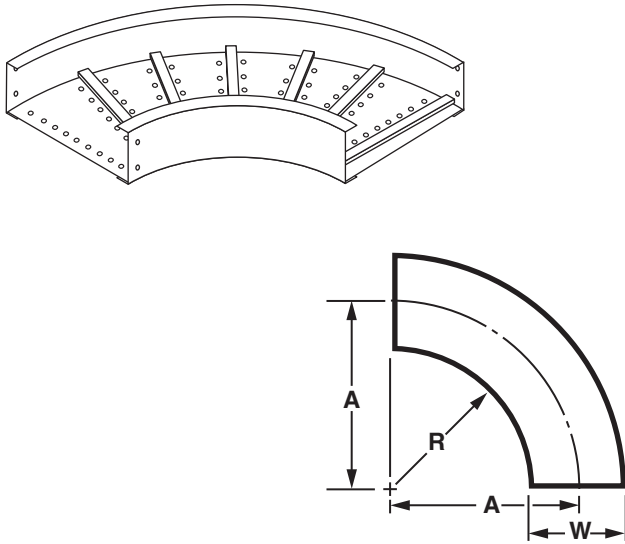
Conversion Table

English	6"	9"	12"	18"	24"	30"	36"	12'-0"	24'-0"	10'-0"	20'-0"
Metric (mm)	152	229	305	457	610	762	914	3658	7316	3048	6096

Material & Finish Specifications (Cope Trof)

	Pre-Galvanized Steel	Hot-Dip Galvanized after Fabrication ASTM A-123	Aluminum	Type 304 Stainless Steel
Siderails	ASTM A-653-G90 CS (18 & 16 Gage) ASTM A-653-G90 CS (14 & 12 Gage)	ASTM A-1008 (18 & 16 Gage) ASTM A-1011 (14 & 12 Gage)	AA-6063-T6 Extruded	ASTM A-240; Type 304
Bottom	ASTM A-653-G90 CS	ASTM A-1008	AA-6063-H34	ASTM A-269; Type 304
Splice Plate	ASTM A-1011	ASTM A-1011	AA-5052-H34	ASTM A-240; Type 304
Finish	ASTM A-591 Class C	ASTM A-123 Grade 65		2B Finish (Typical)
Connector	SAE J429 Grade 1	SAE J429 Grade 1	SAE J429 Grade 1	
Bolts	(ASTM A-307 Grade A)	(ASTM A-307 Grade A)	(ASTM A-307 Grade A)	AISI Type 304 Stainless Steel
Bolt Plating	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	ASTM B-633.0002" Zinc	
Covers	ASTM A-653-G90 CQ	ASTM A-653-G90 CQ	AA-3003 H14 or 3150 H14	ASTM A-240; Type 304

90° Horizontal Elbow [9F]



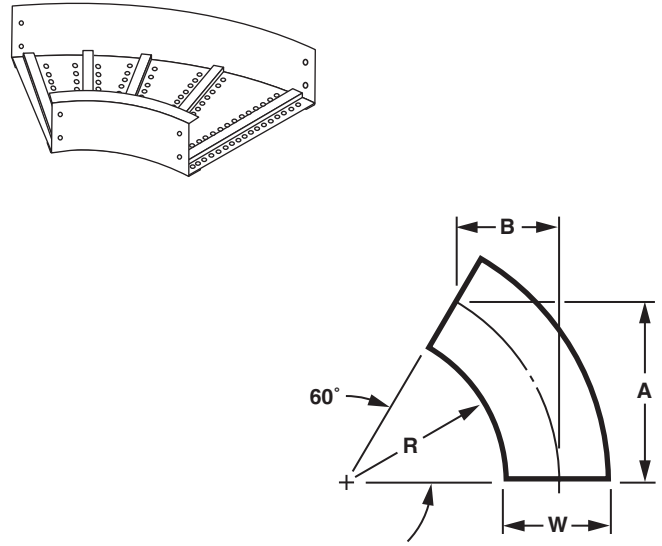
CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	
12" (305mm)	6" (152mm)	15" (381mm)	
	9" (229mm)	16½" (419mm)	
	12" (305mm)	18" (457mm)	
	18" (457mm)	21" (533mm)	
	24" (610mm)	24" (610mm)	
	30" (762mm)	27" (686mm)	
24" (610mm)	36" (914mm)	30" (762mm)	
	6" (152mm)	27" (686mm)	
	9" (229mm)	28½" (724mm)	
	12" (305mm)	30" (762mm)	
	18" (457mm)	33" (838mm)	
	24" (610mm)	36" (914mm)	
36" (914mm)	30" (762mm)	39" (991mm)	
	36" (914mm)	42" (1067mm)	
	6" (152mm)	39" (991mm)	
	9" (229mm)	40½" (1029mm)	
	12" (305mm)	42" (1067mm)	
	18" (457mm)	45" (1143mm)	
24" (610mm)	48" (1219mm)		
30" (762mm)	51" (1295mm)		
36" (914mm)	54" (1372mm)		

*Add Suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-129F-12-V

60° Horizontal Elbow [6F]



CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension		"B" Dimension	
12" (305mm)	6" (152mm)	13" (330mm)	7½" (191mm)		
	9" (229mm)	14¼" (362mm)	8¼" (210mm)		
	12" (305mm)	15⅝" (397mm)	9" (229mm)		
	18" (457mm)	18¼" (464mm)	10½" (267mm)		
	24" (610mm)	20¾" (527mm)	12" (305mm)		
	30" (762mm)	23⅜" (594mm)	13½" (343mm)		
24" (610mm)	36" (914mm)	26" (660mm)	15" (381mm)		
	6" (152mm)	23⅜" (594mm)	13½" (343mm)		
	9" (229mm)	24¾" (629mm)	14¼" (362mm)		
	12" (305mm)	26" (660mm)	15" (381mm)		
	18" (457mm)	28⅝" (727mm)	16½" (416mm)		
	24" (610mm)	31¼" (794mm)	18" (457mm)		
36" (914mm)	30" (762mm)	33¾" (857mm)	19½" (495mm)		
	36" (914mm)	36⅜" (924mm)	21" (533mm)		
	6" (152mm)	33¾" (857mm)	19½" (495mm)		
	9" (229mm)	35⅛" (892mm)	20¼" (514mm)		
	12" (305mm)	36⅜" (924mm)	21" (533mm)		
	18" (457mm)	39" (991mm)	22½" (572mm)		
24" (610mm)	41⅝" (1057mm)	24" (610mm)			
30" (762mm)	44⅛" (1121mm)	25½" (648mm)			
36" (914mm)	46¾" (1187mm)	27" (686mm)			

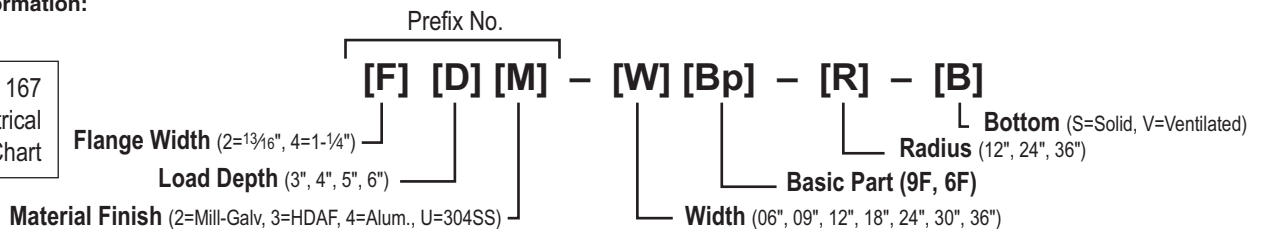
*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-126F-12-V

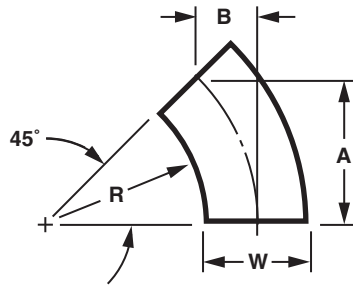
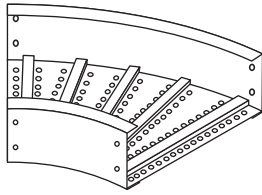
Note: When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:

See Page 167
for Electrical
Grounding Chart



45° Horizontal Elbow [4F]



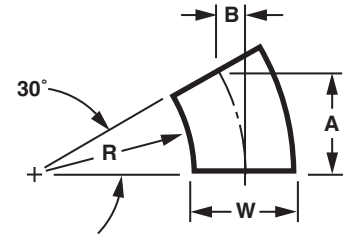
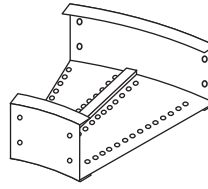
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Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	10 ⁵ / ₈ " (270mm)	4 ³ / ₈ " (111mm)
	9" (229mm)	11 ⁵ / ₈ " (295mm)	4 ⁷ / ₈ " (124mm)
	12" (305mm)	12 ³ / ₄ " (324mm)	5 ¹ / ₄ " (133mm)
	18" (457mm)	14 ⁷ / ₈ " (378mm)	6 ¹ / ₈ " (156mm)
	24" (610mm)	17" (432mm)	7" (178mm)
	30" (762mm)	19 ¹ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
24" (610mm)	36" (914mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	6" (152mm)	19 ¹ / ₈ " (486mm)	7 ⁷ / ₈ " (200mm)
	9" (229mm)	20 ¹ / ₈ " (511mm)	8 ³ / ₈ " (213mm)
	12" (305mm)	21 ¹ / ₄ " (540mm)	8 ³ / ₄ " (222mm)
	18" (457mm)	23 ³ / ₈ " (594mm)	9 ⁵ / ₈ " (244mm)
	24" (610mm)	25 ¹ / ₂ " (702mm)	10 ¹ / ₂ " (267mm)
36" (914mm)	30" (762mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	36" (914mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
	6" (152mm)	27 ⁵ / ₈ " (702mm)	11 ¹ / ₂ " (292mm)
	9" (229mm)	28 ⁵ / ₈ " (727mm)	11 ⁷ / ₈ " (302mm)
	12" (305mm)	29 ³ / ₄ " (756mm)	12 ³ / ₈ " (314mm)
	18" (457mm)	31 ⁷ / ₈ " (810mm)	13 ¹ / ₄ " (337mm)
36" (914mm)	24" (610mm)	34" (864mm)	14 ¹ / ₈ " (359mm)
	30" (762mm)	36 ¹ / ₈ " (918mm)	15" (381mm)
	36" (914mm)	38 ¹ / ₄ " (972mm)	15 ⁷ / ₈ " (403mm)

*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-124F-12-V

30° Horizontal Elbow [3F]



CSA Certified for CSA Systems

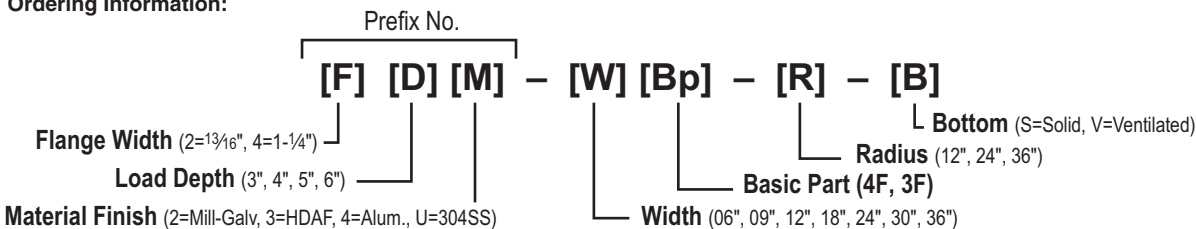
Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	7 ¹ / ₂ " (191mm)	2" (51mm)
	9" (229mm)	8 ¹ / ₄ " (210mm)	2 ¹ / ₄ " (57mm)
	12" (305mm)	9" (229mm)	2 ³ / ₈ " (60mm)
	18" (457mm)	10 ¹ / ₂ " (267mm)	2 ⁷ / ₈ " (73mm)
	24" (610mm)	12" (305mm)	3 ¹ / ₄ " (83mm)
	30" (762mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
24" (610mm)	36" (914mm)	15" (381mm)	4" (102mm)
	6" (152mm)	13 ¹ / ₂ " (343mm)	3 ⁵ / ₈ " (92mm)
	9" (229mm)	14 ¹ / ₄ " (362mm)	3 ⁷ / ₈ " (98mm)
	12" (305mm)	15" (381mm)	4" (102mm)
	18" (457mm)	16 ¹ / ₂ " (419mm)	4 ³ / ₈ " (111mm)
	24" (610mm)	18" (457mm)	4 ⁷ / ₈ " (124mm)
36" (914mm)	30" (762mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	36" (914mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
	6" (152mm)	19 ¹ / ₂ " (495mm)	5 ¹ / ₄ " (133mm)
	9" (229mm)	20 ¹ / ₄ " (514mm)	5 ¹ / ₈ " (140mm)
	12" (305mm)	21" (533mm)	5 ⁵ / ₈ " (143mm)
	18" (457mm)	22 ¹ / ₂ " (572mm)	6" (152mm)
36" (914mm)	24" (610mm)	24" (610mm)	6 ¹ / ₂ " (165mm)
	30" (762mm)	25 ¹ / ₂ " (648mm)	6 ⁷ / ₈ " (175mm)
	36" (914mm)	27" (686mm)	7 ¹ / ₄ " (184mm)

*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-123F-12-V

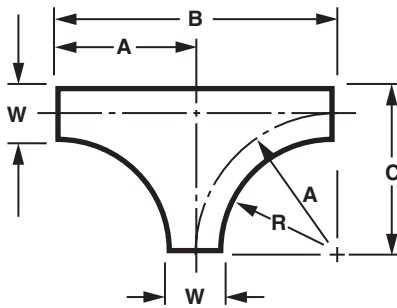
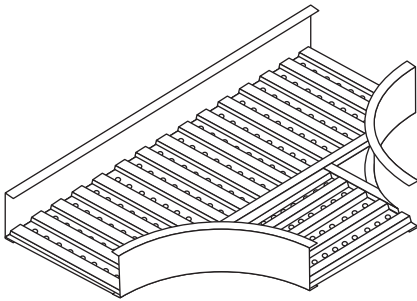
Note: When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:



See Page 167
for Electrical
Grounding Chart

Horizontal Tee [FT]

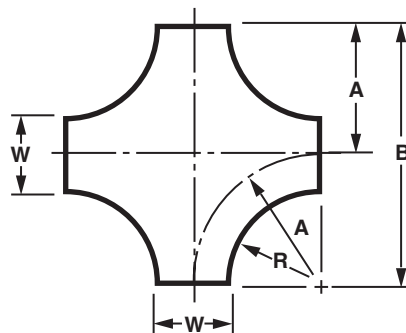
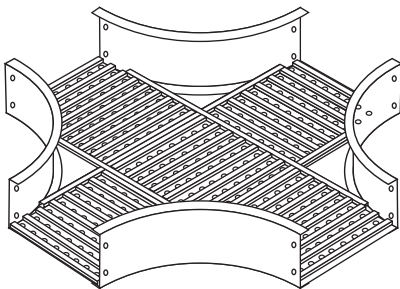


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Radius - R	Width - W	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	6" (152mm)	15" (381mm)	30" (762mm)	18" (457mm)
	9" (229mm)	16½" (419mm)	33" (838mm)	21" (533mm)
	12" (305mm)	18" (457mm)	36" (914mm)	24" (610mm)
	18" (457mm)	21" (533mm)	42" (1067mm)	30" (762mm)
	24" (610mm)	24" (610mm)	48" (1219mm)	36" (914mm)
24" (610mm)	30" (762mm)	27" (686mm)	54" (1372mm)	42" (1067mm)
	36" (914mm)	30" (762mm)	60" (1524mm)	48" (1219mm)
	18" (457mm)	33" (838mm)	66" (1676mm)	42" (1067mm)
	24" (610mm)	36" (914mm)	72" (1829mm)	48" (1219mm)
	30" (762mm)	39" (991mm)	78" (1981mm)	54" (1372mm)
36" (914mm)	36" (914mm)	42" (1067mm)	84" (2134mm)	60" (1524mm)
	6" (152mm)	39" (991mm)	78" (1981mm)	42" (1067mm)
	9" (229mm)	40½" (1029mm)	81" (2057mm)	45" (1143mm)
	12" (305mm)	42" (1067mm)	84" (2134mm)	48" (1219mm)
	18" (457mm)	45" (1143mm)	90" (2286mm)	54" (1372mm)
24" (610mm)	48" (1219mm)	96" (2438mm)	60" (1524mm)	
30" (762mm)	51" (1295mm)	102" (2591mm)	66" (1676mm)	
36" (914mm)	54" (1372mm)	108" (2743mm)	72" (1829mm)	

* Add suffix -V (vented) or -S (solid) to catalog number. - **EXAMPLE:** 234-12FT-12-V

Horizontal Cross [FC]



CSA Certified for CSA Systems

Radius - R	Width - W	"A" Dimension	"B" Dimension
12" (305mm)	6" (152mm)	15" (381mm)	30" (762mm)
	9" (229mm)	16½" (419mm)	33" (838mm)
	12" (305mm)	18" (457mm)	36" (914mm)
	18" (457mm)	21" (533mm)	42" (1067mm)
	24" (610mm)	24" (610mm)	48" (1219mm)
24" (610mm)	30" (762mm)	27" (686mm)	54" (1372mm)
	36" (914mm)	30" (762mm)	60" (1524mm)
	6" (152mm)	27" (686mm)	54" (1372mm)
	9" (229mm)	28½" (724mm)	57" (1448mm)
	12" (305mm)	30" (762mm)	60" (1524mm)
36" (914mm)	18" (457mm)	33" (838mm)	66" (1676mm)
	24" (610mm)	36" (914mm)	72" (1829mm)
	30" (762mm)	39" (991mm)	78" (1981mm)
	36" (914mm)	42" (1067mm)	84" (2134mm)
	6" (152mm)	39" (991mm)	78" (1981mm)
36" (914mm)	9" (229mm)	40½" (1029mm)	81" (2057mm)
	12" (305mm)	42" (1067mm)	84" (2134mm)
	18" (457mm)	45" (1143mm)	90" (2286mm)
	24" (610mm)	48" (1219mm)	96" (2438mm)
	30" (762mm)	51" (1295mm)	102" (2591mm)
36" (914mm)	54" (1372mm)	108" (2743mm)	

* Add suffix -V (vented) or -S (solid) to catalog number. - **EXAMPLE:** 234-12FC-12-V

Ordering Information:

See Page 167
for Electrical
Grounding Chart

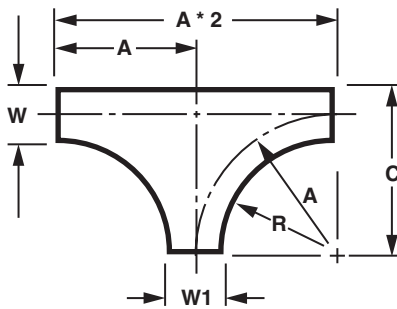
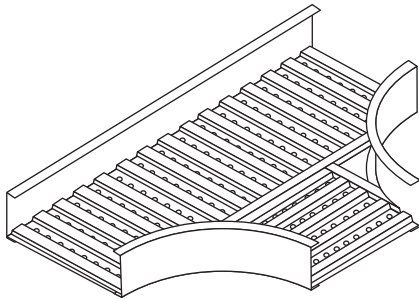
Prefix No.

[F] [D] [M] - [W] [Bp] - [R] - [B]

Flange Width (2=13/16", 4=1-1/4")
Load Depth (3", 4", 5", 6")
Material Finish (2=Mill-Galv, 3=HDAF, 4=Alum., U=304SS)
Width (06", 09", 12", 18", 24", 30", 36")
Radius (12", 24", 36")
Bottom (S=Solid, V=Ventilated)

Basic Part (FT, FC)

Horizontal Tapped Tee [TT]



CSA Certified for CSA Systems

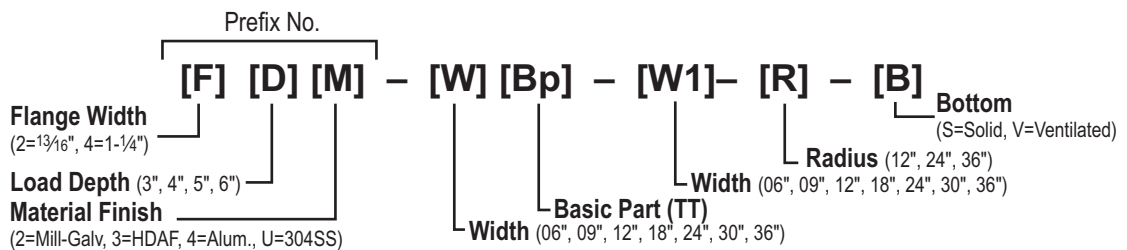
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	48" (1219mm)
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
		9" (229mm)	16 1/2" (419mm)	
		6" (152mm)	15" (381mm)	
	30" (762mm)	24" (610mm)	24" (610mm)	42" (1067mm)
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
	24" (610mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)
		6" (152mm)	15" (381mm)	
		18" (457mm)	21" (533mm)	
12" (305mm)		18" (457mm)		
18" (457mm)	9" (229mm)	16 1/2" (419mm)	30" (762mm)	
	6" (152mm)	15" (381mm)		
	12" (305mm)	18" (457mm)		
12" (305mm)	9" (229mm)	16 1/2" (419mm)	24" (610mm)	
	6" (152mm)	15" (381mm)		
9" (229mm)	6" (152mm)	15" (381mm)	21" (533mm)	

EXAMPLE: 234-12TT-09-12

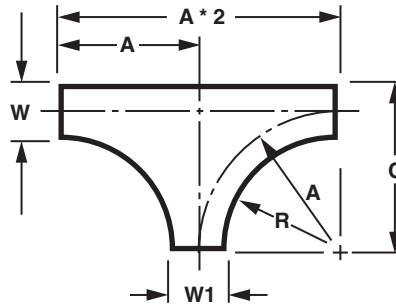
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61
for Electrical
Grounding Chart



Horizontal Tapped Tee [TT] (cont.)



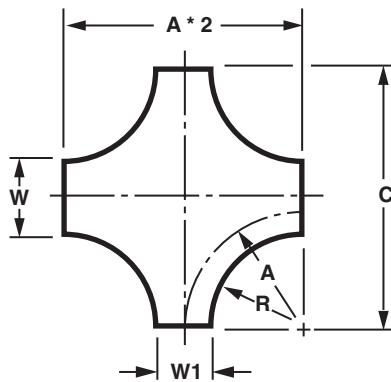
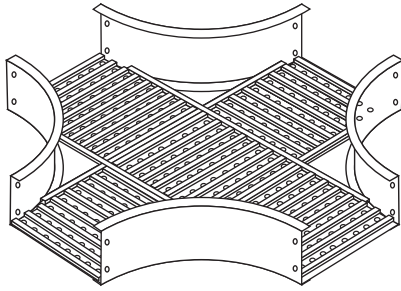
CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	60" (1524mm)	
		24" (610mm)	36" (914mm)		
		18" (457mm)	33" (838mm)		
		12" (305mm)	30" (762mm)		
		9" (229mm)	28 1/2" (724mm)		
		6" (152mm)	27" (686mm)		
	30" (762mm)	24" (610mm)	36" (914mm)	54" (1372mm)	
		18" (457mm)	33" (838mm)		
		12" (305mm)	30" (762mm)		
		9" (229mm)	28 1/2" (724mm)		
		6" (152mm)	27" (686mm)		
		24" (610mm)	18" (457mm)		33" (838mm)
12" (305mm)	30" (762mm)				
9" (229mm)	28 1/2" (724mm)				
6" (152mm)	27" (686mm)				
18" (457mm)	12" (305mm)		30" (762mm)	42" (1067mm)	
	9" (229mm)		28 1/2" (724mm)		
	6" (152mm)	27" (686mm)			
12" (305mm)	9" (229mm)	28 1/2" (724mm)	36" (914mm)		
	6" (152mm)	27" (686mm)			
9" (229mm)	6" (152mm)	27" (686mm)	33" (838mm)		

CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension	
36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	72" (1829mm)	
		24" (610mm)	48" (1219mm)		
		18" (457mm)	45" (1143mm)		
		12" (305mm)	42" (1067mm)		
		9" (229mm)	40 1/2" (1029mm)		
		6" (152mm)	39" (991mm)		
	30" (762mm)	24" (610mm)	48" (1219mm)	66" (1676mm)	
		18" (457mm)	45" (1143mm)		
		12" (305mm)	42" (1067mm)		
		9" (229mm)	40 1/2" (1029mm)		
		6" (152mm)	39" (991mm)		
		24" (610mm)	18" (457mm)		45" (1143mm)
12" (305mm)	42" (1067mm)				
9" (229mm)	40 1/2" (1029mm)				
6" (152mm)	39" (991mm)				
18" (457mm)	12" (305mm)		42" (1067mm)	54" (1372mm)	
	9" (229mm)		40 1/2" (1029mm)		
	6" (152mm)	39" (991mm)			
12" (305mm)	9" (229mm)	40 1/2" (1029mm)	48" (1219mm)		
	6" (152mm)	39" (991mm)			
9" (229mm)	6" (152mm)	39" (991mm)	45" (1143mm)		

Horizontal Tapped Cross [TC]



CSA Certified for CSA Systems

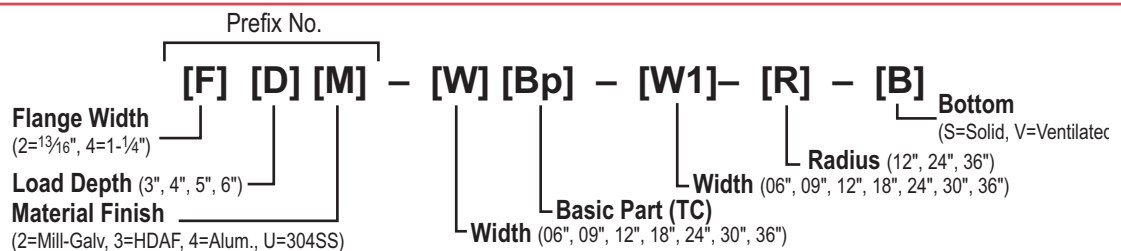
R Radius	W Width	W1 Width	"A" Dimension	"C" Dimension
12" (305mm)	36" (914mm)	30" (762mm)	27" (686mm)	60" (1524mm)
		24" (610mm)	24" (610mm)	
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
		9" (229mm)	16 1/2" (419mm)	
		6" (152mm)	15" (381mm)	
	30" (762mm)	24" (610mm)	24" (610mm)	54" (1372mm)
		18" (457mm)	21" (533mm)	
		12" (305mm)	18" (457mm)	
	24" (610mm)	18" (457mm)	21" (533mm)	48" (1219mm)
		12" (305mm)	18" (457mm)	
		9" (229mm)	16 1/2" (419mm)	
		6" (152mm)	15" (381mm)	
	18" (457mm)	12" (305mm)	18" (457mm)	42" (1067mm)
		9" (229mm)	16 1/2" (419mm)	
		6" (152mm)	15" (381mm)	
	12" (305mm)	9" (229mm)	16 1/2" (419mm)	36" (914mm)
		6" (152mm)	15" (381mm)	
9" (229mm)	6" (152mm)	15" (381mm)	33" (838mm)	

EXAMPLE: 234-36TC-18-12

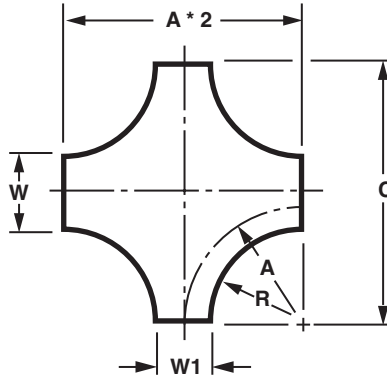
Note: Nominal 9" rung spacing maintained through centerline of all fittings.

Ordering Information:

See Page 61 for Electrical Grounding Chart



Horizontal Tapped Cross [TC] (cont.)



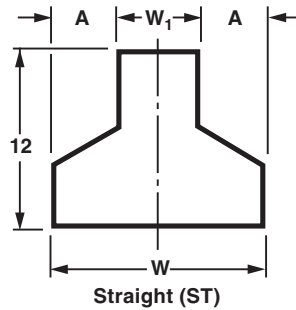
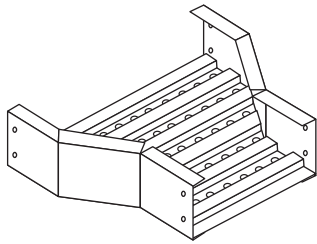
CSA Certified for CSA Systems

R Radius	W Width	W1 Width	"A" Dimension		"C" Dimension
24" (610mm)	36" (914mm)	30" (762mm)	39" (991mm)	84"	(2134mm)
		24" (610mm)	36" (914mm)		
		18" (457mm)	33" (838mm)		
		12" (305mm)	30" (762mm)		
		9" (229mm)	28½" (724mm)		
		6" (152mm)	27" (686mm)		
	30" (762mm)	24" (610mm)	36" (914mm)	78"	(1981mm)
		18" (457mm)	33" (838mm)		
		12" (305mm)	30" (762mm)		
		9" (229mm)	28½" (724mm)		
	24" (610mm)	18" (457mm)	33" (838mm)	72"	(1829mm)
		12" (305mm)	30" (762mm)		
9" (229mm)		28½" (724mm)			
6" (152mm)		27" (686mm)			
18" (457mm)	12" (305mm)	30" (762mm)	66"	(1676mm)	
	9" (229mm)	28½" (724mm)			
	6" (152mm)	27" (686mm)			
12" (305mm)	9" (229mm)	28½" (724mm)	60"	(1524mm)	
	6" (152mm)	27" (686mm)			
9" (229mm)	6" (152mm)	27" (686mm)	57"	(1448mm)	

CSA Certified for CSA Systems

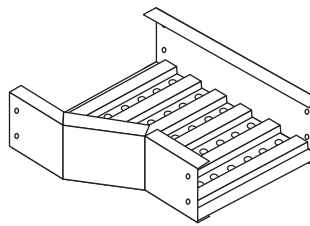
R Radius	W Width	W1 Width	"A" Dimension		"C" Dimension
36" (914mm)	36" (914mm)	30" (762mm)	51" (1295mm)	108"	(2743mm)
		24" (610mm)	48" (1219mm)		
		18" (457mm)	45" (1143mm)		
		12" (305mm)	42" (1067mm)		
		9" (229mm)	40½" (1029mm)		
		6" (152mm)	39" (991mm)		
	30" (762mm)	24" (610mm)	48" (1219mm)	102"	(2591mm)
		18" (457mm)	45" (1143mm)		
		12" (305mm)	42" (1067mm)		
		9" (229mm)	40½" (1029mm)		
	24" (610mm)	18" (457mm)	45" (1143mm)	96"	(2438mm)
		12" (305mm)	42" (1067mm)		
9" (229mm)		40½" (1029mm)			
6" (152mm)		39" (991mm)			
18" (457mm)	12" (305mm)	42" (1067mm)	90"	(2286mm)	
	9" (229mm)	40½" (1029mm)			
	6" (152mm)	39" (991mm)			
12" (305mm)	9" (229mm)	40½" (1029mm)	84"	(2134mm)	
	6" (152mm)	39" (991mm)			
9" (229mm)	6" (152mm)	39" (991mm)	81"	(2057mm)	

Straight Reducer [ST]

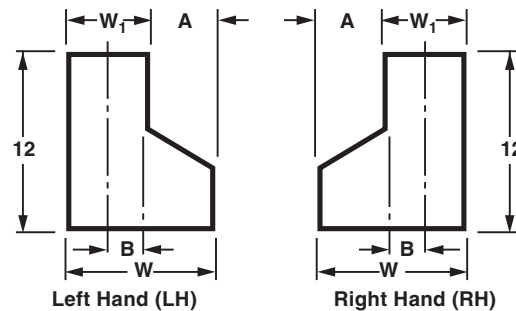
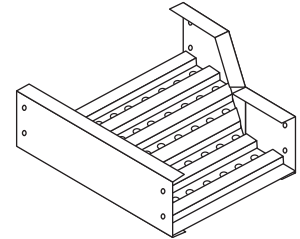


Left Hand [LH] & Right Hand [RH] Reducer

LEFT HAND (LH)



RIGHT HAND (RH)



CSA Certified for CSA Systems

Width - W	Width - W1	"A" Dimension	
36" (914mm)	30" (762mm)	3" (76mm)	3" (76mm)
	24" (610mm)	6" (152mm)	6" (152mm)
	18" (457mm)	9" (229mm)	9" (229mm)
	12" (305mm)	12" (305mm)	12" (305mm)
	9" (229mm)	13 1/2" (343mm)	13 1/2" (343mm)
30" (762mm)	6" (152mm)	15" (381mm)	15" (381mm)
	24" (610mm)	3" (76mm)	3" (76mm)
	18" (457mm)	6" (152mm)	6" (152mm)
24" (610mm)	12" (305mm)	9" (229mm)	9" (229mm)
	9" (229mm)	10 1/2" (267mm)	10 1/2" (267mm)
	6" (152mm)	12" (304mm)	12" (304mm)
18" (457mm)	18" (457mm)	3" (76mm)	3" (76mm)
	12" (305mm)	6" (152mm)	6" (152mm)
	9" (229mm)	7 1/2" (191mm)	7 1/2" (191mm)
12" (305mm)	6" (152mm)	9" (229mm)	9" (229mm)
	12" (305mm)	3" (76mm)	3" (76mm)
	9" (229mm)	4 1/2" (114mm)	4 1/2" (114mm)
9" (229mm)	6" (152mm)	6" (152mm)	6" (152mm)
	9" (229mm)	11 1/2" (38mm)	11 1/2" (38mm)
	6" (152mm)	3" (76mm)	3" (76mm)

*Add suffix -V (vented) or -S (solid) to catalog number.
EXAMPLE: 234-36ST-12-V

CSA Certified for CSA Systems

Width - W	"W1" Dim.	"A" Dim.	"B" Dim.
36" (914mm)	30" (914mm)	6" (152mm)	15" (381mm)
	24" (610mm)	12" (305mm)	12" (305mm)
	18" (457mm)	18" (457mm)	9" (229mm)
	12" (305mm)	24" (610mm)	6" (152mm)
	9" (229mm)	27" (686mm)	4 1/2" (114mm)
	6" (152mm)	30" (762mm)	3" (76mm)
30" (762mm)	24" (610mm)	6" (152mm)	12" (305mm)
	18" (457mm)	12" (305mm)	9" (229mm)
	12" (305mm)	18" (457mm)	6" (152mm)
	9" (229mm)	21" (533mm)	4 1/2" (114mm)
	6" (152mm)	24" (610mm)	3" (76mm)
	24" (610mm)	18" (457mm)	6" (152mm)
12" (305mm)		12" (305mm)	6" (152mm)
9" (229mm)		15" (381mm)	4 1/2" (114mm)
6" (152mm)		18" (457mm)	3" (76mm)
18" (457mm)	12" (305mm)	6" (152mm)	6" (152mm)
	9" (229mm)	9" (229mm)	4 1/2" (114mm)
	6" (152mm)	12" (305mm)	3" (76mm)
12" (305mm)	9" (229mm)	3" (76mm)	4 1/2" (114mm)
	6" (152mm)	6" (152mm)	3" (76mm)
9" (229mm)	6" (152mm)	3" (76mm)	3" (76mm)

*Add suffix -V (vented) or -S (solid) to catalog number.
EXAMPLE: 234-36LH-12-V

Ordering Information:

Prefix No.

[F] [D] [M] - [W] [Bp] - [W₁] - [B]

Flange Width (2=13/16", 4=1-1/4")

Load Depth (3", 4", 5", 6")

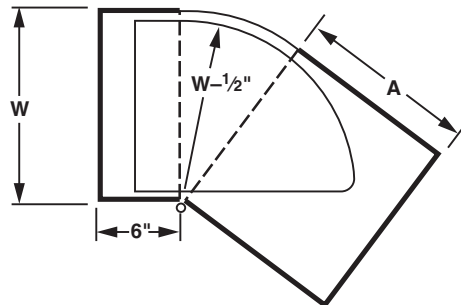
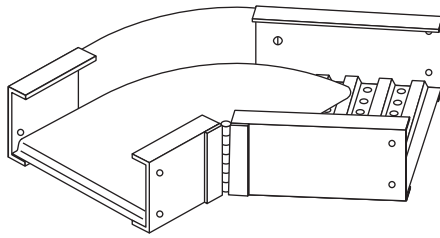
Material Finish (2=Mill-Galv, 3=HDAF, 4=Alum., U=304SS)

Width (06", 09", 12", 18", 24", 30", 36")

Bottom (S=Solid, V=Ventilated)
Reduced Width (06", 09", 12", 18", 24", 30")
Basic Part (ST, LH, RH)

See Page 167
for Electrical
Grounding Chart

Adjustable Elbow [AF]



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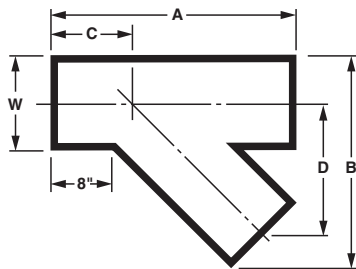
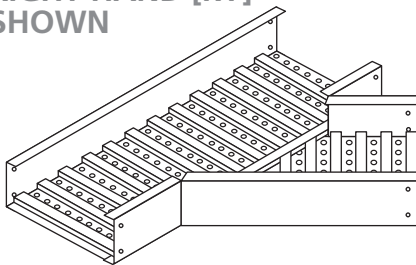
Width - W		"A" Dimension	
6"	(152mm)	8"	(203mm)
9"	(229mm)	11"	(279mm)
12"	(305mm)	14"	(356mm)
18"	(457mm)	20"	(508mm)
24"	(610mm)	26"	(660mm)
30"	(762mm)	32"	(813mm)
36"	(914mm)	38"	(965mm)

Both rails at hinge break to be bonded if fitting is used as equipment grounding conductor. * Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-12AF-V

45° "Y" Branch Left [LY] & Right [RY]

RIGHT HAND [RY] SHOWN



CSA Certified for CSA Systems

Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
6" (152mm)	22 1/2" (571mm)	16 1/4" (413mm)	11 3/8" (289mm)	11 1/8" (283mm)
9" (229mm)	26 3/4" (679mm)	21 3/8" (543mm)	13" (330mm)	13 3/4" (349mm)
12" (305mm)	31" (787mm)	26 1/2" (673mm)	14 3/4" (375mm)	16 1/4" (412mm)
18" (457mm)	39 1/2" (1003mm)	36 3/4" (933mm)	18 1/8" (460mm)	21 3/8" (543mm)
24" (610mm)	48" (1219mm)	47" (1193mm)	21 1/2" (546mm)	26 1/2" (673mm)
30" (762mm)	56 3/8" (1432mm)	57 1/4" (1454mm)	24 3/4" (629mm)	31 5/8" (803mm)
36" (914mm)	65" (1651mm)	67 1/2" (1714mm)	28 1/4" (718mm)	36 3/4" (933mm)

*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-12RY-V

Note: COPE FITTINGS are offered in 12", 24", and 36" radius. When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:

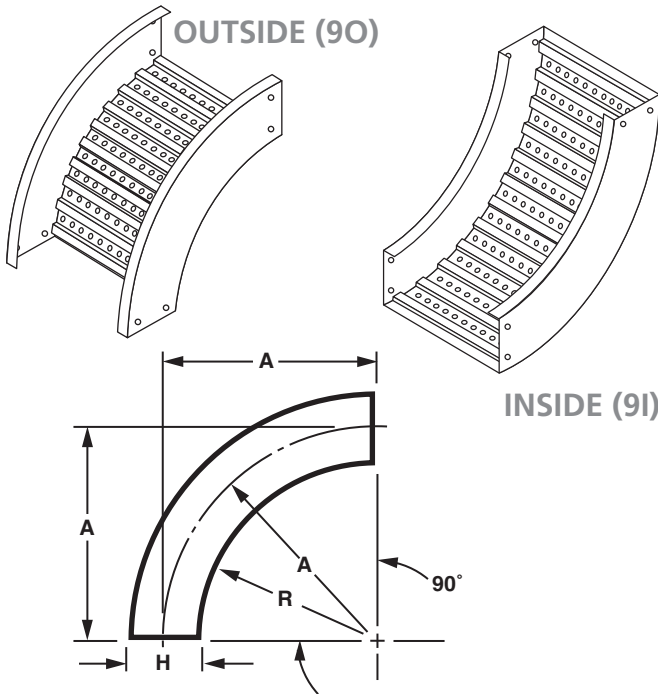
See Page 167 for Electrical Grounding Chart

Prefix No.

[F] [D] [M] - [W] [Bp] - [B]

Flange Width (2=13/16", 4=1-1/4")
Load Depth (3", 4", 5", 6")
Material Finish (2=Mill-Galv, 3=HDAF, 4=Alum., U=304SS)
Bottom (S=Solid, V=Vented)
Basic Part (AF, LY, RY)
Width (06", 09", 12", 18", 24", 30", 36")

90° Vertical Elbow Outside [90] & Inside [91]



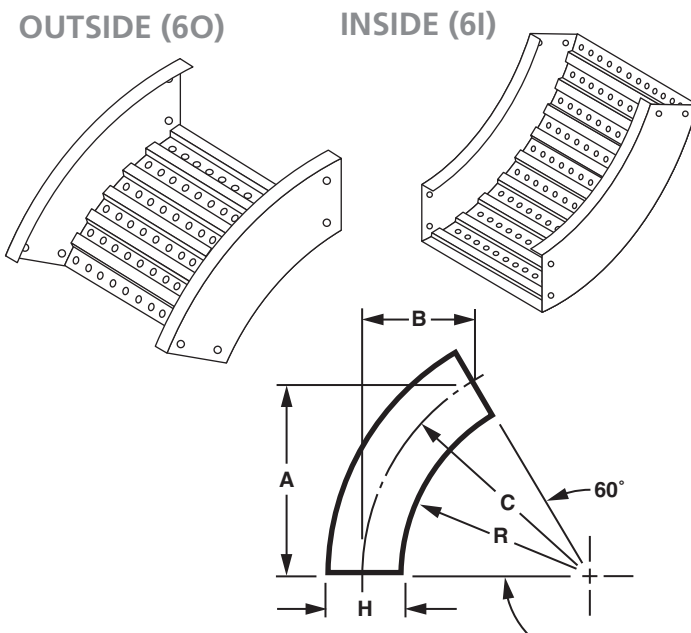
CSA Certified for CSA Systems

Radius - R	"H" Dim.	"A" Dim.
12" (305mm)	3 1/2" (89mm)	13 3/4" (349mm)
	4 1/4" (108mm)	14 1/8" (359mm)
	5 1/4" (133mm)	14 5/8" (372mm)
24" (610mm)	6 1/4" (159mm)	15 1/8" (384mm)
	3 1/2" (89mm)	25 3/4" (654mm)
	4 1/4" (108mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	26 5/8" (676mm)
	6 1/4" (159mm)	27 1/8" (689mm)
	3 1/2" (89mm)	37 3/4" (959mm)
	4 1/4" (108mm)	36 1/8" (969mm)
	5 1/4" (133mm)	36 5/8" (981mm)
	6 1/4" (159mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-1290-12-V

60° Vertical Elbow Outside [60] & Inside [61]



CSA Certified for CSA Systems

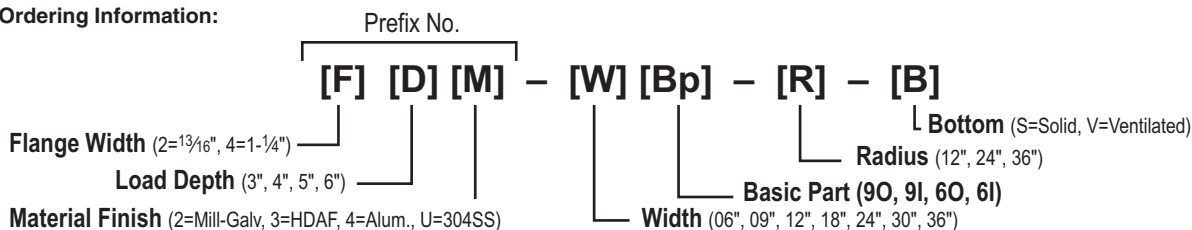
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	11 7/8" (302mm)	6 7/8" (175mm)	13 3/4" (349mm)
	4 1/4" (108mm)	12 1/4" (311mm)	7 1/8" (181mm)	14 1/8" (359mm)
	5 1/4" (133mm)	12 5/8" (321mm)	7 3/8" (187mm)	14 5/8" (372mm)
24" (610mm)	6 1/4" (159mm)	13 1/8" (334mm)	7 5/8" (194mm)	15 1/8" (384mm)
	3 1/2" (89mm)	22 1/4" (565mm)	12 7/8" (327mm)	25 3/4" (654mm)
	4 1/4" (108mm)	22 5/8" (575mm)	13 1/8" (334mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	23 1/8" (588mm)	13 3/8" (340mm)	26 5/8" (676mm)
	6 1/4" (159mm)	23 1/2" (597mm)	13" (330mm)	27 1/8" (689mm)
	3 1/2" (89mm)	32 3/4" (832mm)	18 7/8" (480mm)	37 3/4" (959mm)
	4 1/4" (108mm)	33" (838mm)	19 1/8" (486mm)	38 1/8" (969mm)
	5 1/4" (133mm)	33 1/2" (851mm)	19 3/8" (492mm)	38 5/8" (981mm)
	6 1/4" (159mm)	33 7/8" (861mm)	19 5/8" (499mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number.

EXAMPLE: 234-1260-12-V

Note: COPE FITTINGS are offered in 12", 24" and 36" radius. When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:

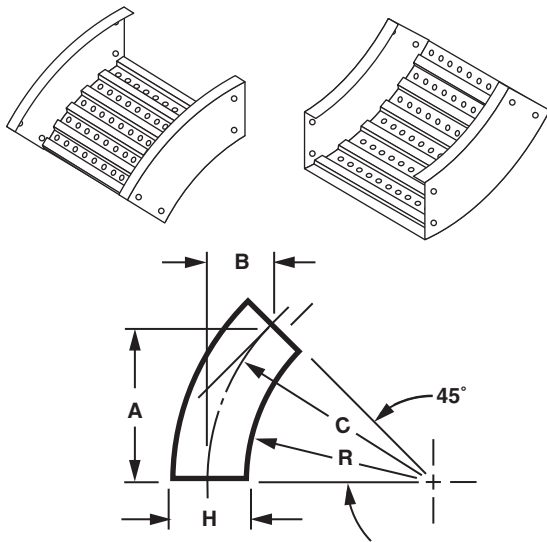


See Page 167
for Electrical
Grounding Chart

45° Vertical Elbow Outside [40] & Inside [41]

OUTSIDE (40)

INSIDE (41)



CSA Certified for CSA Systems

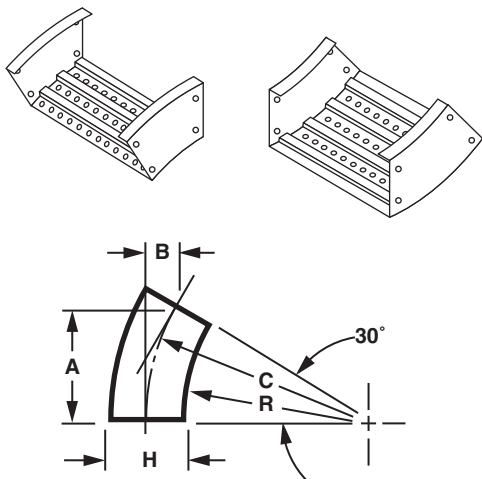
Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	9 3/4" (248mm)	4" (102mm)	13 3/4" (349mm)
	4 1/4" (108mm)	10" (254mm)	4 1/8" (105mm)	14 1/8" (359mm)
	5 1/4" (133mm)	10 3/8" (264mm)	4 1/4" (108mm)	14 5/8" (372mm)
24" (610mm)	6 1/4" (159mm)	10 3/4" (273mm)	4 1/2" (114mm)	15 1/8" (384mm)
	3 1/2" (89mm)	18 1/4" (464mm)	7 1/2" (191mm)	25 3/4" (654mm)
	4 1/4" (108mm)	18 1/2" (470mm)	7 5/8" (194mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	18 7/8" (480mm)	7 7/8" (200mm)	26 5/8" (676mm)
	6 1/4" (159mm)	19 1/4" (489mm)	8" (203mm)	27 1/8" (689mm)
	3 1/2" (89mm)	26 3/4" (679mm)	11 1/8" (283mm)	37 3/4" (959mm)
36" (914mm)	4 1/4" (108mm)	27" (686mm)	11 1/8" (283mm)	38 1/8" (969mm)
	5 1/4" (133mm)	27 3/8" (695mm)	11 3/8" (289mm)	38 5/8" (981mm)
	6 1/4" (159mm)	27 5/8" (702mm)	11 1/2" (292mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number.
EXAMPLE: 234-1241-12-V

30° Vertical Elbow Outside [30] & Inside [31]

OUTSIDE (30)

INSIDE (31)



CSA Certified for CSA Systems

Radius - R	"H" Dim.	"A" Dim.	"B" Dim.	"C" Dim.
12" (305mm)	3 1/2" (89mm)	6 7/8" (175mm)	1 7/8" (48mm)	13 3/4" (349mm)
	4 1/4" (108mm)	7 1/8" (181mm)	1 7/8" (48mm)	14 1/8" (359mm)
	5 1/4" (133mm)	7 3/8" (187mm)	2" (51mm)	14 5/8" (372mm)
24" (610mm)	6 1/4" (159mm)	7 5/8" (194mm)	2" (51mm)	15 1/8" (384mm)
	3 1/2" (89mm)	12 7/8" (327mm)	3 1/2" (89mm)	25 3/4" (654mm)
	4 1/4" (108mm)	13 1/8" (334mm)	3 1/2" (89mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	13 3/8" (340mm)	3 5/8" (92mm)	26 5/8" (676mm)
	6 1/4" (159mm)	13 5/8" (346mm)	3 5/8" (92mm)	27 1/8" (689mm)
	3 1/2" (89mm)	18 7/8" (480mm)	5 1/8" (130mm)	37 3/4" (959mm)
36" (914mm)	4 1/4" (108mm)	19 3/8" (486mm)	5 1/8" (130mm)	38 1/8" (969mm)
	5 1/4" (133mm)	19 3/8" (492mm)	5 1/4" (133mm)	38 5/8" (981mm)
	6 1/4" (159mm)	19 5/8" (499mm)	5 1/4" (133mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number.
EXAMPLE: 234-1231-12-V

Note: When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:

See Page 167
for Electrical
Grounding Chart

Prefix No.

[F] [D] [M] - [W] [Bp] - [R] - [B]

Flange Width (2=1 3/16", 4=1-1/4")

Load Depth (3", 4", 5", 6")

Material Finish (2=Mill-Galv, 3=HDAF, 4=Alum., U=304SS)

Bottom (S=Solid, V=Vented)

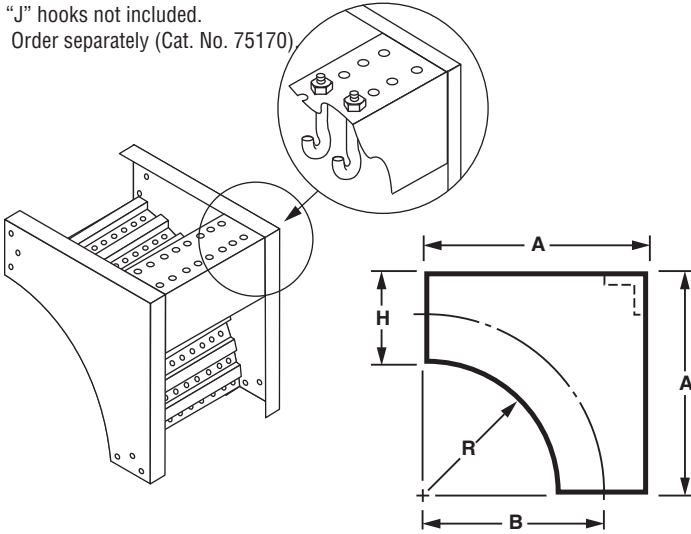
Radius (12", 24", 36")

Basic Part (40, 41, 30, 31)

Width (06", 09", 12", 18", 24", 30", 36")

90° Vertical Cable Support Elbow [SR]

"J" hooks not included.
Order separately (Cat. No. 75170)



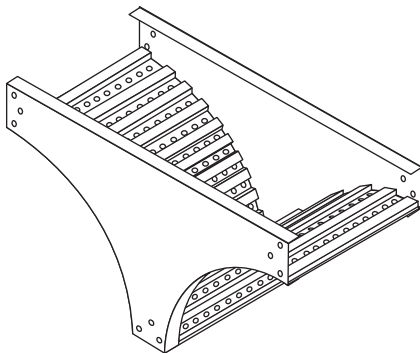
CSA Certified for CSA Systems

Radius-R	"H" Dim.	"A" Dimension	"B" Dimension
12" (305mm)	3 1/2" (89mm)	15 1/2" (394mm)	13 3/4" (349mm)
	4 1/2" (108mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	17 1/4" (438mm)	14 5/8" (371mm)
24" (610mm)	6 1/4" (159mm)	18 1/4" (464mm)	15 1/8" (384mm)
	3 1/2" (89mm)	27 1/2" (699mm)	25 3/4" (654mm)
	4 1/4" (108mm)	28 1/4" (718mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	30 1/4" (768mm)	27 1/8" (689mm)
	3 1/2" (89mm)	39 1/2" (1003mm)	37 3/4" (959mm)
36" (914mm)	4 1/4" (108mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	42 1/4" (1073mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number
EXAMPLE: 234-12SR-12-V

Vertical Tee Down [VT] & Up [OT]

VERTICAL TEE - DOWN (VT)

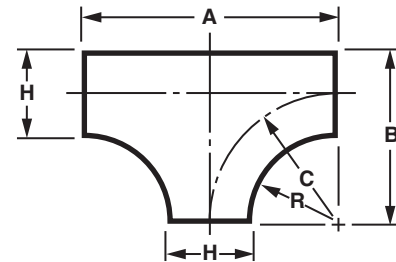
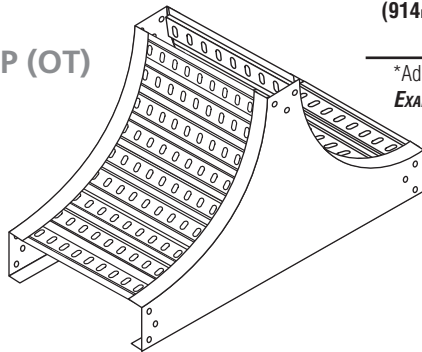


CSA Certified for CSA Systems

Radius-R	"H" Dim.	"A" Dimension	"B" Dimension	"C" Dimension
12" (305mm)	3 1/2" (89mm)	27 1/2" (699mm)	15 1/2" (394mm)	13 3/4" (349mm)
	4 1/4" (108mm)	28 1/4" (718mm)	16 1/4" (413mm)	14 1/8" (359mm)
	5 1/4" (133mm)	29 1/4" (743mm)	17 1/4" (438mm)	14 5/8" (371mm)
24" (610mm)	6 1/4" (159mm)	30 1/4" (768mm)	18 1/4" (464mm)	15 1/8" (384mm)
	3 1/2" (89mm)	51 1/2" (1308mm)	27 1/2" (699mm)	25 3/4" (654mm)
	4 1/4" (108mm)	52 1/4" (1327mm)	28 1/4" (718mm)	26 1/8" (664mm)
36" (914mm)	5 1/4" (133mm)	53 1/4" (1353mm)	29 1/4" (743mm)	26 5/8" (676mm)
	6 1/4" (159mm)	54 1/4" (1378mm)	30 1/4" (768mm)	27 1/8" (689mm)
	3 1/2" (89mm)	75 1/2" (1918mm)	39 1/2" (1003mm)	37 3/4" (959mm)
36" (914mm)	4 1/4" (108mm)	76 1/4" (1937mm)	40 1/4" (1022mm)	38 1/8" (968mm)
	5 1/4" (133mm)	77 1/4" (1962mm)	41 1/4" (1048mm)	38 5/8" (981mm)
	6 1/4" (159mm)	78 1/4" (1988mm)	42 1/4" (1073mm)	39 1/8" (994mm)

*Add suffix -V (vented) or -S (solid) to catalog number.
EXAMPLE: 234-12VT-12-V

VERTICAL TEE - UP (OT)



Note: When small or in-between angles are needed, use Cope's Adjustable Connectors.

Ordering Information:

Prefix No. [F] [D] [M] - [W] [Bp] - [R] - [B]

Flange Width (2=1 3/16", 4=1-1/4")

Load Depth (3", 4", 5", 6")

Material Finish (2=Mill-Galv, 3=HDAF, 4=Alum., U=304SS)

Bottom (S=Solid, V=Ventilated)

Radius (12", 24", 36")

Basic Part (SR, VT, OT)

Width (06", 09", 12", 18", 24", 30", 36")

See Page 167
for Electrical
Grounding Chart

Tray Connectors

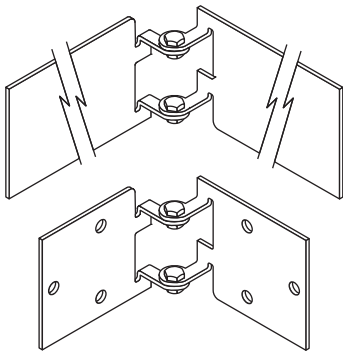
Catalog No.		
Load Depth	Finish	Basic No.
3"	2 (Mill Galv.)	-02RC
4"	3 (HDGAF)	-02CE
5"	4 (Alum.)	-02CV
6"	U (304SS)	-02CH -02CA

EXAMPLE: 34 -02RC for 3" load depth, aluminum, universal curvilinear connector.
Part Nos. CE, CH, and CV to be bonded if used as equipment grounding conductor.

Note: Hole patterns match corresponding tray. 3-hole pattern illustrated. Heavy Duty, Mid Span Splice Plates available upon request.

Horizontal Adjustable Connectors [CH]

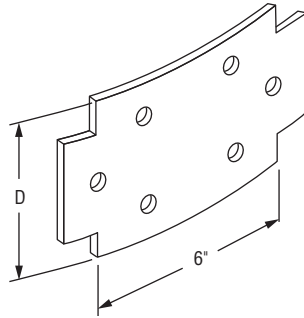
Note: Sold in pairs – inner & outer



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are sold separately.

Universal Curvilinear Connector [RC]

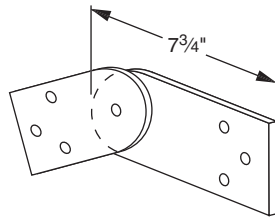
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.

Vertical Adjustable Connectors [CV]

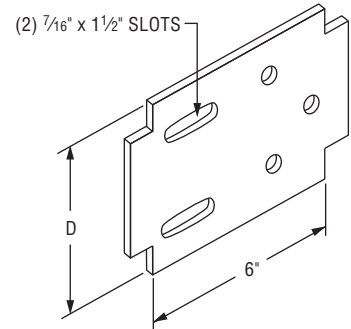
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are sold separately.

Expansion Connector [CE]

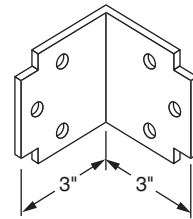
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 cap screws & Nylok nuts furnished and 3/8"-16 spline bolts & flange nuts furnished.
Note: Bonding Jumpers are required and are sold separately.

90° Angle Connector [CA]

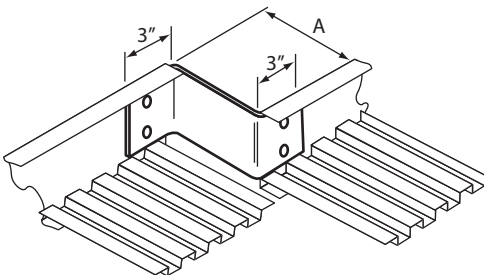
Note: Sold in pairs



11 Gage Steel, 0.125" Aluminum
3/8"-16 spline bolts and flange nuts furnished.

Reducing Connector [CO]

Note: Not sold in pairs



12 Gage Steel, 0.125" Aluminum. 3/8"-16 spline bolts and flange nuts furnished. For offset reductions – use 1 of above with standard connector plate. For straight reductions– use 2 (of 1/2 reduction dimension).

Catalog Number

Load Depth	Finish	Basic No.	"A" Dimension	
3"	2 (Mill Galv.)	-30CO	30"	(762mm)
4"	3 (HDGAF)	-27CO	27"	(686mm)
5"	4 (Alum.)	-24CO	24"	(610mm)
6"	U (304SS)	-21CO	21"	(533mm)
		-18CO	18"	(457mm)
		-15CO	15"	(381mm)
		-13CO	13 1/2"	(343mm)
		-12CO	12"	(305mm)
		-10CO	10 1/2"	(267mm)
		-09CO	9"	(229mm)
		-07CO	7 1/2"	(191mm)
		-06CO	6"	(152mm)
		-04CO	4 1/2"	(114mm)
		-03CO	3"	(76mm)
		-01CO	1 1/2"	(38mm)

EXAMPLE: 34-03CO for 3" load depth, aluminum, 3" Reducer Connector. Typical Use: 9" to 6", or use 2 for 12" to 6", etc.

TROF CABLE TRAY SYSTEM



HARDWARE

MATERIAL/FINISH

Electrogalvanized finish standard. Other finishes available; consult factory. *Use following suffix when applicable - use only where indicated.

No Suffix Electrogalvanized carbon steel only

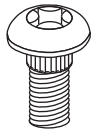
-SS 302/304 Stainless Steel

-S1 316 Stainless Steel (check factory for availability)

Example: PS 6024-SS, 3/8" x 1 1/2" hex head bolt, 304 stainless steel

Connector Hardware Bolt [5003], Nut [5009]

(Case-hardened steel electrogalvanized)



Part No. 5003-1
3/8"-16 x 1" spline bolt



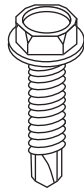
Part No. 5009-1
3/8"-16 hex-flanged nut with serrated washer face.

Cover Screw [EM]

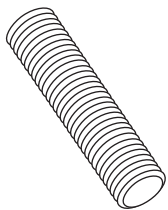
Part No. EM-CC (electrogalv. steel)
Part No. EM-CC-SS (stainless steel)

No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
Indoor: 8 per 12';
Outdoor: 10 per 12'



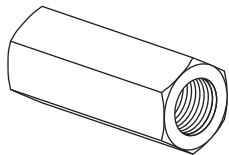
Continuous Threaded Rod [PS 146]



Cat. No.	Size (Diameter x Length)
PS 146*	1/4" x 10'
PS 146*	3/8" x 10'
PS 146*	1/2" x 10'
PS 146*	5/8" x 10'
PS 146*	3/4" x 10'

(Hot Dip Galvanized not available.)

Rod Coupler [PS 135]



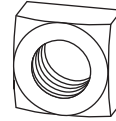
Cat. No.	Size
PS 135*	1/4"
PS 135*	3/8"
PS 135*	1/2"
PS 135*	5/8"
PS 135*	3/4"

Hex Nuts [PS 83]



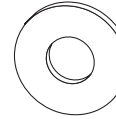
Cat. No.	Size
PS 83*	1/4"
PS 83*	3/8"
PS 83*	1/2"
PS 83*	5/8"
PS 83*	3/4"

Square Nuts [PS 6108]



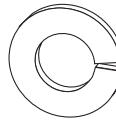
Cat. No.	Size
PS 6108*	1/4"
PS 6108*	3/8"
PS 6108*	1/2"
PS 6108*	5/8"
PS 6108*	3/4"

Flat Washers [PS 209]



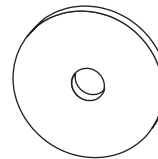
Cat. No.	Size
PS 209*	1/4"
PS 209*	3/8"
PS 209*	1/2"
PS 209*	5/8"
PS 209*	3/4"

Split-Lock Washers [PS 211]



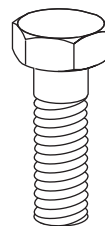
Cat. No.	Size
PS 211*	1/4"
PS 211*	3/8"
PS 211*	1/2"
PS 211*	5/8"
PS 211*	3/4"

Fender Washers [PS 230]

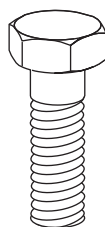


Cat. No.	Size (I.D. x O.D.)
PS 230*	1/4" x 1 1/4" O.D.
PS 230*	3/8" x 1 1/2" O.D.
PS 230*	1/2" x 2" O.D.

Hex Head Cap Screw [PS 6024] / Round Head, Slotted Cap Screw [PS 6072]



Catalog No.
PS 6024

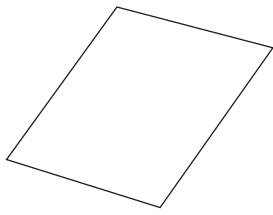


Catalog No.
PS 6072

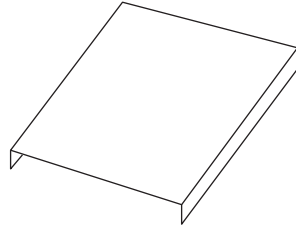
Hex Head Cap Screw	Round Head Cap Screw	Size (Dia. x Len.)
PS 6024*	PS 6072*	1/4" x 1"
PS 6024*	PS 6072*	1/4" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 1"
PS 6024*	PS 6072*	3/8" x 1 1/2"
PS 6024*	PS 6072*	3/8" x 3"
PS 6024*	PS 6072*	1/2" x 1"
PS 6024*	PS 6072*	1/2" x 1 1/2"
PS 6024*	PS 6072*	1/2" x 2"
PS 6024*	PS 6072*	1/2" x 2 1/2"
PS 6024*	PS 6072*	1/2" x 3"
PS 6024*	PS 6072*	1/2" x 3 1/2"
PS 6024*	PS 6072*	5/8" x 1 1/2"
PS 6024*	PS 6072*	5/8" x 2"
PS 6024*	PS 6072*	5/8" x 3"
PS 6024*	PS 6072*	5/8" x 4"
PS 6024*	PS 6072*	3/4" x 2"
PS 6024*	PS 6072*	3/4" x 3"
PS 6024*	PS 6072*	3/4" x 4"

Note: Standard finish is electrogalvanized. Refer to finishes above for specifications of alternate finish or material.

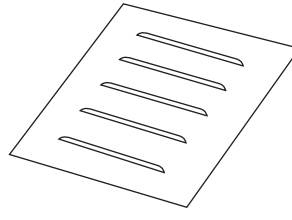
COVERS for straight sections shown. Standard fitting covers are flat solid type (NF). Aluminum covers are fabricated from 0.040" aluminum AA-3150-H14; steel covers are fabricated from 20 gage ASTM A-653-G90 CQ, mill-galvanized steel.



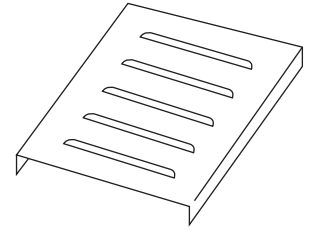
NF – Flat Solid



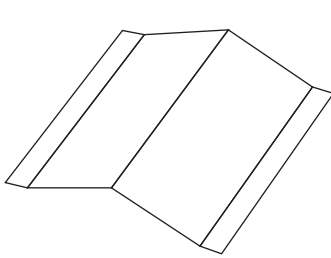
FS – Flat Solid
w/3/8" Flange



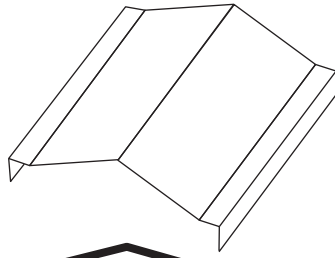
NL – Flat Louvered



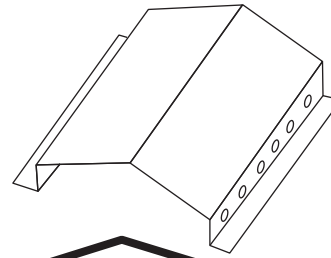
FL – Louvered
w/3/8" Flange



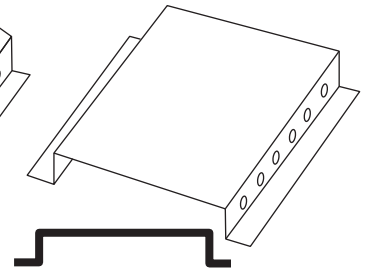
PS – Peaked Solid
(suffix height)



PF – Peaked Flanged Solid
(suffix height)



PV – Peaked Hat Vent
PH – Peaked Hat Solid
(suffix height)



HS – Hat Solid
HV – Hat Vent
(suffix height)

Note: Use EM-CC Cover Screws (see pg. 158) to attach PH, PV, HS & HV covers.
HDGAF straights only available in 6' sections.

Cover Catalog Number – Straight Sections

Type	Finish	Basic No. (Width)	Length	Height*
HS, HV,	2 - Mill Galv.	-06SL = 6" (152mm)	-12'	-2"
FL, FS,	3 - HDGAF	-09SL = 9" (229mm)	-10'	
NF, NL,	4 - Alum.	-12SL = 12" (305mm)	-06'	
PS, PF,	U - 304SS	-18SL = 18" (457mm)		
PH, PV		-24SL = 24" (610mm)		
		-30SL = 30" (762mm)		
		-36SL = 36" (914mm)		

* peak and hat only, 2" height standard. Consult factory for other heights.

EXAMPLE: NL2-09SL-12 is a flat louvered mill-galv. steel cover for a 9" wide mill galvanized TROF 12' long.

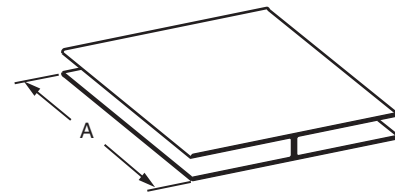
Cover Catalog Number – Fittings

Type	Load Depth	Finish	Width/Basic No.	Radius
NF	3	2 - Mill Galv.	-06 XX**	12"
FS	4	3 - HDGAF	-09 XX**	24"
	5	4 - Alum.	-12 XX**	36"
	6	U - 304SS	-18 XX**	
			-24 XX**	
			-30 XX**	
			-36 XX**	

*Load depth for outside riser or vertical tee only.

**XX from fitting selection page 141.

Joint Plate



Joint plate is black PVC and is offered in 10' lengths to be field cut to desired length, or in precut lengths for specified covers.

JP-120 is joint plate in 10' lengths.

Joint plate for specified covers is specified as follows.

Tray Width	Flange Type
JP-06 = 6" (152mm)	
JP-09 = 9" (229mm)	-2 = 13/16" Flange
JP-12 = 12" (305mm)	-4 = 1 1/4" Flange
JP-18 = 18" (457mm)	-7 = 2" Flange
JP-24 = 24" (610mm)	
JP-30 = 30" (762mm)	
JP-36 = 36" (914mm)	

EXAMPLE: JP-06-2 is a joint plate for 6" wide tray with a 13/16" flange.

TROF CABLE TRAY SYSTEM



COVER ACCESSORIES

Single Side Connector [01CC]



Furnished with 1/4"-28 stainless steel cone point machine screw.

For use with any width tray.

Not sold in pairs.

Suggested spacing:
Indoor Use Only;
4 per 12' section

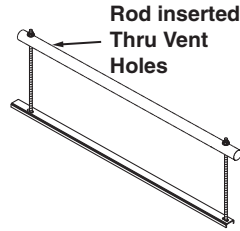
Catalog Number [Basic No -01CC]

Flange	Load Depth	Finish
2 - 1 ³ / ₁₆ "	3	2 - Mill Galv.
4 - 1 ¹ / ₄ "	4	3 - HDGAF
5 - 1 ¹ / ₂ "	5	4 - Alum.
7 - 2"	6	U - 304SS

EXAMPLE: 234-01CC for 3" load depth, aluminum single side connector.

Peak Vent Cover Connector [VC]

Note: For PV Covers

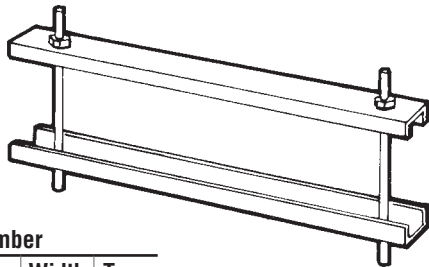


Catalog Number

Flange	Load Depth	Finish	Width	Type
2=1 ³ / ₁₆ "	3	6=Mill Galv.	-06	VC
4=1 ¹ / ₄ "	4	7=HDGAF	-09	
5=1 ¹ / ₂ "	5	8=Alum.	-12	
6=1 ³ / ₄ "	6	T=304SS	-18	
			-24	
			-30	
			-36	

EXAMPLE: 238-12VC for 3" load depth, 1³/₁₆" flange, aluminum, 12" wide, Peak Vented Cover Connector

Double Clamp Connector [(W) DC]



Catalog Number

Load Depth	Finish	Width	Type
3	2 - Mill Galv.	-06	DC
4	3 - HDGAF	-09	
5	4 - Alum.	-12	
6	U - 304SS	-18	
		-24	
		-30	
		-36	

EXAMPLE: 34-12DC for 3" load depth, 1³/₁₆" flange, aluminum, Double Clamp Connector.

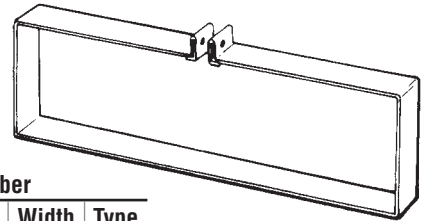
For all covers except hat & peak type. Furnished with:
(2) 1/4"-20 all-thread rods
(4) hex nuts, flat washers and lock washers

Suggested spacing:

Indoor: 2 per 12'
Outdoor: 3 per 12'
High Wind: 5 per 12'

Cover Connector [CC]

Note: For all covers except hat & peak type



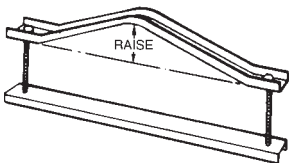
Catalog Number

Load Depth	Finish	Width	Type
3	2 - Mill Galv.	-06	CC
4	3 - HDGAF	-09	
5	4 - Alum.	-12	
6	U - 304SS	-18	
		-24	
		-30	
		-36	

EXAMPLE: 34-12CC for 1³/₁₆" flange, 3" load depth, aluminum, 12" wide connector.

Peak Cover Connector [PC]

Note: For PS & PF Cover



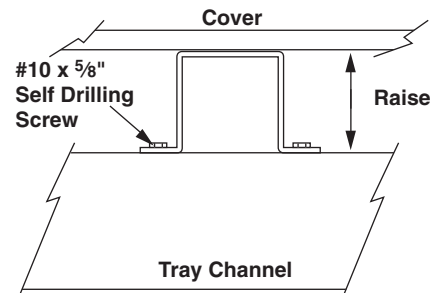
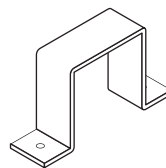
Catalog Number

Load Depth	Finish	Width	Type	Raise (in)*
3	2 - Mill Galv.	-06	PC	-2
4	3 - HDGAF	-09		
5	4 - Alum.	-12		
6	U - 304SS	-18		
		-24		
		-30		
		-36		

*2" standard raise. Consult factory for other peak heights.

EXAMPLE: 34-12-VC-3 for 3" load depth, aluminum, 12" wide, Peak Cover Connector (vented cover) with 2" peak.

Elevated Cover Connectors [EM-CC]



Catalog Number

Finish	Type	Height*
2 - Mill Galv.	EM-CC	- Raise* (in.)
3 - HDGAF		
4 - Alum.		
U - 304SS		

*1", 2" or 3" standard.

EXAMPLE: 3-EM-CC-2 for hot dipped galvanized, Elevated Cover Connector with a 2" raise.

Includes:

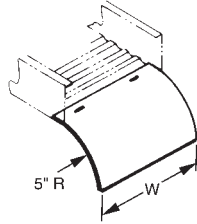
(3) #10 x 5/8" Self drilling screws.

Suggested spacing:

Indoor: 3/Side (6 tot.) per 12';

Drop Out [DO]

14 Gage Steel, .080" Aluminum
NOTE: (2) #10 x 5/8" self tapping screws furnished.

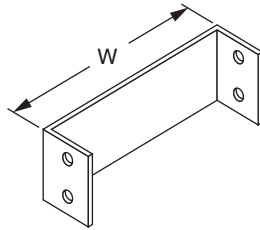


Catalog Number	
Basic Finish	Width
2 (Mill Galv.)	-06DO = 6" (152mm)
3 (HDGAF)	-09DO = 9" (229mm)
4 (Alum.)	-12DO = 12" (305mm)
U (304SS)	-18DO = 18" (457mm)
	-24DO = 24" (610mm)
	-30DO = 30" (762mm)
	-36DO = 36" (914mm)

EXAMPLE: 4-12DO for aluminum, 12" wide, Drop Out.

Blind End [BE]

22 Gage Steel, .040" Aluminum
Note: 3/8"-16 spline bolts and flange nuts furnished.

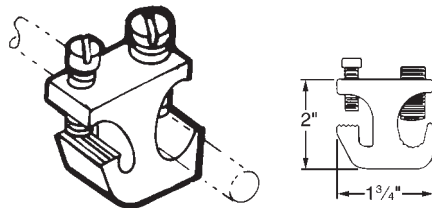


Catalog Number		
Load Depth	Finish	Width
3	2 (Mill Galv.)	-06BE = 6" (152mm)
4	3 (HDGAF)	-09BE = 9" (229mm)
5	4 (Alum.)	-12BE = 12" (305mm)
6	U (304SS)	-18BE = 18" (457mm)
		-24BE = 24" (610mm)
		-30BE = 30" (762mm)
		-36BE = 36" (914mm)

EXAMPLE: 34-12BE for 3" load depth, aluminum, 12" wide Blind End.

Cable Tray Ground Clamp [9156]

Extruded Alum. with Electro-Galvanized Steel Hex Head Screws.
 Capacity: #6 AWG to 250 kcmil

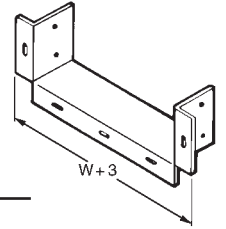


UL Listed E-24264

Certified File No. LR 9795

Box Connector [CB]

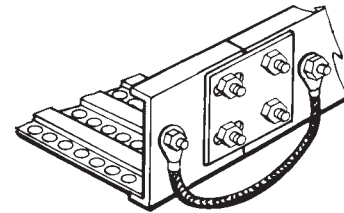
14 Gage Steel
 .080" Aluminum
NOTE: 1/4"-20 carriage bolts, flat washers, hex nuts furnished.



Catalog Number		
Load Depth	Finish	Width
3	2 - (Mill Galv.)	-06CB = 6" (152mm)
4	3 - (HDGAF)	-09CB = 9" (229mm)
5	4 - (Alum.)	-12CB = 12" (305mm)
6	U - (304SS)	-18CB = 18" (457mm)
		-24CB = 24" (610mm)
		-30CB = 30" (762mm)
		-36CB = 36" (914mm)

EXAMPLE: 34-12CB for 3" load depth, aluminum, 12" wide, Box Connector.

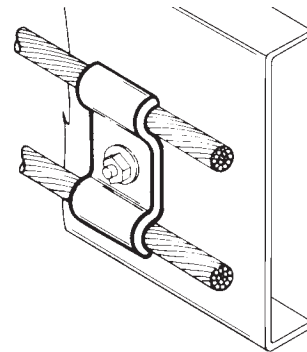
Bonding Jumper [CBJ]



Catalog No.	Dimensional Data	Amperes as Equipment Ground
CBJ-C	AWG 1/0 copper wire 15 1/2" long overall	800 amperes
CBJ-4C	AWG 4/0 copper wire 15 1/2" long overall	1,600 amperes
CBJ-250C	250 MCM copper wire 15 1/2" long overall	2,000 amperes

NOTE:
 No hardware supplied
 For hardware kit add -HDW:
 Ex: CBJ-C-HDW includes
 2ea CBJ-C
 4ea 5003-1
 4ea 5009-1

Ground Cable Retainer Clamp



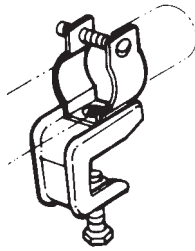
Catalog No.	Capacity	Metal & Finish	Dimensions
9056-EP	1/0 2/0 3/0	Electro-Galv. Steel	1" w x 2" long
9057-EP	4/0 250 MCM		1" w x 2 3/8" long
9056-SS	1/0 2/0 3/0	Stainless Steel	1" w x 2" long
9057-SS	4/0 250 MCM		1" w x 2 3/8" long

TROF CABLE TRAY SYSTEM



ACCESSORIES

Conduit Clamp Bracket

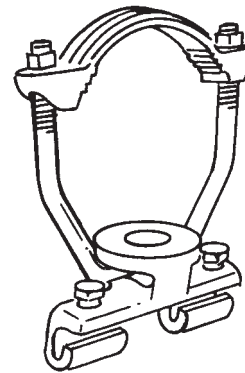


Catalog No.	Size Rigid	Size EMT
CCB-050	3/8" to 1/2"	1/2"
CCB-075	3/4"	3/4"
CCB-100	1"	1"
CCB-125	-	1 1/4"
CCB-150	1 1/4"	1 1/2"
CCB-200	2"	2"

Conduit-to-Cable Tray Clamp - Swivel Type

Malleable iron hub and steel "U" bolt.
For connecting and grounding rigid conduit to tray at any angle within 90° arc.
U.L. listed as a grounding means.

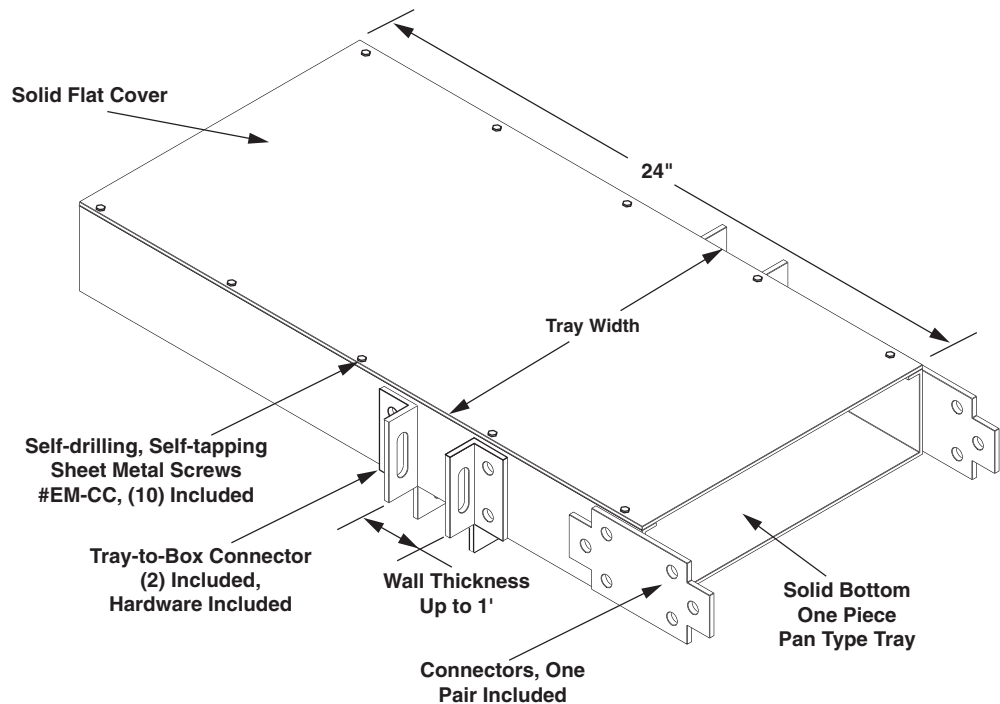
Catalog No.	Size	Std. Pkg.
TB6209	1/2"-3/4"	10
TB6211	1"-1 1/4"	10
TB6214	1 1/2"-2"	5
TB6216	2 1/2"-3"	5
TB6218	3 1/2"-4"	2



Wall Penetrating Sleeve Assembly [SS89042W*]

Note: W = Tray Width
* = Fitting 3-Digit Prefix

Note: Standard penetration sleeves are manufactured from mill galvanized steel. Aluminum sleeves are available upon request.

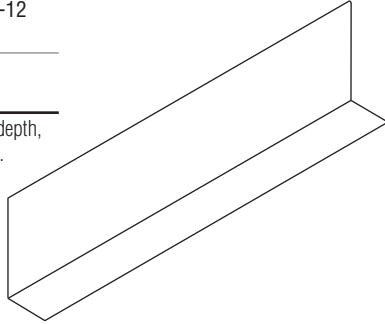


Universal Aluminum Barrier Strip - Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. - 12' Length
3	A (Alum.)	-01SB-12
4		
5		
6		

EXAMPLE: 3A-01SB-12 for 3" load depth, aluminum straight barrier, 12' long.

Furnished with 8 self tapping screws.



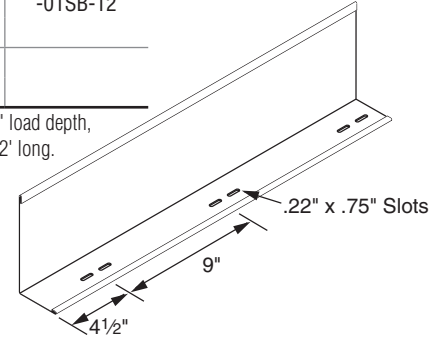
Barrier Strip - Straight Section [SB]

Catalog Number		
Load Depth	Finish	Basic No. - Length
3	2 (Mill Galv.)	-01SB-12
4	3 (HDGAF)	
5	4 (Alum.) *	
6	U (304 SS)	

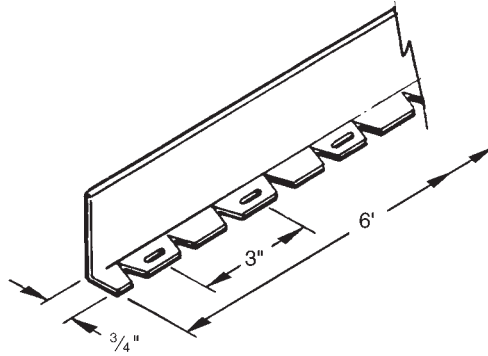
EXAMPLE: 34-01SB-12 for 3" load depth, aluminum straight barrier, 12' long.

* Long lead time item - See Universal aluminum barrier strip to the left

Furnished with 8 self tapping screws.



Barrier Strip - Horizontal Fitting [FB]

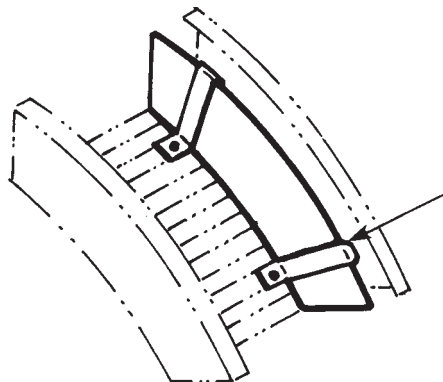


Catalog Number		
Load Depth	Finish	Basic No. - Length
3	2 (Mill Galv.)	-01FB-06
4	3 (HDGAF)	
5	4 (Alum.)	
6	U (304 SS)	

EXAMPLE: 34-01FB-06 for 3" load depth, aluminum fitting barrier, 6' long. Furnished with 4 self tapping screws.

Barrier Strip Vertical Elbow Outside [OB] & Inside [IB]

(OB Vert. Elbow outside shown).

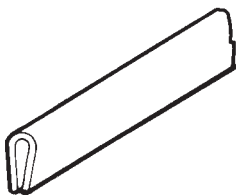


Furnished with sufficient clamp assemblies for installation. Additional clamp assemblies may be ordered separately.

Catalog Number				
Load Depth	Finish	Bend (deg.)	Basic No.	Radius
3	2 (Mill Galv.)	90°	OB = Outside	12" (305mm)
4	3 (HDGAF)	60°	IB = Inside	24" (610mm)
5	4 (Alum.)	45°		36" (914mm)
6	U (304 SS)	30°		

EXAMPLE: 34-90OB-12 for 3" load depth, aluminum 90° outside vertical barrier with 12" radius.

Nylon Barrier Splice & Protector [BSP-L]

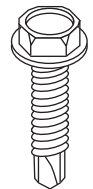


Catalog Number	
Prefix	Length (L)
	-5 (5' Splice)
BSP	-144 (144' Protector)
	-1200 (100' Roll)

EXAMPLE: BSP-1200 for 100' roll

Cover Screw

Part No. EM-CC (electro galv. steel)
Part No. EM-CC-SS (stainless steel)



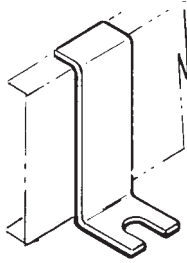
No. 10 x 5/8" long, self drilling-self tapping hex head plated steel screw.

Suggested spacing:
Indoor: 8 per 12';
Outdoor: 10 per 12'

ACCESSORIES

Hold-Down Clamp & Expansion Guide

(For expansion guide clamp, add suffix "EX" to catalog number.)



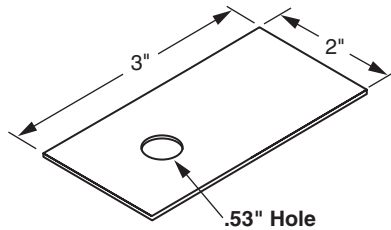
Catalog Number	
Load Depth	Basic No.
3	-9039 (Aluminum)
4	-9040 (ElectroGalv. Steel)
5	-9041 (HDGAF)
6	-9042 (316SS)

EXAMPLE: 3-9039-EX for 3" load depth, expansion guide.
 Hardware purchased separately to suit support system.
 Complete Kit add "-HDW" to Part No. Above
 Hardware Kit List:
 (2) Hold-Down Clamps
 (2) 1/2" - 13 x 1 1/4" Cap Screw
 (2) 1/2" Flat Washer
 (2) Clamping Nut (Strut Nut)

Isolation Pad [PVC-PAD]

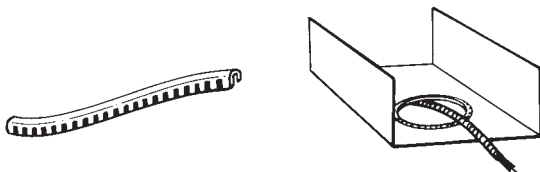
The Isolation pad provides protection from galvanic corrosion when Aluminum tray is mounted on steel supports.

The PVC-PAD is a 2"x3" plain isolation pad with no hole.



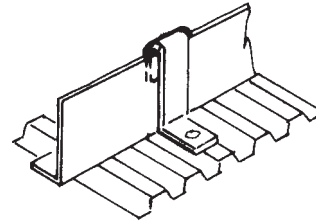
Note: For use with the 9039 series of Hold-Down Clamp & Expansion Guide.
 Hardware purchased separately

Nylon Dropout Grommet [DOG-1]



Use at cable dropouts, or thru vent holes.
 Furnished in 12' lengths. Cut to length in field.

Barrier Strip Clamp [50172] (optional)

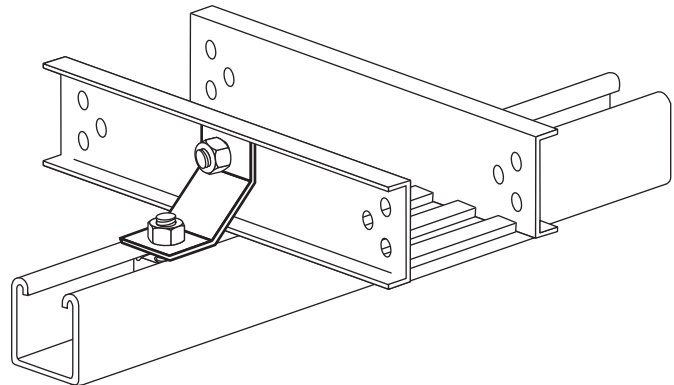


No. 10 bolt, nut, washer and lock washer furnished.

Catalog Number		
Load Depth	Finish	Basic Number
3	2 (Mill Galv.)	-50172
4	3 (HDGAF)	
5	4 (Alum.)	
6	U (304 SS)	

EXAMPLE: 34-5072 for 3" load depth, aluminum clamp.

Seismic Hold-Down [9132]



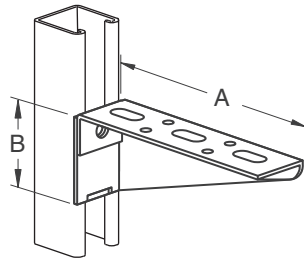
Catalog No.	Material
9132	Mill Galvanized
9133	Stainless Steel

Hardware purchased separately to suit support system.

Note: For seismic applications or other bolted connections is preferred.

Gusset-Type Supports

For use with all types of Cope Ladder and Trof systems. Finish is electro-galvanized. Order hardware separately.

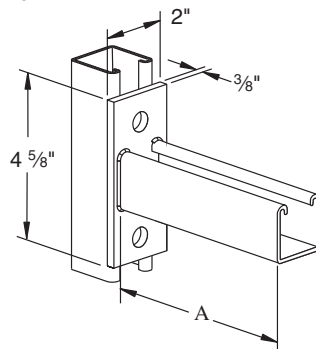


Catalog No.	Ladder Width	Dimension		Uniform-Load Rating
		A	B	
PS 838R-6	-	6"	1 ⁵ / ₁₆ "	275 lbs.
PS 838R-8	-	8"	2 ⁷ / ₁₆ "	275 lbs.
PS 838R-10	-	10"	2 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-12	6"	12"	3 ⁷ / ₁₆ "	275 lbs.
PS 838R-16	9"	16"	4 ⁷ / ₁₆ "	275 lbs.
PS 838R-18	12"	18"	4 ¹⁵ / ₁₆ "	275 lbs.
PS 838R-24	18"	24"	6 ⁷ / ₁₆ "	275 lbs.
PS 838R-30	24"	30"	7 ¹⁵ / ₁₆ "	275 lbs.

Channel-Type Supports

For use with all types of Cope Ladder and Trof systems. Finish is electro-galvanized. Order hardware separately.

STANDARD DUTY

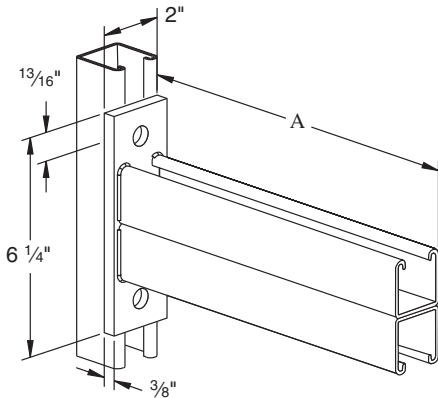


Standard Duty for Lighter Loads.

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 651-6	-	6"	1,200 lbs.
PS 651-12	6"	12"	600 lbs.
PS 651-15	9"	15"	480 lbs.
PS 651-18	12"	18"	400 lbs.
PS 651-24	18"	24"	300 lbs.
PS 651-30	24"	30"	240 lbs.

* Mounted on 12 Ga. Channel.

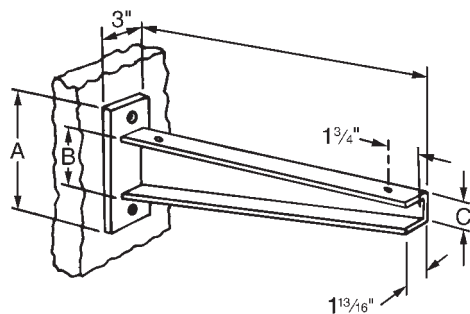
HEAVY DUTY



Heavy Duty for Heavier Loads

Catalog No.	Ladder Width	Dimension A	Uniform-Load Rating*
PS 809-12	6"	12"	2,000 lbs.
PS 809-15	9"	15"	1,600 lbs.
PS 809-18	12"	18"	1,300 lbs.
PS 809-24	18"	24"	1,000 lbs.
PS 809-30	24"	30"	800 lbs.
PS 809-36	30"	36"	660 lbs.
PS 809-42	36"	42"	570 lbs.

* Mounted on 12 Ga. Channel.



Catalog No.	Trof Width	Length "L"	Dimensions			End-Load Rating*
			"A"	"B"	"C"	
9037-12	6"	12 ¹ / ₄ "	10"	6"	2"	2000 lbs.
9037-18	12"	18 ¹ / ₄ "	11"	7"	2 ¹ / ₂ "	2000 lbs.
9037-24	18"	24 ¹ / ₄ "	11"	7"	2 ¹ / ₂ "	1600 lbs.
9037-30	24"	30 ¹ / ₄ "	12"	8"	4"	1300 lbs.
9037-36	30"	36 ¹ / ₄ "	12"	8"	4"	1100 lbs.
9037-42	36"	42 ¹ / ₄ "	12"	8"	4"	900 lbs.

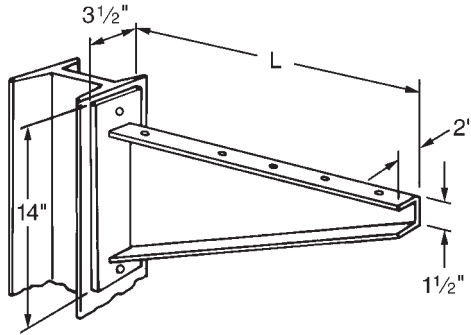
*Uniform load rating is normally twice the end-load rating. Finish is hot-dip galvanized after fabrication. Order hardware separately.

TROF CABLE TRAY SYSTEM



TRAY HANGER & SUPPORTS

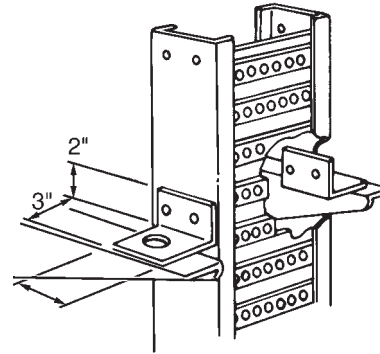
Structural Support Bracket



Catalog No.	Trof Width	Length "L"	End-Load Rating*
9036-31	24"	31 1/4"	2000 lbs.
9036-37	30"	37 1/4"	1800 lbs.
9036-45	36"	45 1/4"	1500 lbs.

*Uniform load rating is normally twice the end-load rating.
 For use with Cope Trof 24" or wider. May be welded or bolted to building steel.
 Finish is hot-dip galvanized after fabrication.
 Order hardware separately.

Vertical Supports



Cat. No.	For Use With
9045	3 1/4" Overall Height Side Members
9043-37	4 1/4" Overall Height Side Members
9043	5 1/4" Overall Height Side Members
9025-98	6 1/4" & 7 1/4" Overall Height Side Members

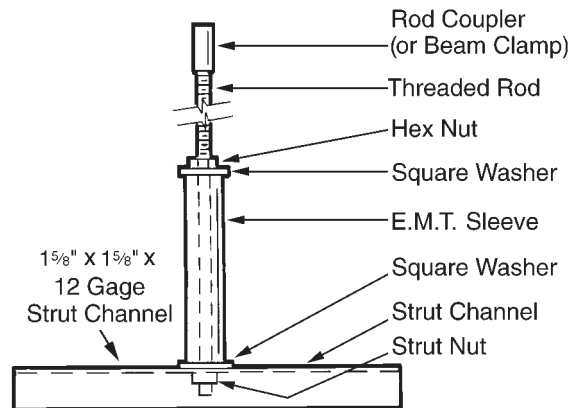
Tray Supports can be bolted anywhere along the straight runs. They can be bolted directly onto the coupler plates at splices of straight runs and riser fittings, or they can be bolted at any place in the run by field-drilling side rails. TROF supports are used with either 3/8" or 1/2" hanger rods.
 Finish is electrogalvanized.

Single Rod Hanger Support

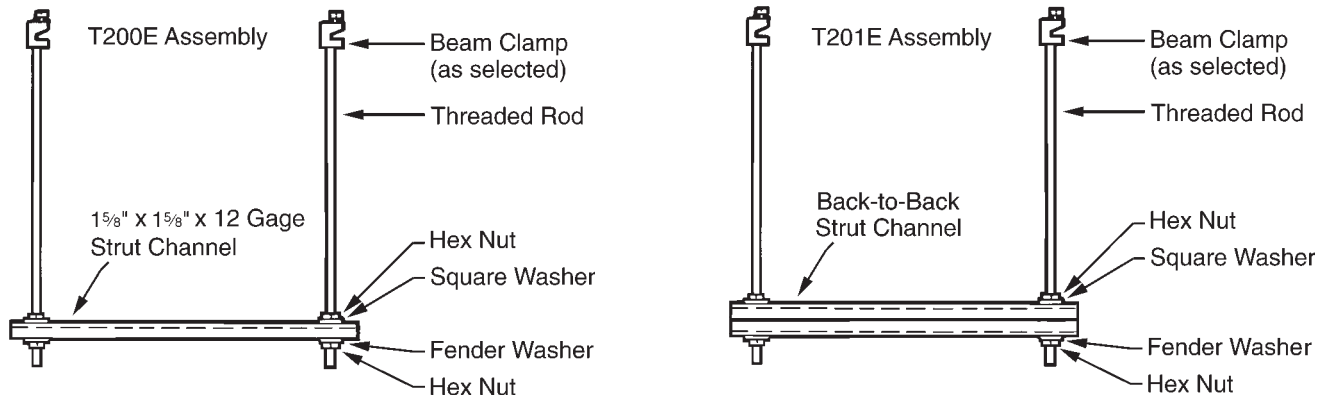
Assy. Type	Channel Length*	Channel Finish**	Catalog Number		Beam Clamp
			Rod Diameter	Rod Length	
P200	14" (356mm)	GV (Pre-Galv)	38=3/8" (9.53mm)	000 - No Rod	A - Bridgeport
	17" (432mm)		12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	20" (508mm)	HG (Hot Dipped Galv)		072 - 72" (1828mm)	O - No Clamp
	26" (661mm)			120 - 120" (3048mm)	R - Rod Coupler
	32" (813mm)			144 - 144" (3658mm)	S - Special
	38" (966mm)				
	44" (1118mm)				

EXAMPLE:
 P20020GV12036B is a Single 20" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

NOTE:
 *Order channel length 8" longer than tray width.
 For example, 44" channel for 36" tray.
 ** Other channel types and finishes available upon request. Contact factory.
 To order hardware only:
 3/8" - PGV380000
 1/2" - PGV120000



Trapeze Hanger Support



Catalog Number

Assy. Type	Channel Length*	Channel Finish**	Rod Diameter	Rod Length	Beam Clamp
T200E	16" (407mm)	GV (Pre-Galv)	3/8" (9.53mm)	000 - No Rod	A - PS 85
T201E	19" (483mm)	HG (Hot Dipped Galv)	12=1/2" (12.7mm)	036 - 36" (914mm)	B - P2622
	22" (559mm)			072 - 72" (1828mm)	O - No Clamp
	28" (712mm)			120 - 120" (3048mm)	R - Rod Coupler
	34" (864mm)			144 - 144" (3658mm)	S - Special
	40" (1017mm)				
	46" (1169mm)				

EXAMPLE: T200E22GV12036B is a Single 22" pre-galvanized channel with 1/2" x 36" drop rod and P2622 clamp.

NOTE: *Order channel length 10" longer than tray width. For example, 46" channel for 36" tray.

** Other channel types and finishes available upon request. Contact factory.

To order hardware only:
 3/8" - PGV380000
 1/2" - PGV120000

Electrical Grounding Chart

Table 1 below provides the Minimum Cross Sectional area for two side rails. Using the Fitting Prefix Number (244), the proper value is determined by the Material (column 3), the Flange Width (column 1) and Load Depth (column 2). Locate the line containing the Load Depth (column 1) and follow it to the right to the appropriate Flange Width and Material.

Find that value in Table 2, follow it to the right to the Material column to determine the Maximum Ground Fault Amperage.

TABLE 1

Fitting Prefix Number			Min. X-Sect for 2 Rails (NEC Table 392.7B)			
			Aluminum		Steel	
			1 3/16" Flange	1 1/4" Flange	1 3/16" Flange	1 1/4" Flange
Flange	Load Depth	Material	X-Sect Area	X-Sect Area	X-Sect Area	X-Sect Area
2 - 1 3/16"	3"	2 - Mill Gal	0.60	-	0.40	-
4 - 1 1/4"	4"	3 - HDGAF	0.60	0.60	0.40	0.70
	5"	4 - Alum.	0.60	1.00	0.70	0.70
	6"		0.60	1.00	0.70	1.00

TABLE 2

X-Sect Area	Maximum Ground Fault Amperage (in Amps)	
	Material	
	Aluminum	Steel
.40 sq in	-	100
.60 sq in	1000	-
.70 sq in	-	200
1.00 sq in	1200	400

For Example:

If the fitting prefix is 244, the Flange is 1 3/16", the Load Depth is 4", and the Material is Aluminum. The Minimum Cross Sectional Area (X-Sect Area) is 0.60 sq.in. The Amperage is 1000.

Typical Specifications

By Specifying the NEMA class designation, you will use the simplest, clearest, and most complete method of specification available and automatically incorporate support span in feet, working (allowable) load in pounds per linear foot, a safety factor or 1.5, a concentrated load if present; and, all other design, manufacturing and test standards including electrical continuity.

All you need to add is inside depth, desired radius of fittings (to protect from cable damage), metal and finish. You can add accessory information pursuant to your project. Here is a typical specification for an outdoor tray system where the working (allowable) load has been determined to be approximately 75 pounds per foot on support spans of 12'-0"

SPECIFICATION - ALUMINUM COPE TROF

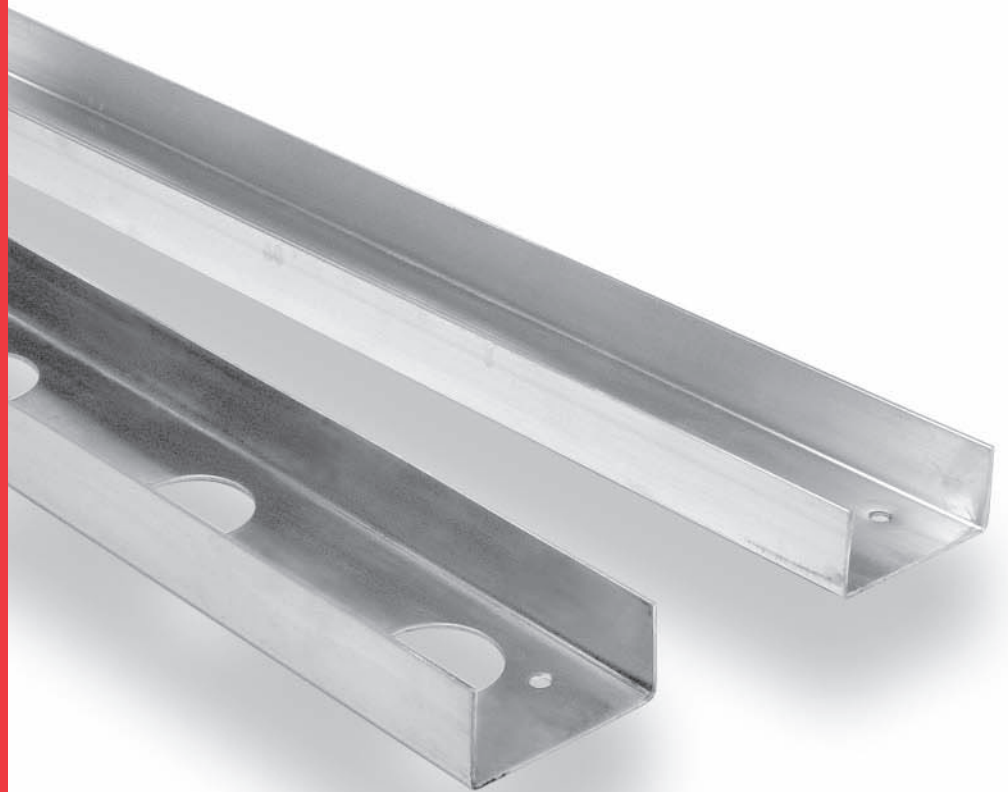
Cable Trof type tray shall be manufactured by a company regularly engaged in the manufacture of metal cable trays and shall be a member of NEMA. Trays shall conform to NEMA Metal Cable Tray Standard Publication VE-1 (latest issue).

1. Cable Trof shall be NEMA Classification 12B of the widths indicated.
2. Material shall be aluminum alloy with side rails of 6063 and bottoms of 5052 alloy.
3. Finish shall be natural.
4. Inside load depth to be NEMA Standard 3".
5. Fittings shall be 12" radius for control cables and 24" radius for power cables. (This must be commensurate with the cable manufacturer's recommended minimum bending radius.)
6. All top level trays in stacks and single runs to have raised peaked aluminum ventilated covers with heavy duty hold down clamps every 3'-0".
7. Install expansion connectors, expansion guides, and hold down clamps per NEMA Standard VE-1.
8. Where slopes or horizontal bends of trays are not at the Standard NEMA angles use adjustable connectors. If the angle is too great for cable bending radius, use combinations of fitting and adjustable connectors.
9. Separate all cables of different voltages in the same tray using the manufacturer's standard barriers and barrier hold down system.
10. The cable Trof system will be used as an equipment grounding conductor.
11. To save space, fittings shall have no tangents. To facilitate field installation, use one pair of universal type connector plates for rigid joints.
12. Cable Trof shall be three (3) piece construction with corrugated bottoms having 1" wide ribs on 2" centers arc welded to 3½", high side rails. Ventilating holes, 1½" diameter on 1" centers, shall be provided across valleys of the corrugations. Welds shall be MIG-arc type with approximately ½", diameter fused zone for rigidity to resist the rigors of shipping, installation, and service.
13. Trays shall be Cope Trof as manufactured by Allied Tube & Conduit® Corporation



COPE™ CHANNEL

7



**Cable Tray for Branch Power Circuits,
Control, Signal & Tubing Systems.**

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Cope Channel Fittings

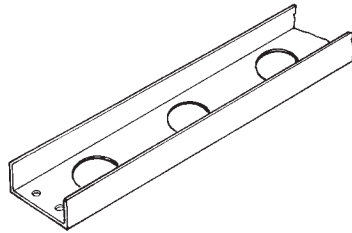
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Straight Length

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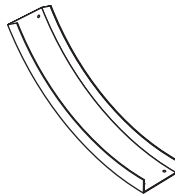
Horizontal Elbows

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Vertical Inside Elbow

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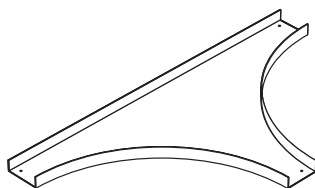
Vertical Outside Elbow

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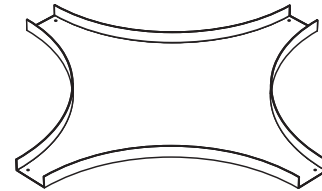
Horizontal Tee

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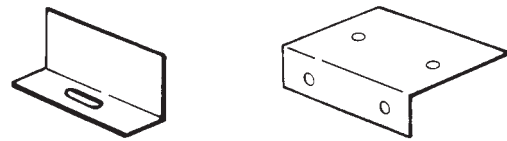
Horizontal Cross

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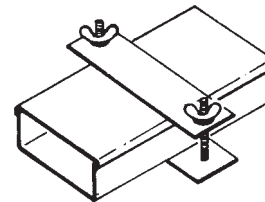
Barrier Strips & Accessories

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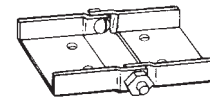
Cover Attachments

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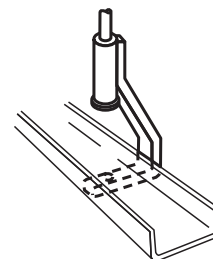
Adjustable Connectors

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Channel Hangers

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CHANNEL CABLE TRAY SYSTEM



INTRODUCTION

COPE™ CHANNEL

Cope Channel supports single branches of power or multi-conductor control cable or instrument tubing. Ideal for communication, fire alarm, or call station and clock cabling. A complete line of devices are available for interfacing with Cope Ladders and Cope Trofs. Compatible with any cable tray system. Cope Channel is more economical than conduit.

Cope Channel is offered in both aluminum and steel, either hot dip mill galvanized (ASTM A 525), or hot dip galvanized after fabrication (ASTM A 386). Covers are available in aluminum and mill galvanized steel. Connectors are furnished with all straight sections and fittings. Other accessories must be ordered separately.

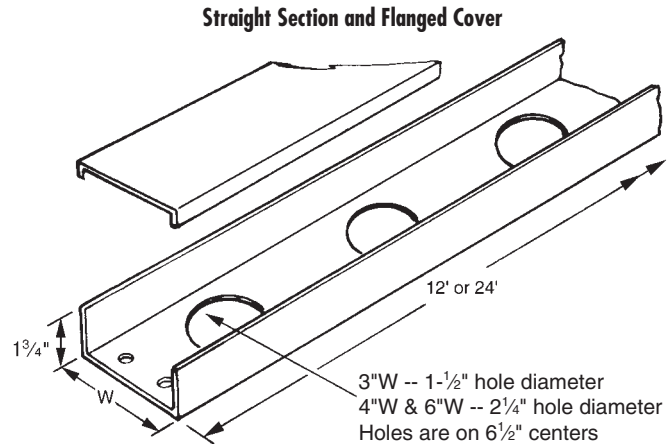
Cope Channel is offered ventilated or solid. Basic units are 3", 4", or 6" wide and are 1 3/4" high. Standard lengths are 12' (3.7m) and 24' (7.4m) long. A load chart is furnished to give you guidance on how often you should support the system. Fitting radii available are 12", 24", and 36". Cope Channel meets NEMA VE-1 standards for cable tray.

ORDERING

For ordering, specify by catalog number using the following prefix to specify the material and finish.

Catalog Number Prefix

Finish	Straight Sections	Fittings, Accessories & Connectors	Covers
Aluminum	1124	24	FS24
Mill-Galv. Steel	6122	22	FS22
Hot-Dip Galv. Steel	6123	23	—



Catalog Number – Straight Section

Finish	Width	Length	Type
1124 - Alum.	3" (76mm)	SL-12 = 12' (3.65m)	V - Vented
6122 - Mill Galv.	4" (102mm)	SL-24 = 24' (7.3m)	S - Solid
6123 - HDGAF	6" (152mm)		

EXAMPLE: 1124-04SL-12-V is a 4" wide, vented, 12' aluminum tray.

Catalog Number – Flanged Cover

Finish	Width	Length
FS24 - Alum.	3" (76mm)	SL-12 = 12' (3.65m)
FS22 - Mill Galv.	4" (102mm)	
	6" (152mm)	

EXAMPLE: FS24-04SL-12 is a 4" wide, 12' aluminum cover.

NOTE: 24' length not available.

Catalog Number – Flanged Fitting Covers

Finish	Width/Basic No.	Radius
FS24 - Alum.	-03 XX * (76mm)	12"
FS22 - Mill Galv.	-04 XX * (102mm)	24"
	-06 XX * (152mm)	36"

EXAMPLE: FS24-034F-12 is a 3" wide, 45° Horizontal Elbow, 12" Radius fitting cover.

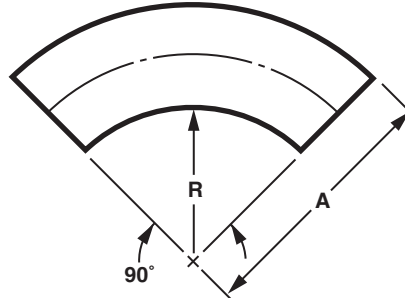
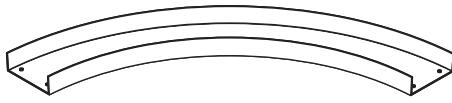
*XX from fitting selection base part number

Loads and Deflection

Width	Cope Channel Basic No.	8' Span (2.4m)		10' Span (3.0m)		12' Span (3.7m)	
		#/Lin Ft*	Deflection	#/Lin Ft*	Deflection	#/Lin Ft*	Deflection
Aluminum-Plain Finish							
3" (76mm)	1124-03SL	8	.21" (5.3mm)	5	.33" (8.4mm)	3	.40" (10.6mm)
4" (102mm)	1124-04SL	13	.34" (8.6mm)	9	.57" (14.5mm)	6	.79" (20.2mm)
6" (152mm)	1124-06SL	15	.37" (9.4mm)	10	.61" (15.5mm)	6	.76" (19.3mm)
Hot Dip Mill-Galvanized Steel (ASTM A-525)							
3" (76mm)	6122-03SL	8	.13" (3.3mm)	5	.20" (5.1mm)	3	.25" (6.4mm)
4" (102mm)	6122-04SL	13	.21" (5.3mm)	9	.35" (8.9mm)	6	.48" (12.2mm)
6" (152mm)	6122-06SL	15	.23" (5.8mm)	10	.37" (9.4mm)	6	.46" (11.7mm)
Hot Dip Galvanized Steel (ASTM A-386), Covers Mill-Galvanized Only							
3" (76mm)	6123-03SL	8	.13" (3.3mm)	5	.20" (5.1mm)	3	.25" (6.4mm)
4" (102mm)	6123-04SL	13	.21" (5.3mm)	9	.35" (8.9mm)	6	.48" (12.2mm)
6" (152mm)	6123-06SL	15	.23" (5.8mm)	10	.37" (9.4mm)	6	.46" (11.7mm)

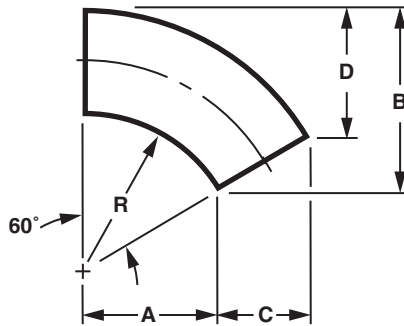
(* For kg/m multiply #/Lin Ft by 1.48

90° Horizontal Elbow [9F]



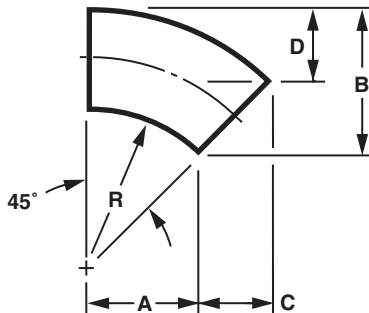
Radius - R	Width - W	"A" Dim.	
12" (305mm)	3" (76mm)	15"	(381mm)
	4" (102mm)	16"	(406mm)
	6" (152mm)	18"	(457mm)
24" (610mm)	3" (76mm)	17"	(432mm)
	4" (102mm)	28"	(711mm)
	6" (152mm)	30"	(762mm)
36" (914mm)	3" (76mm)	39"	(991mm)
	4" (102mm)	40"	(1016mm)
	6" (152mm)	42"	(1067mm)

60° Horizontal Elbow [6F]



Radius-R	Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
12" (305mm)	3" (76mm)	10 ³ / ₈ " (264mm)	9" (229mm)	2 ⁵ / ₈ " (66mm)	7 ¹ / ₂ " (191mm)
	4" (102mm)	10 ³ / ₈ " (264mm)	10" (254mm)	3 ¹ / ₂ " (887mm)	8" (203mm)
	6" (152mm)	10 ³ / ₈ " (264mm)	12" (305mm)	5 ¹ / ₄ " (132mm)	9" (229mm)
24" (610mm)	3" (76mm)	20 ³ / ₄ " (528mm)	15" (381mm)	2 ⁵ / ₈ " (66mm)	13 ¹ / ₂ " (343mm)
	4" (102mm)	20 ³ / ₄ " (528mm)	16" (406mm)	3 ¹ / ₂ " (88mm)	14" (356mm)
	6" (152mm)	20 ³ / ₄ " (528mm)	18" (457mm)	5 ¹ / ₄ " (132mm)	15" (381mm)
36" (914mm)	3" (76mm)	31 ¹ / ₄ " (792mm)	21" (533mm)	2 ⁵ / ₈ " (66mm)	19 ¹ / ₂ " (495mm)
	4" (102mm)	31 ¹ / ₄ " (792mm)	22" (559mm)	3 ¹ / ₂ " (88mm)	20" (508mm)
	6" (152mm)	31 ¹ / ₄ " (792mm)	24" (610mm)	5 ¹ / ₄ " (132mm)	21" (553mm)

45° Horizontal Elbow [4F]



Radius-R	Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
12" (305mm)	3" (76mm)	8 ¹ / ₂ " (216mm)	6 ¹ / ₂ " (165mm)	2 ¹ / ₈ " (54mm)	4 ³ / ₈ " (112mm)
	4" (102mm)	8 ¹ / ₂ " (216mm)	7 ¹ / ₂ " (191mm)	2 ⁷ / ₈ " (71mm)	4 ³ / ₄ " (119mm)
	6" (152mm)	8 ¹ / ₂ " (216mm)	9 ¹ / ₂ " (241mm)	4 ¹ / ₄ " (108mm)	5 ³ / ₄ " (134mm)
24" (610mm)	3" (76mm)	17 ¹ / ₈ " (431mm)	10 ¹ / ₈ " (255mm)	2 ¹ / ₈ " (54mm)	7 ⁷ / ₈ " (201mm)
	4" (102mm)	17 ¹ / ₈ " (431mm)	11 ¹ / ₈ " (280mm)	2 ⁷ / ₈ " (71mm)	8 ¹ / ₄ " (208mm)
	6" (152mm)	17 ¹ / ₈ " (431mm)	13 ¹ / ₈ " (331mm)	4 ¹ / ₄ " (108mm)	8 ³ / ₄ " (223mm)
36" (914mm)	3" (76mm)	25 ¹ / ₂ " (647mm)	13 ⁵ / ₈ " (344mm)	2 ¹ / ₈ " (54mm)	11 ¹ / ₂ " (291mm)
	4" (102mm)	25 ¹ / ₂ " (647mm)	14 ⁵ / ₈ " (370mm)	2 ⁷ / ₈ " (71mm)	11 ³ / ₄ " (298mm)
	6" (152mm)	25 ¹ / ₂ " (647mm)	16 ⁵ / ₈ " (421mm)	4 ¹ / ₄ " (108mm)	12 ³ / ₈ " (313mm)

Ordering Information:

Prefix No.

[M] - [W] [Bp] - [R] - [B]

Material Finish (22=Mill-Galv. Steel, 23=Hot-Dip-Galv. Steel, 24=Aluminum)

Width (03", 04", 06")

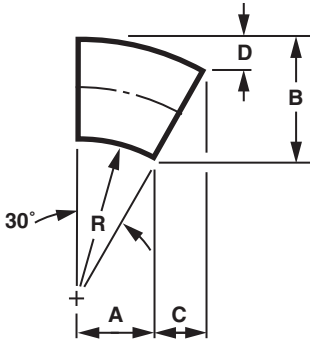
Radius (12", 24", 36")

Bottom (S=Solid, V=Ventilated)

Basic Part (9F, 6F, 4F)

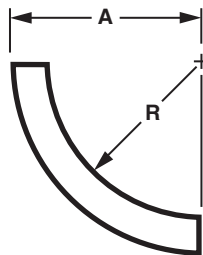
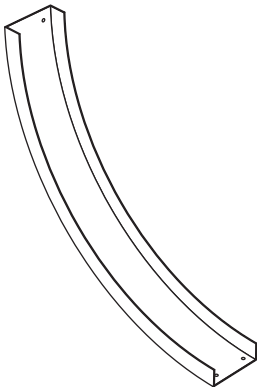
FITTINGS

30° Horizontal Elbow [3F]



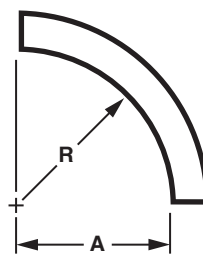
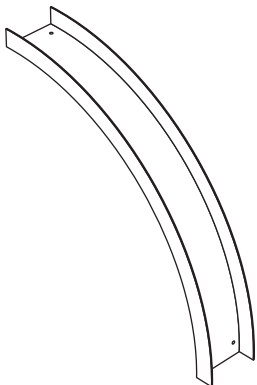
Radius-R	Width - W	"A" Dim.	"B" Dim.	"C" Dim.	"D" Dim.
12" (305mm)	3" (76mm)	6" (152mm)	4 ⁵ / ₈ " (117mm)	1 ¹ / ₂ " (38mm)	2" (51mm)
	4" (102mm)	6" (152mm)	5 ⁵ / ₈ " (143mm)	2" (51mm)	2 ¹ / ₈ " (55mm)
	6" (152mm)	6" (152mm)	7 ⁵ / ₈ " (194mm)	3" (76mm)	2 ³ / ₈ " (61mm)
24" (610mm)	3" (76mm)	12" (305mm)	6 ¹ / ₄ " (158mm)	1 ¹ / ₂ " (38mm)	3 ⁵ / ₈ " (92mm)
	4" (102mm)	12" (305mm)	7 ¹ / ₄ " (183mm)	2" (51mm)	3 ³ / ₄ " (95mm)
	6" (152mm)	12" (305mm)	9 ¹ / ₄ " (234mm)	3" (76mm)	4" (102mm)
36" (914mm)	3" (76mm)	18" (457mm)	7 ⁷ / ₈ " (198mm)	1 ¹ / ₂ " (38mm)	5 ¹ / ₄ " (133mm)
	4" (102mm)	18" (457mm)	8 ⁷ / ₈ " (224mm)	2" (51mm)	5 ³ / ₈ " (137mm)
	6" (152mm)	18" (457mm)	10 ⁷ / ₈ " (275mm)	3" (76mm)	5 ⁵ / ₈ " (143mm)

90° Vertical Inside Elbow [9I]



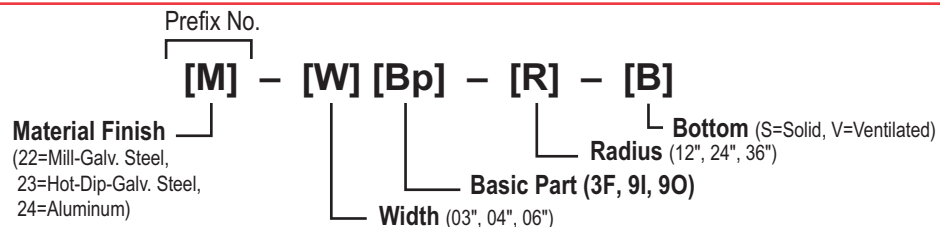
Radius - R	Width - W	"A" Dimension
12" (305mm)	3" (76mm)	12" (305mm)
	4" (102mm)	12" (305mm)
	6" (152mm)	12" (305mm)
24" (610mm)	3" (76mm)	24" (610mm)
	4" (102mm)	24" (610mm)
	6" (152mm)	24" (610mm)
36" (914mm)	3" (76mm)	36" (914mm)
	4" (102mm)	36" (914mm)
	6" (152mm)	36" (914mm)

90° Vertical Outside Elbow [9O]

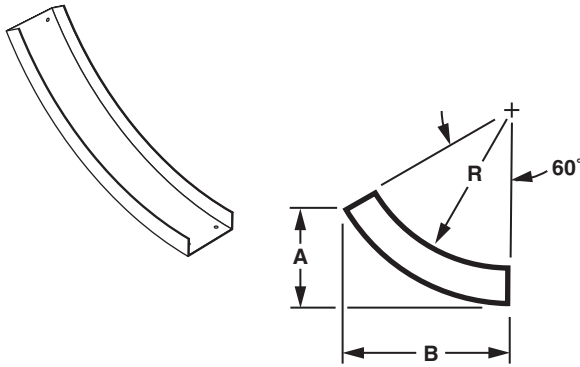


Radius - R	Width - W	"A" Dimension
12" (305mm)	3" (76mm)	13 ³ / ₄ " (349mm)
	4" (102mm)	13 ³ / ₄ " (349mm)
	6" (152mm)	13 ³ / ₄ " (349mm)
24" (610mm)	3" (76mm)	25 ³ / ₄ " (654mm)
	4" (102mm)	25 ³ / ₄ " (654mm)
	6" (152mm)	25 ³ / ₄ " (654mm)
36" (914mm)	3" (76mm)	37 ³ / ₄ " (959mm)
	4" (102mm)	37 ³ / ₄ " (959mm)
	6" (152mm)	37 ³ / ₄ " (959mm)

Ordering Information:

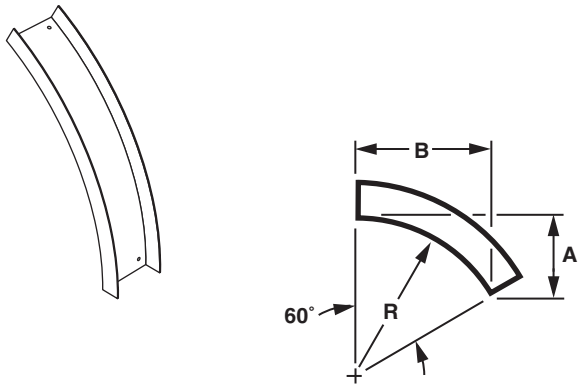


60° Vertical Inside Elbow [6I]



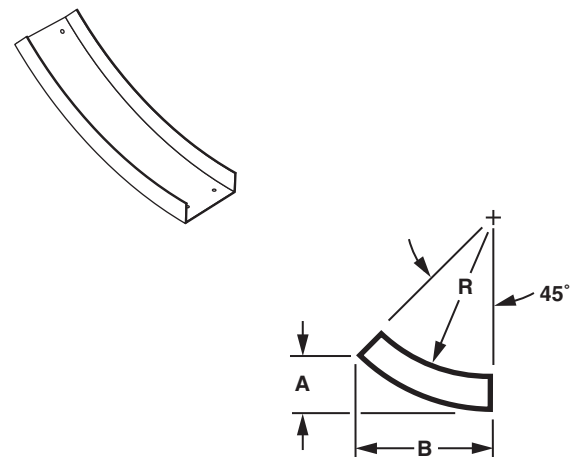
Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	6 ⁷ / ₈ " (175mm)	11 ⁷ / ₈ " (302mm)
	4" (102mm)	6 ⁷ / ₈ " (175mm)	11 ⁷ / ₈ " (302mm)
	6" (152mm)	6 ⁷ / ₈ " (175mm)	11 ⁷ / ₈ " (302mm)
24" (610mm)	3" (76mm)	12 ⁷ / ₈ " (327mm)	22 ¹ / ₄ " (567mm)
	4" (102mm)	12 ⁷ / ₈ " (327mm)	22 ¹ / ₄ " (567mm)
	6" (152mm)	12 ⁷ / ₈ " (327mm)	22 ¹ / ₄ " (567mm)
36" (914mm)	3" (76mm)	18 ⁷ / ₈ " (479mm)	32 ³ / ₄ " (830mm)
	4" (102mm)	18 ⁷ / ₈ " (479mm)	32 ³ / ₄ " (830mm)
	6" (152mm)	18 ⁷ / ₈ " (479mm)	32 ³ / ₄ " (830mm)

60° Vertical Outside Elbow [6O]



Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	6" (152mm)	10 ³ / ₈ " (264mm)
	4" (102mm)	6" (152mm)	10 ³ / ₈ " (264mm)
	6" (152mm)	6" (152mm)	10 ³ / ₈ " (264mm)
24" (610mm)	3" (76mm)	12" (305mm)	20 ³ / ₄ " (528mm)
	4" (102mm)	12" (305mm)	20 ³ / ₄ " (528mm)
	6" (152mm)	12" (305mm)	20 ³ / ₄ " (528mm)
36" (914mm)	3" (76mm)	18" (457mm)	31 ¹ / ₄ " (792mm)
	4" (102mm)	18" (457mm)	31 ¹ / ₄ " (792mm)
	6" (152mm)	18" (457mm)	31 ¹ / ₄ " (792mm)

45° Vertical Inside Elbow [4I]



Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	4 ¹ / ₈ " (102mm)	9 ³ / ₄ " (247mm)
	4" (102mm)	4 ¹ / ₈ " (102mm)	9 ³ / ₄ " (247mm)
	6" (152mm)	4 ¹ / ₈ " (102mm)	9 ³ / ₄ " (247mm)
24" (610mm)	3" (76mm)	7 ¹ / ₂ " (191mm)	18 ¹ / ₄ " (463mm)
	4" (102mm)	7 ¹ / ₂ " (191mm)	18 ¹ / ₄ " (463mm)
	6" (152mm)	7 ¹ / ₂ " (191mm)	18 ¹ / ₄ " (463mm)
36" (914mm)	3" (76mm)	11 ¹ / ₈ " (281mm)	26 ³ / ₄ " (678mm)
	4" (102mm)	11 ¹ / ₈ " (281mm)	26 ³ / ₄ " (678mm)
	6" (152mm)	11 ¹ / ₈ " (281mm)	26 ³ / ₄ " (678mm)

Ordering Information:

Prefix No.

[M] - [W] [Bp] - [R] - [R]

Material Finish

(22=Mill-Galv. Steel,
23=Hot-Dip-Galv. Steel,
24=Aluminum)

Width (03", 04", 06")

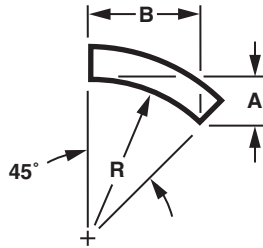
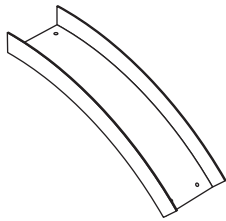
Basic Part (6I, 6O, 4I)

Radius (12", 24", 36")

Bottom (S=Solid, V=Ventilated)

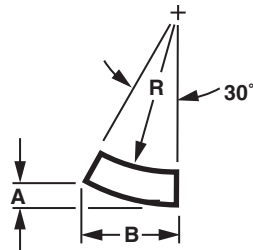
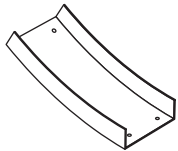
FITTINGS

45° Vertical Outside Elbow [40]



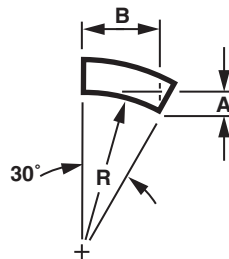
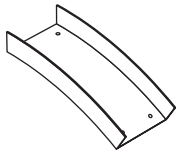
Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	3 1/2" (89mm)	8 1/2" (216mm)
	4" (102mm)	3 1/2" (89mm)	8 1/2" (216mm)
	6" (152mm)	3 1/2" (89mm)	8 1/2" (216mm)
24" (610mm)	3" (76mm)	7 1/8" (179mm)	17 1/8" (431mm)
	4" (102mm)	7 1/8" (179mm)	17 1/8" (431mm)
	6" (152mm)	7 1/8" (179mm)	17 1/8" (431mm)
36" (914mm)	3" (76mm)	10 1/2" (268mm)	25 1/8" (646mm)
	4" (102mm)	10 1/2" (268mm)	25 1/8" (646mm)
	6" (152mm)	10 1/2" (268mm)	25 1/8" (646mm)

30° Vertical Inside Elbow [3I]



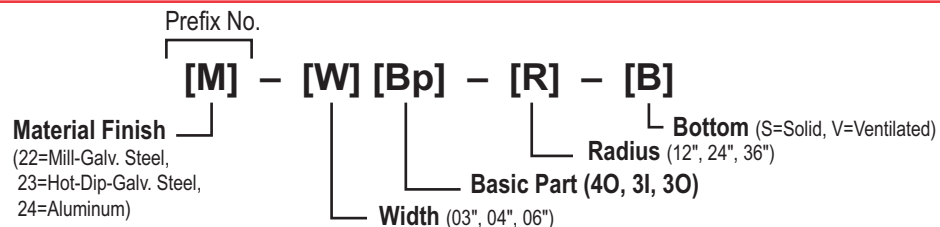
Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	1 7/8" (47mm)	6 7/8" (175mm)
	4" (102mm)	1 7/8" (47mm)	6 7/8" (175mm)
	6" (152mm)	1 7/8" (47mm)	6 7/8" (175mm)
24" (610mm)	3" (76mm)	3 1/2" (87mm)	12 7/8" (327mm)
	4" (102mm)	3 1/2" (87mm)	12 7/8" (327mm)
	6" (152mm)	3 1/2" (87mm)	12 7/8" (327mm)
36" (914mm)	3" (76mm)	5 1/8" (129mm)	18 7/8" (479mm)
	4" (102mm)	5 1/8" (129mm)	18 7/8" (479mm)
	6" (152mm)	5 1/8" (129mm)	18 7/8" (479mm)

30° Vertical Outside Elbow [30]

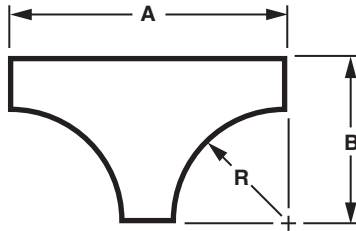
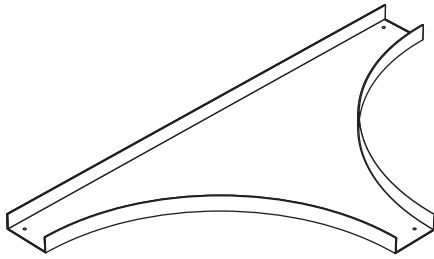


Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	1 5/8" (40mm)	6" (152mm)
	4" (102mm)	1 5/8" (40mm)	6" (152mm)
	6" (152mm)	1 5/8" (40mm)	6" (152mm)
24" (610mm)	3" (76mm)	3 1/4" (82mm)	12" (305mm)
	4" (102mm)	3 1/4" (82mm)	12" (305mm)
	6" (152mm)	3 1/4" (82mm)	12" (305mm)
36" (914mm)	3" (76mm)	4 7/8" (122mm)	18" (457mm)
	4" (102mm)	4 7/8" (122mm)	18" (457mm)
	6" (152mm)	4 7/8" (122mm)	18" (457mm)

Ordering Information:

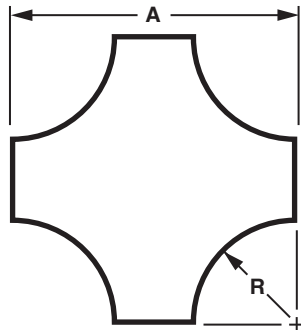
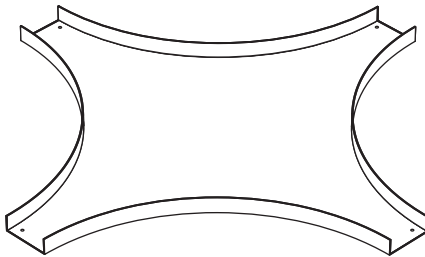


Horizontal Tee [FT]



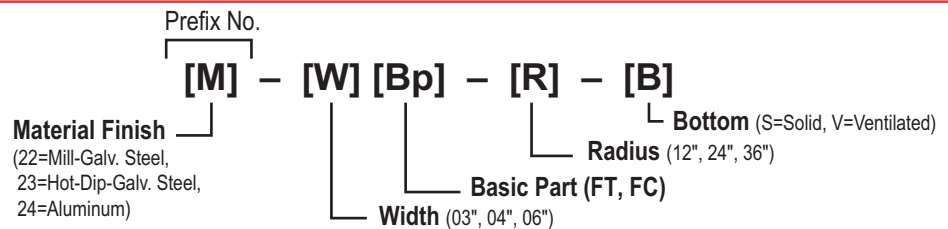
Radius - R	Width - W	"A" Dim.	"B" Dim.
12" (305mm)	3" (76mm)	27" (686mm)	15" (381mm)
	4" (102mm)	28" (711mm)	16" (406mm)
	6" (152mm)	30" (762mm)	18" (457mm)
24" (610mm)	3" (76mm)	51" (1275mm)	27" (686mm)
	4" (102mm)	52" (1321mm)	28" (711mm)
	6" (152mm)	54" (1372mm)	30" (762mm)
36" (914mm)	3" (76mm)	75" (1905mm)	39" (991mm)
	4" (102mm)	76" (1930mm)	40" (1016mm)
	6" (152mm)	78" (1981mm)	42" (1067mm)

Horizontal Cross [FC]



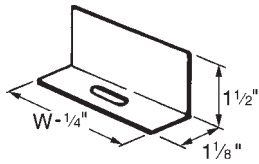
Radius - R	Width - W	Catalog No.	"A" Dim.
12" (305mm)	3" (76mm)	Prefix-03FC-12	27" (686mm)
	4" (102mm)	Prefix-04FC-12	28" (711mm)
	6" (152mm)	Prefix-06FC-12	30" (762mm)
24" (610mm)	3" (76mm)	Prefix-03FC-24	51" (1295mm)
	4" (102mm)	Prefix-04FC-24	52" (1321mm)
	6" (152mm)	Prefix-06FC-24	54" (1372mm)
36" (914mm)	3" (76mm)	Prefix-03FC-36	75" (1905mm)
	4" (102mm)	Prefix-04FC-36	76" (1930mm)
	6" (152mm)	Prefix-06FC-36	78" (1981mm)

Ordering Information:



ACCESSORIES

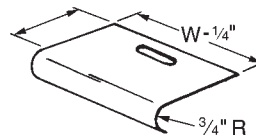
Blind End [BE]



W	Catalog No.
3" (76mm)	Prefix-03BE
4" (102mm)	Prefix-04BE
6" (152mm)	Prefix-06BE

Steel Plated, Furnished with one set 1/4" x 3/4" bolt, nut and washer.

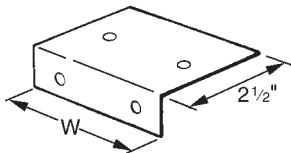
End Dropout [DO]



W	Catalog No.
3" (76mm)	Prefix-03DO
4" (102mm)	Prefix-04DO
6" (152mm)	Prefix-06DO

Prefixes:
 22 = Mill-Galv. Steel,
 23 = Hot-Dip Galv. Steel,
 24 = Aluminum
 Steel plated, Furnished with one set 1/4" x 3/4" bolt, nut and washer.

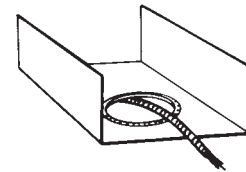
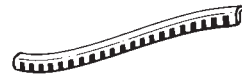
Channel to Box or Wall Connector [CB]



W	Catalog No.
3" (76mm)	Prefix-03CB
4" (102mm)	Prefix-04CB
6" (152mm)	Prefix-06CB

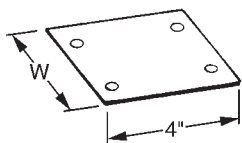
Prefixes:
 22 = Mill-Galv. Steel,
 23 = Hot-Dip Galv. Steel,
 24 = Aluminum
 Furnished with two sets 3/8" x 3/4" bolt, nut and washer. Steel plated.

Nylon Dropout Grommet [DOG-1]



Use at cable dropouts, over sides or thru vent holes.
 Furnished in 12' lengths. Cut to length in field.

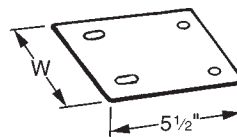
Standard Connector [CS]



W	Catalog No.
3" (76mm)	Prefix-03CS
4" (102mm)	Prefix-04CS
6" (152mm)	Prefix-06CS

Prefixes:
 22 = Mill-Galv. Steel,
 23 = Hot-Dip Galv. Steel,
 24 = Aluminum
 Hardware: 3/8" x 3/4" Bolt and flanged nut
 Steel plated incl. (4-sets)

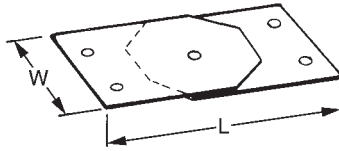
Expansion Connector [CE]



W	Catalog No.
3" (76mm)	Prefix-03CE
4" (102mm)	Prefix-04CE
6" (152mm)	Prefix-06CE

Prefixes:
 22 = Mill-Galv. Steel,
 23 = Hot-Dip Galv. Steel,
 24 = Aluminum
 Hardware: 3/8" x 3/4" Bolt and flanged nut
 Steel plated incl. (4-sets)

Adjustable Horizontal Connector [CH]



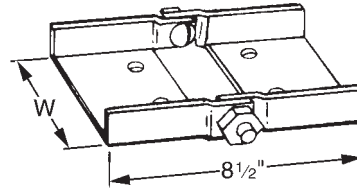
W	L	Catalog No.
3" (76mm)	7½" (191mm)	Prefix-03CH
4" (102mm)	8½" (216mm)	Prefix-04CH
6" (152mm)	10½" (267mm)	Prefix-06CH

Prefixes:

- 22 = Mill-Galv. Steel,
- 23 = Hot-Dip Galv. Steel,
- 24 = Aluminum

Hardware: ¾" x ¾" Bolt and flanged nut
Steel plated incl. (4-sets)

Adjustable Riser Connector [CV]



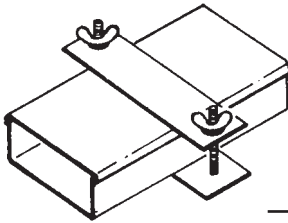
W	Catalog No.
3" (76mm)	Prefix-03CV
4" (102mm)	Prefix-04CV
6" (152mm)	Prefix-06CV

Prefixes:

- 22 = Mill-Galv. Steel,
- 23 = Hot-Dip Galv. Steel,
- 24 = Aluminum

Hardware: ¼" x 2¼" Machine screw and wing nut. Steel plated incl. (2-sets)

Cover Connector [CC]



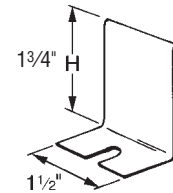
W	Catalog No.
3" (76mm)	Prefix-03CC
4" (102mm)	Prefix-04CC
6" (152mm)	Prefix-06CC

Prefixes:

- 22 = Mill-Galv. Steel,
- 23 = Hot-Dip Galv. Steel,
- 24 = Aluminum

Hardware: ¾" x ¾" Bolt and flanged nut
Steel plated incl. (4-sets)

Channel Holddown Clamp (Stainless Steel) [9079]



For use with steel or aluminum systems.

(No hardware included.)

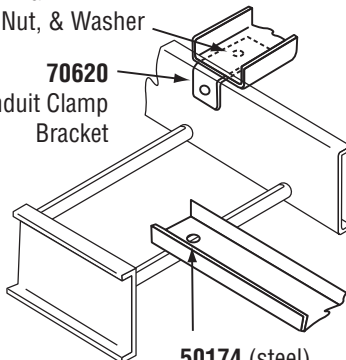
Interconnections

9019-1 (¾" L)

5/16" Dia.

Bolt, Nut, & Washer

70620
Conduit Clamp
Bracket



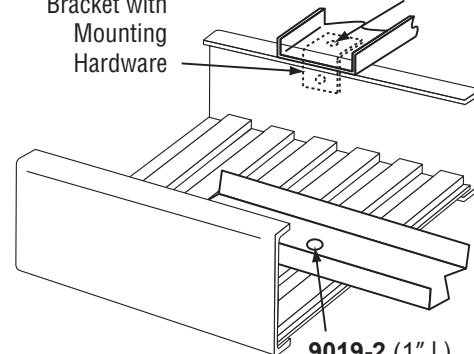
50174 (steel)

50174 (Alum.)

Rung Clamp with Hardware

70620
Conduit Clamp
Bracket with
Mounting
Hardware

9019-1



9019-2 (1" L)

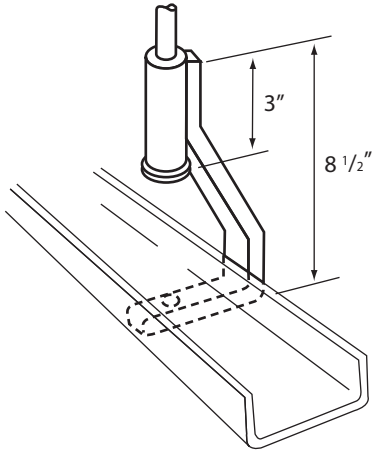
5/16" Dia.

Bolt, Nut & Washer

HANGERS

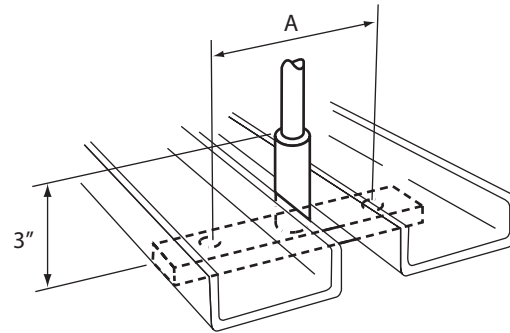
Channel Hangers

For 3"-, 4"- or 6"- wide Cope Channel raceways. Pipe sleeve accommodates either $\frac{3}{8}$ " or $\frac{1}{2}$ " diameter rods. Finish is hot-dip galvanized after fabrication. Order hardware separately.



SINGLE CHANNEL HANGER

Catalog No.	Use With
9013	3"- & 4"-wide channel
9013-1	6"-wide channel



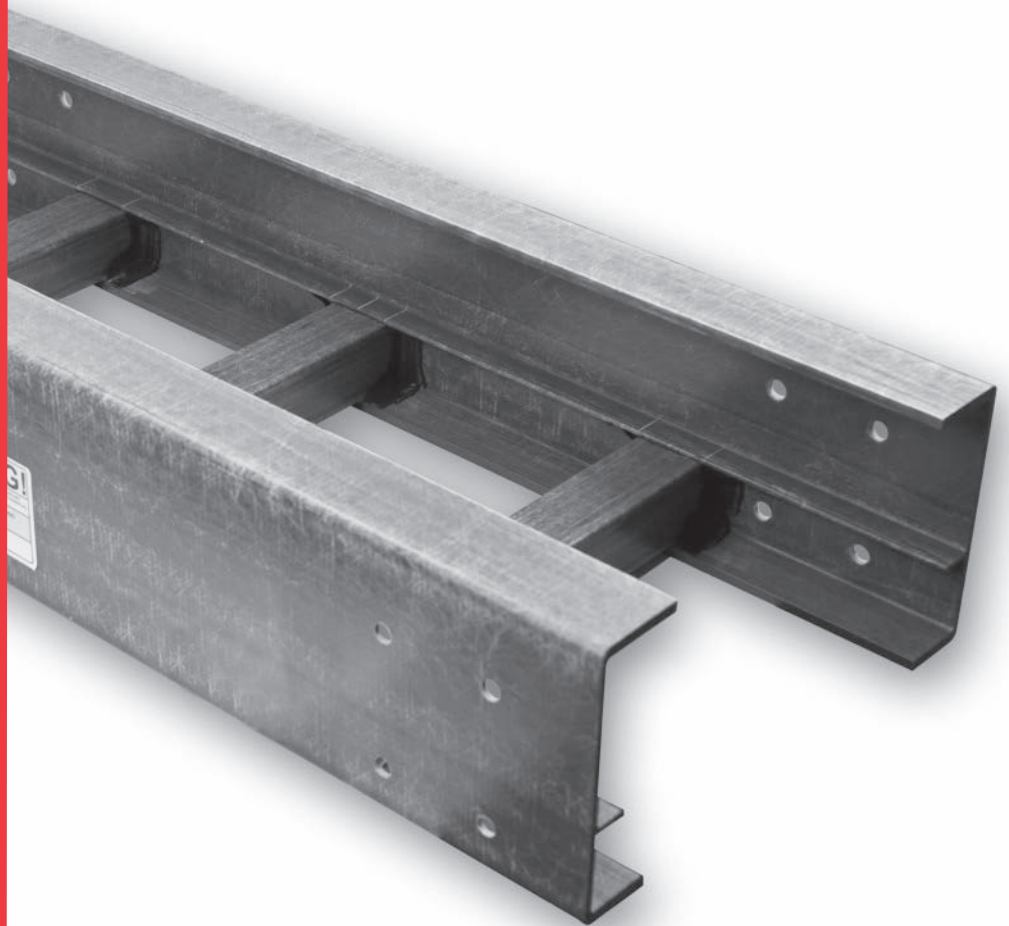
DOUBLE CHANNEL HANGER

Catalog No.	Use With	Dimension "A"
9014	3"- & 4"-wide channel	5"
9014-1	6"-wide channel	7"



COPE-GLAS™

8



Fiberglass Cable Tray System

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COPE-GLAS CABLE TRAY IS NOW UL LISTED

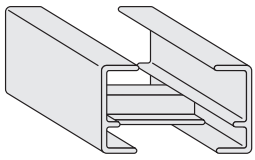
Cope-Glas Fiberglass Cable Tray as manufactured by Allied Tube & Conduit® Corporation (a division of Tyco Electrical & Metal Products) is now UL listed. This UL Listing guarantees the customer that they will receive a quality product that meets the rigid standards of Underwriters Laboratories. Furthermore, it ensures the customer that the product they receive will meet the required UL and NEMA FG1 performance criteria in the following areas:

- **Low Temperature**
- **High Temperature**
- **Flame resistance**
- **Loading & Deflection**
- **Dielectric Strength**
- **Volume Resistivity**
- **Thermogravimetric Analysis**
- **Infrared Analysis**
- **UV Exposure**
- **Water Exposure & Immersion**

In order to maintain the UL Listing, Allied Tube & Conduit® Corporation must continually undergo follow-up testing with Underwriters Laboratories. This further assures the customer that Allied Tube & Conduit® Corporation is maintaining its quality with respect to raw materials, production and fabrication. This UL Listing demonstrates Allied Tube & Conduit® Corporation's commitment to developing and providing its customers with the highest quality fiberglass cable tray products available in the industry.

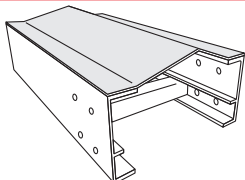
Straight Length

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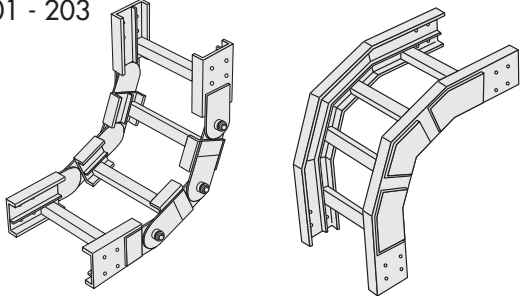
Covers

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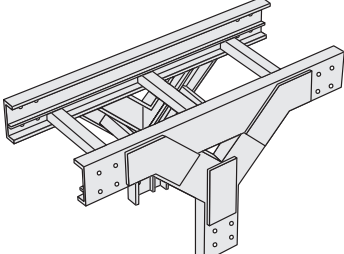
Vertical Bends (Inside & Outside)

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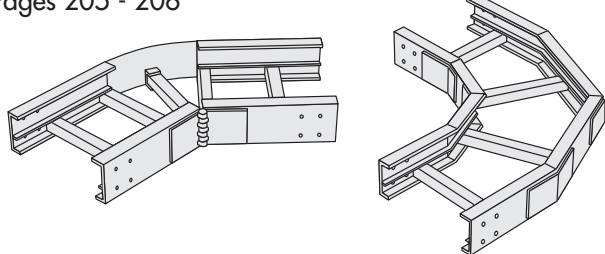
Vertical Tees

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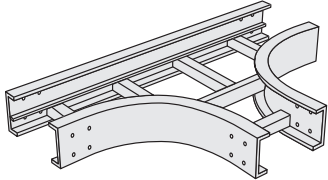
Horizontal Elbows

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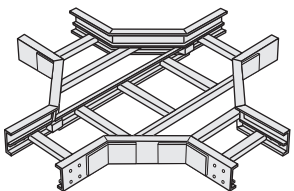
Horizontal Tees

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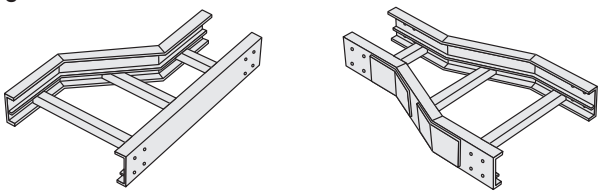
Horizontal Cross

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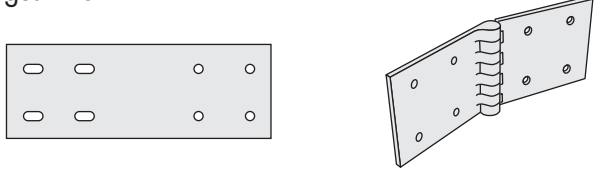
Reducers

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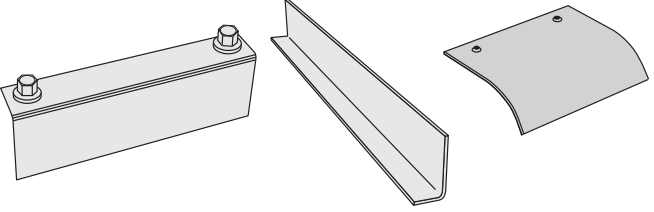
Splice Plates

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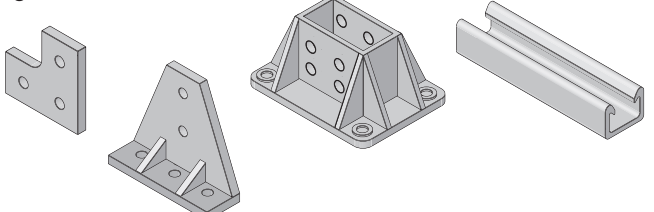
Accessories

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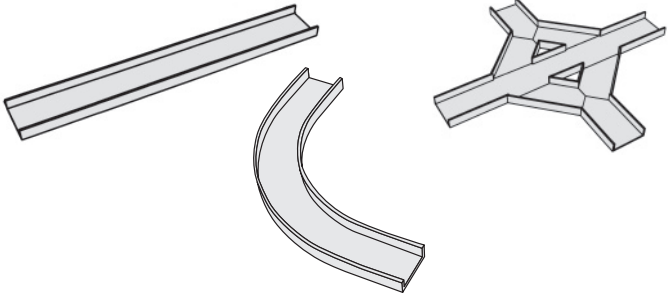
Aickinstrut Support System

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Cope Fiberglass Channel System

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COPE-GLAS™ Systems Advantages

Engineers, designers, contractors, installers and end users have many reasons to choose COPE-GLAS cable tray for their power, signal and control distribution support requirements. Here are some specific advantages that COPE-GLAS systems provide:

Corrosion Resistance

The inherent chemical resistance of COPE-GLAS cable tray makes it desirable for severely corrosive environments. Life cycle costs of tray installations can be dramatically reduced by the extended life expectancy of this product. Many original installations have been in service for nearly fifteen years and are providing reliable service.

Versatile

COPE-GLAS cable tray systems are available in a variety of sizes and styles. A standard or special design can be fabricated for any indoor or outdoor application regardless of size.

Easy Installation

COPE-GLAS cable tray is strong and lightweight, allowing this durable system to be installed quickly and easily. Because there are no sharp edges or burrs, long runs of armored cable can be installed with less chance for cable damage.

Tray System Advantages Over Other Wiring Methods

Cable tray systems in general provide the following advantages over other wiring methods:

Full Ventilation

Power cables need not be derated in a ventilated cable tray system. Explosive gases cannot be trapped or transmitted as in totally enclosed wiring systems.

Space Efficiency

COPE-GLAS cable tray systems can carry more cable in less space than other wiring methods.

Simple Field Modifications

Modifications can be made easily using standard metalworking tools without extensive re-engineering.

Long Support Spans

COPE-GLAS cable tray systems are designed for up to twenty foot support spans, longer than most other wiring methods. Fewer supports reduce both installation time and cost.

Fully Compatible with Other Wiring Methods

COPE-GLAS cable tray is often used in main runs when other wiring methods are employed in branch circuits.

Accessibility for the Future

New cable can be easily added, replaced or repaired. Circuits can be visually traced, minimizing startup and trouble shooting.

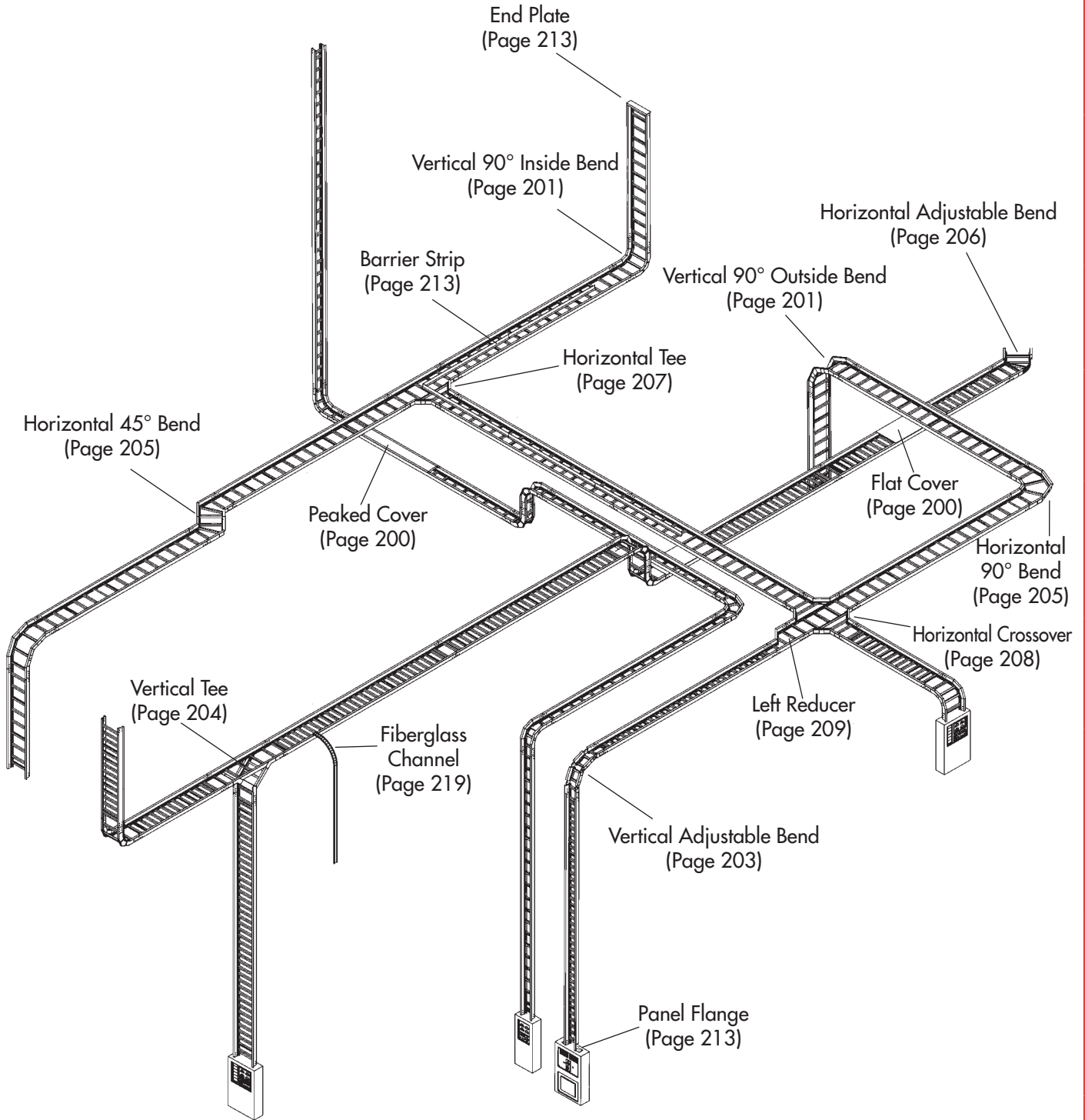
Installation Labor Reduced

COPE-GLAS cable tray can be installed after concrete and major building steel and mechanical piping are complete. Crews can start later and finish sooner.



COPE-GLAS™ CABLE TRAY SYSTEM

ADVANTAGES OF COPE-GLAS™ CABLE TRAY



STANDARDS

The standards commonly referenced in specifying cable tray are the National Electric Code®, Article 392-Cable trays; NEMA Standards Publication NO. FG 1, Fiberglass Cable Tray Systems; Canadian Standards Association CAN/CSA-C22.2 No. 126-M91, Cable Tray Systems and Underwriters Laboratories Inc. Standard UL-568, CYOV Non-Metallic Cable Trays. ASTM and UL standards are also referenced to characterize the materials used to construct the fiberglass cable tray.

ASTM standards define physical properties tests for the materials used to pultrude the cable tray. The specific ASTM test methods for mechanical, thermal and flammability properties are identified in the Construction and Physical Properties Section. UL flammability standards applied to fiberglass cable tray materials are also identified in the same section. ASTM and UL standard material properties for fiberglass channel and strut are identical to those of the cable tray because they are pultruded from the same materials.

Load Standards

Section 3 of NEMA FG 1 provides the performance standards and class designations for fiberglass cable tray systems. Based on a twenty foot support span, three working load classifications are recognized:

Load Class	Allowable Working Load
A	50 lbs./linear ft.
B	75 lbs./linear ft.
C	100 lbs./linear ft.

COPE-GLAS "Z" Style standard tray is available in one load classification. The standard four inch fill depth cable tray is designated as type "CZ" for the respective NEMA class. The deep tray, which provides six inches of cable fill depth, is designated as Type "CZD" for its respective NEMA class. The style "E" tray is available in two load classes, which are designated as Type

"BE" and Type "CE" for the respective NEMA classes. All COPE-GLAS tray styles have a 1.5 safety factor and exceed the NEMA FG 1 requirement for the allowable working load.

The Low Profile Cable Tray, Type "LC", is not yet included in the NEMA Standard; however, it has been designed and tested to comply with the intent of NEMA FG 1. A safety factor 1.5 times the Type "LC" working load of 50 lbs./linear foot for a 12 foot length has been confirmed by NEMA FG 1 test methods.

Type "LC" cable tray meets the requirements of Class C1 in the CAN/CSA-C22.2 No. 126-M91 standard.

Considerations for Cable Tray Deflection

Cable Tray load testing as specified by NEMA Standard FG 1 requires the test article to be a single length of tray simply supported at each end (referred to as a "simple beam" configuration - see diagram below). This requirement was established to standardize testing and because it is impractical to test large tray system assemblies to destruction. Most actual tray installations consist of multiple lengths of connected tray with multiple supports (referred to as a "continuous beam" configuration). The most significant difference between a continuous versus simple beam configuration is that for continuous beam, the presence of adjacent lengths of tray affect the deflection of the tray in the section of interest.

With the same loading and support span, the maximum deflection is dramatically less for continuous compared to simple beam. For example, in the NEMA FG 1 simple beam test, COPE-GLAS Class CE fiberglass cable tray deflects approximately 3.75" at the mid-point of a 20' support span while carrying its rated load of 100 pounds per foot. In continuous beam, the maximum mid-span deflection would be only 0.8" or 20% of that for simple beam.

Tray Splice Joint Locations vs. Support Locations

In a continuous beam configuration, the bending moment in the tray side rails becomes zero at points located approximately 1/4 of the span from each tray support (referred to as "quarter span points" or just "quarter points"). For example, if the support span is 10 feet, the quarter point is 2.5 feet from the support. Quarter points are ideal locations for spliced tray connections because joints are subjected to minimum bending stresses (see diagram below).

Effect of Temperature

When continuously exposed to elevated temperatures, the strength properties of reinforced fiberglass are reduced. Working loads shall be reduced based on the following table.

Temp. in °F	Approximate % of Strength	
	Polyester Resin	Vinyl Ester Resin
75°	100	100
100°	90	100
125°	78	100
150°	68	90
175°	60	90
200°	52	75

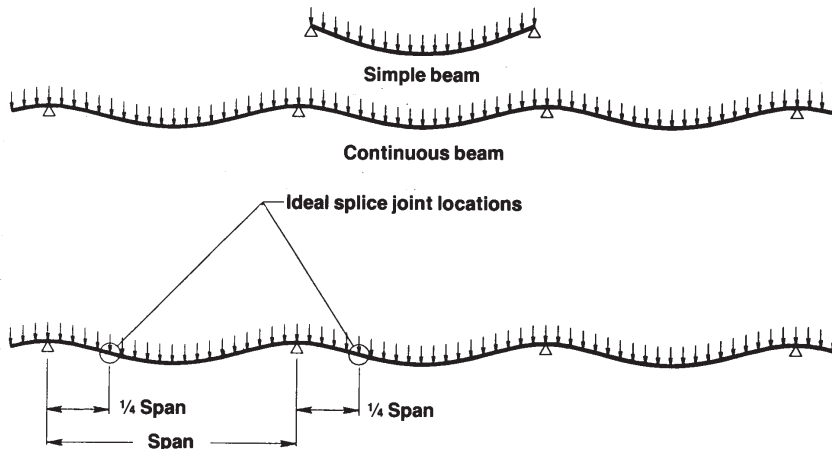
Note: Consult the manufacturer when temperatures above 200° F are encountered. Cope-Glas™ is not adversely affected by below freezing temperatures.

Chemical Resistance

In most applications, fiberglass cable tray is used because of its superior corrosion resistance; therefore, corrosion resistance data for specific environments are very important. The corrosion resistance guide in the Application Environments Section offers performance data in the most common environments. If information for a specific environment is not shown in the guide, please consult the factory.

Installation/Application

Guidance for cable tray installation, supports and support locations and thermal expansion/contraction is provided in NEMA FG 1. The installation instructions for supports and support locations contained in the Installation Procedures Section of this catalog are based on the Application Information Section of NEMA FG 1.





COPE-GLAS™ Cable Tray System

1. Material

1.1 Cable tray shall be of pultruded glass reinforced polyester or vinyl ester resin having physical property values as listed in the Design and Application Section of this catalog.

2. Composition

2.1 Glass reinforced components shall have a synthetic NEXUS® veil applied on exterior surfaces to improve weatherability and inhibit ultraviolet degradation.* An ultraviolet stabilizer shall be incorporated in the resin formulation to further inhibit ultraviolet degradation.

3. Structural Design

3.1 Cable tray shall be of ladder type design having "E" or "Z" shaped side rails.

3.2 Rungs shall be of the same material as the side rail and shall be secured in place to prevent roll-over when cables are pulled into the tray.

3.3 Cable tray sections shall be 10' or 20' in length (+ or - 1/8"). Each straight section and fitting shall be furnished with pre-punched holes to accept the splice plate fastener.

3.4 Tray system design shall meet or exceed allowable working loads in accordance with the appropriate standard, i.e. NEMA FG 1, CAN/CSA-22.2 No. 126-M91 or UL-568.

3.5 Cable trays shall exceed NEMA FG 1 load requirements.

3.6 The tray loaded to the allowable working load shall be capable of supporting an additional 200 lb. concentrated static load at midspan without failure or permanent deflection.

3.7 Tray system design shall meet all the requirements set forth in Underwriters Laboratories Fiberglass Cable Tray Standard, UL-568. The tray system design shall be tested by UL and be issued the appropriate certified UL listing.

*Due to process limitations, compression molded parts do not incorporate surface veil.

4. General

4.1 Cable trays shall be furnished as a system including all necessary fasteners, hold-down clips, splice plates, support systems, barrier strips, covers, hinged horizontal and vertical splice plates, elbows, reducers, tees, crosses, etc.

4.2 Standard cable tray fittings shall be assembled by the manufacturer. Adjustable fittings may require some field adjustment.

4.3 Splice plate fasteners shall be fiberglass encapsulated stainless steel. Fasteners shall be designed to prevent encroachment of liquids or vapors on the metal threads when fully assembled and tightened. Fasteners must be capable of withstanding a torque of 10 ft./lbs. without damage to the threads of encapsulated coating.

4.4 Manufacturer shall provide certified test data to verify compliance with above loading and deflection data when requested by the purchaser.

4.5 Witness tests may be specified by the customer and shall be scheduled at the time of purchase. Documentation shall also be specified at the time of purchase.

4.6 Special non-standard tests, if requested, shall be specified at the time of purchase.

Aickinstrut® Specifications

1. Scope

1.1 This specification covers the requirements for the Aickinstrut Non-Metallic Channel Framing System.

2. Material

2.1 FRP channel shall be of pultruded glass reinforced polyester or vinyl ester resin having the physical property values listed in this catalog.

2.2 PVC channel shall be of extruded polyvinyl chloride having the physical property values listed in this catalog.

2.3 Some accessories shall be of injection molded, 40% long glass fiber reinforced polyurethane, polypropylene or nylon.

3. Composition

3.1 Glass reinforced channel shall have a synthetic surfacing veil applied on exterior surfaces to improve weatherability and inhibit ultraviolet degradation.

3.2 PVC channel shall be manufactured from a UV stabilized resin and incorporate dark gray pigment to improve weatherability and inhibit ultraviolet degradation.

4. Structural Design

4.1 Channel shall incorporate Aickinstrut's patented flange profile design which allows full and positive interlocking contact of channel accessories and prohibits premature flange failure from torqued accessories.

4.2 Channel profile dimensions shall be: 1 5/8" X 1 5/8" X 1/4", and 1 1/2" x 1 1/8" x 1/8".

4.3 All 1 5/8" x 1 5/8" channel profiles shall have a minimum pull out resistance of 1000 pounds when load is applied over a 3/8" long section of the inside flanges.

4.4 Channel section lengths shall be supplied in 10' or 20' lengths (+ or - 1/8").

4.5 Universal Pipe Clamps shall have full interlocking contact with interior channel flanges to maximize pull-out resistance and be adjustable to accommodate a minimum 3/4" variance in piping or conduit O.D. sizes.

5. Standards

5.1 Glass reinforced and PVC channels covered in this specification shall have a flame spread rating of 25 or less when tested per ASTM E84 and meet the requirements of UL 94V0 thereby qualifying them as Class 1 material in the Uniform Building Code.

5.2 Glass reinforced channels covered in this specification shall comply with the requirements of ASTM D 3917 and ASTM D 4385 which govern the dimensional tolerances and visual defects of pultruded shapes.

6. General

6.1 Aickinstrut Non-Metallic Framing Channel shall be furnished as a system which includes all the necessary fasteners, channel splice plates, brackets, sealants, hangers, pipe clamps, etc.

6.2 Non-Metallic fasteners shall be manufactured from long glass fiber reinforced polyurethane to ensure maximum strength and corrosion resistance.

6.3 All components of the Aickinstrut Framing System shall be nonmetallic except where 316 stainless steel hardware is used as part of the assembly.

6.4 Aickinstrut® is manufactured by Aickinstrut, a subsidiary of Allied Tube & Conduit® Corporation, Harvey, IL, 1-800-825-5433.

6.5 The manufacturer shall not have had less than 10 years experience in manufacturing strut systems.

6.6 All products are manufactured in the United States of America.



CONSTRUCTION AND PHYSICAL PROPERTIES

The Pultrusion Process

The pultruded structural component is made by reinforcing a polymer resin (usually polyester or vinyl ester resin) with multiple strands of glass filament and alternating layers of glass mat.

The glass is drawn through the liquid resin, which coats and saturates the fibers. The combination of resin and glass is then continuously guided and pulled (pultruded) through a heated die that determines the shape of the component.

In the die, the resin is cured to form a permanent, reinforced part which can be cut to a specific length. Since the hardened fiberglass pultrusion is reinforced with an internal arrangement of permanently bonded continuous glass fibers, it possesses great strength. In addition to strength, pultruded fiberglass components exhibit exceptional corrosion resistance. This attribute makes fiberglass the material of choice for many harsh industrial applications.

Resin Systems

Polyester and vinyl ester resin systems are available. The vinyl ester resin system is somewhat stronger and is applied in severe corrosive applications.

Both resin systems are flame retardant, conforming to ASTM E84, Class 1 flame rating and are self extinguishing per the requirements of UL94V-0.

Consult the corrosion resistance guide on pages 190 - 191 to determine the correct resin system for your application.

Low Smoke Resin Systems

Increasingly stringent standards regarding flame retardancy and smoke and fume emissions have necessitated the development of alternatives to standard polyester and vinyl ester resin systems. One of these alternatives, Modified Acrylic Resin (MODAR®), offers comparable or superior physical/mechanical properties plus low smoke and fume emissions. MODAR®

resin cable tray provides the following advantages over polyester and vinyl ester tray:

- Excellent flame retardancy
- Low smoke emissions
- Low levels of toxic combustion products

MODAR® cable tray meets the following specifications:

Test Method	Result
ASTM E-84	< 25
ASTM E-162 radiant panel	10 @1.5 minutes = 5
ASTM E-662 smoke generation	@4.0 minutes = 50 maximum = 200
UL94	V-0

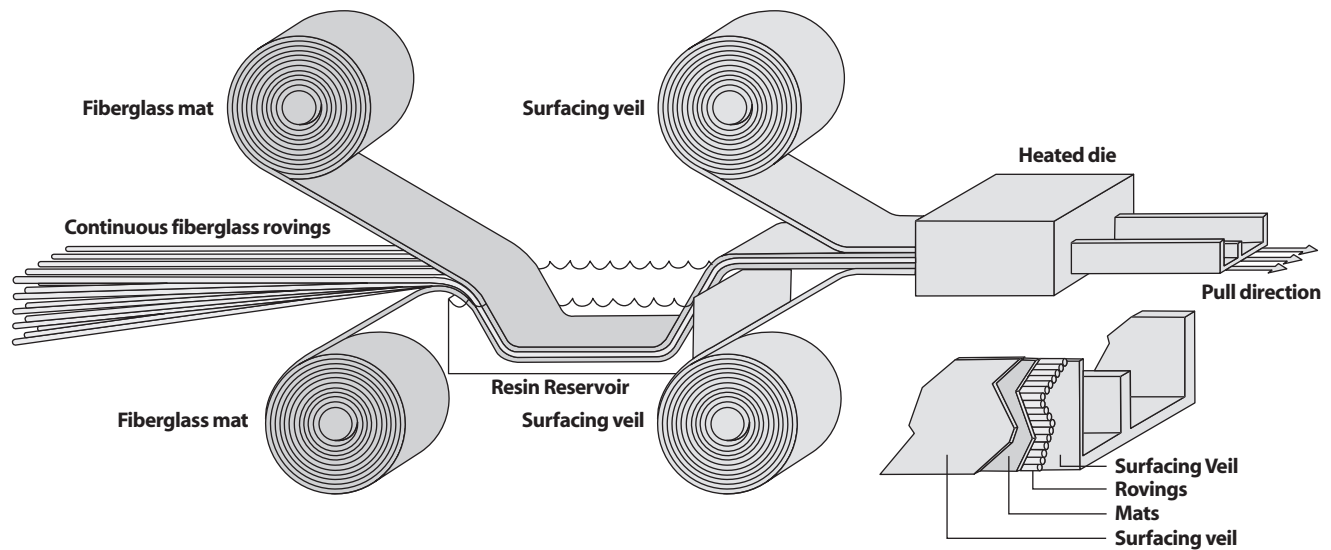
Contact the factory for additional information regarding pricing and availability.

Typical Properties	Typical Value Test Method	Typical Value Direction	Unit	Polyester	Vinyl Ester
Mechanical					
Ultimate Tensile Strength	ASTM D-638	Longitudinal	PSI	30,000	35,000
	ASTM D-638	Transverse	PSI	7,000	10,000
Tensile Modulus	ASTM D-638	Longitudinal	PSI	2.5 x 10 ⁶	3.0 x 10 ⁶
	ASTM D-638	Transverse	PSI	0.8 x 10 ⁶	1.0 x 10 ⁶
Ultimate Compressive Strength	ASTM D-695	Longitudinal	PSI	30,000	35,000
	ASTM D-695	Transverse	PSI	15,000	20,000
Compressive Modulus	ASTM D-695	Longitudinal	PSI	2.5 x 10 ⁶	2.5 x 10 ⁶
	ASTM D-695	Transverse	PSI	1.0 x 10 ⁶	1.2 x 10 ⁶
Ultimate Flexural Strength	ASTM D-790	Longitudinal	PSI	30,000	35,000
	ASTM D-790	Transverse	PSI	10,000	14,000
Flexural Modulus	ASTM D-790	Longitudinal	PSI	1.6 x 10 ⁶	2.0 x 10 ⁶
	ASTM D-790	Transverse	PSI	0.8 x 10 ⁶	1.0 x 10 ⁶
Shear Strength Short Beam	ASTM D-2344	Longitudinal or	PSI	5,500	7,000
		Transverse	PSI	5,500	6,000
Impact Strength-Izod	ASTM D-256	Longitudinal	ft.-lb./in.	25	30
		Transverse	ft.-lb./in.	4	5
Hardness-Barcol	ASTM D-2583	Perpendicular		50	50
Electrical					
Electric Strength Short Time-in oil	ASTM D-149	Perpendicular	Volts/mil.	200	200
		Parallel	KV/in.	35	35
Dielectric Constant	ASTM D-150	Perpendicular		5.0	5.0
Dissipation Factor	ASTM D-150	Perpendicular		0.03	0.03
Arc Resistance	ASTM D-495	Longitudinal or	Seconds	80	120
		Transverse	Seconds	80	120



COPE-GLAS™ CABLE TRAY SYSTEM

CONSTRUCTION AND PHYSICAL PROPERTIES



COPE-GLAS Material Properties (Continued from previous page)

Glass Roving and Mat Reinforced Polyester and Vinyl Ester Fiberglass Components

Typical Properties	Test Method	Direction	Unit	Typical Value Polyester	Typical Value Vinyl Ester
Other					
Thermal Coefficient of Expansion	ASTM D-696	Longitudinal	in./in./°F	5×10^{-6}	5×10^{-6}
Thermal Conductivity		Longitudinal	BTU/Hr. sq. ft./in./°F	4.0	4.0
Water Absorption 24 hours	ASTM 0-570	Longitudinal	%	1	1
Density	ASTM D-792	Longitudinal	lbs./cu.in.	0.062	0.062
Color (Standard)				Dark Gray	Beige
Flammability	UL94		Classification:	V-0	V-0
Flammability	ASTME84		Rating:	25	25

The foregoing list of properties was derived from laboratory data using coupon test specimens cut from pultruded sections. Such information should only be used as a general guide in design. Many actual components (such as cable tray side rail) take advantage of the flexibility of the pultrusion process and are selectively reinforced to enhance performance in a particular load axis. The factory should be contacted for specific information on any given component.

Aickinstruct Fiberglass Threaded Rod Material Properties

Threaded rod is a proprietary combination of fiberglass and Class I vinyl ester flame retardant resin.

Properties	3/8"-16 UNC	1/2"-13 UNC	5/8"-11 UNC
Thread shear strength using fiberglass nut in tensile (lbs.)	1,250	2,500	3,800
Transverse shear on threaded rod-double shear ASTM-B-565 (load lb.)	4,200	7,400	11,600
Transverse shear on threaded rod-single shear (load lb.)	1,600	2,600	3,800
Compressive strength-longitudinal ASTM-D-695 (psi)	55,000	55,000	55,000
Flexural strength ASTM-D-790 (psi)	60,000	60,000	60,000
Flexural modulus ASTM-D-790 (psi x 10 ⁶)	2.0×10^6	2.0×10^6	2.0×10^6
Torque strength using fiberglass nut lubricated with SAE IOW30 motor oil (ft./lbs.)	8	15	33
Dielectric strength ASTM-D-149 (kv/in.)	40	40	40
Water absorption 24 hour immersion-threaded ASTM-D-570 (%)	1	1	1
Coefficient of thermal expansion-longitudinal (in./in./°F)	5×10^{-6}	5×10^{-6}	5×10^{-6}
Max recommended operation temp, based on 50% retention of ultimate thread shear strength (°F)	200	200	200
Stud weight (lb./ft.)	.076	.129	.209
Flammability	Self extinguishing per UL94V-0		

APPLICATION ENVIRONMENTS

Corrosion Resistance

In most applications COPE-GLAS cable tray is used because of its superior corrosion resistance. The following corrosion resistance guide offers performance recommendations for the most common environments.

Additional data for less common environments are also available from the factory.

Corrosion Resistance Guide

The general guidelines presented in this table take into consideration the normal applications of cable tray products and accessories where exposure to harsh chemicals is limited to fumes or vapors and occasional splashes at ambient temperatures. This information is provided as a guide only since it is impossible to anticipate every conceivable application. For specific applications, which may fall outside the scope of these guidelines, it is recommended that the factory be consulted directly.

Special applications may require a screening test of material samples in the chemical environment of interest.

Notes:

- S** - indicates satisfactory performance.
- NR** - indicates not recommended for use.
However, acceptable performance may be provided if fumes are not highly concentrated.
- NA** - indicates information not available.

Chemical Environment	COPE-GLAS Performance	
	Poly-ester	Vinyl Ester
Acetic Acid	S	S
Acetone	NR	NR
Acrylic Acid	NR	S
Aluminum Chloride	S	S
Aluminum Chlorohydroxide	S	S
Aluminum Citrate	S	S
Aluminum Hydroxide	S	S
Aluminum Nitrate	S	S
Aluminum Potassium Sulfate	S	S
Aluminum Sulfate	S	S
Ammonia, dry gas	S	S
Ammonia, liquid	NR	NR
Ammonium Acetate	NR	S
Ammonium Carbonate	NR	S
Ammonium Chloride	S	S
Ammonium Citrate	S	S
Ammonium Hydroxide	NR	S
Ammonium Nitrate	S	S
Ammonium Phosphate	S	S
Ammonium Sulfate	S	S
Ammonium Sulfide	NR	NA
Ammonium Sulfite	NR	S
Ammonium Thiosulfate	NR	S
Amyl Acetate	NR	NR
Amyl Alcohol	S	S
Amyl Chloride	NR	NA
Aniline Sulfate	S	S
Barium Acetate	S	S
Barium Carbonate	S	S
Barium Chloride	S	S
Barium Sulfate	S	S
Benzene	S	NR
Benzoic Acid	S	S
Benzyl Alcohol	NR	NR
Borax	S	S
Boric Acid	S	S
Brine	S	S
Bromine, dry gas	NR	S
Bromine, wet gas	NR	S
Bromine, liquid	NR	NR
Butyl Acetate	NR	NR
Butyl Alcohol, normal	S	S
Butyl Cellosolve	S	NR
Butylene Glycol	S	S
Butyric Acid	S	S
Calcium Bisulfite	S	S
Calcium Carbonate	S	S
Calcium Chlorate	S	S
Calcium Chloride	S	S
Calcium Nitrate	S	S
Calcium Sulfate	S	S

Chemical Environment	COPE-GLAS Performance	
	Poly-ester	Vinyl Ester
Caprylic Acid	S	S
Carbon Dioxide, gas	S	S
Carbon Disulfide	NR	NR
Carbonic Acid	S	NA
Carbon Monoxide, gas	S	S
Carbon Tetrachloride	NR	NR
Chloracetic Acid	NR	S
Chlorinated Paraffin	S	S
Chlorine, dry gas	S	S
Chlorine, wet gas	NR	S
Chlorine, liquid	NR	NR
Chlorine Dioxide	NR	S
Chlorine Water	S	S
Chlorobenzene	NR	NR
Chromic Acid	NR	S
Chromous Sulfate	S	S
Citric Acid	S	S
Coconut Oil	S	S
Copper Acetate	S	S
Copper Chloride	S	S
Copper Cyanide	S	S
Copper Nitrate	S	S
Copper Sulfate	S	S
Cresylic Acid Fumes	NR	NR
Cresol	NR	NA
Crude Oil (Sour)	S	S
Cyclohexane	NR	S
Diallylphthalate	S	S
Diammonium Phosphate	NR	S
Dibutyl Ether	NR	S
Dibutyl Phthalate	S	S
Diesel Fuel	S	S
Diethylene Glycol	S	S
Dimethyl Phthalate	NR	S
Dimethyl Sulfoxide	NR	NA
Diphenyl Ether	NR	S
Dipropylene Glycol	S	S
Esters, Fatty Acid	S	S
Ethyl Alcohol	NR	S
Ethylene Chlorohydrin	NR	S
Ethylene Glycol	S	S
Fatty Acids	S	S
Ferric Chloride	S	S
Ferric Nitrate	S	S
Ferric Sulfate	S	S
Ferrous Chloride	S	S
Ferrous Nitrate	S	S
Ferrous Sulfate	S	S
Fluoboric Acid	S	S
Fluosilicic Acid	NR	S
Formic Acid, vapor	S	S



COPE-GLAS™ CABLE TRAY SYSTEM

APPLICATION ENVIRONMENTS

Chemical Environment	COPE-GLAS Performance		Chemical Environment	COPE-GLAS Performance		Chemical Environment	COPE-GLAS Performance	
	Poly-ester	Vinyl Ester		Poly-ester	Vinyl Ester		Poly-ester	Vinyl Ester
Fuel Oil	S	S	Olive Oils	S	S	Sodium Nitrite	S	S
Furfural	NR	NR	Oxalic Acid	S	S	Sodium Silicate, pH<12	NR	S
Gasoline, Aviation	S	S	Palmitic Acid	S	S	Sodium Silicate, pH>12	NR	S
Gasoline, Ethyl	S	S	Perchlorethylene	NR	S	Sodium Sulfate	S	S
Gluconic Acid	S	S	Perchloric Acid	NR	S	Sodium Sulfide	NR	S
Glucose	S	S	Phenol	NR	NR	Sodium Sulfite	NR	S
Glycerine	S	S	Phosphoric Acid	S	S	Sodium Tetraborate	S	S
Hexachlorocyclopentadienl	NR	NA	Photographic Solutions	S	NA	Sodium Thiosulfate	S	S
Hydrochloric Acid	S	S	Phthalic Anhydride	S	S	Sodium Xylene Sulfonate	NR	S
Hydrofluoric Acid	NR		Pickling Liquids, Acid	S	S	Sorbitol Solutions	S	S
Hydrogen Bromide, dry gas	S	S	Pickling Liquids, Alkaline	NR	NA	Sour Crude Oil	S	S
Hydrogen Chloride, dry gas	S	S	Picric Acids	NR	NA	Soya Oil	S	S
Hydrogen Chloride, wet gas	S	S	Potassium Aluminum Sulfate	S	S	Stannous Chloride	S	S
Hydrogen Fluoride, vapor	NR	S	Potassium Bicarbonate	S	S	Stearic Acid	S	S
Hydrogen Peroxide	NR	S	Potassium Bromide	S	S	Styrene	NR	NR
Hydrogen Sulfide, dry gas	S	S	Potassium Carbonate	NR	S	Sulfated Detergents	S	S
Hydrogen Sulfide, wet gas	S	S	Potassium Chloride	S	S	Sulfonated Detergents	NR	S
Hydroiodic Acid	NR	NA	Potassium Ferricyanide	S	S	Sulfonyl Chloride, Aromatic	NR	NA
Hypochlorous Acid	NR	S	Potassium Ferrocyanide	S	S	Sulfur Dioxide, dry gas	S	S
sodecanol	S	S	Potassium Hydroxide	NR	S	Sulfur Dioxide, wet gas	S	S
Isopropyl Palmitate	S	S	Potassium Nitrate	S	S	Sulfuric Acid, vapor	S	S
Jet Fuel (JP-4)	S	S	Potassium Permanganate	NR	S	Sulfurous Acid	NR	S
Kerosene	S	S	Potassium Persulfate	NR	S	Tannic Acid	S	S
Lactic Acid	S	S	Potassium Sulfate	S	S	Tartaric Acid	S	S
Lead Acetate	S	S	Propylene Glycol	S	S	Tetrachloroethylene	NR	S
Lime Slurry	S	S	Silicic Acid	S	NA	Tetrapotassium		
Linseed Oil	S	S	Silver Nitrate	S	S	Pyrophosphate	NR	S
Lithium Bromide	S	S	Sodium Acetate	S	S	Tetrasodium Pyrophosphate	NR	S
Lithium Chloride	S	S	Sodium Benzoate	S	S	Toulene	NR	S
Magnesium Bicarbonate	S	S	Sodium Bicarbonate			Toluene Di-isocyanate fumes	NR	NA
Magnesium Carbonate	S	S	Saturated	S	S	Trichlorethylene, fumes	NR	NR
Magnesium Chloride	S	S	Sodium Bisulfate	S	S	Trichloroacetic Acid	NR	S
Magnesium Nitrate	S	S	Sodium Borate	S	S	Trimethylamine Hydrochloride	S	S
Magnesium Sulfate	S	S	Sodium Bromide	S	S	Triphenyl Phosphite	NR	S
Mercuric Chloride	S	S	Sodium Carbonate	NR	S	Trisodium Phosphate	NR	S
Mercurous Chloride	S	S	Sodium Chlorate	NR	S	Turpentine, Pure Gum	NR	S
Mercury	S	S	Sodium Chloride	S	S	Urea	S	S
Methyl Alcohol	S	NR	Sodium Chloride			Vinegar	S	S
Methyl Ethyl Ketone	NR	NR	Saturated Chlorine	NR	S	Water, Cooling Tower	S	S
Milk Waste	S	S	Sodium Chlorite	NR	S	Water, Demineralized	S	S
Mineral Oils	S	S	Sodium Cyanide	S	S	Water, Distilled	S	S
Monochlorobenzene	NR	NR	Sodium Dichromate	NR	S	Water, Mine	S	S
Naptha	S	S	Sodium Di-phosphate	S	S	Water, Sea	S	S
Napthalene	S	S	Sodium Ferricyanide	S	S	Water, Steam Condensate	S	S
Nickel Chloride	S	S	Sodium Ferrocyanide	S	S	Water, Tap	S	S
Nickel Nitrate	S	S	Sodium Fluoride	NR	S	Xylene	NR	S
Nickel Sulfate	S	S	Sodium Hydroxide	NR	S	Zinc Chloride	S	S
Nickel Sulfonate Plating			Sodium Hypochlorite	NR	S	Zinc Nitrate	S	S
Solution	S	S	Sodium Hyposulfite	S	NA	Zinc Sulfate	S	S
Nitric Acid	NR	S	Sodium Mono-phosphate	S	S			
Oleic Acid	S	S	Sodium Nitrate	S	S			

Intro.

NEMA

LADDER

COPE™

I-BEAM™

HAT

TROF

CHANNEL

COPE-GLAS™

WIRE BASKET

Reference



STRUCTURAL DESIGNS

COPE-GLAS™ Cable Tray Styles

COPE-GLAS cable tray systems are available in flange-out and flange-in styles. Standard tray, Type CZ and Type CZD deep tray are flange-out designs. Type LC Low Profile tray and standard tray Types BE and CE are flange-in designs.

The "Z" siderail profiles allow for easier cable loading and cover attachment or removal. COPE-GLAS basic "Z" rail profiles provide four inches of cable fill depth and are available in one load classification: CZ.

COPE-GLAS "Deep Z" profile tray, Type CZD, provides six inches of cable fill depth and is only available in NEMA load class "C".

COPE-GLAS Style "E" siderail profiles are flange-in designs that are especially useful when space is a consideration, such as on

closely spaced parallel runs or flush wall mountings. COPE-GLAS "E" rail profile provides four inches of cable fill depth and is available in NEMA load classes "C" as BE and CE.

The Low Profile cable tray, Type LC, is an "E" siderail profile that has a three inch cable loading depth. Type LC cable tray is ideal for control wiring and lighter cable runs that do not require numerous circuits.

All COPE-GLAS cable trays have a 1.5 safety factor that meets the NEMA FG 1 safety factor requirement of 1.5 times the allowable working load.

COPE-GLAS cable tray is also available with a solid bottom upon request. Solid bottom tray consists of a standard ladder tray with a flat fiberglass cover material bonded to the bottom of the tray.

Performance Standards and Class Designations

Tray Type	Class	Working Load (20' Span)	Safety Factor
LC Low Profile	A	50 lbs./ft. (12' span)	1.5
BE Standard	C	100 lbs./ft.	1.5
CZ Standard	C+	133 lbs./ft.	1.5
CE Standard	C+	133 lbs./ft.	2.0
CZD Deep	C+	133 lbs./ft.	1.5

Selection Guide

Several criteria must be considered in selecting COPE-GLAS cable tray for your application. Factors include load capacity and safety factor; support spans; deflection; cable diameter and tray fill capacity; application environment; space restrictions; fire resistance; future expansion and cost.

Article 392 of the National Electric Code provides cable size and cable fill information. NEMA Standards Publication No. FG 1, Fiberglass Cable Tray Systems, specifies manufacturing standards, performance standards, load class designation specifications and application information such as support span guidelines and temperature deflection information.

The following guidelines will assist you in your selection of COPE-GLAS cable tray:

Step 1:

Determine the resin system required based on the application, location, and environment (consult the corrosion resistance guide in the Application Environments section). COPE-GLAS cable tray is available in polyester and vinyl ester resin systems. Vinyl ester provides more corrosion resistance than polyester in some environments.

Step 2 :

Determine tray loading depth and width. Depending on the size and number of cables needed, use the guidelines in NEC Article 392-8 through -12 to determine tray loading depth and width.

Step 3 :

Determine rung spacing. The smallest cable or wire bundle determines the rung spacing for ladder type trays. In general, use eighteen inch rung spacing for 2" O.C. or larger, nine or twelve inch rung spacing for cables from 1" to 2" O.D., six inch run spacing for cables from 1/2" to 1" O.D. and fiberglass channel type trays for smaller cables.

Step 4 :

Determine the cable load. Calculate in pounds per linear foot the load of the cables to be supported. Consider any extraneous loads such as ice, snow, wind, etc. and add this value to the cable load.

Step 5 :

Determine the tray style. COPE-GLAS offers two side rail configurations; "E" and "Z".

Refer to the Structural Designs section of this catalog to determine tray style.

Step 6 :

Determine the support spacing. Normally, cable tray systems are supported at eight foot to twenty foot intervals. Tray may be supported by wall mount brackets, trapeze suspensions, supports from existing structures or it may be floor mounted to minimize deflection.

Splice joints should be placed at or near the quarter point of the span. This guideline should be rigidly followed and non-compliance granted only after careful engineering analysis because of high cable tray stresses which can be generated.

Step 7:

Determine the NEMA or CSA load class. The cable tray system should be determined by the combination of cable load (Step 4) and support spacing (Step 5). Consult the Structural Design section of this catalog or NEMA FG 1 to assist you in the selection of a tray system that meets your requirements.

NEMA Class	Working Load*
A	50 lbs./lin. ft.
B	75 lbs./lin. ft.
C	100 lbs./lin. ft.

* Working load classifications based on 20 foot support spans. Chart not applicable for channel tray.



The following information shall be used as a guideline for installing COPE-GLAS cable tray.

Special Considerations

With few exceptions, the installation of fiberglass cable tray does not differ from that of metal tray. All standard installation practices and procedures apply. In general, special handling is not required.

Tools Required

Fiberglass tray is easy to cut and drill. For most installations, standard tools are sufficient; however, for large jobs where many sections require cutting and drilling, high speed steel tools may become dull due to the abrasiveness of glass. In such installations, the use of carbide tipped drills and abrasive (grit) saw blades is recommended.

Cutting Tray in the Field

Tray may be easily cut in the field using a standard hacksaw. If some type of power saw is used, abrasive grit-blades work best. When using a power saw, dust filter masks should be worn. Gloves and long sleeve clothing are also recommended.

Sealing Edges

All cut edges should be sealed with FIBER-SEAL, Allied Tube & Conduit's sealant compound. FIBER-SEAL is clear, dries fast and is easy to use. In harsh environments, proper sealing insures against future migration of corrosive elements into the cut sections.

Drilling Holes for Splice Plates

When drilling holes for splice plates, a $1\frac{3}{32}$ " drill bit will provide a properly sized hole. Clamp a splice plate (using a C-clamp) to the side of the tray and use this plate as a drilling template. The plate should be positioned to allow a $\frac{1}{16}$ " gap between joined side rails or fittings.

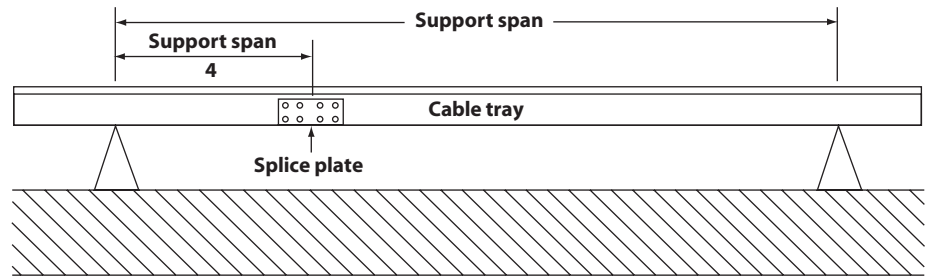
Use of Encapsulated Hardware

Tray sections should be joined using COPE-GLAS fiberglass encapsulated stainless steel nuts and bolts (Part #FECNBSS). For maximum protection in extremely harsh environments, apply a generous amount of FIBER-SEAL to the nut and bolt (inside surfaces and threads) just prior to assembly. Assembled splice joints should be tightened to approximately 12 ft/lbs.

Locating Splice Joints

When possible, splice joints should be placed at or near the quarter point of any given support span. This is the point of least mechanical stress. For example: with a section of tray resting on supports spaced 20 feet apart, the splice plate joints should be located 5 feet from supports (support span divided by 4).

Splice plate joints should be located as close as possible to the quarter point of the support span

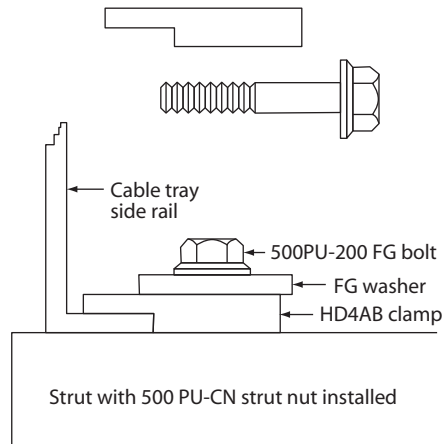


Expansion Splice Plates

Each COPE-GLAS expansion splice plate allows $\frac{5}{8}$ " total expansion or contraction under varying temperature conditions. A complete table showing expansion plate placement intervals appears in the COPE-GLAS Accessories section of this catalog.

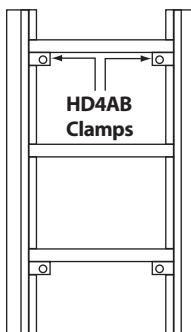
Clamping & Securing Cable Tray

COPE-GLAS provides a special hold down clamp (Part #HD4AB which grips the bottom flange of



the tray and prevents lateral movement. This clamp is commonly used to prevent lateral tray movement when long runs rest on I-Beams or other horizontal support members.

The HD4AB may also be used to secure tray against a vertical wall or bulkhead. In such applications, the clamp should be located adjacent to and below a rung for extra support. When securing tray to a flat vertical bulkhead, it is also acceptable to drill and bolt directly through the bottom flange of the tray. Holes should be centered in the flange and kept as small as possible ($\frac{3}{8}$ " diameter max).



Wall Brackets

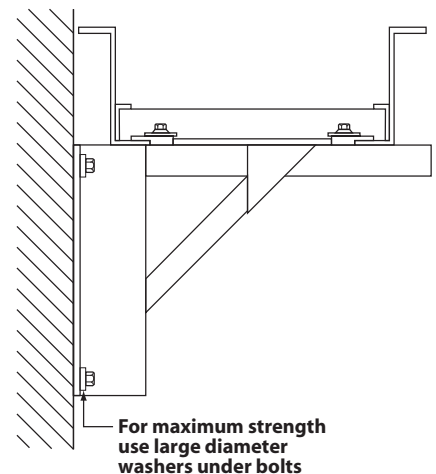
COPE-GLAS fiberglass wall brackets may be used to support cable tray adjacent to a vertical wall. Wall brackets are rated at 750 pounds total weight bearing capacity with a safety factor of 3.0.

Bracket spacing may be determined by dividing 750 lbs. by the tray load (in pounds per foot).

Example: With a cable tray loading of 100 lbs./ft., divide 750 lbs. by 100 lbs./ft. = 7.5 feet. One bracket will be required every 7½ feet.

Tray may be secured to the bracket with HD-4 clamps. Note that the brackets are fabricated using Aickinstruct as the main horizontal support member.

Aickinstruct provides a channel nut (Part #500PU-CN) which fits the interior of the strut. This nut, used in conjunction with a fiberglass bolt (Part #500PU-200), washer (Part #WR500) and HD4AB hold down clamp, forms a complete clamping system. Over-torquing should be avoided (3 ft/lbs max).



INSTALLATION PROCEDURES

Trapeze Hanging Systems

The fiberglass trapeze hanging system pictured below may be used to support tray in areas where tray cannot be placed on I-beams or other existing structures. Trapeze hangers are assembled in the field using components from this catalog. Care should be taken to configure the hanger as shown.

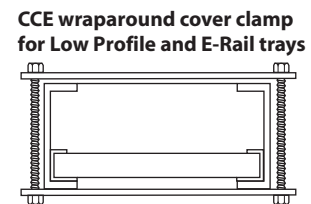
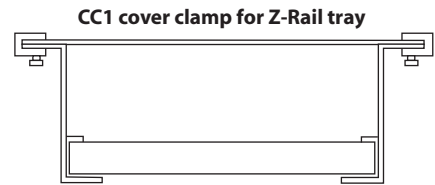
When properly assembled, the hanger, pictured below, can support 1000 lbs. with a safety factor of 4 (assuming a balanced load). For NEMA Class C Tray rated at 100 lbs./ft., we recommend a minimum of one hanger for every 10 feet of tray (1000 lbs. divided by 100 lbs./ft. = 10 ft.).

As with the fiberglass wall bracket, HD-4 clamps and associated hardware may be used with these Trapeze Systems.

When trapeze hangers are suspended from I-beams using polyurethane beam clamps, it is imperative that the fiberglass all-thread rod be screwed completely into the clamp until it "bottoms out". Achieving full pull out strength requires total thread engagement. Care should be taken not to over torque the rod.

COPE-GLAS Cover Installation Procedure

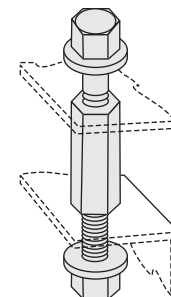
Nylon Drive Rivets (Part #NDR1) are the most economical method to fasten cable tray covers, but they require 1/4" field drilled holes on 24" centers along both siderails.



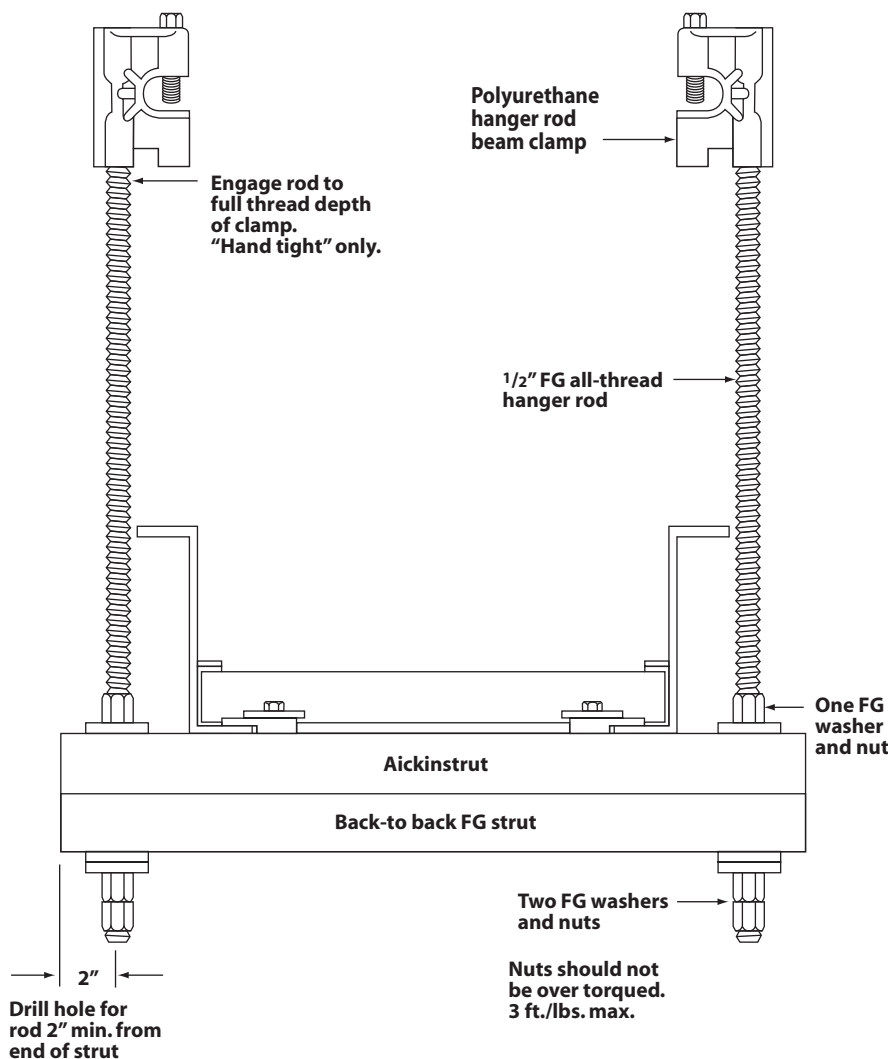
If cover removal or high winds are a concern, either the CC1 or CCE cover clamp may be desired. The CC1 clamp is designed for use on "Z" Style siderail tray and fittings. This PVC coated steel cover clamp requires no field drilling and is easily removed to allow ready access to the inside tray and cables. Six CC1 clamps are recommended for each ten foot length of cable tray cover.

The CCE clamp is designed for use with flat cover on Low Profile and "E" Style siderail trays and fittings. The CCE clamp is constructed entirely of fiberglass components and is available in either polyester or vinyl ester resin. Two CCE clamps are recommended for each ten foot length of cable tray cover.

Cover stand-off SO 200



Cover stand-offs secure cable tray cover while providing a ventilation gap for cables. The SO200 requires field drilling. Five pairs of clamps are recommended per ten foot length of cable tray cover.





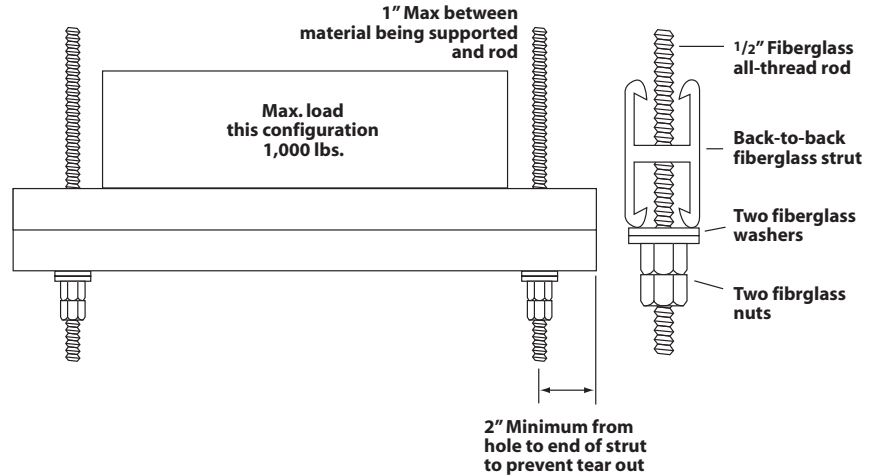
Installation Guidelines:
Fiberglass Trapeze Hanging Systems

The COPE-GLAS cable tray system offers three types of fiberglass trapeze hanging systems: back to back strut trapeze, single strut with open end down trapeze, and

single strut with open end up trapeze. The specifications associated with each trapeze type are shown below.

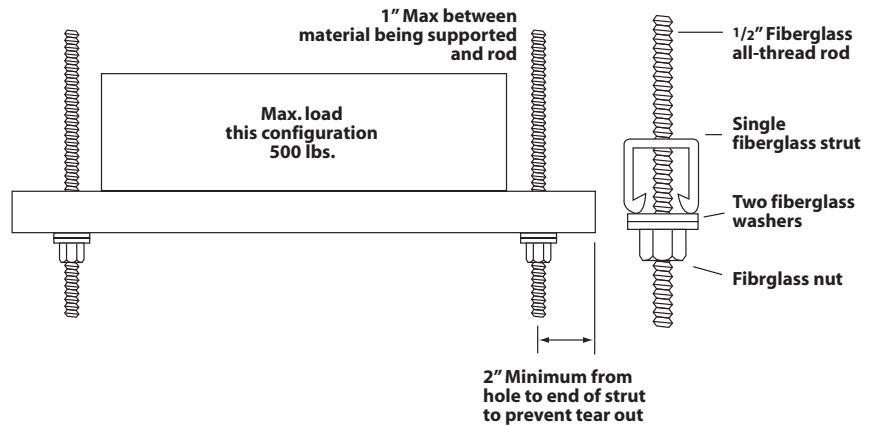
Back-to-Back Bonded Strut

1. Fiberglass nuts should not be over-torqued. A snug 3 to 4 ft./lbs. is sufficient.
2. When supporting a 100 lb./ft. load, the spacing between each trapeze should not exceed ten feet. Under these conditions, each trapeze will be supporting 1000 lbs., thus yielding a support system safety factor of 2.
3. When using beam clamps, only COPE-GLAS RGBC series clamps are acceptable. This clamp provides more thread engagement than clamps designed for steel rod and load ratings are dependent on the extra thread engagement. Care should be taken to insure that the rod is fully engaged in the clamp nut, but not over torqued (5 ft/lbs. max.).
4. Material being supported should "fit" the trapeze system as closely as possible. The spacing between the all-thread rod and the material being supported should not exceed 1".



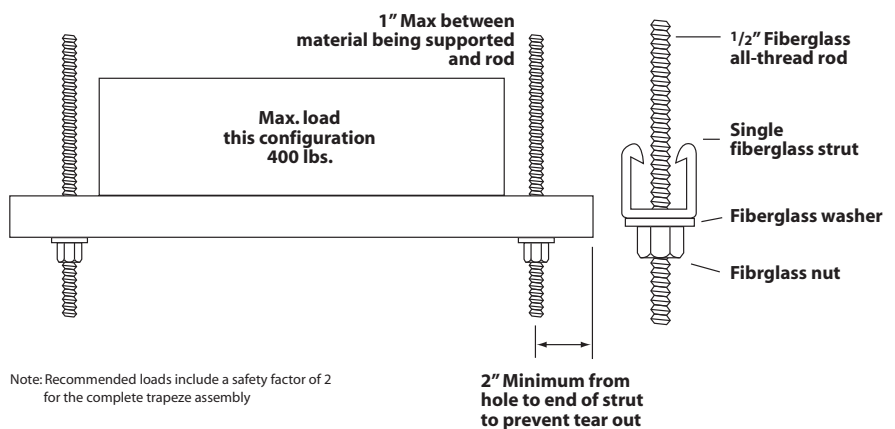
Single Strut With Open End Down

1. When supporting a 100 lb./ft. load, the spacing between each trapeze should not exceed five feet. Under these conditions, each trapeze will be supporting 500 lbs., thus yielding a support system safety factor of 2.
2. When using beam clamps, only COPE-GLAS RGBC series clamps are acceptable. This clamp provides more thread engagement than clamps designed for steel rod and load ratings are dependent on the extra thread engagement. Care should be taken to insure that the rod is fully engaged in the clamp nut, but not over torqued (5 ft/lbs. max.).
3. Material being supported should "fit" the trapeze system as closely as possible. The spacing between the all-thread rod and the material being supported should not exceed 1".



Single Strut With Open-End Up

1. To maintain a safety factor of 2, the load for this configuration should not exceed 400 lbs.
2. When using beam clamps, only COPE-GLAS RGBC series clamps are acceptable. This clamp provides more thread engagement than clamps designed for steel rod and load ratings are dependent on the extra thread engagement. Care should be taken to insure that the rod is fully engaged in the clamp nut, but not over-torqued (5 ft/lbs. max.).
3. Material being supported should "fit" the trapeze system as closely as possible. The spacing between the all-thread rod and the material being supported should not exceed 1".

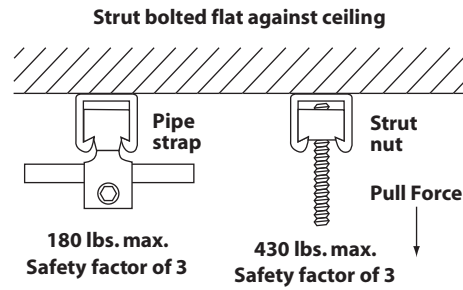


Note: Recommended loads include a safety factor of 2 for the complete trapeze assembly

INSTALLATION PROCEDURES

Aickinstrut® Strut Loading

Aickinstrut is used to hang loads from ceilings where it is common practice to use pipe straps or strut nuts to fasten the loads. The limiting factor in such loading applications is the strength of the non-metallic pipe clamp. Guidelines for these applications are shown at right.

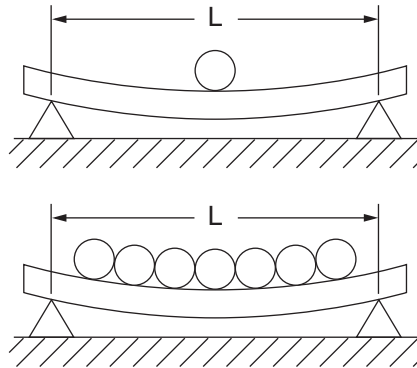


Fiberglass Strut Recommended Loads

(Based on a Safety Factor of 3)

Aickinstrut Light Duty *

1 1/2" x 1 1/8"



Concentrated Load

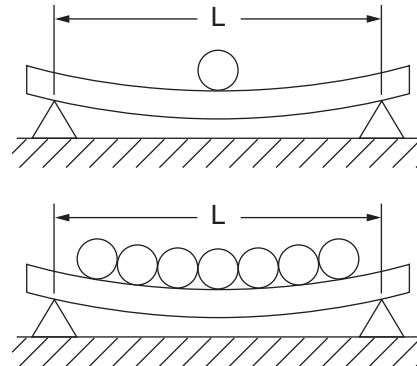
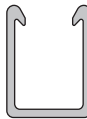
L	Max. Load	Deflection
2'	407 lbs.	0.48"
3'	271 lbs.	1.08"
4'	203 lbs.	1.92"
5'	163 lbs.	3.01"

Distributed Load

L	Max. Load	Deflection
2'	815 lbs.	0.605"
3'	543 lbs.	1.36"
4'	407 lbs.	2.41"
5'	326 lbs.	3.77"

Aickinstrut Heavy Duty *

1 5/8" x 1 5/8"



Concentrated Load

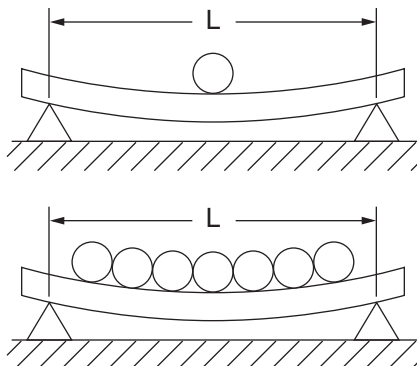
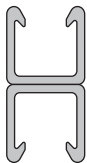
L	Max. Load	Deflection
2'	890 lbs.	0.328"
3'	593 lbs.	0.737"
4'	445 lbs.	1.304"
5'	356 lbs.	2.04"

Distributed Load

L	Max. Load	Deflection
2'	1781 lbs.	0.410"
3'	1187 lbs.	0.922"
4'	890 lbs.	1.63"
5'	712 lbs.	2.56"

Aickinstrut Heavy Duty *

3 1/4" x 1 5/8"



Concentrated Load

L	Max. Load	Deflection
2'	1390 lbs.	0.09"
3'	926 lbs.	0.203"
4'	695 lbs.	0.361"
5'	556 lbs.	0.566"

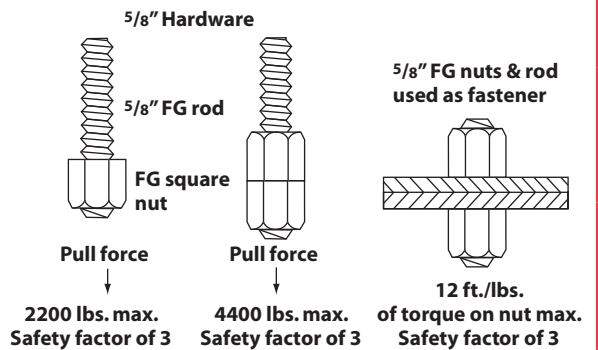
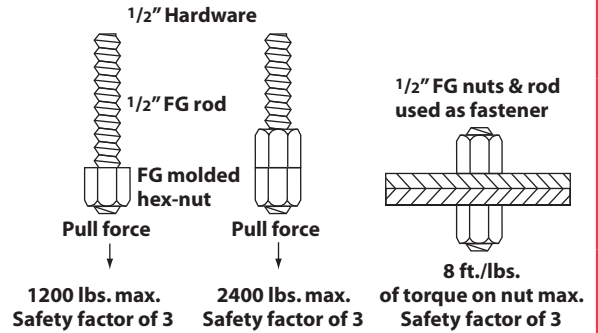
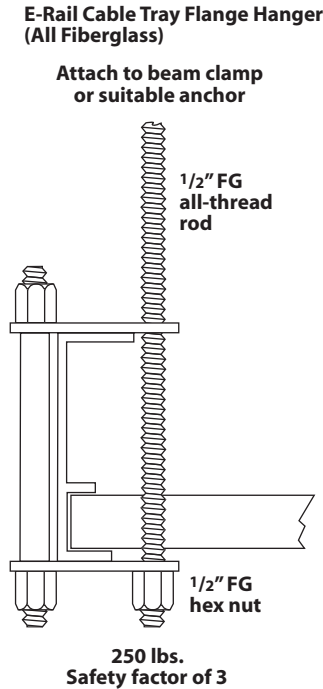
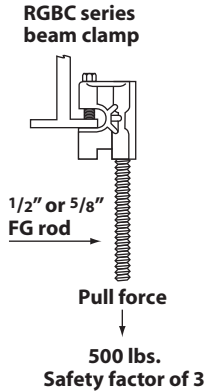
Distributed Load

L	Max. Load	Deflection
2'	2780 lbs.	0.113"
3'	1853 lbs.	0.254"
4'	1390 lbs.	0.452"
5'	1112 lbs.	0.707"

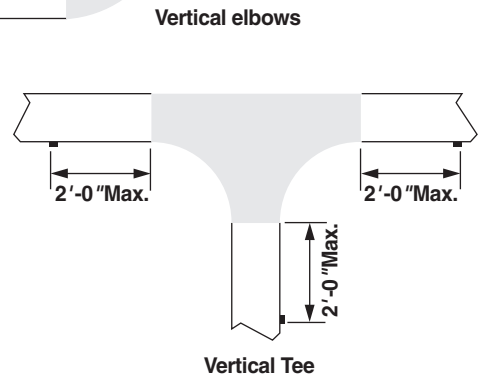
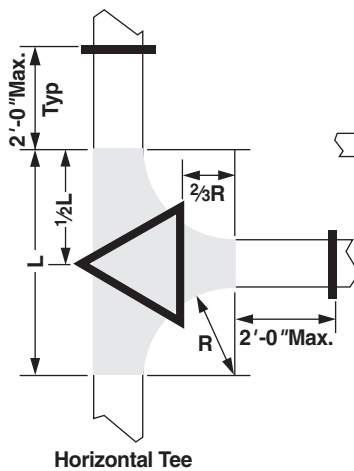
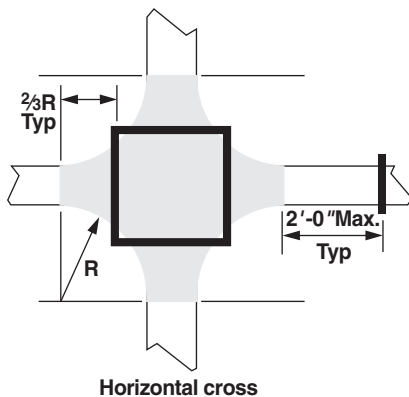
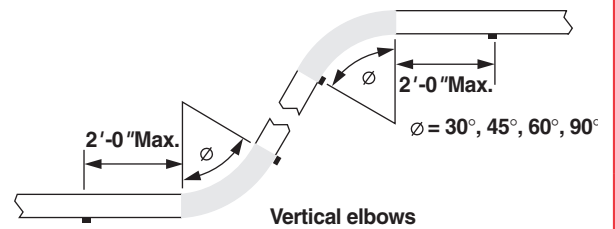
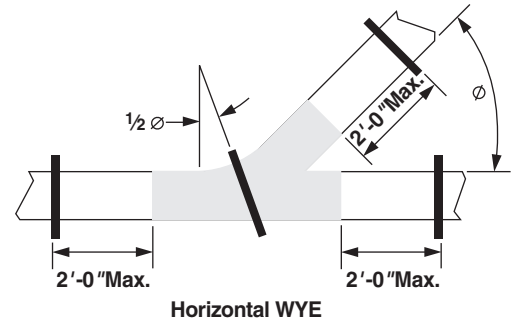
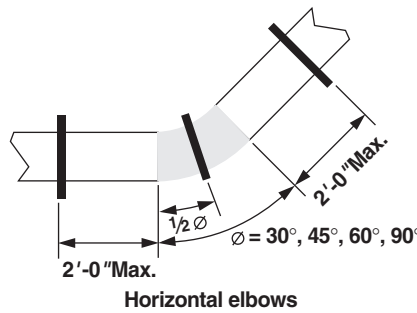
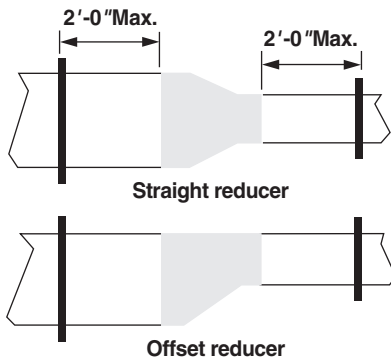
* See Aickinstrut catalog for part numbers

COPE-GLAS Fiberglass Components and Associated Hardware Loads

The maximum recommended loads and associated safety factors of various fiberglass components are shown here. The recommended support locations for the cable tray fittings are shown below.



Support Locations for Cable Tray Fittings



COPE-GLAS™ CABLE TRAY SYSTEM



STRAIGHT SECTIONS

Part Numbering System

All cable tray straight sections are available in polyester or vinyl ester resin. Standard tray lengths are 10' and 20'. Special tray lengths are available upon request.

Cable tray sections, except for Low Profile Type LC, can be provided with fiberglass strut substituted as alternating rungs upon request at no additional cost.

Solid bottom cable tray sections are available, but require special quotation. All cable tray sections are supplied pre-drilled to accept splice plate fasteners.

Note: Connector plates and hardware are not included and must be ordered separately.

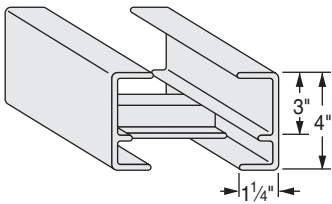
Type LC Straight Section - C Profile* [LC]

Low Profile Tray

NEMA Class 12A

(100 lbs./ft. Working Load - 10' Length)

(50 lbs./ft. Working Load - 12' Length)



10 Foot Length Part Numbers (Type LC)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610 mm)	30" (762mm)	36" (914mm)
06"	LC060610	LC090610	LC120610	LC180610	LC240610	LC300610	LC360610
09"	LC060910	LC090910	LC120910	LC180910	LC240910	LC300910	LC360910
12"	LC061210	LC091210	LC121210	LC181210	LC241210	LC301210	LC361210

12 Foot Length Part Numbers (Type LC)

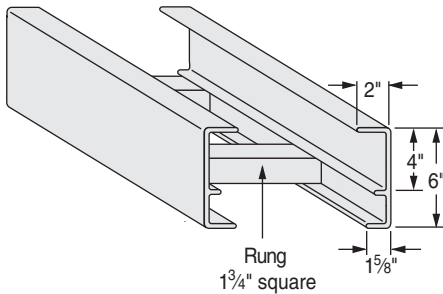
Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610 mm)	30" (762mm)	36" (914mm)
06"	LC060612	LC090612	LC120612	LC180612	LC240612	LC300612	LC360612
09"	LC060912	LC090912	LC120912	LC180912	LC240912	LC300912	CE360912
12"	LC061212	LC091212	LC121212	LC181212	LC241212	LC301212	LC361212

*LC Tray is only available in 10 and 12 foot lengths.

Type BE Straight Section - E Profile [BE]

NEMA Class 20C

(100 lbs./ft. Working Load - 20' Length)



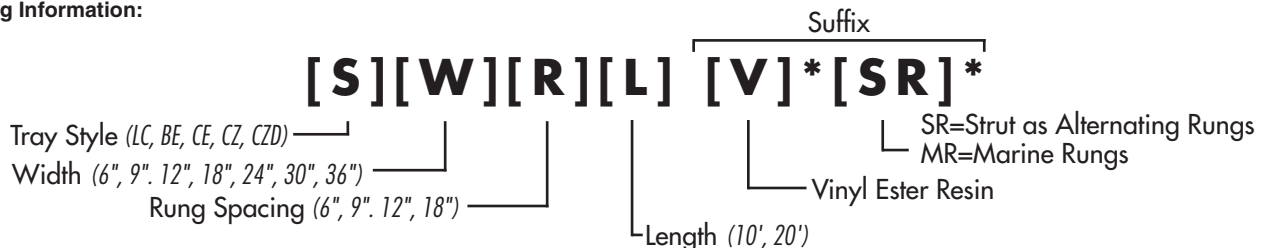
10 Foot Length Part Numbers (Type BE)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610 mm)	30" (762mm)	36" (914mm)
06"	BE060610	BE090610	BE120610	BE180610	BE240610	BE300610	BE360610
09"	BE060910	BE090910	BE120910	BE180910	BE240910	BE300910	BE360910
12"	BE061210	BE091210	BE121210	BE181210	BE241210	BE301210	BE361210

20 Foot Length Part Numbers (TYPE BE)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610 mm)	30" (762mm)	36" (914mm)
06"	BE060620	BE090620	BE120620	BE180620	BE240620	BE300620	BE360620
09"	BE060920	BE090920	BE120920	BE180920	BE240920	BE300920	CE360920
12"	BE061220	BE091220	BE121220	BE181220	BE241220	BE301220	BE361220

Ordering Information:



Example: CZ181220VSR
CZ Style Tray, 18" Wide, 12" Rung Spacing, 20' Long
Vinyl Ester Resin, with Alternating Strut Rungs.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" for marine rungs (see page 214)
Note: See page 200 for cable tray straight section cover options and part numbers.



COPE-GLAS™ CABLE TRAY SYSTEM

STRAIGHT SECTIONS

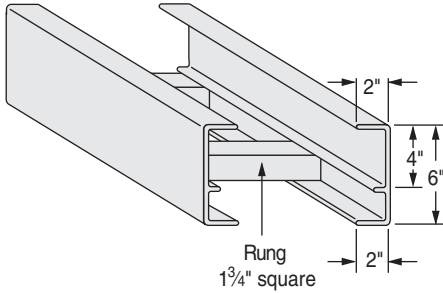
Intro. NEMA COPE™ LADDER COPE™ I-BEAM™ COPE™ HAT COPE™ TROF COPE™ CHANNEL COPE-GLAS™ WIRE BASKET Reference

Type CE Straight Section - E Profile [CE]

NEMA Class 20C+
(133 lbs./ft. Working Load - 20' length)

See ordering information on previous page

* 2:1 Safety Factor



10 Foot Length Part Numbers (Type CE)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CE060610	CE090610	CE120610	CE180610	CE240610	CE300610	CE360610
09"	CE060910	CE090910	CE120910	CE180910	CE240910	CE300910	CE360910
12"	CE061210	CE091210	CE121210	CE181210	CE241210	CE301210	CE361210
18"	CE061810	CE091810	CE121810	CE181810	CE241810	CE301810	CE361810

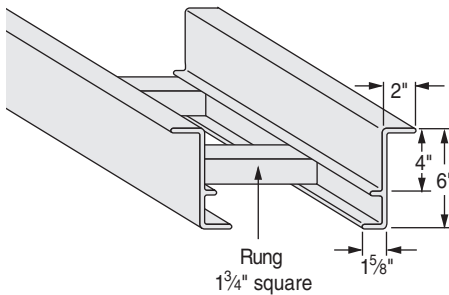
20 Foot Length Part Numbers (Type CE)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CE060620	CE090620	CE120620	CE180620	CE240620	CE300620	CE360620
09"	CE060920	CE090920	CE120920	CE180920	CE240920	CE300920	CE360920
12"	CE061220	CE091220	CE121220	CE181220	CE241220	CE301220	CE361220
18"	CE061820	CE091820	CE121820	CE181820	CE241820	CE301820	CE361820

Type CZ Straight Section - Z Profile [CZ]

NEMA Class 20C+
(133 lbs./ft. Working Load - 20' length)

See ordering information on previous page



10 Foot Length Part Numbers (Type CZ)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CZ060610	CZ090610	CZ120610	CZ180610	CZ240610	CZ300610	CZ360610
09"	CZ060910	CZ090910	CZ120910	CZ180910	CZ240910	CZ300910	CZ360910
12"	CZ061210	CZ091210	CZ121210	CZ181210	CZ241210	CZ301210	CZ361210
18"	CZ061810	CZ091810	CZ121810	CZ181810	CZ241810	CZ301810	CZ361810

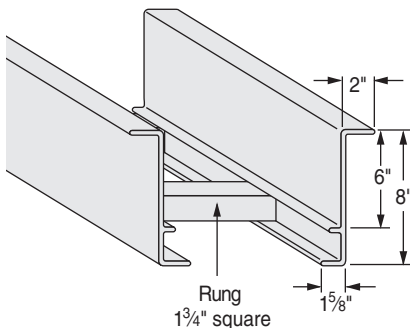
20 Foot Length Part Numbers (Type CZ)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CZ060620	CZ090620	CZ120620	CZ180620	CZ240620	CZ300620	CZ360620
09"	CZ060920	CZ090920	CZ120920	CZ180920	CZ240920	CZ300920	CZ360920
12"	CZ061220	CZ091220	CZ121220	CZ181220	CZ241220	CZ301220	CZ361220
18"	CZ061820	CZ091820	CZ121820	CZ181820	CZ241820	CZ301820	CZ361820

Type CZD Straight Section - Deep Z Profile [CZD]

NEMA Class 20C+
(133 lbs./ft. Working Load - 20' length)

See ordering information on previous page



10 Foot Length Part Numbers (Type CZD)

Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CZD060610	CZD090610	CZD120610	CZD180610	CZD240610	CZD300610	CZD360610
09"	CZD060910	CZD090910	CZD120910	CZD180910	CZD240910	CZD300910	CZD360910
12"	CZD061210	CZD091210	CZD121210	CZD181210	CZD241210	CZD301210	CZD361210
18"	CZD061810	CZD091810	CZD121810	CZD181810	CZD241810	CZD301810	CZD361810

20 Foot Length Part Numbers (Type CZD)

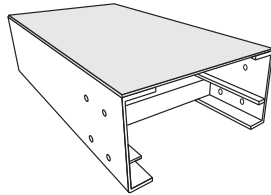
Rung Spacing	Section Width						
	06" (152mm)	09" (229mm)	12" (305mm)	18" (457mm)	24" (610mm)	30" (762mm)	36" (914mm)
06"	CZD060620	CZD090620	CZD120620	CZD180620	CZD240620	CZD300620	CZD360620
09"	CZD060920	CZD090920	CZD120920	CZD180920	CZD240920	CZD300920	CZD360920
12"	CZD061220	CZD091220	CZD121220	CZD181220	CZD241220	CZD301220	CZD361220
18"	CZD061820	CZD091820	CZD121820	CZD181820	CZD241820	CZD301820	CZD361820

COVERS

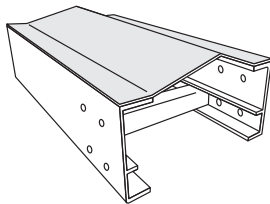
COPE-GLAS Cable Tray Covers

Covers are used where cable protection is necessary or desired.

Two COPE-GLAS cover designs, flat and peaked, are offered. The flat cover suits most applications and is more widely used; however, where the accumulation of snow or other particulate is likely, the peak cover will help shed excessive loads on the cable tray system. Flat covers are available in polyester or vinyl ester resin and are offered in ten foot lengths. To specify vinyl ester resin, add the suffix "V" to the part number. Peaked covers are made from polypropylene and are supplied in black. Peaked covers are not available for COPE-GLAS fittings.



Flat Cover



Peaked Cover
Note: 5' Lengths only

Installation procedures for covers are located in the Installation Procedures Section of this catalog.

Flat Cover for "Z" Shaped Profile Siderail				Flat Cover for "E" Shaped Profile Siderails			
Tray Width	Polyester Resin	Vinyl Ester Resin	Wt./Ft.	Tray Width	Polyester Resin	Vinyl Ester Resin	Wt./Ft.
06"	CTC06	CTC06V	.8	06"	CTCE06	CTCE06V	.7
09"	CTC09	CTC09V	1.0	09"	CTCE09	CTCE09V	.9
12"	CTC12	CTC12V	1.2	12"	CTCE12	CTCE12V	1.1
18"	CTC18	CTC18V	1.6	18"	CTCE18	CTCE18V	1.5
24"	CTC24	CTC24V	2.1	24"	CTCE24	CTCE24V	2.0
30"	CTC30	CTC30V	2.6	30"	CTCE30	CTCE30V	2.5
36"	CTC36	CTG36V	3.0	36"	CTCE36	CTCE36V	2.9

Peaked Cover for "Z" Shaped Profile Siderail			Peaked Cover for "E" Shaped Profile Siderails		
Tray Width	PVC	Wt./Ft.	Tray Width	PVC	Wt./Ft.
06"	PTK06	0.9	06"	PTKE06	1.0
09"	PTK09	1.1	09"	PTKE09	1.2
12"	PTK12	1.3	12"	PTKE12	1.7
18"	PTK18	1.8	18"	PTKE18	1.8
24"	PTK24	2.3	24"	PTKE24	2.2
30"	PTK30	2.9	30"	PTKE30	2.8
36"	PTK36	3.3	36"	PTKE36	3.3

Fittings

All types and widths of tray are available as fittings with the COPE-GLAS Cable Tray System. All fittings are pre-drilled at the factory to accept splice plate fasteners. Rung spacing specified in the tray straight sections does not necessarily apply to fittings.

Molded Fittings

Type LC Low Profile and Type "BE" & "CE" tray fitting side rails are resin transfer molded with smooth radius corners. Smooth radius fittings are compact and the curved rail shape is an aid for cable pulling. The following fittings are available in smooth radius:

Type LC Smooth Radius Fittings

- 90° Inside Vertical Assemblies
- 90° Outside Vertical Assemblies
- 90° Horizontal Bend Assembly, All 12" width, 12" radius
- Vertical Tee Assemblies
- Horizontal Tee Assemblies
- Horizontal Cross Assemblies

Type BE and CE Smooth Radius Fittings

- 90° Inside Vertical Assemblies, 12" & 24" radius
- 90° Outside Vertical Assemblies, 12" & 24" radius
- 90° Horizontal Bend Assemblies, 24" & 36" width, 12" radius
- 06", 09", 12", 18", & 24" width, 24" radius
- Vertical Tee Assemblies, 12" & 24" radius
- Horizontal Tee Assemblies, 12" & 24" radius
- Horizontal Cross Assemblies, 12" & 24" radius

Type CZ, 24" Radius Molded Fittings

Type CZ tray 24" radius fittings are compression molded with a NEMA Load Class C rating. All 24" radius fittings will be molded unless otherwise specified. Molded fittings are stocked for quick shipment. They are also dimensionally consistent to assure a precise fit at the job site.

- 90° Inside & Outside Vertical
- 90° Horizontal
- 90° Horizontal Tee
- Horizontal Cross

Mitered Fittings

All 12" and 36" radius assemblies and reducing assemblies for CZ and CZD trays are fabricated from cut and mitered side rail sections. All BE and CE tray, 36" radius fittings and horizontal bends (with the exception of those listed in the molded fittings text) will also be mitered.

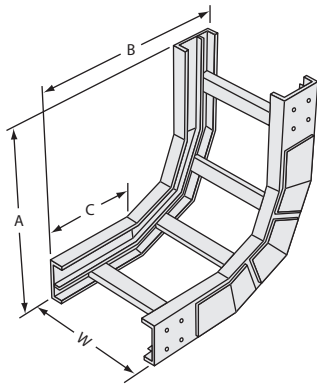
Custom Fittings

Factory engineering support will help with your special requirements; 30° and 60° bends along with other special fittings are available upon request.

Cable Tray Fitting Part Numbering System

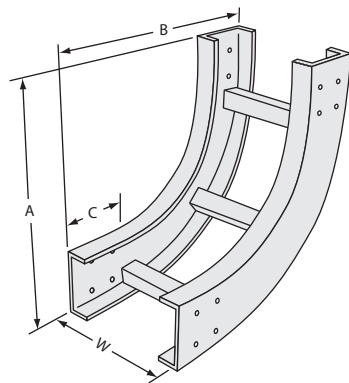
With each fitting drawing, there is an example of how to create the correct part number for the fittings and its cover. Alternating strut and rungs can be provided by using the suffix "SR".

90° Vertical Inside Bends [V90I]



90° Vertical Inside Bends - Mitered

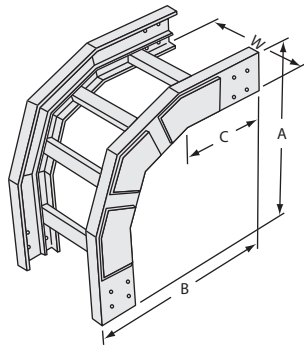
Tray Style	Radius	A or B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
CZ	12" (305mm)	28" (711mm)	13 ³ / ₁₆ " (335mm)	52 1/4" (1322mm)	52" (1321mm)
CZD	12" (305mm)	28" (711mm)	12 ¹³ / ₁₆ " (325mm)	52 1/4" (1322mm)	52" (1321mm)
CZ	24" (610mm)	27 ¹⁵ / ₁₆ " (710mm)	4 ⁵ / ₁₆ " (110mm)	49 ¹³ / ₁₆ " (1265mm)	49 ³ / ₄ " (1264mm)
CZD	24" (914mm)	40" (1016mm)	12 ¹³ / ₁₆ " (325mm)	76 ¹ / ₁₆ " (1932mm)	76" (1930mm)
CZ, BE, CE	36" (914mm)	52" (1321mm)	13 ³ / ₁₆ " (335mm)	100 ¹ / ₁₆ " (2542mm)	100" (2540mm)
CZD	36" (914mm)	52" (1321mm)	12 ¹³ / ₁₆ " (325mm)	100 ¹ / ₁₆ " (2542mm)	100" (2540mm)



90° Vertical Inside Bends - Smooth Radius

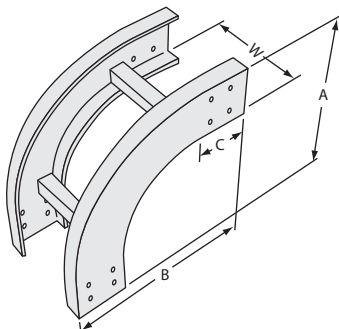
Tray Style	Radius	A or B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
LC	12" (305mm)	20" (508mm)	5" (127mm)	36 1/4" (916mm)	36" (914mm)
LC	24" (610mm)	32" (813mm)	5" (127mm)	60 1/4" (1526mm)	60" (1524mm)
BE, CE	12" (305mm)	21 15/16" (557mm)	6" (152mm)	37 15/16" (964mm)	37 7/8" (914mm)
BE, CE	24" (610mm)	33 15/16" (862mm)	6" (152mm)	61 15/16" (1574mm)	61 7/8" (1524mm)

90° Vertical Outside Bends [V90O]



90° Vertical Outside Bends - Mitered

Tray Style	Radius	A or B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
CZ	12" (305mm)	30" (762mm)	13 ⁵ / ₈ " (346mm)	52 1/8" (1322mm)	52" (1321mm)
CZD	12" (305mm)	32" (813mm)	13 ⁵ / ₈ " (346mm)	52 1/8" (1322mm)	52" (1321mm)
CZ	24" (610mm)	27 ¹⁵ / ₁₆ " (710mm)	4 ⁵ / ₁₆ " (110mm)	49 ¹³ / ₁₆ " (1265mm)	49 ³ / ₄ " (1264mm)
CZD	24" (610mm)	44" (1118mm)	13 ⁵ / ₈ " (346mm)	76 1/16" (1932mm)	76" (1930mm)
CZ, CZD, BE, CE	36" (914mm)	54" (1372mm)*	13 ⁵ / ₈ " (346mm)	100 ¹ / ₁₆ " (2542mm)	100" (2540mm)

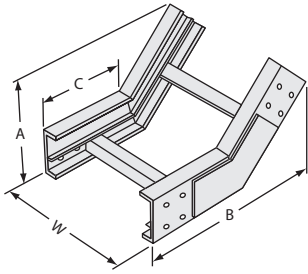


90° Vertical Outside Bends - Smooth Radius

Tray Style	Radius	A or B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
LC	12" (305mm)	20" (508mm)	5" (127mm)	36 1/4" (916mm)	36" (914mm)
LC	24" (610mm)	32" (813mm)	5" (127mm)	60 1/4" (1526mm)	60" (1524mm)
BE, CE	12" (305mm)	21 ¹⁵ / ₁₆ " (557mm)	6" (152mm)	37 ¹⁵ / ₁₆ " (964mm)	37 ⁷ / ₈ " (914mm)
BE, CE	24" (610mm)	33 ¹⁵ / ₁₆ " (862mm)	6" (152mm)	61 ¹⁵ / ₁₆ " (1574mm)	61 ⁷ / ₈ " (1524mm)

FITTINGS

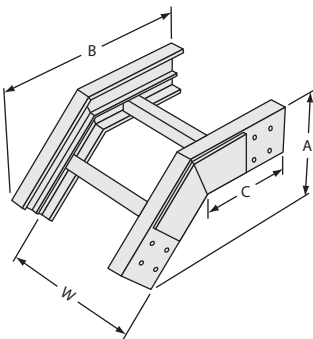
45° Vertical Inside Bends [V45I]



45° Vertical Inside Bends

Tray Style	A	B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
LC	11 1/4" (286mm)	20 15/16" (517mm)	11 15/16" (304mm)	15 3/4" (399mm)	37 7/8" (963mm)
CZ, BE, CE	14 1/2" (368mm)	24 3/4" (629mm)	12" (305mm)	18 3/4" (476mm)	45 1/4" (1149mm)
CZD	15 15/16" (405mm)	24 3/4" (629mm)	11 3/16" (284mm)	18 3/4" (476mm)	45 1/4" (1149mm)

45° Vertical Outside Bends [V45O]



45° Vertical Outside Bends

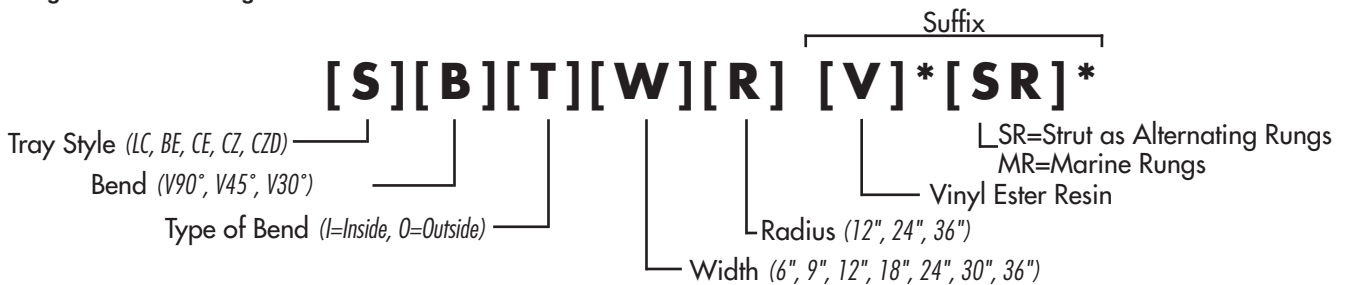
Tray Style	A	B	C (Straight)	Close-Coupled Inside & Outside Fittings	
				Rise	Length
LC	11 1/4" (286mm)	20 15/16" (517mm)	11 15/16" (304mm)	15 3/4" (399mm)	37 7/8" (963mm)
CZ, BE, CE, CZD	14 1/2" (368mm)*	24 3/4" (629mm)	12" (305mm)	18 3/4" (476mm)	45 1/4" (1149mm)
CZD	16 1/2" (419mm)	26 1/8" (664mm)	12" (305mm)	18 3/4" (476mm)	45 1/4" (1149mm)

Vertical inside/Outside Bends - Part Numbering System

The following information will help you order vertical bends for your application. Special fittings are available upon request. Strut as rungs can be provided every other rung at no additional cost. Solid bottom fittings are available through special quotation.

Smooth radius vertical bends are available for Type LC, BE, and CE cable trays in 12" and 24" radius. All Type CZ and CZD fittings will be mitered as will BE and CE 36" radius fittings.

Ordering Information Fittings:

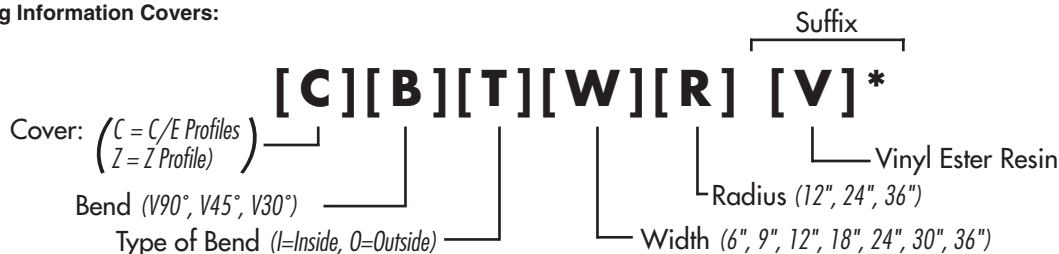


Example: CZV90I2412VSR

CZ Style Tray, 90° Inside Vertical Bend, 24" Wide, 12" Radius, Vinyl Ester Resin, With Alternating Strut Rungs.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine Rungs (see page 214)

Ordering Information Covers:

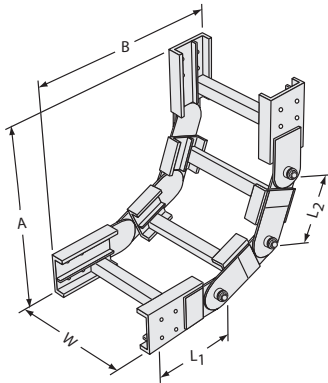
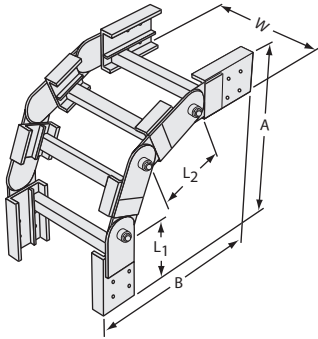


Example: ZV90I2412V

Cover Style Z, 90° Inside Vertical Bend, 24" Wide, 12" Radius, Vinyl Ester Resin.

* Add suffix "V" to specify vinyl ester resin

0° thru 90° Vertical Adjustable Bends [VAB]



Vertical Adjustable Bends

Tray Style	Radius	A or B (@90°)	Leg L ₁	Leg L ₂
LC	12" (305mm)	26 1/8" (664mm)	11 1/4" (286mm)	9 7/8" (251mm)
LC	24" (610mm)	38 1/4" (967mm)	11 1/4" (286mm)	19" (483mm)
CZ, CZD, BE, CE	12" (305mm)	28" (711mm)	12 1/8" (308mm)	9 7/8" (251mm)
CZ, CZD, BE, CE	24" (610mm)	39 15/16" (1014mm)	12 1/8" (308mm)	19" (483mm)
CZ, CZD, BE, CE	36" (914mm)	51 15/16" (1319mm)	12 1/8" (308mm)	28 3/16" (716mm)

Vertical Adjustable Bends - Part Number System

This versatile fitting is fully adjustable from 0° to 90° and can accommodate either an inside or outside bend. Strut rungs can be provided every other rung at no additional cost.

[S][VAB][W][R][V]*[SR]*

[S] Tray Style (LC, BE, CE, CZ, CZD)
[VAB] Vertical Adjustable Bend
[W] Width (6", 9", 12", 18", 24", 30", 36")
[R] Radius (12", 24", 36")
[V]* Vinyl Ester Resin
[SR]* SR=Strut as Alternating Rungs
[MR] MR=Marine Rungs

Example: CZVAB2412VSR
 CZ Style Tray, Vertical Adjustable Bend, 24" Wide, 12" Radius, Vinyl Ester Resin, with Alternating Strut Rungs.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine rungs (see page 214)

Ordering Information Covers:

[C][VAB][W][R][V]*

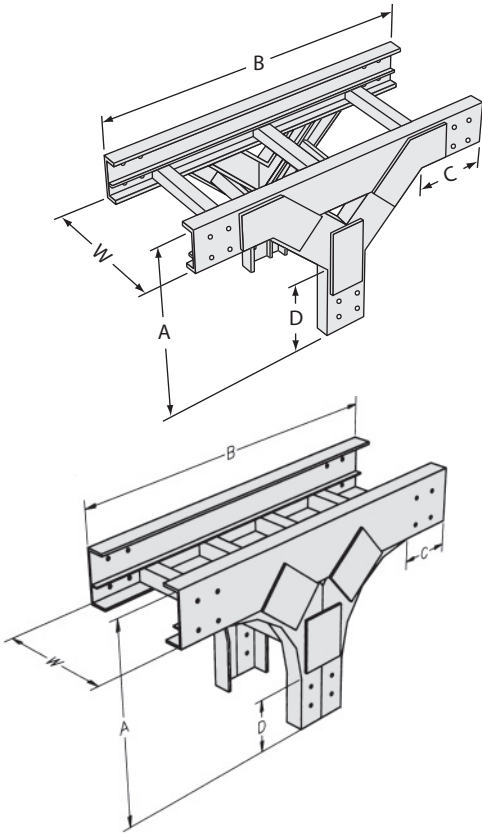
[C] Cover: (C = C/E Profiles)
[Z] Z = Z Profile
[VAB] Vertical Adjustable Bend
[W] Width (6", 9", 12", 18", 24", 30", 36")
[R] Radius (12", 24", 36")
[V]* Vinyl Ester Resin

Example: ZVAB2412V
 Z Style Cover, Vertical Adjustable Bend, 24" Wide, 12" Radius, Vinyl Ester Resin.

* Add suffix "V" to specify vinyl ester resin

FITTINGS

Vertical Tees [VT]



Vertical Tees-Mitered

Tray Style	Radius	A	B	C (Straight)	D (Straight)
CZ	12" (305mm)	25 7/8" (657mm)	44" (1118mm)	10 1/8" (257mm)	11" (279mm)
CZD	12" (305mm)	29 3/4" (756mm)	46" (1169mm)	8 1/4" (210mm)	11" (279mm)
CZ	24" (610mm)	35" (889mm)	64" (1626mm)	14 1/2" (368mm)	14 1/2" (368mm)
CZD	24" (610mm)	37" (940mm)	66" (1676mm)	14 1/2" (368mm)	14 1/2" (368mm)
CZ, BE, CE	36" (914mm)	47" (1194mm)	88" (2235mm)	18 13/16" (478mm)	18 13/16" (478mm)
CZD	36" (914mm)	49" (1245mm)	90" (2286mm)	18 13/16" (478mm)	18 13/16" (478mm)

Vertical Tees-Smooth Radius

Tray Style	Radius	A	B	C (Straight)
LC	12" (305mm)	20" (508mm)	36" (914mm)	5" (127mm)
LC	24" (610mm)	32" (813mm)	60" (1524mm)	5" (127mm)
BE, CE	12" (305mm)	21 15/16" (557mm)	37 7/8" (962mm)	6" (152mm)
BE, CE	24" (610mm)	33 15/16" (862mm)	61 7/8" (1572mm)	6" (152mm)

Vertical Tee - Part Number System

This assembly can be provided with strut rungs at no additional cost. Solid bottom fittings are available through special quotation. Smooth radius vertical tees are available for type LC, BE, and CE cable trays in 12" and 24" radius. All type CZ and CZD fittings will be mitered as will type BE and CE 36" radius fittings.

Ordering Information Fittings:

[S][VT][W][R] [V]*[SR]*

Tray Style (LC, BE, CE, CZ, CZD) Vertical Tee Radius (12", 24", 36") Width (6", 9", 12", 18", 24", 30", 36") Vinyl Ester Resin SR=Strut as Alternating Rungs MR=Marine Rungs

Example: LCVT1224SR
 LC Style Tray, Vertical Tee, 12" Wide, 24" Radius, Polyester Resin, with Alternating Strut Rungs.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine rungs (see page 214)

Ordering Information Covers:

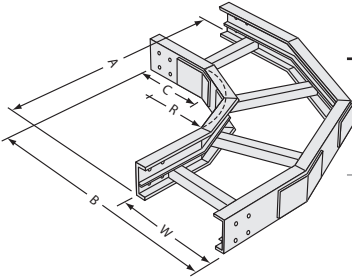
[C][VT][W][R] [V]*

Cover: (C = C/E Profiles) Vertical Tee Radius (12", 24", 36") Width (6", 9", 12", 18", 24", 30", 36") Vinyl Ester Resin

Example: ZVT1224
 Z Style Cover, Vertical Tee, 12" Wide, 24" Radius, Polyester Resin.

* Add suffix "V" to specify vinyl ester resin

90° Horizontal Bends [90H]

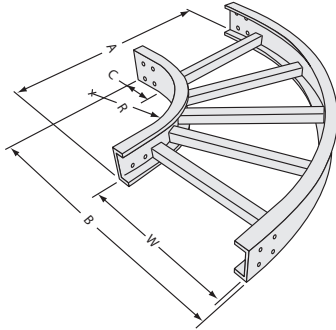


90° Horizontal Bends-Mitered

Tray Style	Radius	AorB (W Tray Width)	C (Straight)	Close-Coupled 90° Fittings	
				Offset	Length
LC	12" (305mm)	23 3/8" (594mm)+W	11 1/4" (286mm)	46 9/16" (1183mm)+W	46 1/2" (1181 mm)+W
LC	24" (610mm)	35 3/8" (899mm)+W	11 1/4" (286mm)	70 5/8" (1794mm)+W	70 9/16" (1772mm)+W
CZ, CZD, BE, CE	12" (305mm)	25" (635mm)+W*	12 15/16" (329mm)**	50 1/16" (1272mm)+W	50" (1270mm)+W
CZ	24" (610mm)	36 3/4" (933mm)+W	16 7/8" (429mm)	70 1/16" (1780mm)+W	70" (1778mm)+W
CZD, BE, CE	24" (610mm)	37" (940mm)+W*	12 15/16" (329mm)**	74 1/16" (1881mm)+W	74" (1880mm)+W
CZ, CZD, BE, CE	36" (914mm)	49" (1245mm)+W*	12 15/16" (329mm)**	98 1/16" (2491mm)+W	98" (2489mm)+W

*For "Z" style siderail add 2" (51 mm) to accommodate the upper flange

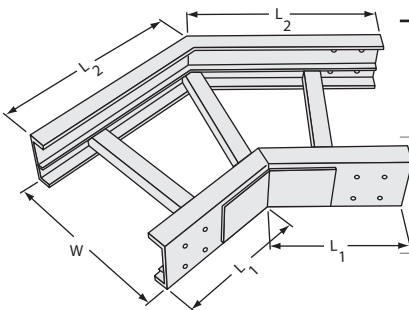
**For "Z" style siderail use 12 5/8" (321 mm)



90° Horizontal Bends-Smooth Radius

Tray Style	Width	Radius	A or B (W Tray Width)	C (Straight)	Close-Coupled 90° Fittings	
					Offset	Length
LC	12" (305mm)	12" (305mm)	17 1/8" (435mm)+W	5 15/16" (127mm)	34 1/16" (865mm)+W	34" (864mm)+W
BE, CE	24" (610mm)	12" (305mm)	18 1/4" (464mm)+W	6" (152mm)	60 1/16" (1526mm)+W	60" (1524mm)+W
BE, CE	36" (914mm)	12" (305mm)	18 1/4" (464mm)+W	6" (152mm)	60 1/16" (1526mm)+W	60" (1524mm)+W
BE, CE	6" (152mm)	24" (610mm)	30 1/4" (768mm)+W	6" (152mm)	72 1/16" (1830mm)+W	72" (1829mm)+W
BE, CE	9" (229mm)	24" (610mm)	30 1/4" (768mm)+W	6" (152mm)	72 1/16" (1830mm)+W	72" (1829mm)+W
BE, CE	12" (305mm)	24" (610mm)	30 1/4" (768mm)+W	6" (152mm)	72 1/16" (1830mm)+W	72" (1829mm)+W
BE, CE	18" (457mm)	24" (610mm)	30 1/4" (768mm)+W	6" (152mm)	72 1/16" (1830mm)+W	72" (1829mm)+W
BE, CE	24" (610mm)	24" (610mm)	30 1/4" (768mm)+W	6" (152mm)	72 1/16" (1830mm)+W	72" (1829mm)+W

45° Horizontal Bends [45H]



45° Horizontal Bends

Tray Style	Tray Widths	L1	L2	Close-Coupled 45° Fittings	
				Offset	Length
LC	6" (152mm)	10 5/8" (270mm)	12 1/16" (323mm)	16 3/16" (411mm)	39" (991mm)
LC	9" (229mm)	10 5/8" (270mm)	13 15/16" (354mm)	17 1/16" (434mm)	41 1/8" (1045mm)
LC	12" (305mm)	10 5/8" (270mm)	15 3/16" (386mm)	17 15/16" (456mm)	43 1/4" (1099mm)
LC	18" (457mm)	10 5/8" (270mm)	17 1/16" (449mm)	19 11/16" (500mm)	47 1/2" (1207mm)
LC	24" (610mm)	10 5/8" (270mm)	20 3/16" (512mm)	21 7/16" (545mm)	51 3/4" (1314mm)
LC	30" (762mm)	10 5/8" (270mm)	22 5/8" (575mm)	23 1/4" (591mm)	56" (1422mm)
LC	36" (914mm)	10 5/8" (270mm)	25 1/8" (638mm)	25" (635mm)	60 1/4" (1530mm)
CZ, BE, CE, CZD	6" (152mm)	13" (330mm)	15 1/2" (394mm)	20 3/16" (513mm)	48 11/16" (1237mm)
CZ, BE, CE, CZD	9" (229mm)	13" (330mm)	16 3/4" (425mm)	21 1/16" (535mm)	50 13/16" (1291mm)
CZ, BE, CE, CZD	12" (305mm)	13" (330mm)	18" (457mm)	21 15/16" (557mm)	52 15/16" (1345mm)
CZ, BE, CE, CZD	18" (457mm)	13" (330mm)	20 7/16" (519mm)	23 11/16" (602mm)	57 3/16" (1453mm)
CZ, BE, CE, CZD	24" (610mm)	13" (330mm)	22 15/16" (583mm)	25 7/16" (646mm)	61 3/8" (1559mm)
CZ, BE, CE, CZD	30" (762mm)	13" (330mm)	25 7/16" (646mm)	27 3/16" (691mm)	65 5/8" (1667mm)
CZ, BE, CE, CZD	36" (914mm)	13" (330mm)	27 15/16" (710mm)	29" (737mm)	69 7/8" (1775mm)

FITTINGS

Horizontal Bends - Part Number System

The following information will help you order horizontal bends for you application. Special fittings are available upon requires. Strut rungs can be provided every other rung at no additional cost. Solid bottom fittings are available through special quotation. Smooth radius bends are available in the following tray sizes:

- LC** 90° Horizontal Bend, 12" width, 12" radius
- BE & CE** 90° Horizontal Bend, 24" and 36" width, 12" radius
- BE & CE** 90° Horizontal Bend, 6", 9", 12", 18", 24", and 30" width, 24" radius

Ordering Information Fitting:

Suffix

[S][H90][W][R] [V]*[SR]*

Tray Style (LC, BE, CE, CZ, CZD) _____

Horizontal Bend (90°, 45°, 30°) _____

Width (6", 9", 12", 18", 24", 30", 36") _____

Radius (12", 24", 36") _____

Vinyl Ester Resin
SR=Strut as Alternating Rungs
MR=Marine Rungs

Example: CE45H3624V
CE Style Tray, 45° Horizontal Bend, 36" Wide, 24" Radius, Vinyl Ester Resin, with Alternating Strut Rungs.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine rungs (see page 214)

Ordering Information Covers:

Suffix

[C][H90][W][R] [V]*

Cover: (C = C/E Profiles)
(Z = Z Profile) _____

Horizontal Bend (90°, 45°, 30°) _____

Width (6", 9", 12", 18", 24", 30", 36") _____

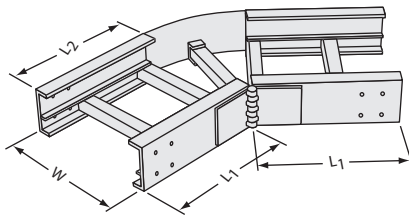
Radius (12", 24", 36") _____

Vinyl Ester Resin

Example: C45H3624V
C Style Cover, 45° Horizontal Bend, 36" Wide, 24" Radius, Vinyl Ester Resin

* Add suffix "V" to specify Vinyl ester resin

Horizontal Adjustable Bends [HAB]



Horizontal Adjustable Bends

Tray style	Angle Adjustment Range	Leg L ₁	Leg L ₂
LC	25°-65°	16 1/16" (408mm)	16 1/16" (408mm)
LC	60°-100°	16 1/16" (408mm)	16 1/16" (408mm)
CZ, CZD, BE, CE	25°-65°	18" (457mm)	18" (457mm)
CZ, CZD, BE, CE	60°-100°	18" (457mm)	18" (457mm)

Horizontal Adjustable Bends Part Number System

This versatile fitting is offered in two designs to accommodate a full range of adjustment.

Style "A" design is adjustable from 25° to 65°.

Style "B" design is adjustable from 60° to 100°

The range of adjustment must be specified when ordering this fitting. Strut rungs can be provided every other rung at no additional cost. Horizontal adjustable bends are available in all tray widths except 6".

Ordering Information Fittings:

Suffix

[S][HAB][W][A] [V]*[SR]*

Tray Style (LC, BE, CE, CZ, CZD) _____

Horizontal Adjustable Bend _____

Width (6", 9", 12", 18", 24", 30", 36") _____

Vinyl Ester Resin
SR=Strut as Alternating Rungs
MR=Marine Rungs
Adjustment Range (A: 25° to 65°, B: 60° to 100°)

Example: BEHAB12BP
BE Style Tray, Horizontal Adjustable Bend, 12" Wide, 60° to 100° Adjustment Range, Polyester Resin.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" for Marine Rungs (see page 214)

Ordering Information Covers:

Suffix

[C][HAB][W][A] [V]*

Cover: (C = C/E Profiles)
(Z = Z Profile) _____

Horizontal Adjustable Bend _____

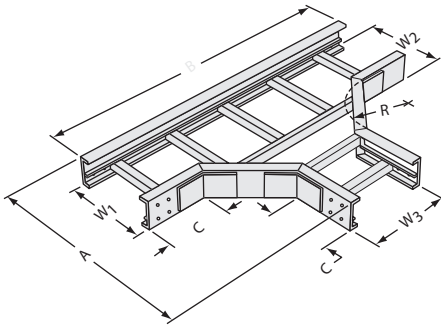
Width (6", 9", 12", 18", 24", 30", 36") _____

Vinyl Ester Resin
Adjustment Range (A: 25° to 65°, B: 60° to 100°)

Example: CHAB12BP
C Style Cover, Horizontal Adjustable Bend, 12" Wide, 60° to 100° Adjustment Range, Polyester Resin

* Add suffix "V" to specify Vinyl ester resin

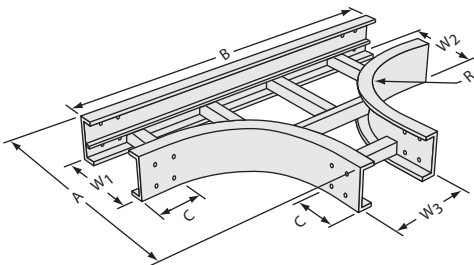
Horizontal Tees [T]



Horizontal Tees-Mitered

Tray Style	Radius	A (W=Tray Width)	B	C (Straight)
CZ, CZD	12" (305mm)	27" (686mm)+W1 or W2	50" (1270mm)+W3	12 3/16" (310mm)
CZ	24" (610mm)	26" (660mm)+W1 or W2	48" (1219mm)+W3	6 1/8" (156mm)
CZD	24" (610mm)	39" (991 mm)+W1 or W2	74" (1880mm)+W3	12 3/16" (310mm)
CZ, CZD, BE, CE	36" (914mm)	49" (1245mm)+W1* or W2*	98" (2489mm)+W3	12 15/16" (329mm)*

† For Reducing Tees use wider of W1 or W2
 *For "Z" style siderail add 2" (51 mm) to accommodate the upper flange
 *For "Z" style siderail use 12 3/16" (310mm)



Horizontal Tees-Smooth Radius

Tray Style	Radius	A [†] (W=Tray Width)	B	C (Straight)
LC	12" (305mm)	17 1/8" (435mm)+W1 or W2	34" (864mm)+W3	5" (127mm)
LC	24" (610mm)	41 1/8" (1095mm)+W1 or W2	58" (1473mm)+W3	5" (127mm)
BE, CE	12" (305mm)	18 1/4" (464mm)+W1 or W2	36" (914mm)+W3	6" (152mm)
BE, CE	24" (610mm)	30 1/4" (786mm)+W1 or W2	60" (1524mm)+W3	6" (152mm)

† For Reducing Tees use wider of W1 or W2

Horizontal Tees - Part Number System

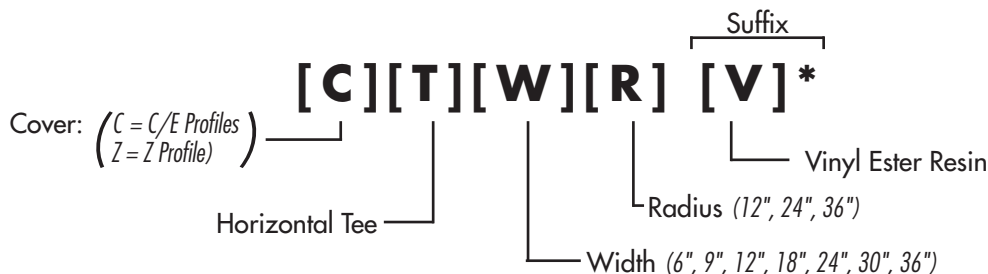
This assembly is commonly provided with equal width legs for standard tees but can also be provided with reduced width legs. Strut as rungs can be provided every other rung at no additional cost. Solid bottom fittings and reducing tees are available through special quotation. Smooth radius horizontal tees are available for type LC, BE and CE cable trays in 12" and 24" radius. All type CZ, and CZD fittings will be mitered as will type BE and CE 36" radius fittings.



Example: CZT3624
 CZ Style Tray, Horizontal Tee, 36" Wide,
 24" Radius, Polyester Resin.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine rungs (see page 214)

Ordering Information Covers:

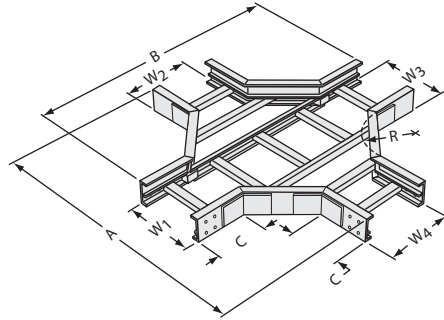


Example: ZT3624
 Z Style Cover, Horizontal Tee, 36" Wide, 24" Radius, Polyester Resin

* Add suffix "V" to specify Vinyl ester resin

FITTINGS

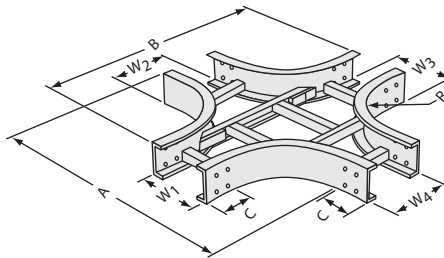
Horizontal Crossovers [X]



Horizontal Crossovers-Mitered

Tray Style	Radius	A (W=Tray Width)	B	C (Straight)
CZ, CZD	12" (305mm)	50" (1270mm)+W1 or W3	50" (1270mm)+W2 or W4	12 3/16" (310mm)
CZ	24" (610mm)	48" (1219mm)+W1 or W3	48" (1219mm)+W2 or W4	6 1/8" (156mm)
CZD	24" (610mm)	74" (1880mm)+W1 or W3	74" (1880mm)+W2 or W4	12 3/16" (310mm)
CZ, CZD, BE, CE	36" (914mm)	98" (2489mm)+W1 or W3	98" (2489mm)+W2 or W4	12 15/16" (329mm)*

For Reducing Crossovers use wider of W1 or W3
 For Reducing Crossovers use wider of W2 or W4
 *For "Z" style siderail use 12 3/16" (310mm)



Horizontal Crossovers-Smooth Radius

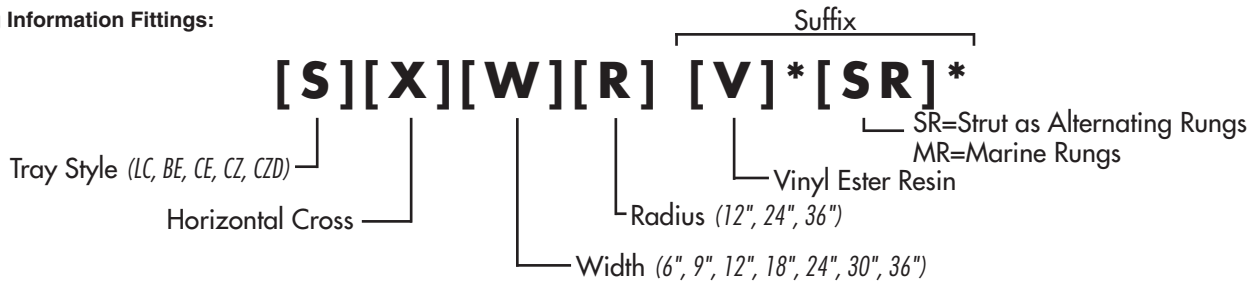
Tray Style	Radius	A (W=Tray Width)	B	C (Straight)
LC	12" (305mm)	34" (864mm)+W1 or W3	34" (864mm)+W1 or W3	5" (127mm)
LC	24" (610mm)	58" (1473mm)+W1 or W3	58" (1473mm)+W1 or W3	5" (127mm)
BE, CE	12" (305mm)	36" (914mm)+W1 or W3	36" (914mm)+W1 or W3	6" (152mm)
BE, CE	24" (610mm)	60" (1524mm)+W1 or W3	60" (1524mm)+W1 or W3	6" (152mm)

For Reducing Crossovers use wider of W1 or W3
 For Reducing Crossovers use wider of W2 or W4

Horizontal Cross - Part Number System

This assembly is commonly provided with equal width legs for standard crosses but can also be provided with reduced width legs. Strut as rungs can be provided every other rung at no additional cost. Solid bottom fittings and reducing tees are available through special quotation. Smooth radius horizontal tees are available for type LC, BE, and CE cable trays in 12" and 24" radius. All type CZ, and CZD fittings will be mitered as will type BE and CE 36" radius fittings.

Ordering Information Fittings:



Example: BEX1812
 BE Style Tray, Horizontal Cross, 18" Wide,
 12" Radius, Polyester Resin.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs, add "MR" to specify Marine rungs (see page 214)

Ordering Information Covers:

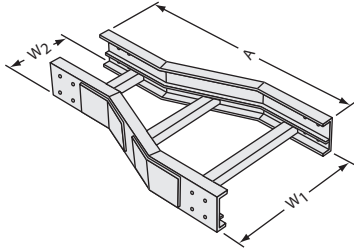


Example: CX1812
 C Style Cover, Horizontal Cross, 18" Wide, 12" Radius, Polyester Resin

* Add suffix "V" to specify Vinyl ester resin

Straight Reducers [RS]

STRAIGHT REDUCERS



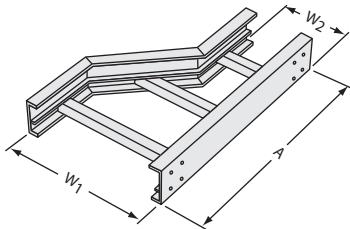
Straight Reducers

Part Number	W1*	W2*	LC Tray Style A	CZ, BE, CE, CZD Tray Style A
RS0906	09" (229mm)	06" (152mm)	21" (533mm)	33 3/16" (852mm)
RS1206	12" (305mm)	06" (152mm)	30" (762mm)	41 1/16" (1043mm)
RS1209	12" (305mm)	09" (229mm)	21" (533mm)	33 3/16" (852mm)
RS1806	18" (457mm)	06" (152mm)	30" (762mm)	40 1/2" (1029mm)
RS1809		09" (229mm)		36 7/8" (937mm)
RS1812		12" (305mm)		41 1/16" (1043mm)
RS2406	24" (610mm)	06" (152mm)	30" (762mm)	47 3/4" (1213mm)
RS2409		09" (229mm)		44 1/8" (1121 mm)
RS2412		12" (305mm)		40 1/2" (1029mm)
RS2418	24" (610mm)	18" (457mm)	30" (762mm)	41 1/16" (1043mm)
RS3006	30" (762mm)	06" (152mm)	30" (762mm)	55" (1397mm)
RS3009	30" (762mm)	09" (229mm)		51 3/8" (1305mm)
RS3012		12" (305mm)		47 3/4" (1213mm)
RS3018	30" (762mm)	18" (457mm)	30" (762mm)	40 1/2" (1029mm)
RS3024		24" (610mm)		41 1/16" (1043mm)
RS3606	36" (914mm)	06" (152mm)	30" (762mm)	62 3/16" (1580mm)
RS3609		09" (229mm)		58 9/16" (1487mm)
RS3612		12" (305mm)		55" (1397mm)
RS3618	36" (914mm)	18" (457mm)	30" (762mm)	47 3/4" (1213mm)
RS3624		24" (610mm)		40 1/2" (1029mm)
RS3630		30" (762mm)		41 1/16" (1043mm)

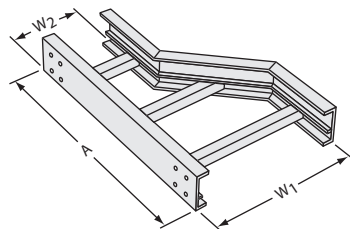
For "Z" style siderail add 4 (102mm) to accommodate the upper flange.

Right & Left Reducers [RR] or [RL]

RIGHT REDUCERS



LEFT REDUCERS



Right and Left Reducers

Part Number	W1*	W2*	LC Tray Style A	CZ, BE, CE, CZD Tray Style A
RR0906 or RL0906	09" (229mm)	06" (152mm)	30" (762mm)	33 1/4" (845mm)
RR1206 or RL1206	12" (305mm)	06" (152mm)		40 1/2" (1029mm)
RR1209 or RL1209	12" (305mm)	09" (229mm)		33 1/4" (845mm)
RR1806 or RL1806	18" (457mm)	06" (152mm)	30" (762mm)	38" (965mm)
RR1809 or RL1809		09" (229mm)		35" (889mm)
RR1812 or RL1812		12" (305mm)		40 1/2" (1029mm)
RR2406 or RL2406	24" (610mm)	06" (152mm)	39" (991mm)	44" (1118mm)
RR2409 or RL2409		09" (229mm)	39" (991mm)	41" (1041mm)
RR2412 or RL2412		12" (305mm)	30" (762mm)	38" (965mm)
RR2418 or RL2418	24" (610mm)	18" (457mm)	30" (762mm)	40 1/2" (1029mm)
RR3006 or RL3006	30" (762mm)	06" (152mm)	45" (1143mm)	50" (1270mm)
RR3009 or RL3009	30" (762mm)	09" (229mm)	39" (991 mm)	47" (1194mm)
RR3012 or RL3012		12" (305mm)	39" (991 mm)	44" (1118mm)
RR3018 or RL3018	30" (762mm)	18" (457mm)	30" (762mm)	38" (965mm)
RR3024 or RL3024		24" (610mm)	30" (762mm)	40 1/2" (1029mm)
RR3606 or RL3606	36" (914mm)	06" (152mm)	48" (1219mm)	56" (1422mm)
RR3609 or RL3609		09" (229mm)	45" (1143mm)	53" (1346mm)
RR3612 or RL3612		12" (305mm)	45" (1143mm)	50" (1270mm)
RR3618 or RL3618	36" (914mm)	18" (457mm)	39" (991mm)	44" (1118mm)
RR3624 or RL3624		24" (610mm)	30" (762mm)	38" (965mm)
RR3630 or RL3630		30" (762mm)	30" (762mm)	40 1/2" (1029mm)

For "Z" style siderail add 4" (102mm) to accommodate the upper flange.

FITTINGS / SPLICE PLATES

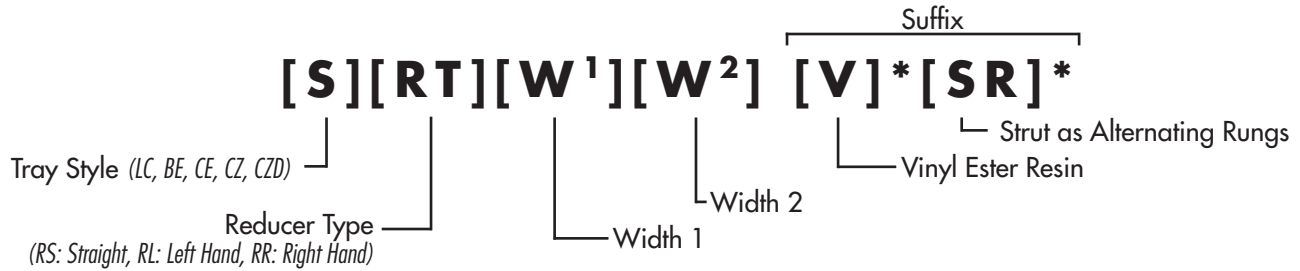
Reducers - Part Number System

Reducers are available in three styles:

- Straight,
- Left Hand Offset
- Right Hand Offset.

Strut rungs can be provided at every other run location at no additional cost. Solid bottom fittings are available through special quotation

Ordering Information Fittings:



Example: BERS2412
BE Style Tray, Straight Reducer, 24" Width,
12" Width, Polyester Resin.

* Add suffix "V" to specify vinyl ester resin, add "SR" to specify strut as alternating rungs

Ordering Information Covers:



Example: CRS2412
C Style Cover, Straight Reducer, 24" Width, 12" Width, Polyester Resin

* Add suffix "V" to specify Vinyl ester resin

Splice Plates

The COPE-GLAS Cable Tray System offers a full line of fiberglass accessories to suit any application. All accessories must be ordered individually to complete the system.

Splice Plates

Splice plates for system assembly come in six variations designed for specific applications: straight, expansion straight, fixed angle horizontal, fixed angle vertical, horizontal adjustable and vertical adjustable. Low Profile (LC) splice plates require six 3/8-inch fasteners while splice

plates for standard and deep tray require eight 3/8-inch fasteners. Splice plates and fasteners are sold separately and are not provided with straight sections or fittings. The part numbers shown are for polyester splice plates. To specify vinyl ester splice plates, add the suffix "V" to the part number. All Low Profile splice plate part numbers are designated with an "L" prefix.

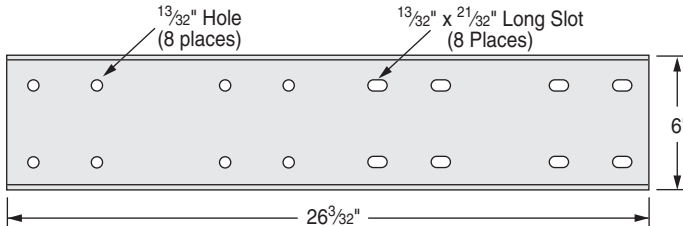
Example: LS12

Splice plates are shown on the next page.

Straight Splice Plates

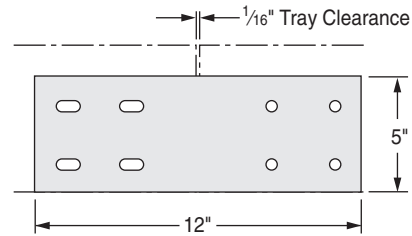
Used for tray-to-tray or tray-to-fitting connections.

Mid Span (Part Numbers: S12-MID)

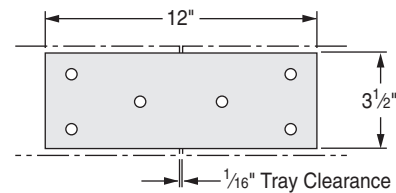


Note: The S12-MID is for use with BE and CE Style Fiberglass Cable Tray

Standard (Part Numbers: S12)



Low Profile (Part Numbers: LS12)



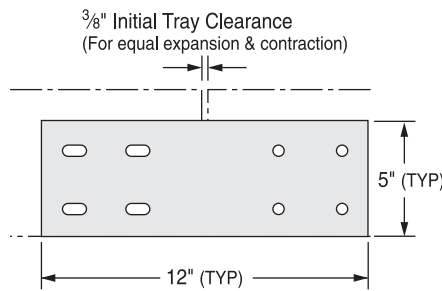
Expansion Splice Plates

Used to accommodate thermal expansion/contraction of extended straight tray runs. The following table should be used as a guideline in determining the number of expansion splice plates needed for your application.

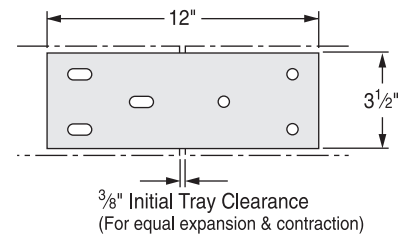
Temperature Differential Deg. F	Tray Length for 1" Expansion	Max Distance Between Expansion Splices
25°	667 ft.	417 ft.
50°	333 ft.	208 ft.
75°	222 ft.	139 ft.
100°	167 ft.	104 ft.
125°	133 ft.	83 ft.
150°	111 ft.	69 ft.
175°	95 ft.	59 ft.

The 1 inch slotted holes in each expansion connector allow 5/8" total expansion or contraction.

Standard (Part Numbers: ES12)



Low Profile (Part Numbers: LES12)

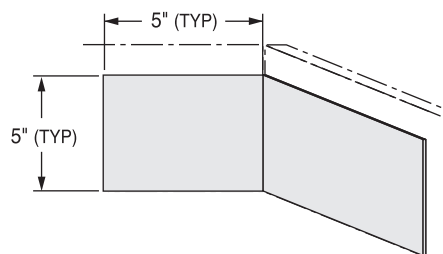


Fixed Angle Horizontal Splice Plates

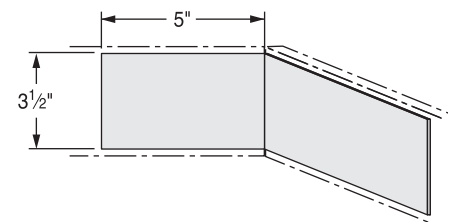
Often field situations necessitate unplanned changes in the horizontal or vertical direction of a cable tray run. Fixed angle and adjustable splice plates provide a means to make horizontal and vertical direction changes in the field. These splice plates may also be used to fabricate special fittings.

Used for 90°, 45°, and 22.5° horizontal direction changes.

Standard (Part Numbers: H90, H45, H22.5)



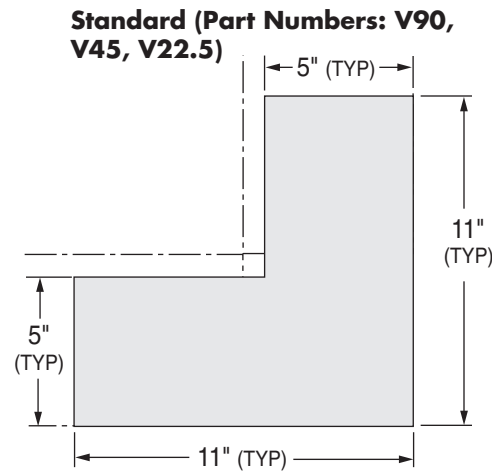
Low Profile (Part Numbers: LH90, LH45, LH22.5)



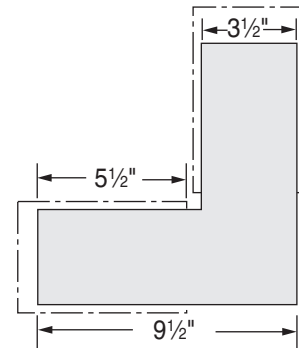
SPLICE PLATES & HARDWARE

Fixed Angle Vertical Splice Plates

Used for 90°, 45°, and 22.5° vertical direction changes.



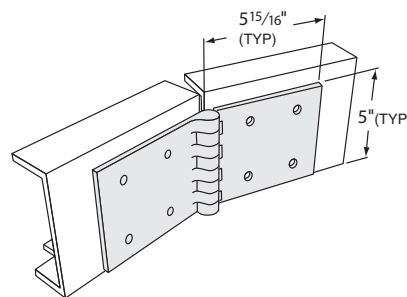
Low Profile (Part Numbers: LV90, LV45, LV22.5)



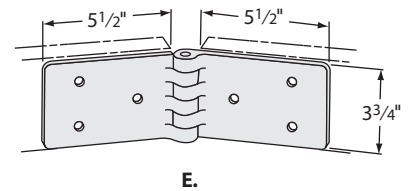
Adjustable Horizontal Splice Plates

Used for variable horizontal direction changes.

Standard (Part Number: H12)



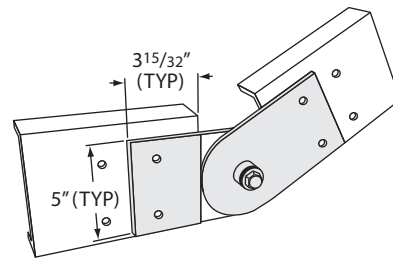
Low Profile (Part Number: LH12)



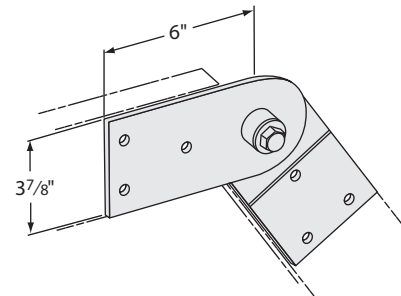
Adjustable Vertical Splice Plates

Used for variable vertical direction changes.

Standard (Part Number: V12)



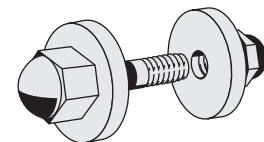
Low Profile (Part Number: LV12)



Cable Tray Hardware

The COPE-GLAS cable tray system offers four types of splice plate fasteners; Fiberglass Encapsulated 316 Stainless Steel, Standard 316 Stainless Steel, Silicon Bronze and Monel. Each bolt set with the exception of the fiberglass encapsulated hardware includes one bolt, one nut, and two washers. The fiberglass encapsulated hardware includes molded collars which act as washers and provide a smooth sealing surface. It is recommended that all splice plate fasteners be installed with a hex head socket wrench and torqued to a maximum 15 ft./lbs.

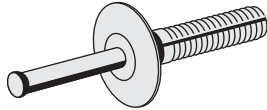
Part Numbers	Size	Type
FECNBSS	3/8-16 x 1"	Fiberglass Encapsulated
SSNBW2-316	3/8-16 x 1"	316 Stainless Steel
SBNBW2	3/8-16 x 1"	Silicon Bronze
MONBW2	3/8-16 x 1"	Monel



Rivet [NDR1]

Nylon Drive Rivet is used to secure cover or barrier strip to tray.

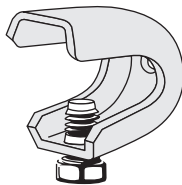
Part Number: NDR1



Cover Clamp [CC1]

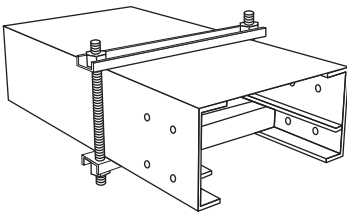
PVC coated steel cover clamp designed for use with "Z" profile tray and fittings.

Part Number: CC1



Cover Clamp [CCE]

Fiberglass cover clamp designed for use with all "E" profile trays and fittings. Available in polyester or vinyl ester. To specify vinyl ester, add suffix "V" to part number.

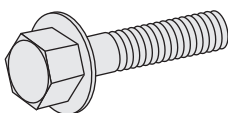


Part No.	Tray Width	Part No.	Tray Width
CCE06	06"	CCE24	24"
CCE09	09"	CCE30	30"
CCE12	12"	CCE36	36"
CCE18	18"		

Fiberglass Bolt

1/2-13 x 2 vinyl ester hex head bolt for use with hold down clamps.

Part Number: 500PU-200



Hold Down Package

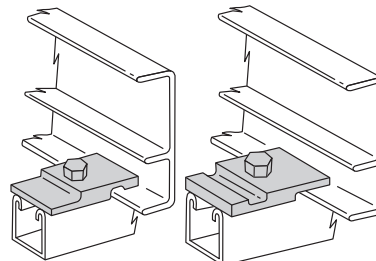
The Hold Down Package consists of the necessary components for securing COPE-GLAS tray to strut or wall brackets. The Hold Down Package includes one each of the following items; HD4AB (hold down clamp), 500PU-200 (1/2-13 x 2 fiberglass bolt) and 500PU-CN (1 1/2 strut nut). The components are also available individually. Installation procedures are located in the installation Procedures Section of this catalog.

Part Number: HDBLTNT

Combination Hold-Down Clamp and Expansion Guide

Hold-Down side secures and prevents lateral movement of cable tray while expansion side allows for thermal expansion and contraction of cable tray.

Part Number: HD4AB

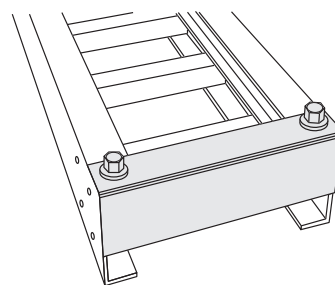


Hold Down Kit

Hold Down Expansion Guide Kit

End Plates

To order appropriate End Plate, see chart. To specify vinyl ester, add suffix "V" to part number (hardware not included).

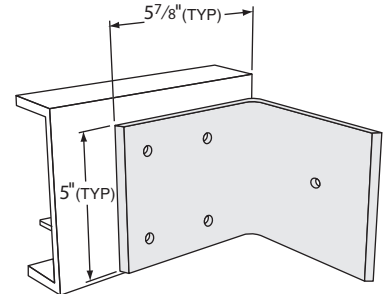


Tray Width	Siderail Configuration			
	"LC"	"CZ"	"BE/CE"	"CZD"
06"	EPL06	EPZ07	EPE06	EPD06
09"	EPL09	EPZ09	EPE09	EPD09
12"	EPL12	EPZ12	EPE12	EPD12
18"	EPL18	EPZ18	EPE18	EPD18
24"	EPL24	EPZ24	EPE24	EPD24
30"	EPL30	EPZ30	EPE30	EPD30
36"	EPL36	EPZ36	EPE36	EPD36

Floor & Panel Flange

Available in polyester and vinyl ester resin. To specify vinyl ester, add suffix "V" to part number.

Part Numbers: LF400, F400

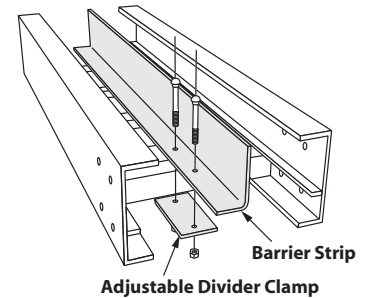


Barrier Strip

Barrier strip is supplied in ten foot lengths and is intended for field installation unless otherwise indicated. For securing barrier strip to tray, we recommend the use of Nylon Drive Rivets (Part #NDR1) which require field drilling or Adjustable Divider Clamps (Part ADC1). Barrier strip is available in polyester and vinyl ester resin types. To specify vinyl ester, add suffix "V" to part number.

Example: RGBS4V

Tray Style	Part Number	Dimensions
Low Profile	RGBS3	3" x 2" x 3/16"
Basic	RGBS4	4" x 2" x 3/16"
Deep	RGBS6	6" x 2" x 3/16"



Adjustable Divider Clamp

The Adjustable Divider Clamp makes locating the barrier strip a snap. The ADC is available in polyester and vinyl ester resin. To specify vinyl ester, add suffix "V" to part number. Two clamps per ten foot section of barrier strip are recommended.

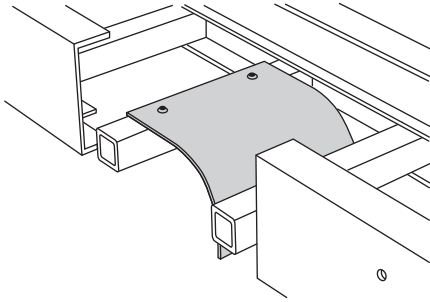
Tray Style	Part Number
Low Profile	LADC1
Basic	ADC1
Deep	ADC1

ACCESSORIES

Drop Outs

Drop Outs are easily fastened to tray rungs with two Nylon Drive Rivets (NDR1). Nylon

Drive Rivets are separate order items. To specify vinyl ester, add suffix "V" to part number.

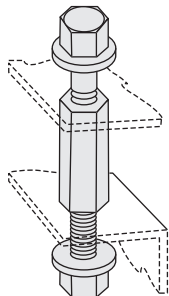


Tray Width	Part Number
06"	D006
09"	D009
12"	D012
18"	D018
24"	D024
30"	D030
36"	D036

Cover Stand-Offs

Cover Stand-Offs secure cable tray cover to tray or fittings while providing a ventilation gap for cables.

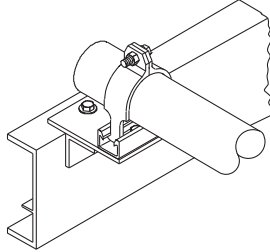
The S0200 is designed to be used with all "Z" and "E" profile cable trays. It is supplied with a threaded fiberglass stand-off and two 3/8" diameter, non-metallic bolts (375PU-125). The S0200 requires field drilling. Five pairs of clamps are recommended per ten foot length of cable tray cover.



Part Number: S0200

Conduit to Cable Tray Clamp

The Cope-Glas Conduit to Cable Tray Clamp allows a smooth transition for electrical conduits to Cope-Glas Cable Tray. The clamp is available in either polyester or vinyl ester and is adjustable to accommodate any entry angle. This clamp will work with all Cope-Glas tray styles. To order, specify the correct conduit size. For vinyl ester, add the suffix "V" to the part number.

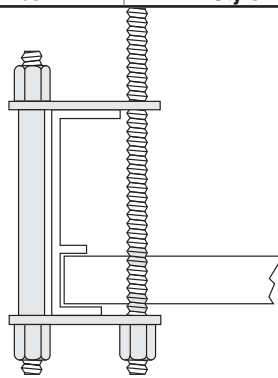


Conduit Size	Part Number	Conduit Size	Part Number
1/2"	CG-CCB-050	2"	CG-CCB-200
3/4"	CG-CCB-075	2 1/2"	CG-CCB-250
1"	CG-CCB-100	3"	CG-CCB-300
1 1/4"	CG-CCB-125	4"	CG-CCB-400
1 1/2"	CG-CCB-150		

Tray Flange Hanger

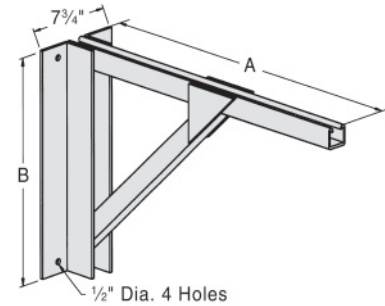
THE COPE-GLAS Flange Hanger is recommended when space requirements make conventional tray hanging and supporting methods impractical. Flange Hanger has a 375 lb. Load rating with a 2.0 safety factor. To specify vinyl ester, add suffix "V" to part number.

Part Number	Tray Style
RGFH1	Low Profile
RGFH2	"E" Profile



Wall Support Brackets

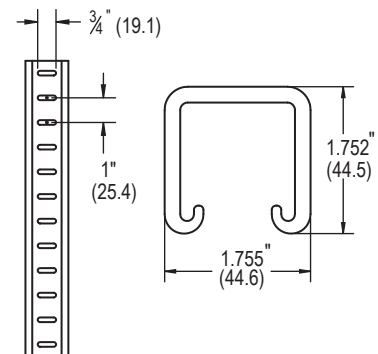
Constructed of Aickinstrut fiberglass components, Wall Support Brackets are an alternative tray hanging system. The Aickinstrut product line offers a complete line of fasteners that can be used with the wall brackets in many different tray clamping schemes. Installation guidelines for wall brackets are located in the installation Procedures Section of this catalog. To specify vinyl ester, add suffix "V" to part number.



Part No.	Tray Width	Dim. A	Dim. B
CTB06A	06"	11"(279mm)	10"(254mm)
CTB09A	09"	14"(356mm)	12"(305mm)
CTB12A	12"	17"(432mm)	13"(330mm)
CTB18A	18"	23"(584mm)	16"(406mm)
CTB24A	24"	29"(737mm)	19"(483mm)
CTB30A	30"	35"(889mm)	22"(559mm)
CTB36A	36"	41"(1041mm)	25"(635mm)

Marine Rung

The marine rung may be specified for several tray components by adding MR to the part number. The marine rung is shown below.





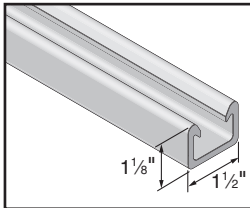
COPE-GLAS™ CABLE TRAY SYSTEM

AICKINSTRUT® SUPPORT SYSTEMS

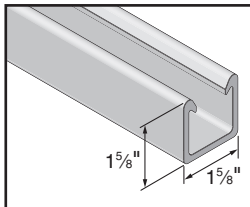
Reference COPE™ WIRE BASKET COPE™ GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

Aickinstrut® Channel

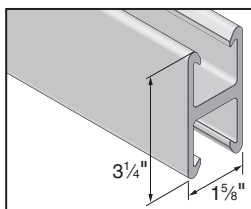
Aickinstrut is commonly used as a support system for cable tray, structural piping and electrical conduit. Aickinstrut is available in three profiles (light duty, heavy duty, and back-to-back), and can be supplied in either polyester or vinyl ester resin. Aickinstrut heavy duty and light duty channels are also available slotted (1" long x 3/8" diameter). The standard channel lengths are ten and twenty feet but special lengths are available upon request. For load/deflection information and installation guidelines, refer to the Installation Procedures Section of this catalog.



Light Duty Channel		
Part Number	Design	Resin System
20P-1000	Solid	Polyester
20V-1000	Solid	Vinyl Ester
20P-1200	Slotted	Polyester
20V-1200	Slotted	Vinyl Ester



Heavy Duty Channel		
Part Number	Design	Resin System
20P-2000	Solid	Polyester
20V-2000	Solid	Vinyl Ester
20P-2200	Slotted	Polyester
20V-2200	Slotted	Vinyl Ester

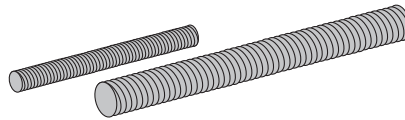


Back-To-Back Channel*	
Part Number	Resin System
20P-2100	Polyester
20V-2100	Vinyl Ester

* Add "-SL" to the part number for slotted strut.

Fiberglass All-Thread Rod

Fiberglass all-thread rods are an excellent choice for hanging and fastening Aickinstrut Channel. Aickinstrut all-thread rods are available in five sizes: 3/8", 1/2", 5/8", 3/4", and 1". All Aickinstrut all-thread rods are manufactured from pultruded vinyl ester resin and are gray in color. The standard rod lengths are four and eight feet.

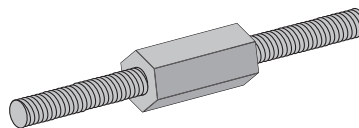


Four Foot Lengths	
Part Number	Size (in.)
200-3827	3/8 - 16 x 48
200-3828	1/2 - 13 x 48
200-3829	5/8 - 11 x 48
200-3830	3/4 - 10 x 48
200-3831	1 - 8 x 48

Eight Foot Lengths	
Part Number	Size (in.)
200-3827-96	3/8 - 16 x 96
200-3828-96	1/2 - 13 x 96
200-3829-96	5/8 - 11 x 96
200-3830-96	3/4 - 10 x 96
200-3831-96	1 - 8 x 96

Aickinstrut® Rod Couplers

Rod couplers are an excellent means for extending Aickinstrut FRP all-thread rods beyond their standard lengths. All Aickinstrut rod couplers are manufactured from glass-reinforced polyurethane and are colored gray.

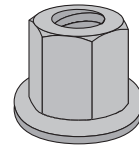


Part Number	Size (in.)	Length (in.)	Shear (lbs.)*
200-3840	3/8 - 16	2 1/4	800
200-3841	1/2 - 13		870
200-3842	5/8 - 11		1500
200-3843	3/4 - 10		1500

*Thread shear values shown represent a 3:1 safety factor.

All-Thread Hex Flange Nuts

Hex flange nuts are manufactured from glass-reinforced polyurethane resin and are available in four sizes.

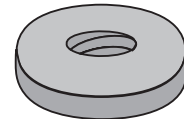


Part Number	Size (in.)	Thread Shear (lbs)*	Torque
375PU-FN-000	3/8 - 16	500	10 in/lbs.
500PU-FN-000	1/2 - 13	1200	3 ft/lbs.
625PU-FN-000	5/8 - 11	2200	8 ft/lbs.
750PU-FN-000	3/4 - 10	2900	12 ft. lbs.

*Thread shear values shown represent a 3:1 safety factor.

All-Thread Washers

COPE-GLAS All-Thread Washers are flat fiberglass washers for use with FRP allthread rods. All-thread rod washers are 1/4" thick with a 1/e" diameter and are available in polyester or vinyl ester resin. To order vinyl ester, add the suffix "V" to the part number.



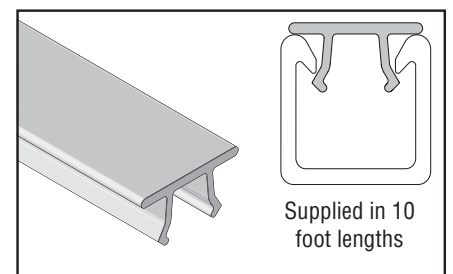
Part Number *	All-Thread Rod Size (in.)
WR375	3/8
WR500	1/2
WR625	5/8
WR750	3/4

*Add the suffix "V" to the part number to specify vinyl ester
Example:WR500V

Channel Capping Strip

Channel capping strip is made from PVC and is provided in 10 foot lengths.

Part Number 20E-5000



COPE-GLAS™ CABLE TRAY SYSTEM

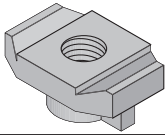


AICKINSTRUT® SUPPORT SYSTEMS

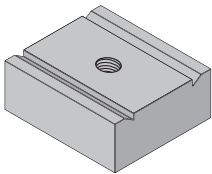
Aickinstrut® Channel Nuts

Aickinstrut Channel Nuts can be used to attach pipe straps, channel fittings or COPEGLAS holddown clamps to Aickinstrut Channel.

The standard duty channel nuts are designed for applications where high thread shear values are not required. The heavy duty channel nuts are designed for applications that require high thread shear and torque values.



Standard Duty			
Part Number	Size (in.)	Thread Shear (lbs.)*	Torque (ft./lbs)
375PU-CN	3/8-16	460	2
500PLJ-CN	1/2	460	3

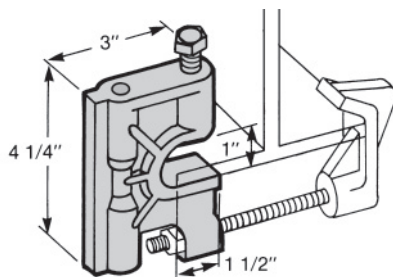


Heavy Duty			
Part Number	Size (in.)	Thread Shear (lbs.)*	Torque (ft./lbs.)
375PU-CNJHD	3/8-16	1400	8
500PU-CNHD	1/2-13	1400	8

*Thread shear values shown a 3:1 safety represent factor.

Hanger Rod Beam Clamps

COPE-GLAS Hanger Rod Beam Clamps are molded from glass-reinforced polyurethane and are available in three sizes: 3/8", 1/2" and 5/8".

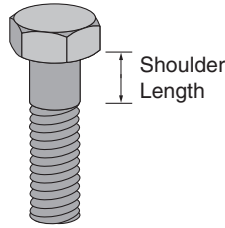


Part Number	Size (in.)	Thread Shear (lbs.)*	Torque (ft./lbs.)
RGBC-1	3/8	500	10
RGBC-2	1/2	500	10
RGBC-3	5/8	500	10

*Thread shear values shown represent a 3:1 safety factor.

Fiberfast Bolts

Fiberfast bolts are available in three diameters (5/16", 3/8" & 1/2") and are injection molded from glass-reinforced polyurethane resin.

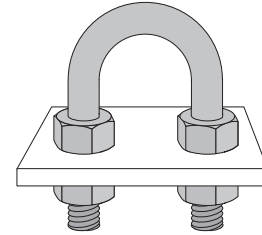


Part Number	Size (in.)	Thread Shear (lbs.)*	Shank Shear (lbs.)	Torque (ft./lbs)
300PU-100	5/16 x 1	225	450	3
300PU-125	5/16 x 1 1/4	225	450	3
300PU-150	5/16 x 1 1/2	225	450	3
375PU-125	3/8 x 1 1/4	250	470	3
375PU-150	3/8 x 1 1/2	250	470	3
375PU-200	3/8 x 2	250	470	3
375PU-250	3/8 x 2 1/2	250	470	3
375PU-300	3/8 x 3	250	470	3
500PU-125	1/2 x 1 1/4	450	870	8
500PU-200	1/2 x 2	450	870	8
500PU-250	1/2 x 2 1/2	450	870	8
500PU-300	1/2 x 3	450	870	8

*Thread shear and shank shear values shown represent a 3:1 safety factor.

Non-Metallic U-Bolts

Non-metallic U-Bolts are injection molded from glass-reinforced polyurethane and are available in sizes from 1/2" - 4" diameter.

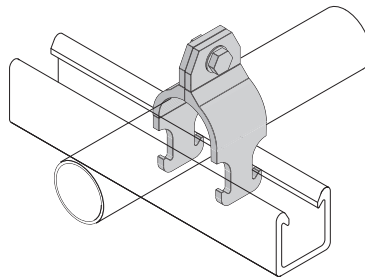


Part Number	Size (in.)	Load (lbs)*	Torque (in/lbs)*
UB-050	1/2	135	40
UB-075	3/4	135	40
UB-100	1	135	40
UB-125	1 1/4	135	40
UB-150	1 1/2	135	40
UB-200	2	135	80
UB-250	2 1/2	135	80
UB-300	3	135	80
UB-350	3 1/2	135	80
UB-400	4	135	80

*Torque and load values shown represent a 3:1 safety factor

K. Rigid Pipe Clamps

Aickinstrut Rigid Pipe Clamps resemble the more traditional style of pipe clamps. These clamps are made from glass-reinforced polyurethane and are sized based on the pipe inside diameter or nominal size.



Part Number	Nominal Size (in.)	PVC Sch. 80 and Rigid Metal	Design Load (lbs)*		FRP Bolt Size (in.)	Torque
			Type 1	Type 2		
PCR-050	1/2	.840	180	25	1/4x1	5 in/lbs
PCR-075	3/4	1.050	180	25	1/4x1	5 in/lbs
PCR-100	1	1.315	180	25	1/4x1	5 in/lbs
PCR-125	1 1/4	1.660	180	25	1/4x1	5 in/lbs
PCR-150	1 1/2	1.900	180	25	1/4 x 1	5 in/lbs
PCR-200	2	2.375	180	25	1/4x1	5 in/lbs
PCR-300	3	3.500	220	50	3/8 x 1 1/4	3 ft/lbs
PCR-400	4	4.500	250	100	3/8 x 1 1/4	3 ft/lbs
PCR-600	6	6.625	250	100	3/8 x 1 1/4	3 ft/lbs

*Design loads shown represent a safety factor 3:1



COPE-GLAS™ CABLE TRAY SYSTEM

AICKINSTRUT® SUPPORT SYSTEMS

Aickinstrut Channel Fittings Legend: P Series Fittings are Gray Polyester, V Series Fittings are Beige Vinyl Ester, PU Series Fittings are Gray Polyurethane,
 Note: All fittings are provided with $\frac{13}{32}$ " holes which accommodate $\frac{3}{8}$ " hardware

Intro.

NEMA

LADDER

COPE™

I-BEAM™

COPE™

HAT

COPE™

TROF

COPE™

CHANNEL

COPE-GLAS™

COPE™

WIRE BASKET

COPE™

WIRE BASKET

Reference

Reference

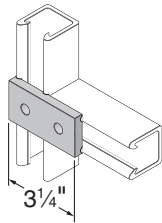
Reference

Reference

Reference

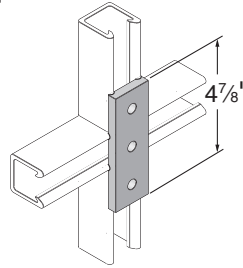
Part Number

20P-2500
20V-2500



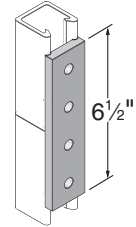
Part Number

20P-2502
20V-2502



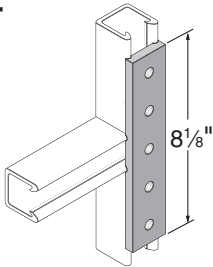
Part Number

20P-2504
20V-2504



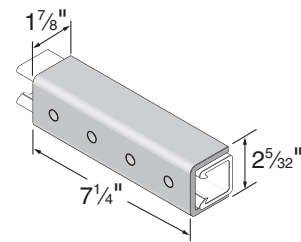
Part Number

20P-2506
20V-2506



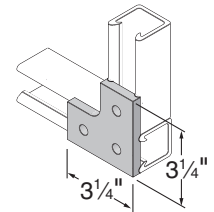
Part Number

50PU-2616



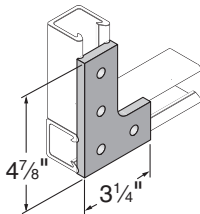
Part Number

20P-2508
20V-2508



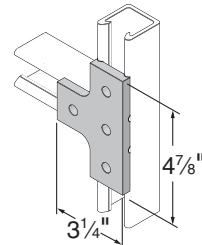
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20P-2510
20V-2510



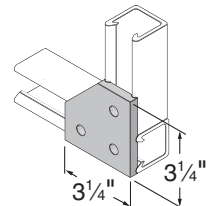
Part Number

20P-2512
20V-2512



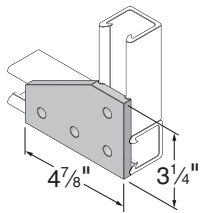
Part Number

20P-2514
20V-2514



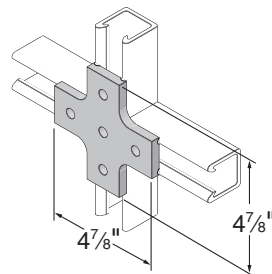
Part Number

20P-2516
20V-2516



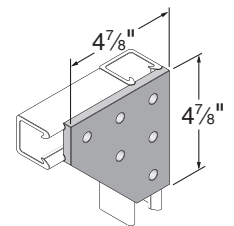
Part Number

20P-2518
20V-2518



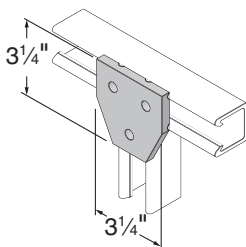
Part Number

20P-2520
20V-2520



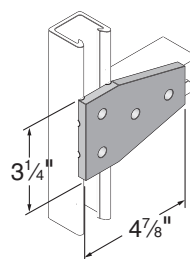
Part Number

20P-2522
20V-2522



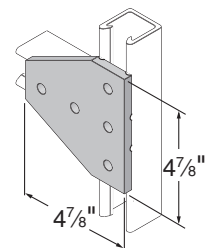
Part Number

20P-2524
20V-2524



Part Number

20P-2526
20V-2526



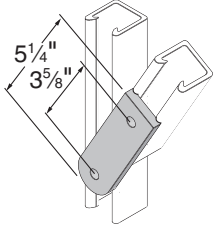
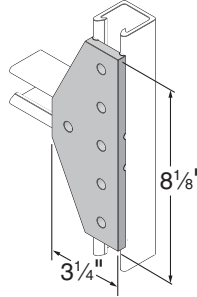
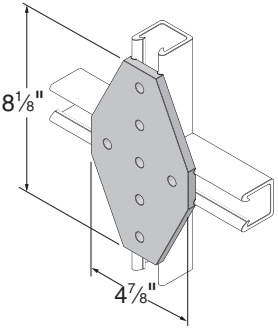
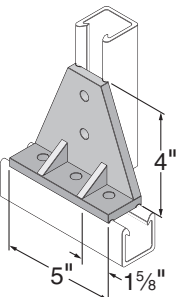
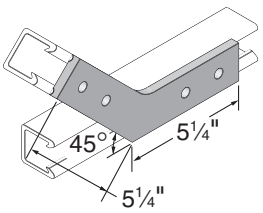
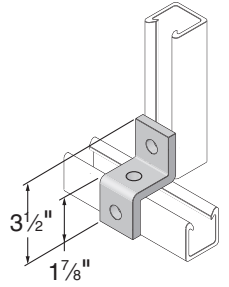
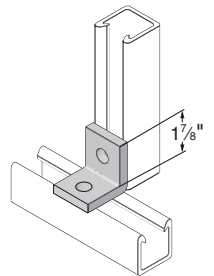
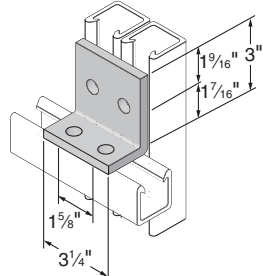
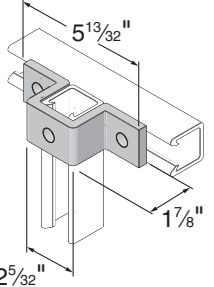
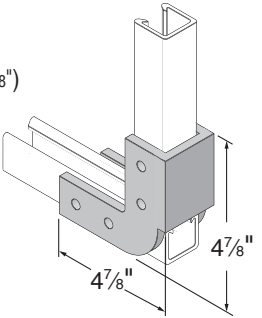
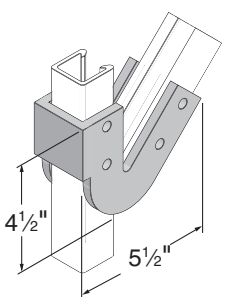
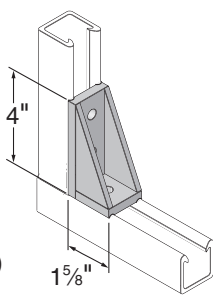
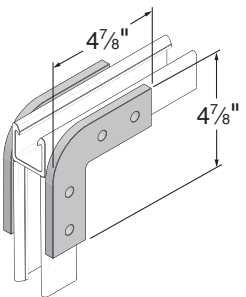
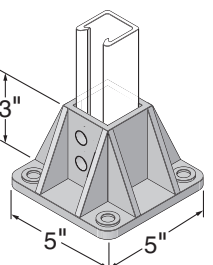
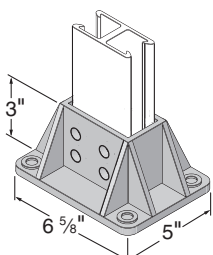
COPE-GLAS™ CABLE TRAY SYSTEM



AICKINSTRUT® SUPPORT SYSTEMS

Aickinstrut Channel Fittings Legend: P Series Fittings are Gray Polyester, V Series Fittings are Beige Vinyl Ester, PU Series Fittings are Gray Polyurethane,

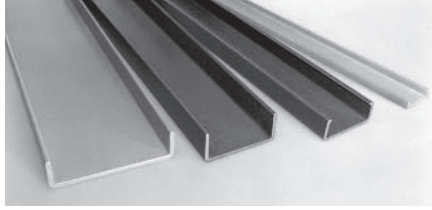
Note: All fittings are provided with $13/32$ " holes which accommodate $3/8$ " hardware

<p>Part Number 20P-2528 20V-2528</p> 	<p>Part Number 20P-2530 20V-2530</p> 	<p>Part Number 20P-2534 20V-2534</p> 
<p>Part Number 50PU-2538</p> 	<p>Part Number 20P-2540 20V-2540</p> 	<p>Part Number 50PU-2611</p> 
<p>Part Number 50PU-2611-SP</p> 	<p>Part Number 20P-2542 20V-2542</p> 	<p>Part Number 50PU-2613</p> 
<p>Part Number 50PU-2008 (1 5/8")</p> 	<p>Part Number 50PU-2045 (1 5/8")</p> 	<p>Part Number 50PU-2636¹ (Flat, without splines) 50PU-2636A² (Splines on long side) 50PU-2636B³ (Splines on short side) 50PU-2936⁴ (Splines on both sides)</p> 
<p>Part Number 50PU-2090 (1 5/8")</p> 	<p>Part Number 20PU-5853 (1 5/8") 20PU-5855 (1 1/8")</p> 	<p>Part Number 20PU-5903 (3 1/4") 20PU-5905 (2 1/4")</p> 



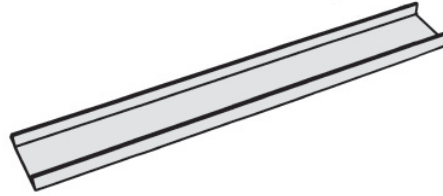
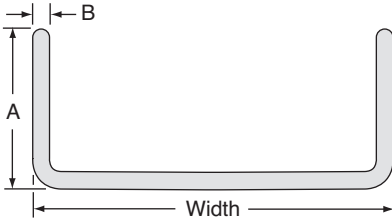
COPE-GLAS™ CABLE TRAY SYSTEM

FIBERGLASS CHANNEL



Fiberglass channel is designed to carry light wiring or tubing loads where a transition from cable tray to individual control points are required. All straight sections are offered in solid or punched construction and are supplied in ten and twenty foot lengths.

COPE-GLAS Channel is available in polyester or vinyl ester resin. Contact factory for vinyl ester channel pricing. Channel fittings are supplied completely assembled from the factory. Special channel fittings that are not standard catalog items are available upon request. Channel splice plates and fasteners are separate order items.



Solid and Punched Straight Channel (10ft. & 20ft. Length)

Solid	Punched	Width	"A"	"B"
CH2-(L)	-Not Avail-	2" (51mm)	1 13/16" (31mm)	1/8" (3mm)
CH3-(L)	CH3-(L)P	3" (76mm)	7/8" (22mm)	1/4" (6mm)
CH4-(L)	CH4-(L)P	4" (102 mm)	1 3/8" (35mm)	3/16" (5mm)
CH6-(L)	CH6-(L)P	6" (152mm)	1 5/8" (41mm)	1/4" (6mm)
CH8-(L)	CH8-(L)P	8" (203mm)	2 3/16" (56mm)	1/4" (6mm)

Punched channel consists of two rows of 1/2" diameter holes on 12" centers.

Channel Fittings [CH]

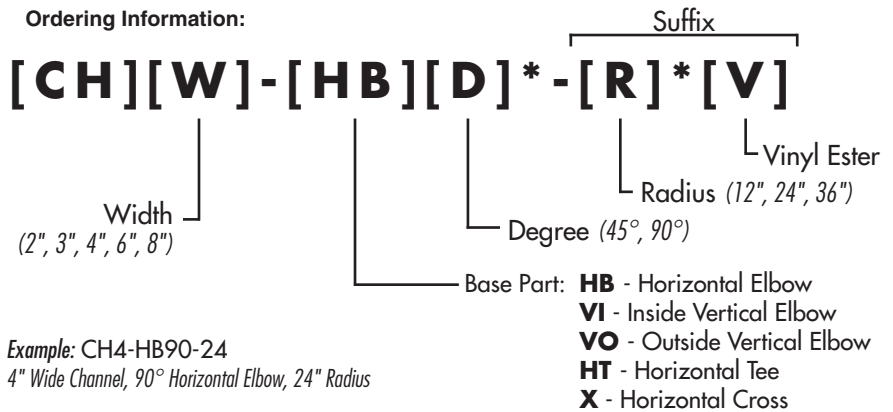
Solid and punched Channel Fittings are available for all channel widths except 2" (2" punched channel fittings are not available). All fittings are preassembled and do not include splice plates and hardware. Contact factory for dimensional information on 45° Channel Fitting bends.

Unless specified otherwise, smooth radius channel fittings will be supplied wherever possible for all 4" (102mm) and 6" (152mm) widths.

Ordering Information

To create a part number, first insert the fitting type from key shown below. Then substitute the appropriate number for "W", the desired radius for "R" and the degree of bend for "D". Add a "P" suffix to the "W" designation to specify punched channel fittings. Channel Fittings are available in polyester or vinyl ester resin. Polyester is standard, to specify vinyl ester resin, add the suffix "V" to the part number.

Ordering Information:



Example: CH4-HB90-24
 4" Wide Channel, 90° Horizontal Elbow, 24" Radius

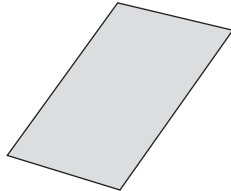
* Radius and degree designations do not apply to tees and crosses.

Note: Connector plates and hardware are not included and must be ordered separately.

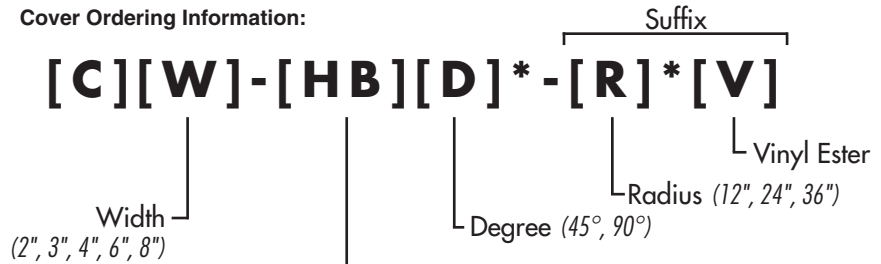
FIBERGLASS CHANNEL

Covers [C]

Covers are used where cable protection is necessary or desired. Covers are available in polyester or vinyl ester resin and are offered in ten foot lengths. To specify vinyl ester resin, add the suffix "V" to the part number.



Cover Ordering Information:



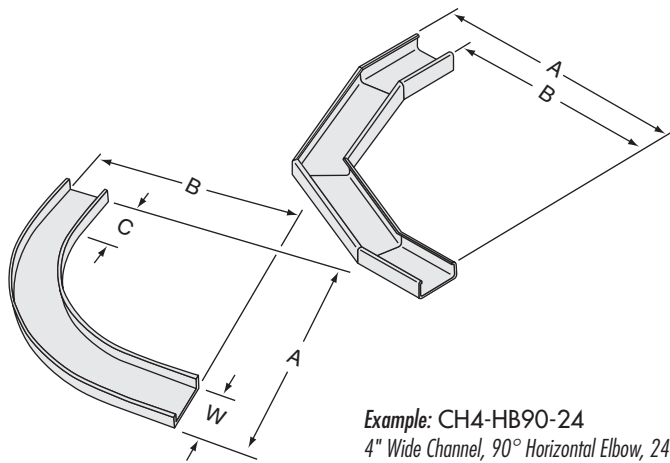
Example: C4-HB90-24
4" Wide Channel Cover, 90° Horizontal Elbow, 24" Radius

- Base Part: **HB** - Horizontal Elbow
VI - Inside Vertical Elbow
VO - Outside Vertical Elbow
HT - Horizontal Tee
X - Horizontal Cross

* Radius and degree designations do not apply to tees and crosses.

Note: Connector plates and hardware are not included and must be ordered separately.

Horizontal Elbows [HB]



Example: CH4-HB90-24
4" Wide Channel, 90° Horizontal Elbow, 24" Radius

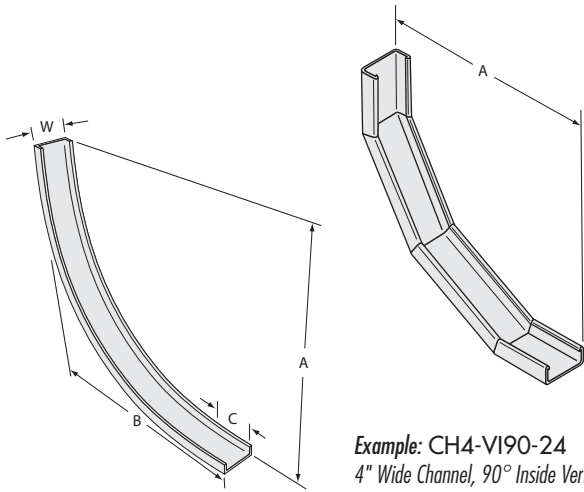
Mitered Radius Dimensions

Radius	A	B
12" (305mm)	17" (432mm)+W	17" (432mm)
24" (610mm)	29" (737mm)+W	29" (737mm)
36" (914mm)	41" (1041mm)+W	41" (1041mm)

Smooth Radius (Available only in 4" and 6" Dimensions)

Radius	W	A or B	C (straight)
12" (305mm)	4"	20" (508mm)	5"
24" (610mm)	(102mm)	32" (813mm)	(127mm)
12" (305mm)	6"		
24" (610mm)	(152mm)		

Inside Vertical Elbow [VI]



Example: CH4-VI90-24
4" Wide Channel, 90° Inside Vertical Elbow, 24" Radius

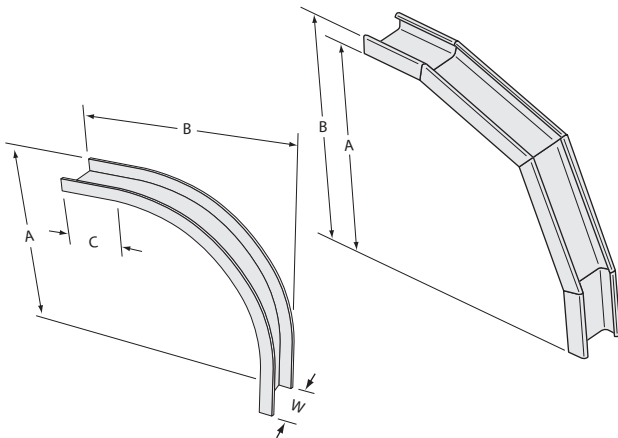
Mitered Radius Dimensions

Radius	A
12" (305mm)	17" (432mm)
24" (610mm)	29" (737mm)
36" (914mm)	41" (1041mm)

Smooth Radius (Available only in 4" & 6" widths)

Radius	W	A or B	C (Straight)
12" (305mm)	4" (102mm)	29 1/8" (740mm)	5" (127mm)
24" (610mm)	6" (152mm)		

Outside Vertical Elbow [VO]



Example: CH4-VO90-24
4" Wide Channel, 90° Outside Vertical Elbow, 24" Radius

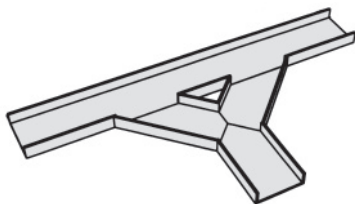
Mitered Radius Dimensions

Radius	A	B
12" (305mm)	17" (432mm)	17" (432mm) + Flange Height
24" (610mm)	29" (737mm)	29" (737mm) + Flange Height
36" (914mm)	41" (1041mm)	41" (1041mm) + Flange Height

Smooth Radius (Available only in 4" widths)

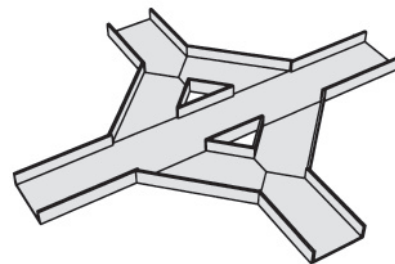
Radius	Channel Width	A or B	C (Straight)
12" (305mm)	4" (102mm)	18 1/8" (460mm)	5" (127mm)
24" (610mm)	6" (152mm)	30 1/8" (765mm)	

Horizontal Tee [HT]



Example: CH4-HT
4" Wide Channel, Horizontal Tee

Horizontal Cross [X]



Example: CH4-X
4" Wide Channel, Horizontal Cross

Horizontal Tees and Crosses are available as part of the COPE-GLAS Channel System. Contact factory for dimensional information.

FIBERGLASS CHANNEL CHANNEL SPLICE PLATES

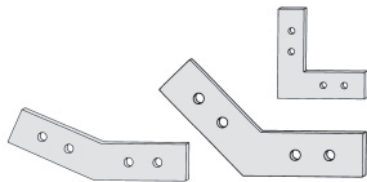
Channel splice plates are available in seven styles and are made from polyester or vinyl ester resin. All splice plates are pre-drilled and do not include assembly fasteners.

Straight Splice Plates [SP]



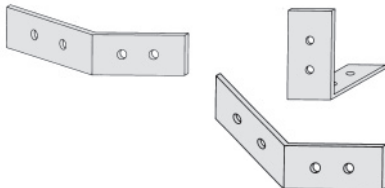
Channel Width	Part Number
2"	CH2-SP
3"	CH3-SP
4"	CH4-SP
6"	CH6-SP
8"	CH8-SP

Horizontal Elbow Splice Plates [SPH]



Channel Width	Part Numbers for Given Angle		
	90°	45°	22 1/2°
2"	CH2-SPH90	CH2-SPH45	CH2-SPH22
3"	CH3-SPH90	CH3-SPH45	CH3-SPH22
4"	CH4-SPH90	CH4-SPH45	CH4-SPH22
6"	CH6-SPH90	CH6-SPH45	CH6-SPH22
8"	CH8-SPH90	CH8-SPH45	CH8-SPH22

Vertical Elbow Splice Plates [SPV]



Channel Width	Part Numbers for Given Angle		
	90°	45°	22 1/2°
2"	CH2-SPV90	CH2-SPV45	CH2-SPV22
3"	CH3-SPV90	CH3-SPV45	CH3-SPV22
4"	CH4-SPV90	CH4-SPV45	CH4-SPV22
6"	CH6-SPV90	CH6-SPV45	CH6-SPV22
8"	CH8-SPV90	CH8-SPV45	CH8-SPV22

Channel Splice Plate Hardware

Assembly hardware sets include:

- (1) 316 stainless steel 1/4"-20 x 3/4" bolt,
- (1) 316 stainless steel 1/4"-20 nut and
- (2) 316 stainless steel flat washers.

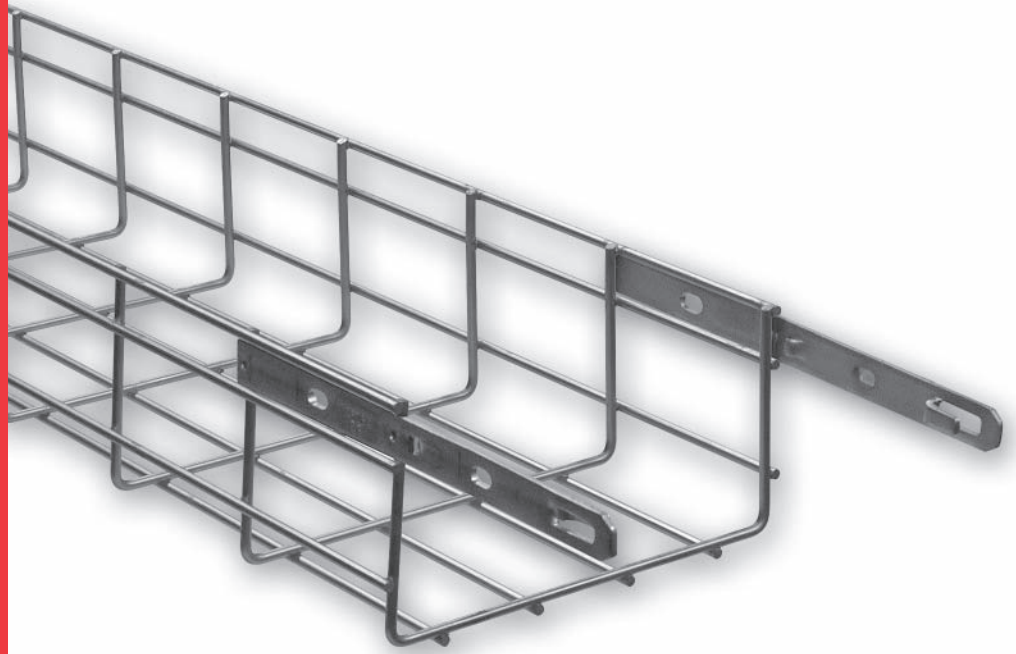
Assembly hardware is sold individually and not provided with channel straight sections or fittings. Four sets are required for each splice plate.

Part Number: 252075



Cope Wire Basket

9



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Grounding & Hardware

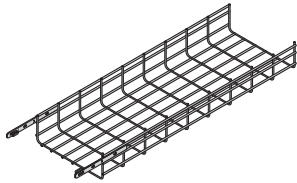
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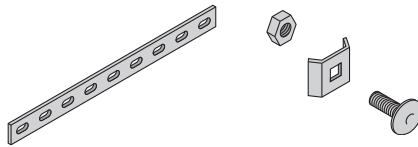
Straight Length

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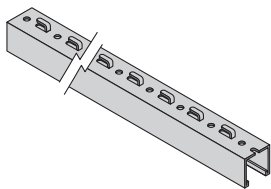
Bar Connectors & Hardware

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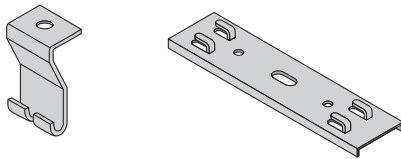
Support Brackets

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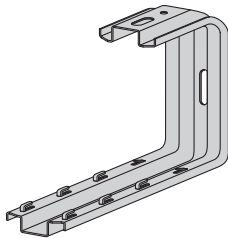
Drop Rod Clips

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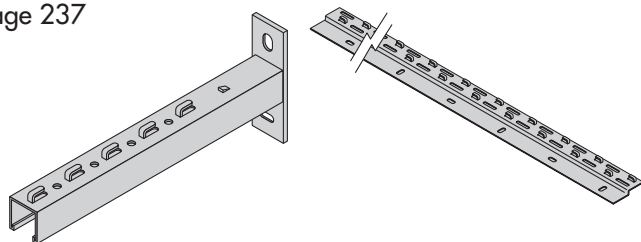
Wall & Ceiling Mounts

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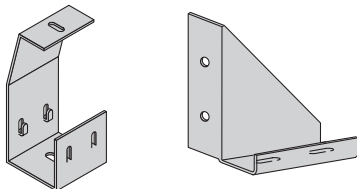
Cantilever & Zed Brackets

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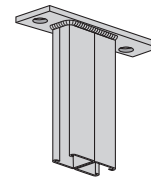
Hangers & Hanging Brackets

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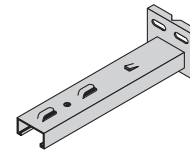
Pendants

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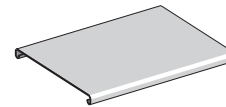
Pedestal Brackets

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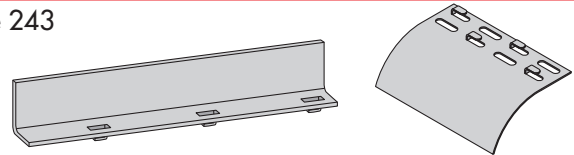
Covers

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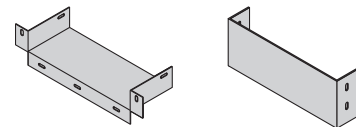
Tray Dividers and Drop Outs

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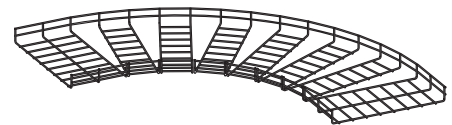
Accessories

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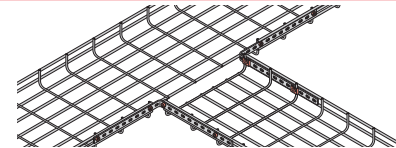
Long & Short Radius Bends

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Cross & Tee Fittings

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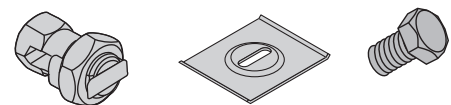
Riser, Reducer & Offset Fittings

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Grounding & Hardware

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WIRE BASKET SYSTEM



OVERVIEW

Product Description

Wire basket tray is a welded wire mesh cable management system produced from high strength steel wires. Wire basket tray is produced by first welding a net, forming the channel, and then finishing after fabrication. The 2" x 4" mesh permits continuous airflow to help prevent heat buildup. In addition, this unique open design prevents the buildup of dust, contaminants and bacterial proliferation.

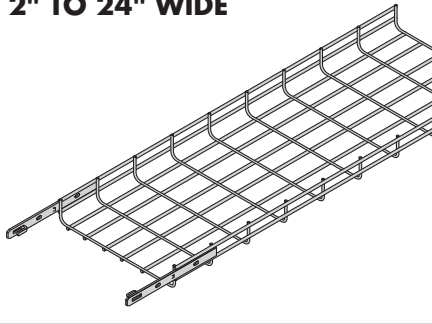
Wire basket tray is produced in standard 10' lengths and is supplied in three channel depths: 2", 4", and 6".

Wire basket tray is offered in nine different widths:

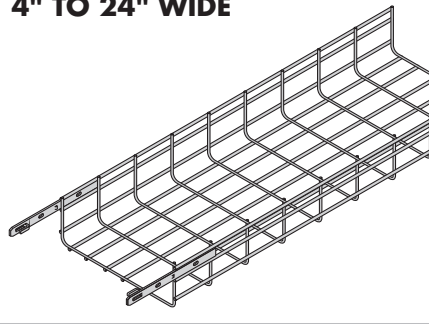
2" (50 mm), 4" (100mm),
6" (150mm), 8" (200mm),
12" (300mm), 16" (400mm),
18" (450mm), 20" (500mm), and
24" (550mm).

Special sizes are available to meet your unique requirements.

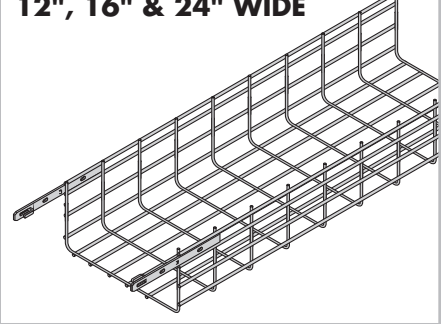
**CAT2 Series – 2" HIGH,
2" TO 24" WIDE**



**CAT4 Series – 4" HIGH,
4" TO 24" WIDE**



**CAT6 Series – 6" HIGH,
12", 16" & 24" WIDE**



Standard Finish

EG — ELECTRO-PLATED ZINC GALVANIZED – (ASTM B633 TYPE III, SC3 • Thickness: .000472" (12µm))

Electrodeposited zinc coating is suitable for most indoor applications and may be used outdoors in mild environmental conditions.

Special Order Finishes

HG — HOT DIP GALVANIZED – (ASTM A123 GRD.55 • Thickness: .0002165" (55µm))

Provided by immersing the product in a molten zinc bath. This treatment is most suitable for outdoor applications or situations where increased corrosion resistance is desired.

**SS — 304 TYPE STAINLESS STEEL or
S1 — 316 TYPE STAINLESS STEEL**

Corrosive resistant stainless steel with no additional surface treatment. This material option provides the best corrosion resistance available. Stainless steel is used primarily in marine environments or food processing facilities.

ZD — DICHROMATE – (ASTM B633 Type II, SC3 • Thickness: .000472" (12µm))

An electro-galvanized zinc plate is applied to the steel base metal. Yellow dichromate is applied over the zinc and results in a gold appearance which acts as a nonporous barrier sealant.

Other – Powder coating available.

How To Order

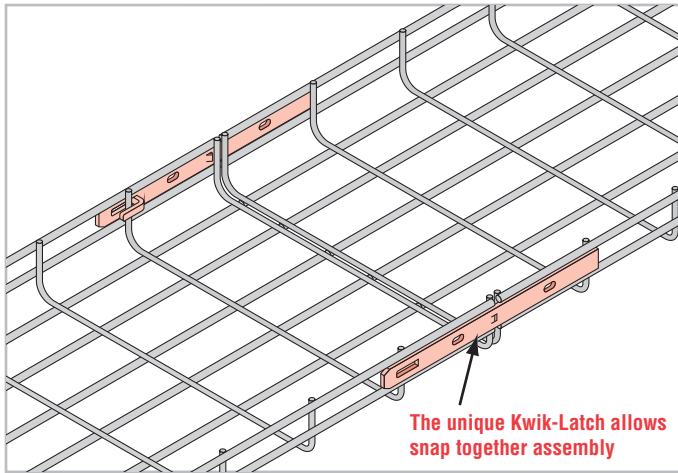
Part numbers shown in the catalog are for the standard electro-galvanized finish. For special order finishes, add the finish code as a suffix.

EXAMPLE –

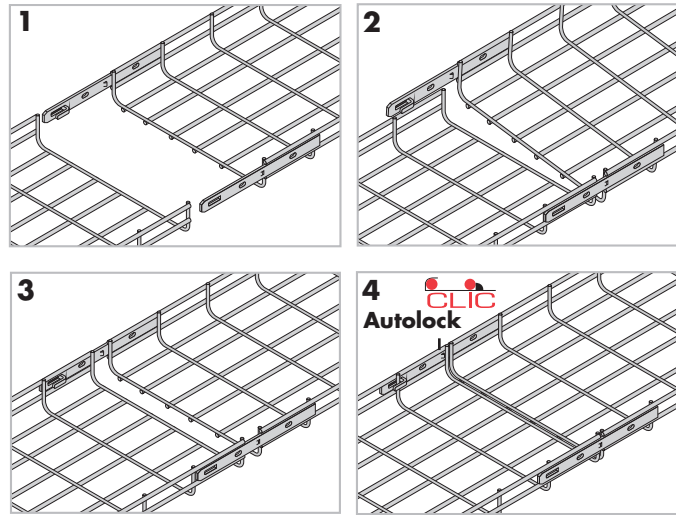
CAT2-12SL-120 is electro-galvanized
CAT2-12SL-120-SS is stainless steel

Self-Splicing Straight Lengths

The Kwik-Latch splicing system makes connecting wire basket tray fast and simple. The Kwik-Latch, or self splicing bars which come pre-installed on wire basket tray systems, eliminates the need for a typical nut and bolt type connection. For proper grounding of wire basket tray please refer to page 252.

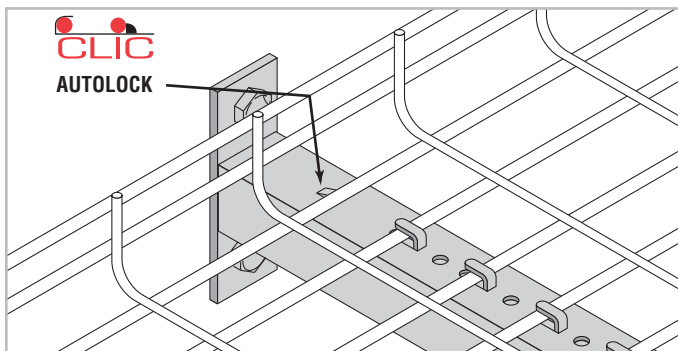


Wire Basket Assembly - CAT2, CAT4, & CAT6

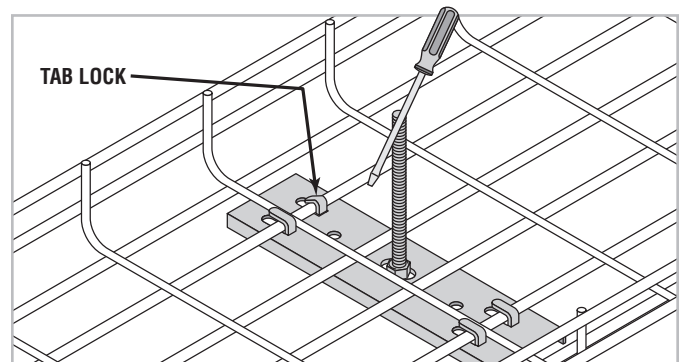
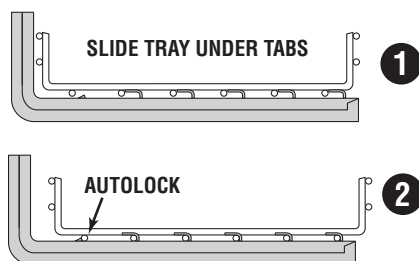


- Step 1** Align the trays as shown.
- Step 2** While raising the rear edge of the male connection, slide the tray forward, but do not engage the locking clip.
- Step 3** Push the rear locking clip over the back edge of the tray.
- Step 4** Slide the tray forward to engage both front and rear locking clips.

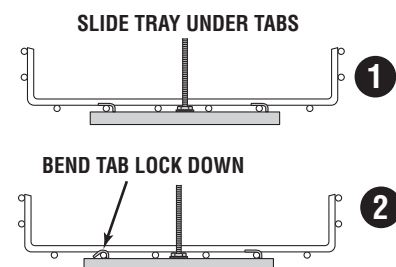
Accessory Assembly



Many of the wire basket accessories feature the unique Autolock. Just slide the tray under the tabs and then push down to engage the Autolock. No tools, bending, or attachments are required for a secure connection.



For accessories which use the tab lock, the tray is secured by using a screw driver to gently bend one of the tabs down over the tray.



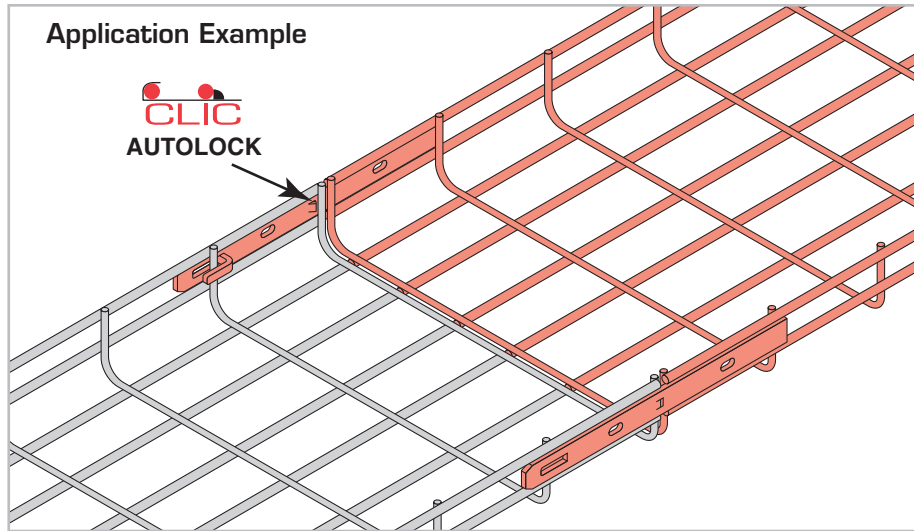
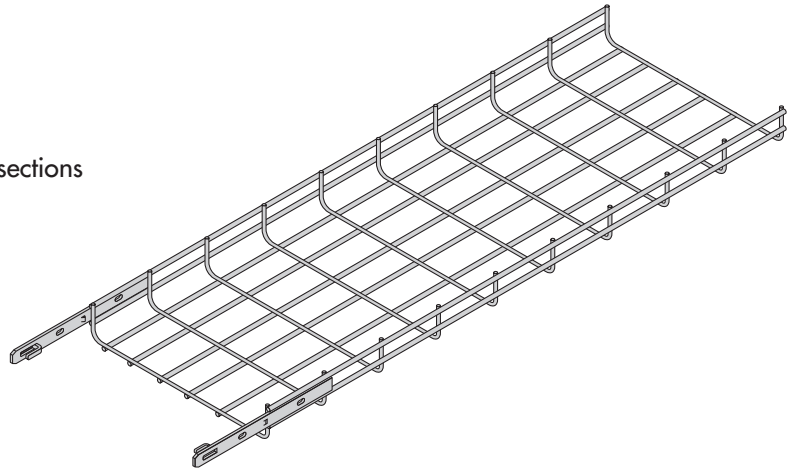
WIRE BASKET SYSTEM



DOUBLE ROD REINFORCED TRAY (2" DEPTH)

Double Rod Reinforced Tray (2" Depth) [CAT2-(W)SL-120]

- Double rod reinforced tray is 2" high
- Standard length of tray is 10'
- Standard finish is electro-galvanized (EG)
- No hardware is necessary to connect straight sections
- For continuous grounding use CAT-GC (See page 252.)



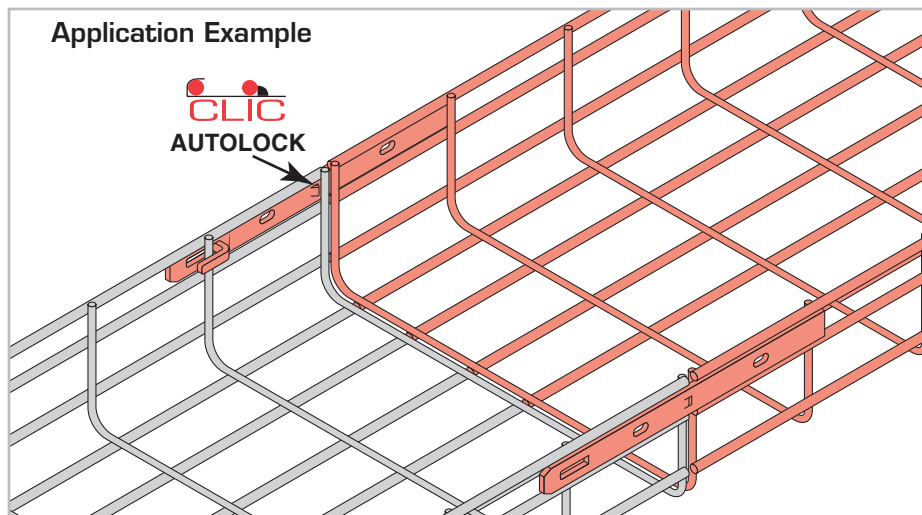
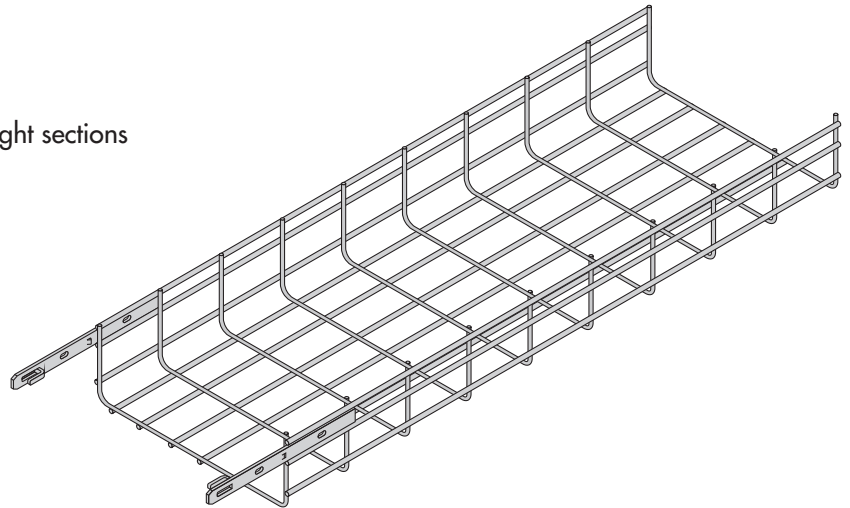
Approvals		Part Description	Width Nominal	Dimensions Wire Dia (in.)	Wt. (piece)	Loading (lb/ft)				
UL	cUL					5' Span	6' Span	8' Span	9' Span	
	CLASSIFIED UL		CAT2-02SL-120	2" (50mm)	0.177	4.6	60	42	23	19
	CLASSIFIED UL		CAT2-04SL-120	4" (100mm)	0.177	6.8	60	42	23	19
	CLASSIFIED UL		CAT2-06SL-120	6" (150mm)	0.177	8.0	60	42	23	19
CLASSIFIED UL	CLASSIFIED UL		CAT2-08SL-120	8" (200mm)	0.197	9.3	89	62	35	27
CLASSIFIED UL	CLASSIFIED UL		CAT2-12SL-120	12" (300mm)	0.197	14.5	89	62	35	27
CLASSIFIED UL	CLASSIFIED UL		CAT2-16SL-120	16" (400mm)	0.236	25.3	149	103	58	46
CLASSIFIED UL	CLASSIFIED UL		CAT2-18SL-120	18" (450mm)	0.236	27.6	149	103	58	46
CLASSIFIED UL	CLASSIFIED UL		CAT2-20SL-120	20" (500mm)	0.236	29.8	149	103	58	46
CLASSIFIED UL	CLASSIFIED UL		CAT2-24SL-120	24" (600mm)	0.236	34.3	149	103	58	46

Load Values are determined by NEMA VE1 testing. Copies of load tests available upon request.
Safety Factor 1.5

Denotes Popular Sizes

Triple Rod Reinforced Tray (4" Depth) [CAT4-(W)SL-120]

- Triple rod reinforced tray is 4" high
- Standard length of tray is 10'
- Standard finish is electro-galvanized (EG)
- No hardware is necessary to connect straight sections
- For continuous grounding use CAT-GC (See page 252.)



Approvals		Part Description	Width Nominal	Dimensions Wire Dia (in.)	Wt. (piece)	Loading (lb/ft)				
UL	cUL					5' Span	6' Span	8' Span	9' Span	
			CAT4-04SL-120	4" (100mm)	0.197	9.3	108	75	42	33
			CAT4-08SL-120	8" (200mm)	0.197	14.5	108	75	42	33
			CAT4-12SL-120	12" (300mm)	0.236	25.3	182	127	71	56
			CAT4-16SL-120	16" (400mm)	0.236	29.8	182	127	71	56
			CAT4-18SL-120	18" (450mm)	0.236	32.0	182	127	71	56
			CAT4-20SL-120	20" (500mm)	0.236	34.3	182	127	71	56
			CAT4-24SL-120	24" (600mm)	0.236	38.8	182	127	71	56

Load Values are determined by NEMA VE1 testing. Copies of load tests available upon request.
Safety Factor 1.5

Denotes Popular Sizes

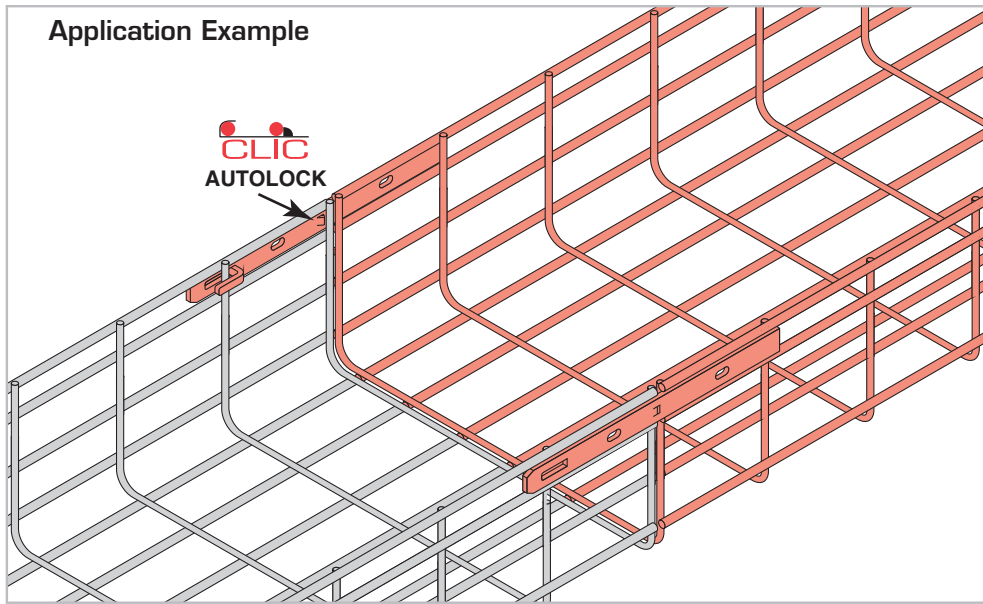
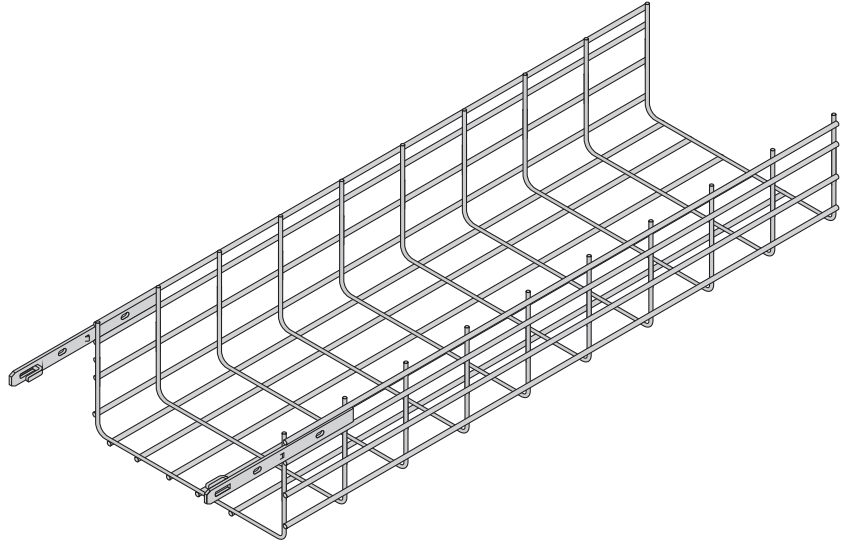
WIRE BASKET SYSTEM



QUADRUPLE ROD REINFORCED TRAY (6" DEPTH)

Quadruple Rod Reinforced Tray (6" Depth) [CAT6-(W)SL-120]

- Quadruple rod reinforced tray is 6" high
- Standard length of tray is 10'
- Standard finish is electro-galvanized (EG)
- No hardware is necessary to connect straight sections
- For continuous grounding use CAT-GC (See page 252.)



Part Description		Width Nominal	Dimensions Wire Dia (in.)	Wt. (piece)	Loading (lb/ft)			
					5' Span	6' Span	8' Span	9' Span
	CAT6-08SL-120	8" (200mm)	0.236	25.3	235	163	92	73
	CAT6-12SL-120	12" (300mm)	0.236	29.8	235	163	92	73
	CAT6-16SL-120	16" (400mm)	0.236	34.3	235	163	92	73
	CAT6-18SL-120	18" (450mm)	0.236	36.4	235	163	92	73
	CAT6-20SL-120	20" (500mm)	0.236	38.8	235	163	92	73
	CAT6-24SL-120	24" (600mm)	0.236	48.4	235	163	92	73

Load Values are determined by NEMA VE1 testing. Copies of load tests available upon request.
Safety Factor 1.5

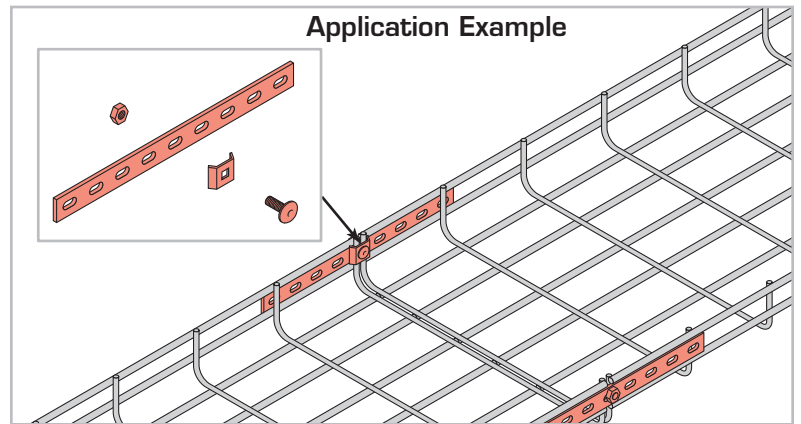
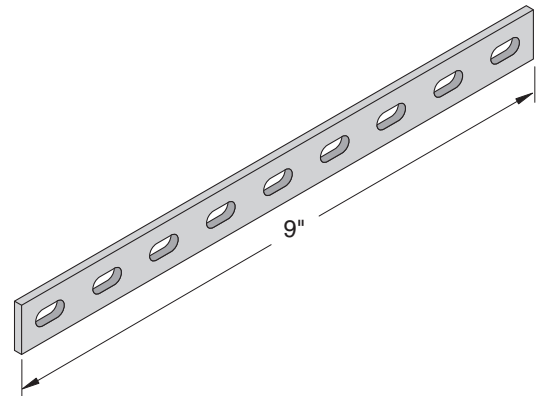
Splice

Weight: .29/each

- Splice bar connector is 3/4 x 9" long
- Standard finish is electro-galvanized (EG)
- Connect using CH3 (sold separately)
- Bend 90° for use as an angle connector

NOTES:

1. Always place nut on outside of tray
2. For use with CAT2, CAT4, & CAT6 tray
3. The splice connector is used to connect remnant sections of tray cut from standard lengths and to field fabricate fittings.

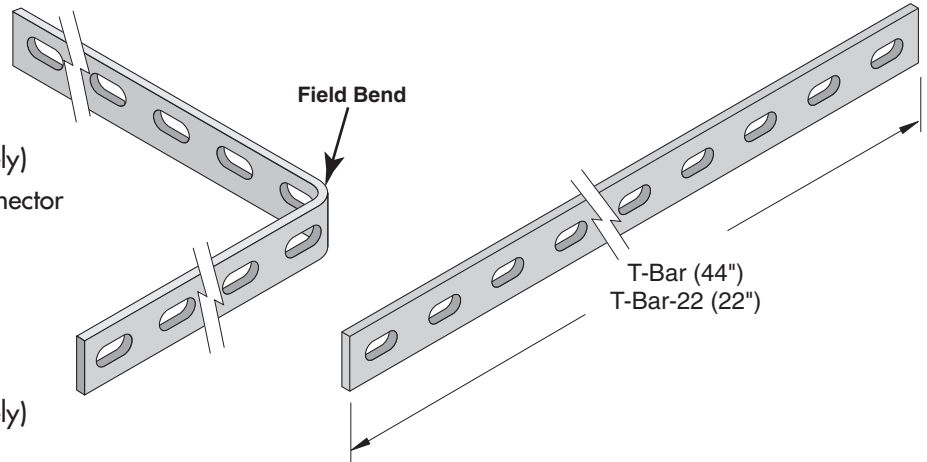


Bend & Intersection Bars

T-BAR

Weight: 1.43/each

- T-Bar connector is 3/4 x 44" long
- Connect using CH3 (sold separately)
- Bend 90° for use as an angle connector



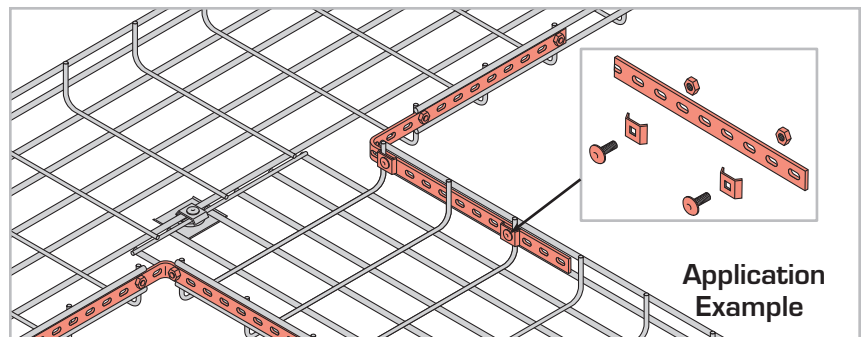
T-BAR-22

Weight: .715/each

- T-Bar connector is 3/4 x 22" long
- Connect using CH3 (sold separately)

NOTES:

1. Always place nut on outside of tray
2. For use with CAT2, CAT4, & CAT6 tray
3. Used for tees which require a heavier support
4. These bars are normally cut to appropriate length

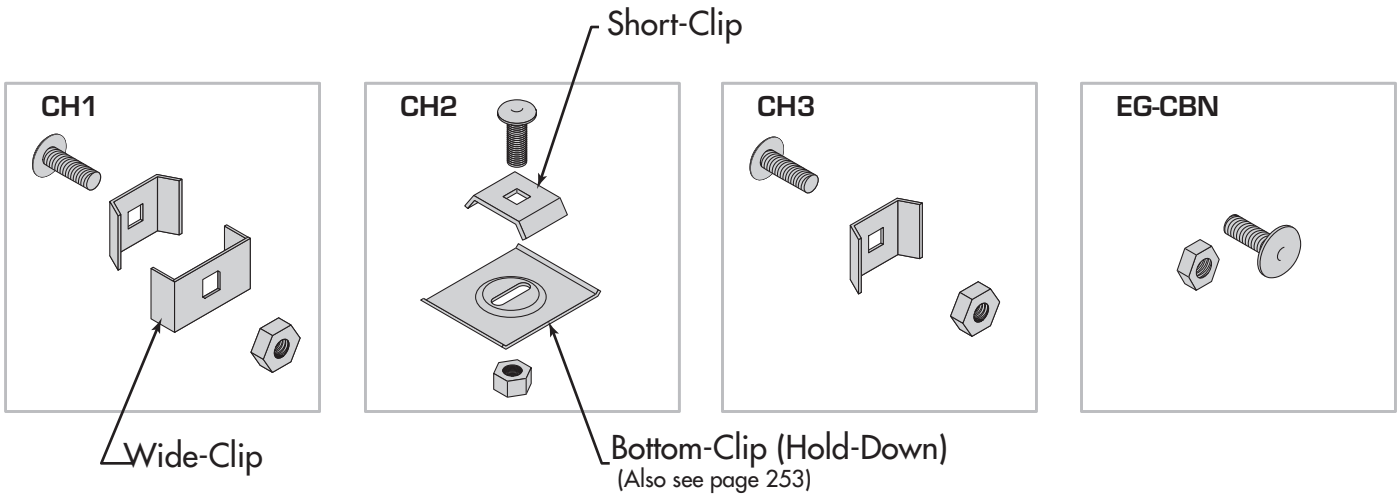


WIRE BASKET SYSTEM



CONNECTOR HARDWARE

Connector Hardware Overview



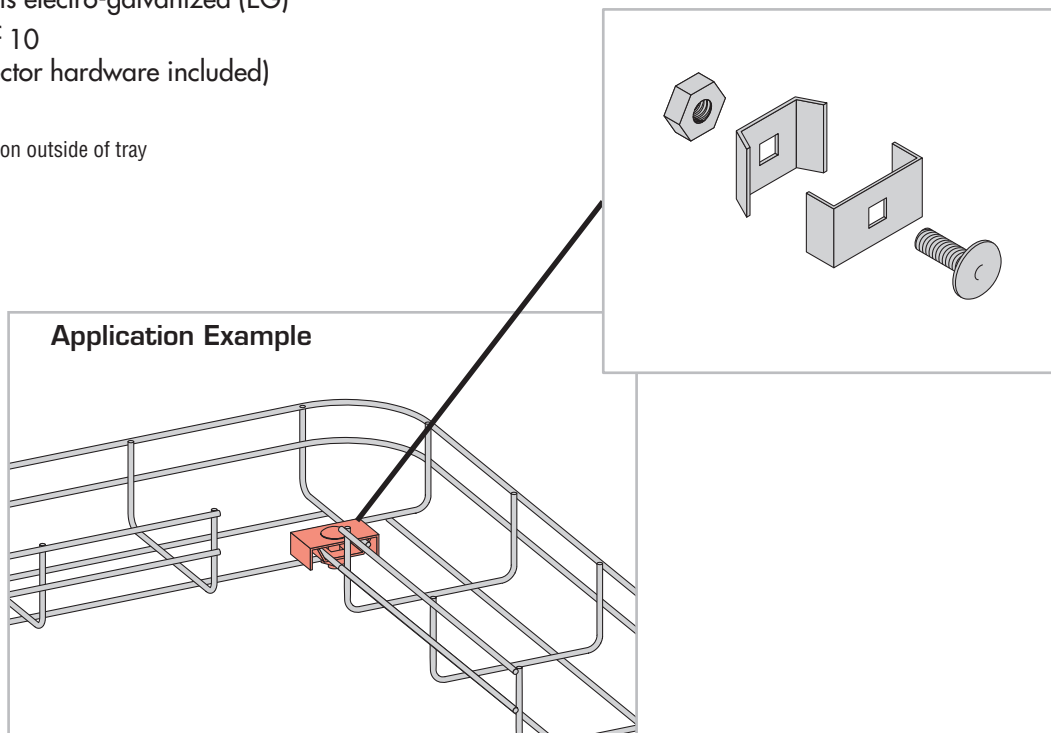
Part Kit	WEIGHT	NO./ PKG
CH1	0.70	10
CH2	1.16	10
CH3	0.44	10
EG-CBN	0.20	10

Single Part	WEIGHT	NO./ PKG
Short-Clip	0.20	10
Wide-Clip	0.31	10
Bottom-Clip	0.92	10

Connector Kit [CH1]

- Standard bar connector is 1³/₁₆ x 1¹/₁₆"
- Standard finish is electro-galvanized (EG)
- Sold in packs of 10 (EG-CBN connector hardware included)

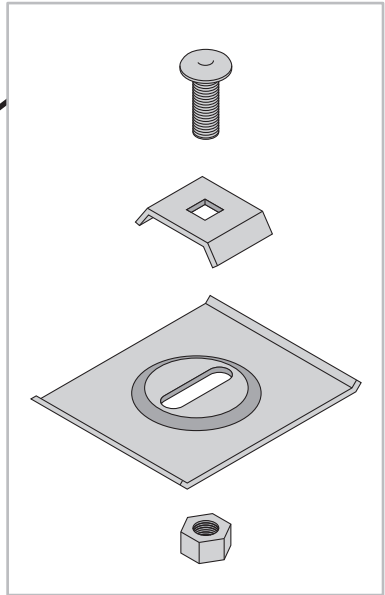
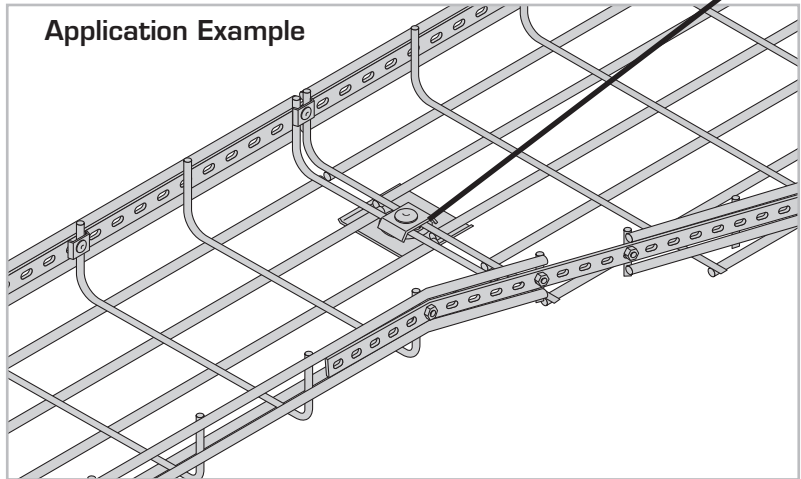
NOTE: Always place nut on outside of tray



Connector Kit [CH2]

- Bottom connector is 2 x 2³/₈"
- Standard finish is electro-galvanized (EG)
- Sold in packs of 10 (EG-CBN connector hardware included)

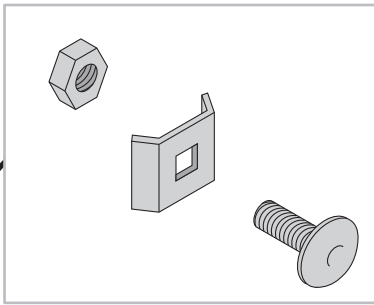
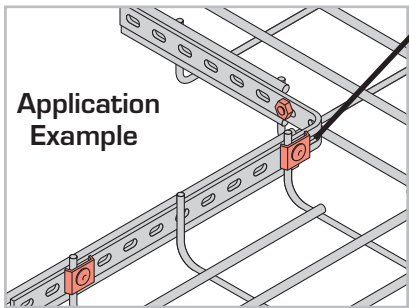
NOTE: Always place nut on outside of tray



Connector Kit [CH3]

- Universal connector is 1¹/₁₆ x 1⁵/₁₆"
- Standard finish is electro-galvanized (EG)
- Sold in packs of 10 (EG-CBN connector hardware included)

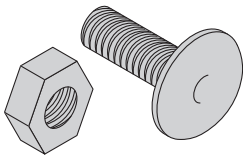
NOTE: Always place nut on outside of tray



Connector Hardware [EG-CBN]

- 1/4-20 x 3/4" Carriage bolt
- 1/4-20 Hex head nut
- Standard finish is electro-galvanized (EG)
- Sold in packs of 10 each

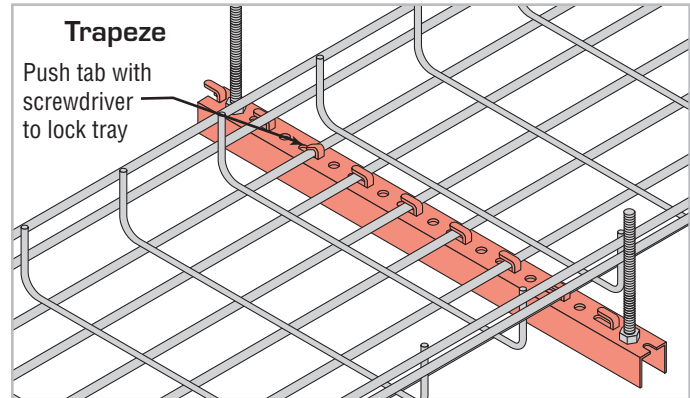
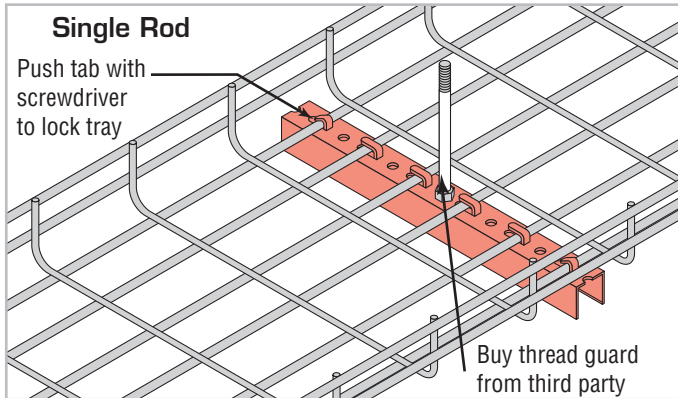
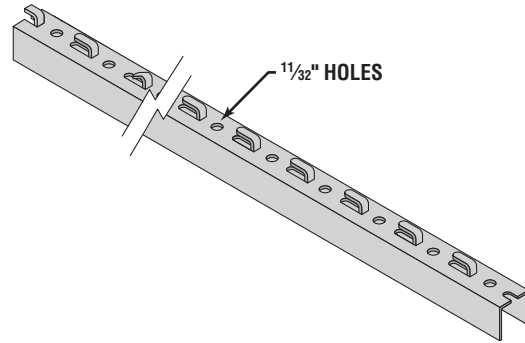
NOTE: Always place nut on outside of tray



U Support Bracket [CAT-USB-120]

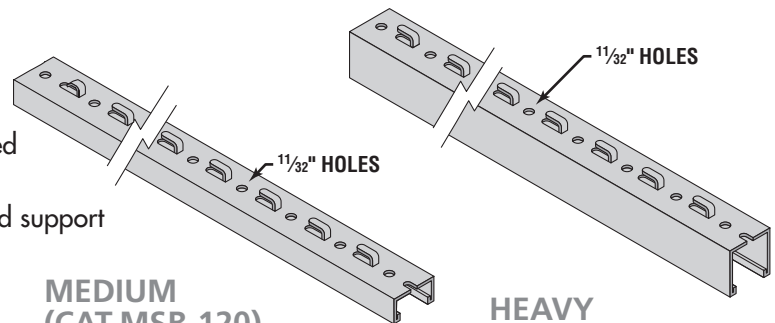
Weight: 6.83 lb/each

- U support bracket $1\frac{5}{16} \times 1\frac{5}{16}$ " channel
- Standard finish is pregalvanized (PG)
- Support is 10' long, customer cuts to size as needed
- Cut lengths 6" wider than tray width for trapeze
Cut lengths 1" shorter than tray width for single rod support
- Unique grip system requires only a push of a screwdriver to fasten the tray to the supports



Support Bracket Medium [CAT-MSB-120] & Heavy [CAT-HSB-120]

- Heavy support bracket is $1\frac{5}{8} \times 1\frac{5}{8}$ " strut, Medium support bracket is $1\frac{5}{8} \times 1\frac{3}{16}$ " strut
- Standard finish is pregalvanized (PG)
- Support is 10' long, customer cuts to size as needed
- Cut lengths 6" wider than tray width for trapeze
Cut lengths 1" shorter than tray width for single rod support
- Unique grip system requires only a push of a screwdriver to fasten the tray to the supports

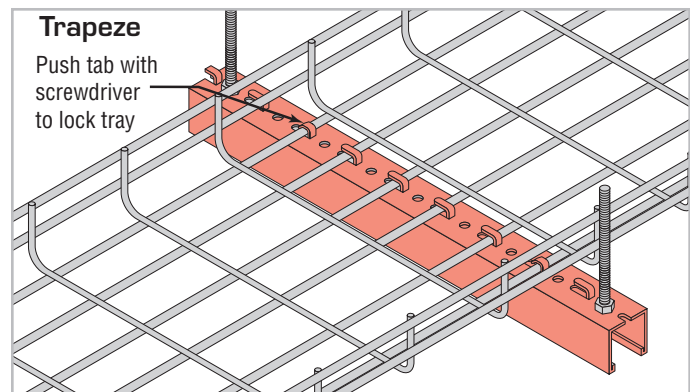
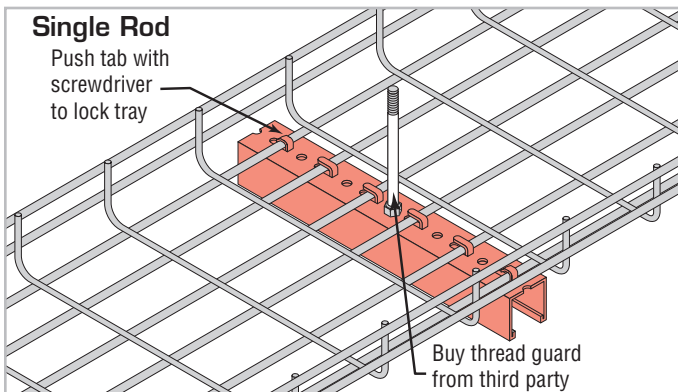


MEDIUM
(CAT-MSB-120)

Weight 11.9 lb/each

HEAVY
(CAT-HSB-120)

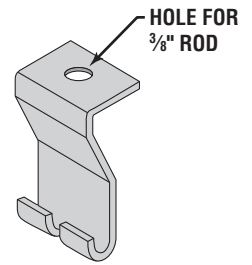
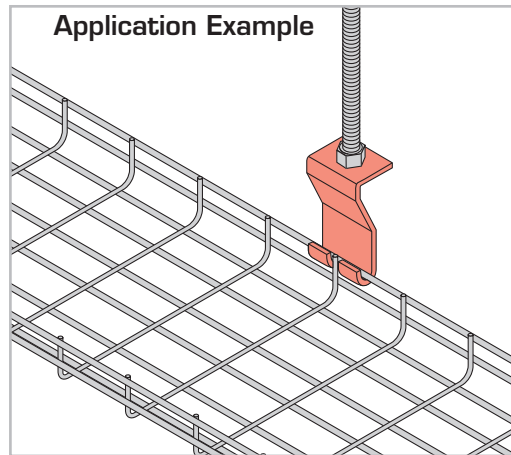
Weight: 16.53 lb/each



Drop Rod Clip [CAT-SIDE-HC]

Weight: .13 lb/each

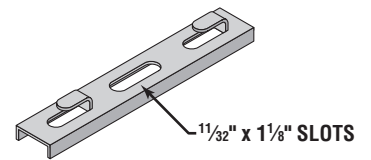
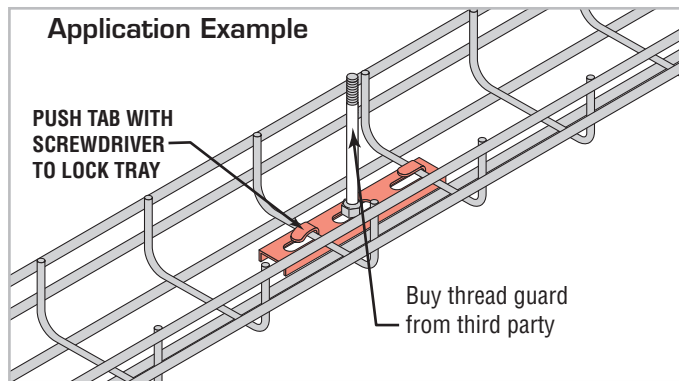
- Standard finish pregalvanized (PG)
- .08" Bracket thickness
- For all widths of tray



Drop Rod Clip [CAT-1x6-HC]

Weight: .12 lb/each

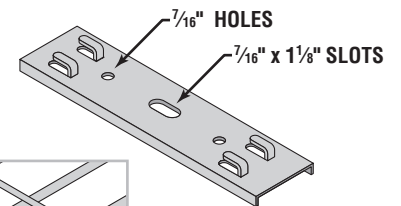
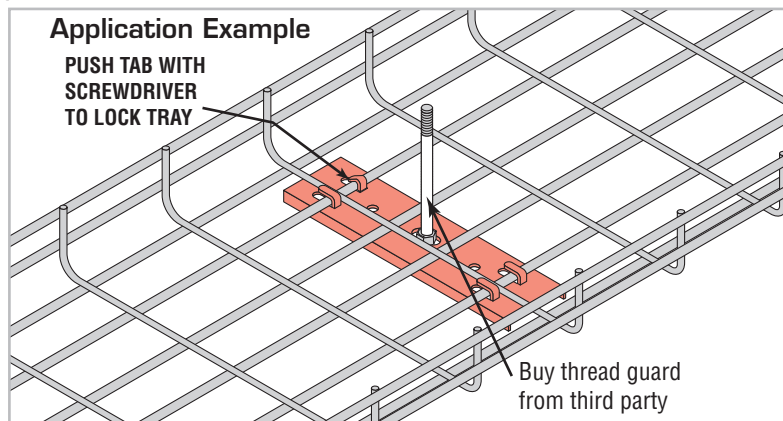
- Standard finish pregalvanized (PG)
- .08" Bracket thickness
- For all 4"w & 6"w tray



Drop Rod Clip [CAT-2x8-HC]

Weight: .40 lb/each

- Standard finish pregalvanized (PG)
- .08" Bracket thickness
- For all 8" w & 12" w tray



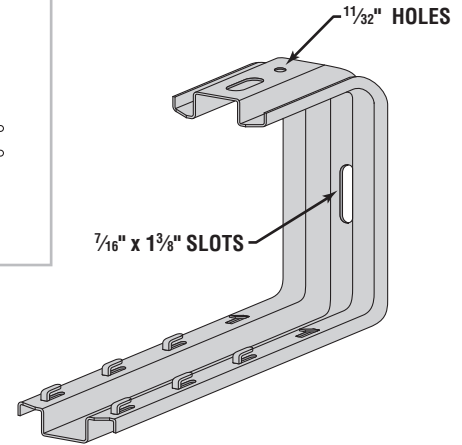
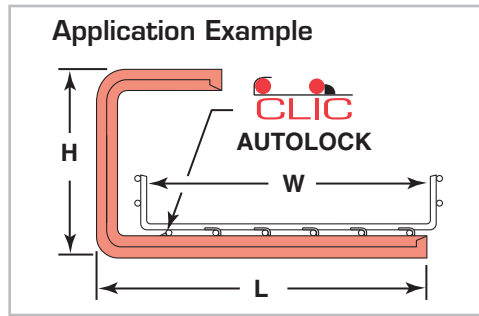
WIRE BASKET SYSTEM



WALL & CEILING MOUNTS

Ceiling Clip [CAT-CCA-(W)]

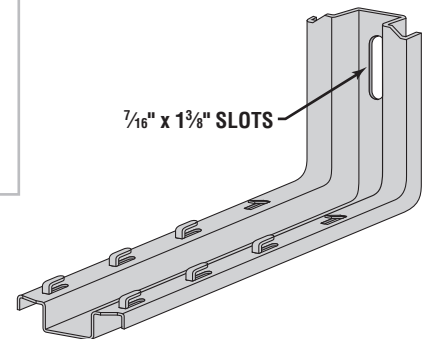
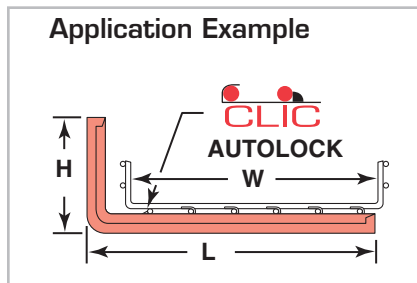
- For attaching tray to ceiling
- Standard finish pregalvanized (PG)
- Easy mounting of the cable tray using grips and autolock



Part No.	Tray Size (W)	Height (H)	Length (L)	Wt (Lbs)	Load (Lbs)
CAT-CCA-04	4"	7"	6"	1.3	270
CAT-CCA-06	6"	7"	8"	1.5	225
CAT-CCA-08	8"	7"	10"	1.7	202
CAT-CCA-12	12"	7"	14"	2.0	180
CAT-CCA-16	16"	7"	18"	2.3	90

Wall Clip [CAT-CPA-(W)]

- For attaching tray to wall
- Standard finish pregalvanized (PG)
- Easy mounting of the cable tray using grips and autolock

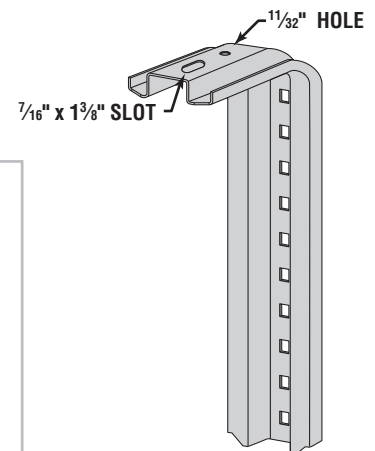
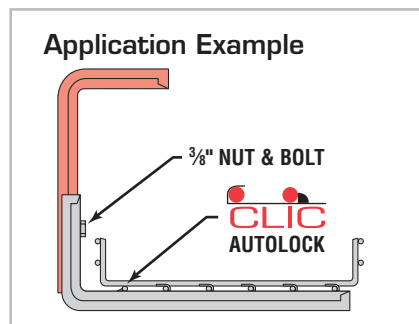


Part No.	Tray Size (W)	Height (H)	Length (L)	Wt (Lbs)	Load (Lbs)
CAT-CPA-06	6"	5"	8"	1.0	337
CAT-CPA-08	8"	5"	10"	1.1	225
CAT-CPA-12	12"	5"	14"	1.5	202
CAT-CPA-16	16"	5"	18"	1.8	90

Pendant [CAT-PPA-(H)]

- Standard finish is pregalvanized (PG)
- For attaching tray to ceiling. Used with wall clip CAT-CPA Series

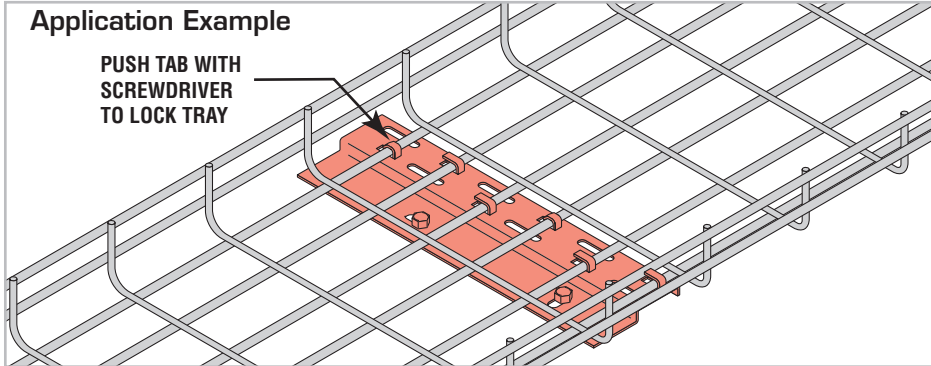
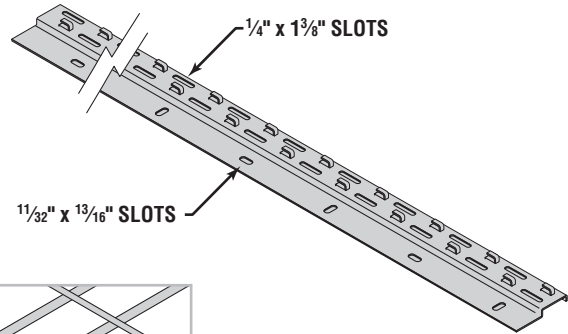
Part No.	Height (H)	Length (L)	Wt (Lbs)
CAT-PPA-06	6"	5"	0.7
CAT-PPA-10	10"	5"	1.1
CAT-PPA-14	14"	5"	1.3
CAT-PPA-18	18"	5"	1.7
CAT-PPA-22	22"	5"	2.0
CAT-PPA-26	26"	5"	2.3



ZED [CAT-ZBAR-120]

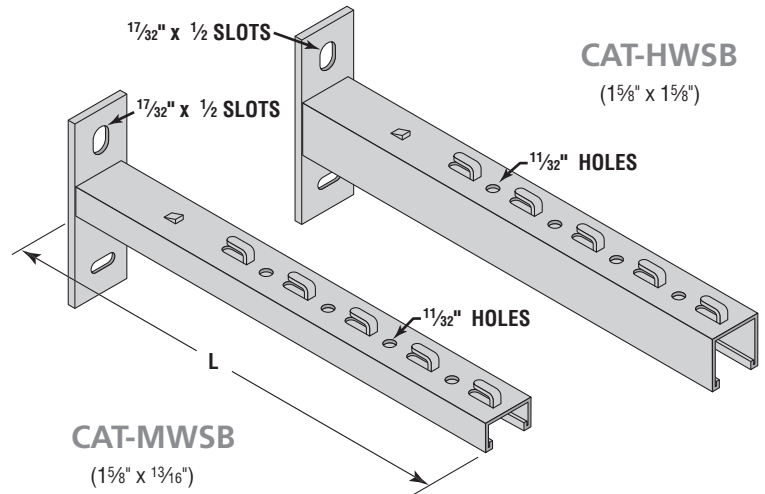
Weight: 11.24 lb/each

- ZED floor or wall mounted support is 1/2 x 3 1/2
- Standard finish pregalvanized (PG)
- Support is 10' long, customer cuts to size as needed
- Unique grip system requires only a push of a screwdriver to fasten the tray to the supports

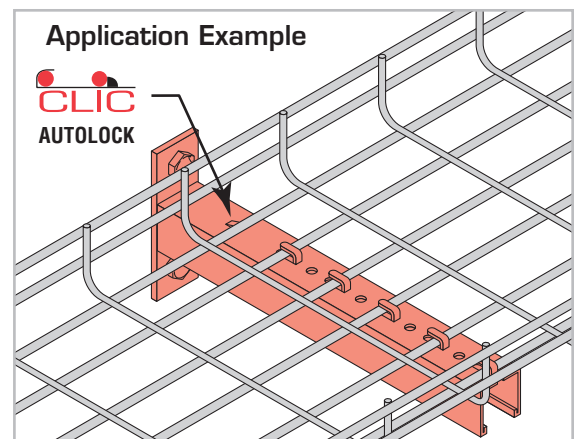


Cantilever Medium [CAT-MWSB-(W)] & Heavy [CAT-HWSB-(W)]

- Standard finish is hot-dipped galvanized (HG)
- Cantilever arm support 1 5/8 x 1 5/8" or 1 5/8 x 1 3/16" strut
- Unique Auto-Lock system requires no hardware to fasten the tray to the supports
- Use Strut Profile to support other items below the support bracket using strut hardware



Part No.	Channel Size	Tray Width (W)	Length (L)	Wt (Lbs)	Load (Lbs)
CAT-MWSB-06	1 5/8" x 1 3/16"	6"	8"	1.3	270
CAT-MWSB-08	1 5/8" x 1 3/16"	8"	10"	1.5	225
CAT-MWSB-12	1 5/8" x 1 3/16"	12"	14"	1.9	157
CAT-HWSB-08	1 5/8" x 1 5/8"	8"	10"	1.9	562
CAT-HWSB-12	1 5/8" x 1 5/8"	12"	14"	2.5	450
CAT-HWSB-18	1 5/8" x 1 5/8"	18"	18"	3.0	337
CAT-HWSB-20	1 5/8" x 1 5/8"	20"	22"	3.6	292
CAT-HWSB-24	1 5/8" x 1 5/8"	24"	26"	4.1	247

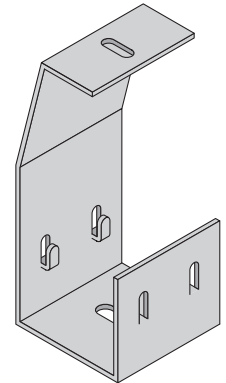
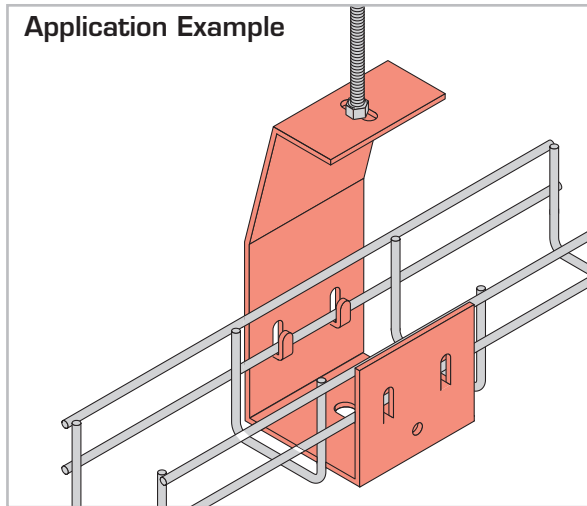


HANGERS

Hanger [CAT-HGR-2]

- Standard finish is pregalvanized (PG)
- Ceiling or center hung with threaded rod

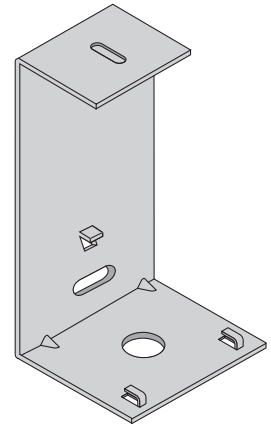
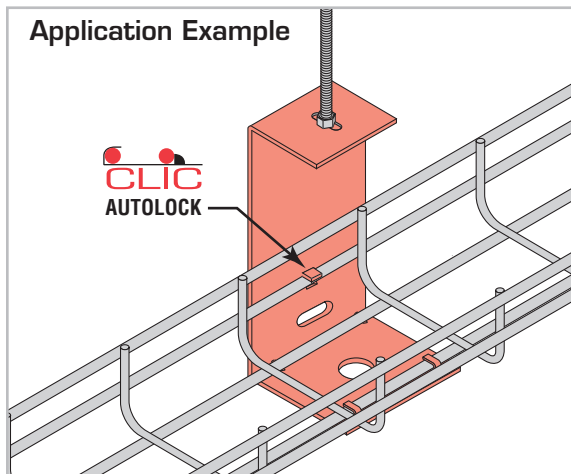
NOTE: For use with CAT2-02 only



Hanger [CAT-HGR-4]

- Standard finish is pregalvanized (PG)
- Ceiling or center hung with threaded rod

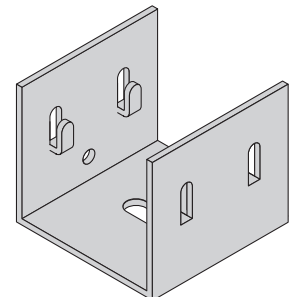
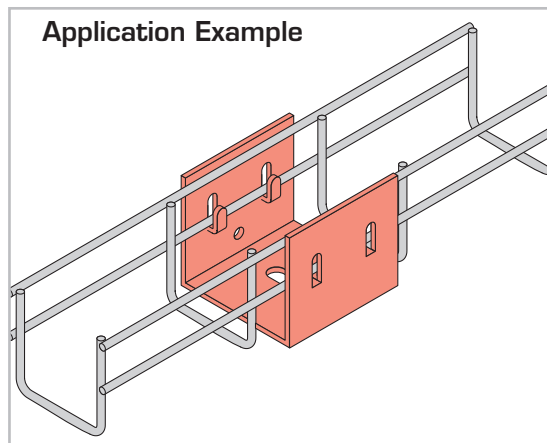
NOTE: For use with CAT2-04 or CAT4-04 only



Wall Bracket [CAT-WC-2]

- Standard finish is pregalvanized (PG)

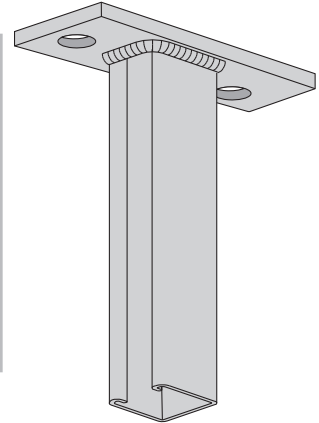
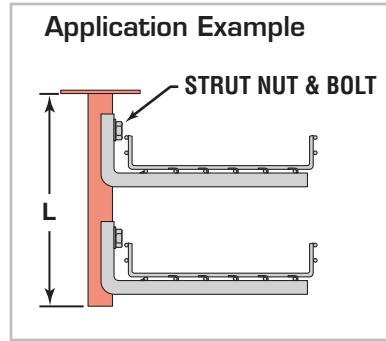
NOTE: For use with CAT2-02 only



Single Channel Pendant [PS 651-(L)]

- Standard finish is electro-galvanized (EG)

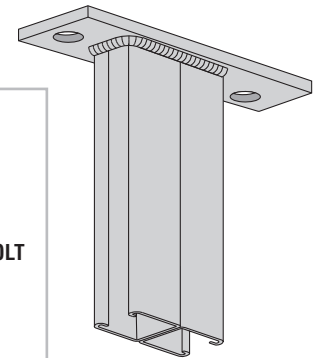
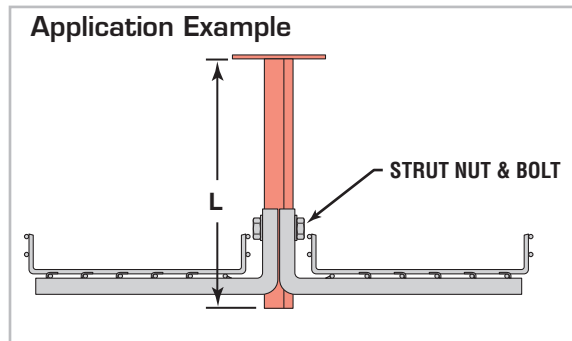
Part No.	Length (L)	Uniform Load	Weight
PS651-06	6"	1,200	1.85
PS651-12	12"	600	2.93
PS651-18	18"	400	4.01
PS651-24	24"	300	5.09



Back-to-Back Channel Pendant [PS 809-(L)]

- Standard finish is electro-galvanized (EG)

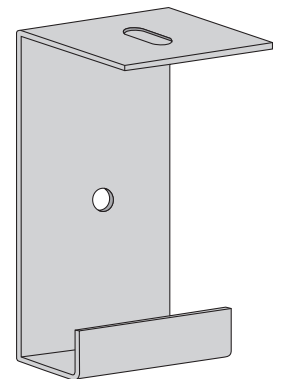
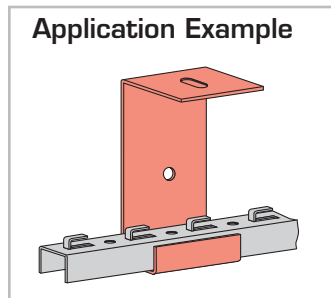
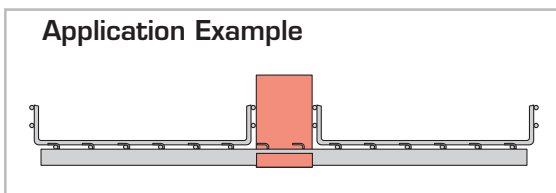
Part No.	Length (L)	Uniform Load	Weight
PS809-12	12"	2,000	5.02
PS809-18	18"	1,300	6.92
PS809-24	24"	1,000	8.82
PS809-30	30"	800	10.72
PS809-36	36"	650	12.62



Hanging Bracket [CAT-CB-USB]

Weight: .8 lb/each

- Standard finish is pregalvanized (PG)
- For Use with CAT-USB-120 Style Support Bracket Channel



WIRE BASKET SYSTEM

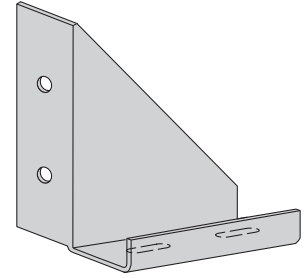
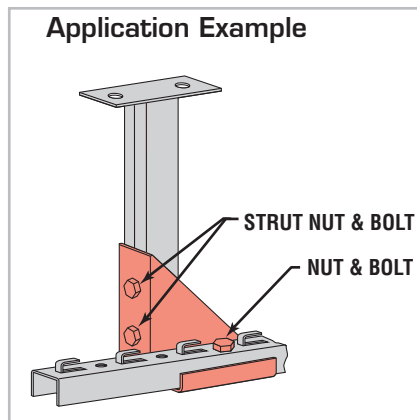
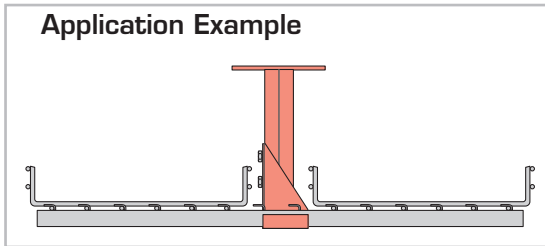


HANGING BRACKETS

Hanging Bracket [CAT-AB-USB]

Weight: .53 lb/each

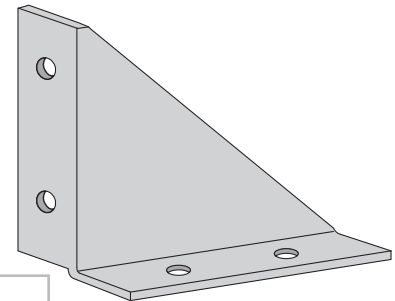
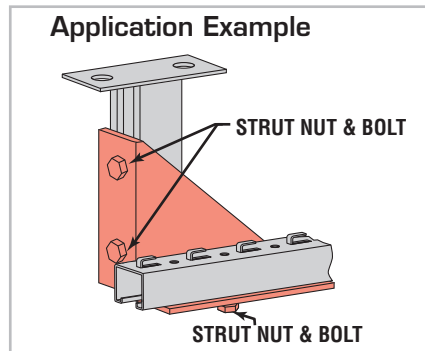
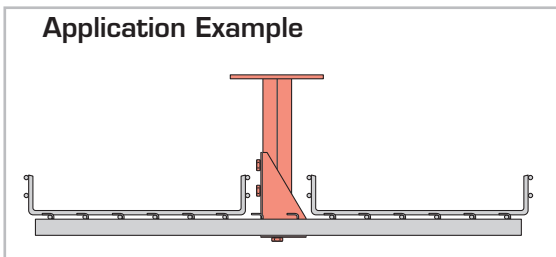
- Standard finish is pregalvanized (PG)
- For use with CAT-USB-120 Support Bracket Channel



Hanging Bracket [CAT-AB-HSB]

Weight: .62 lb/each

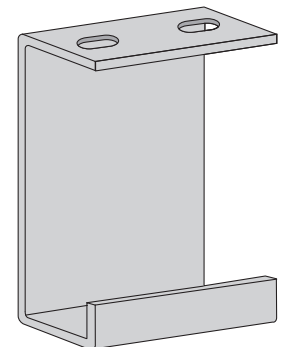
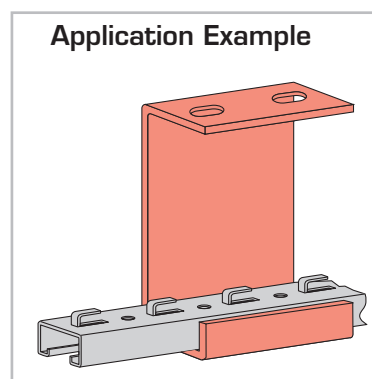
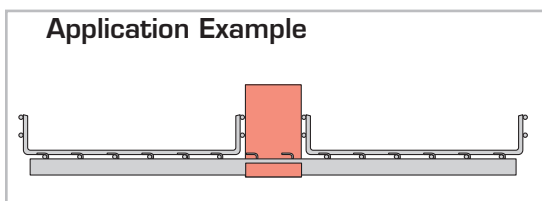
- Standard finish is hot-dipped galvanized (HG)
- For Use with:
 - CAT-MSB-10 Medium Support Bracket Strut
 - CAT-HSB-10 Heavy Support Bracket Strut



Hanging Bracket [CAT-CB-MSB]

Weight: 1.46 lb/each

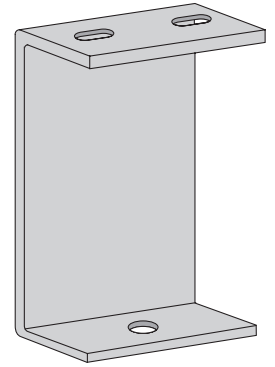
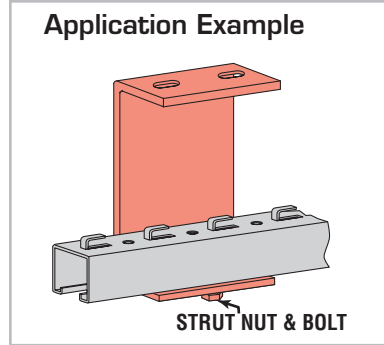
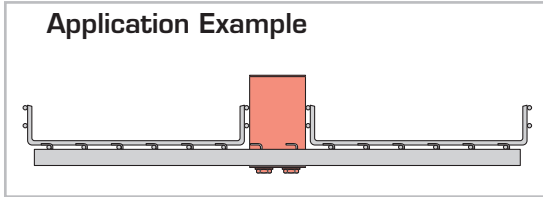
- Standard finish is pregalvanized (PG)
- For Use with:
 - CAT-MSB-10 Medium Support Bracket Strut



Hanging Bracket [CAT-CB-HSB]

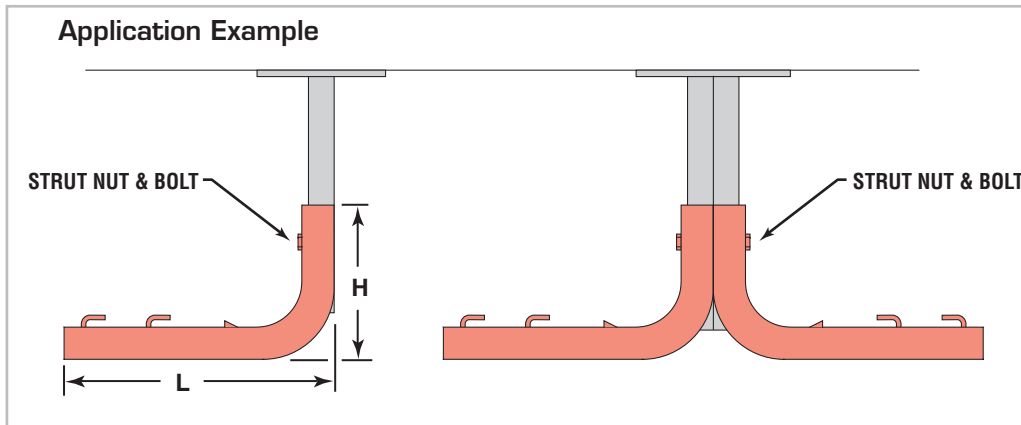
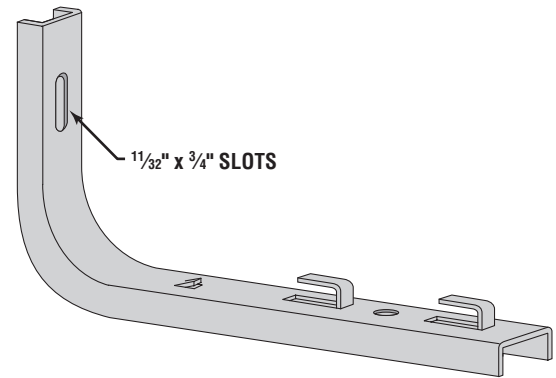
Weight: 2.98 lb/each

- Available in pregalvanized (PG) or hot-dipped galvanized (HG)
- For Use with:
 - CAT-MSB-10 Medium Support Bracket Strut
 - CAT-HSB-10 Heavy Support Bracket Strut



Bracket [CAT-CMA-(W)]

- Standard finish is pregalvanized (PG)
- Mounted on cantilever arms or channels
- Easy mounting of the bracket using grips and autolock
- Designed for use with new/existing 1 5/8" strut framing



Part No.	Tray Width (W)	Height (H)	Length (L)	Wt (Lbs)	Load (Lbs)
CAT-CMA-04	4"	4.7"	5"	0.8	360
CAT-CMA-06	6"	4.7"	7"	1.0	270
CAT-CMA-08	8"	4.7"	9"	1.1	180
CAT-CMA-12	12"	4.7"	13"	1.5	135

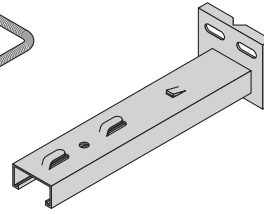
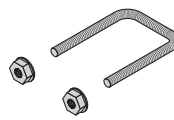
WIRE BASKET SYSTEM



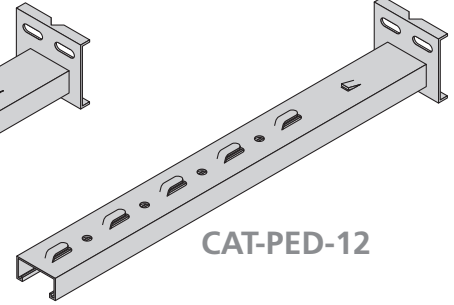
PEDESTAL BRACKETS

Pedestal Brackets [CAT-PED-06] & [CAT-PED-12]

- Channel use on pedestal for raised floor
- Attach to pedestal using U-Bolt & nuts (included)

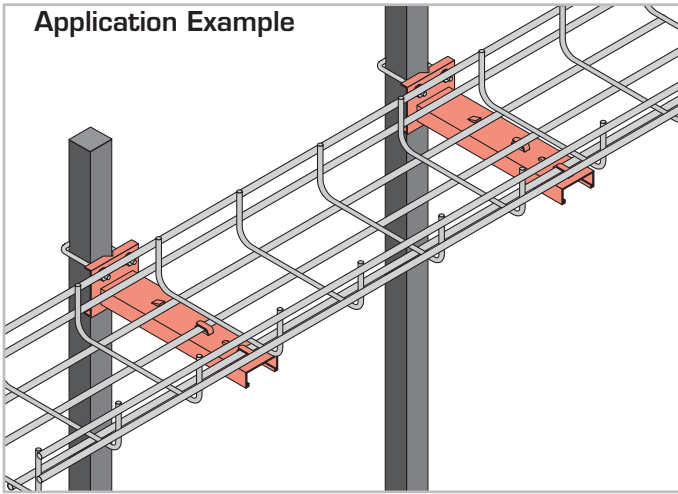


CAT-PED-06

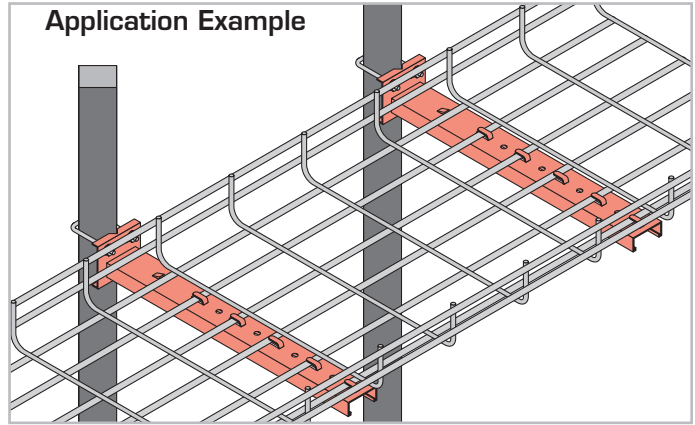


CAT-PED-12

Application Example



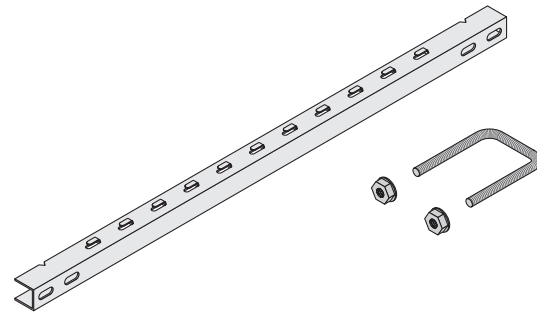
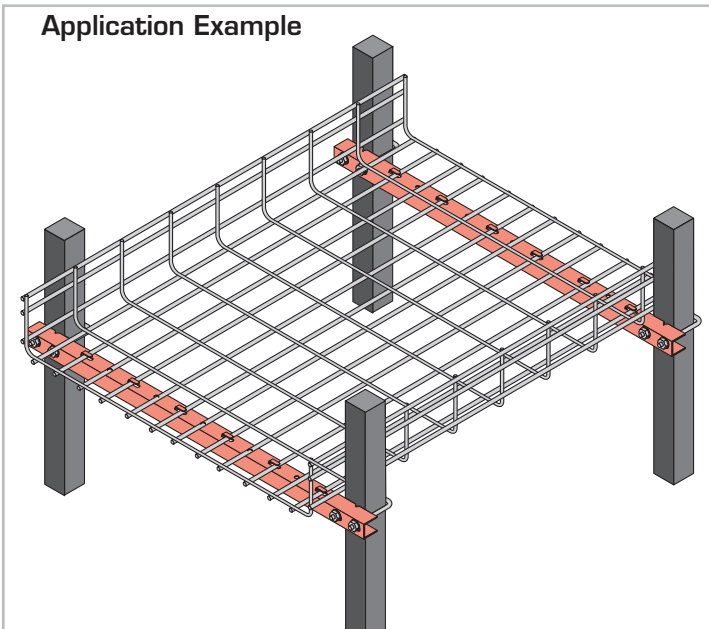
Application Example



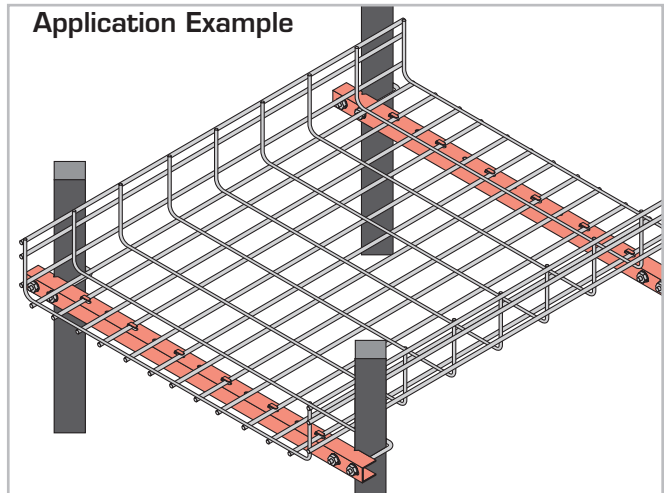
Pedestal Kit [CAT-PED-KIT]

- Channel use on pedestal for raised floor
- Attach to pedestal using U-Bolt & nuts (included)

Application Example

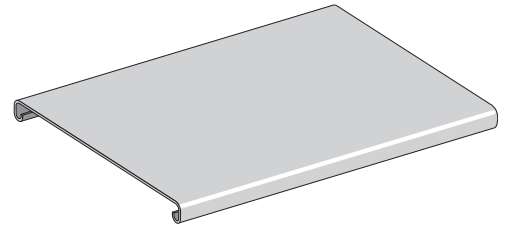


Application Example



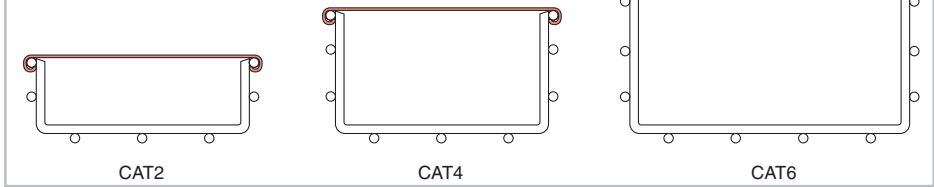
Cover [CAT-CVR-(W)]

- Standard finish is pregalvanized (PG)
- Length is 10'



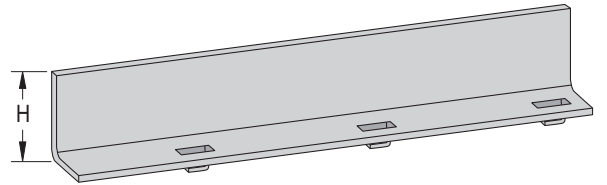
Part	WEIGHT (lb)
CAT-CVR-02	5.29
CAT-CVR-04	7.93
CAT-CVR-06	10.58
CAT-CVR-08	13.22
CAT-CVR-12	18.52
CAT-CVR-16	35.71
CAT-CVR-18	39.68
CAT-CVR-20	43.65
CAT-CVR-24	51.53

Application Example

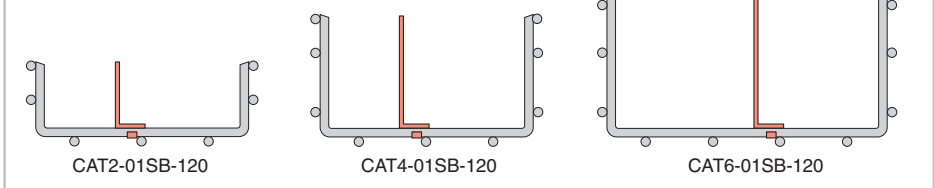


Tray Dividers [CAT2-01SB-120], [CAT4-01SB-120], & [CAT6-01SB-120]

- Standard finish is pregalvanized (PG)
- Locks into tray with auto-lock tabs (no hardware required)
- Cut "V" notches into bottom flange to make barriers for flat fittings

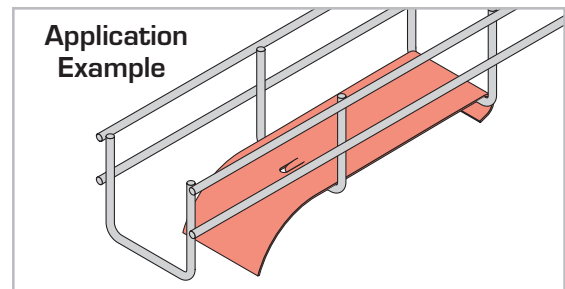
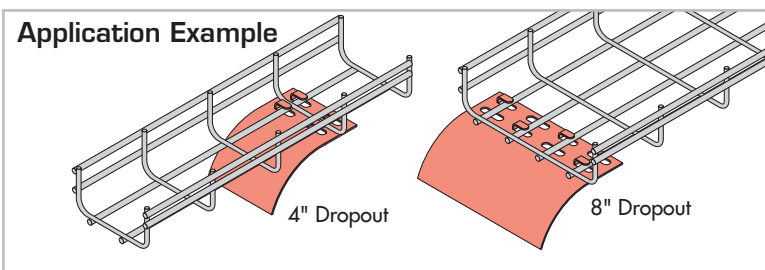
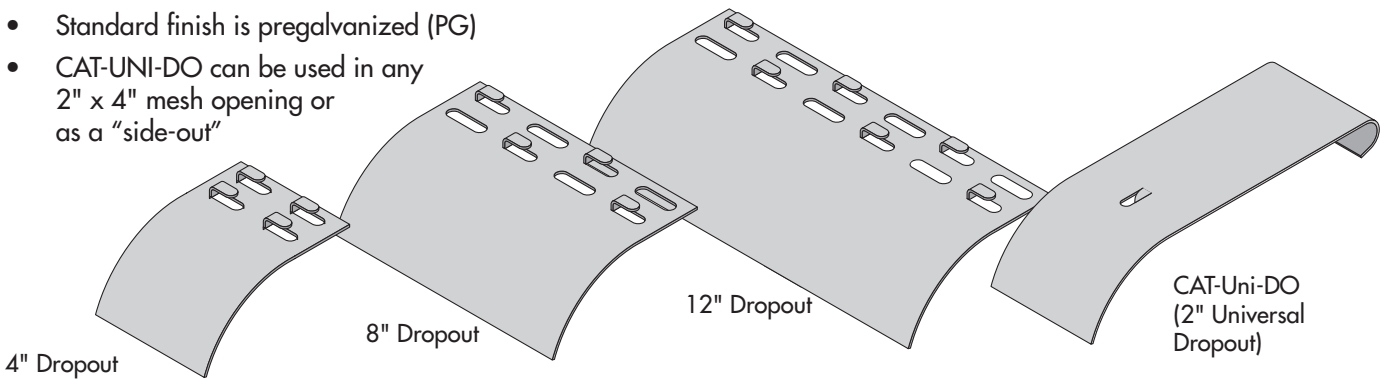


Application Example



Drop Out [CAT-(W)DO]

- Standard finish is pregalvanized (PG)
- CAT-UNI-DO can be used in any 2" x 4" mesh opening or as a "side-out"



WIRE BASKET SYSTEM



ACCESSORIES

Blind End [CAT(H)-(W)BE]

- Standard finish is pregalvanized (PG)
- Standard use per blind end is:
(2 pc) CH3 (sold separately)

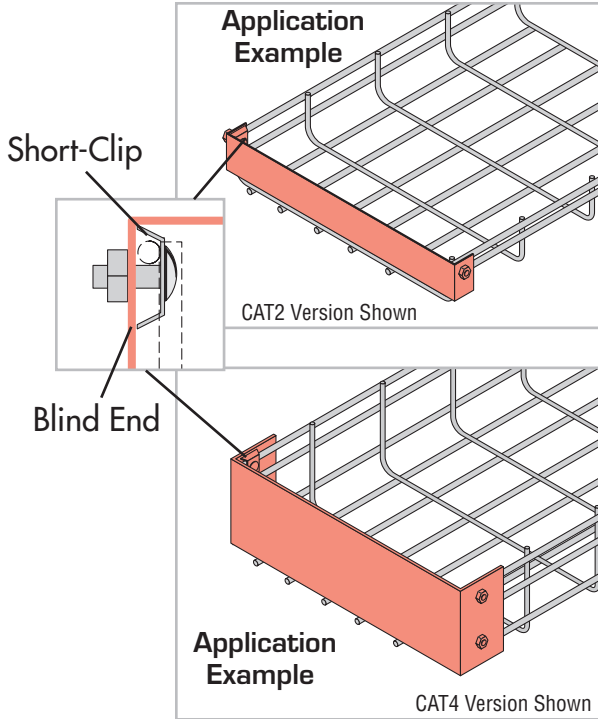
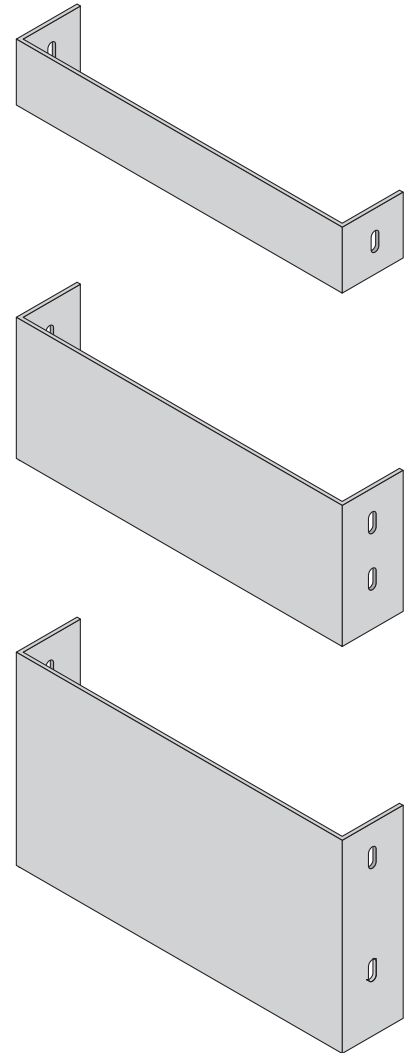
NOTES:

1. Always place nut on outside of tray

Part	WEIGHT (lb)
CAT2-04BE	.18
CAT2-06BE	.22
CAT2-08BE	.28
CAT2-12BE	.40
CAT2-16BE	.50
CAT2-18BE	.57
CAT2-20BE	.64
CAT2-24BE	.70

Part	WEIGHT (lb)
CAT4-04BE	.52
CAT4-08BE	.64
CAT4-12BE	.76
CAT4-16BE	.96
CAT4-18BE	1.08
CAT4-20BE	1.20
CAT4-24BE	1.44

Part	WEIGHT (lb)
CAT6-08BE	0.82
CAT6-12BE	1.12
CAT6-16BE	1.42
CAT6-18BE	1.57
CAT6-20BE	1.72
CAT6-24BE	2.10

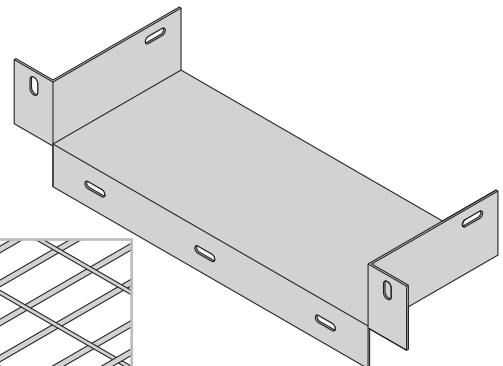
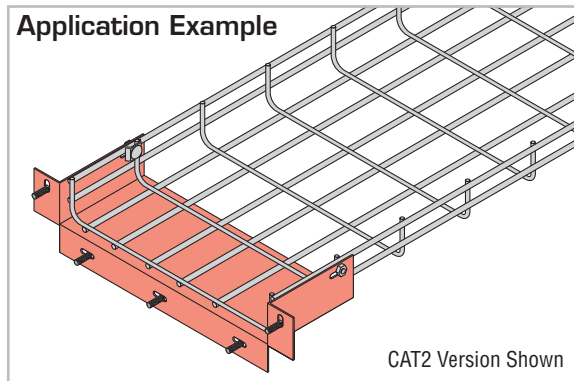


Box Connector [CAT(H)-(W)CB]

- Standard finish is pregalvanized (PG)
- Standard use per box connector is:
(2 pc) CH3
(5 pc) EG-CBN
(both sold separately)

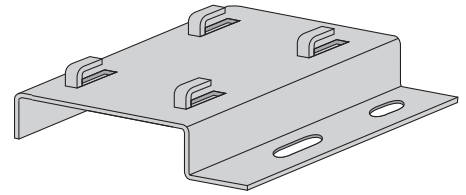
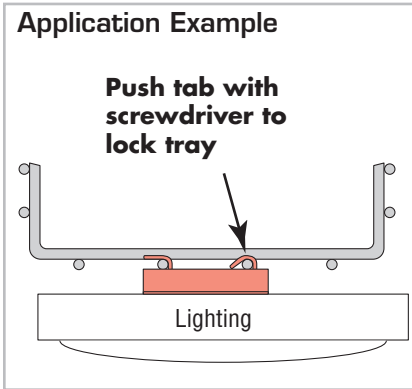
NOTES:

1. Always place nut on outside of tray
2. For use with CAT2, CAT4 & CAT6 tray only



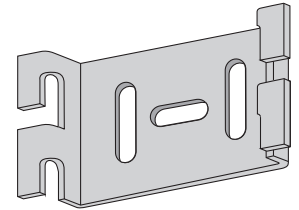
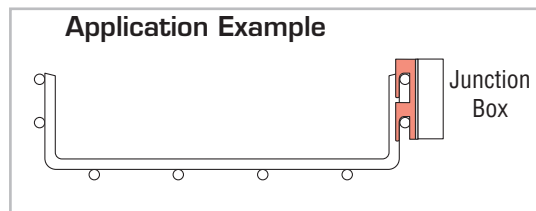
Lighting Bracket [CAT-HLT]

- Standard finish is pregalvanized (PG)



Electrical Box Bracket [CAT-EBC]

- Standard finish is pregalvanized (PG)

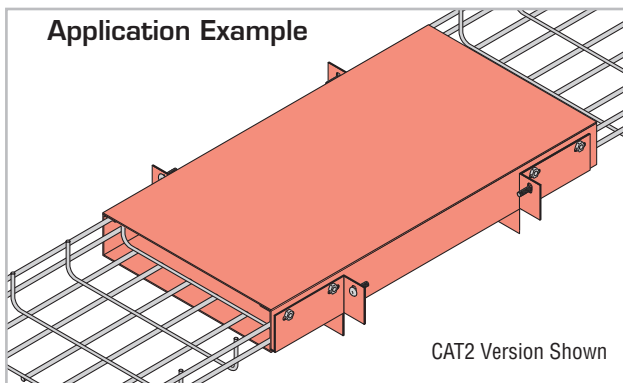
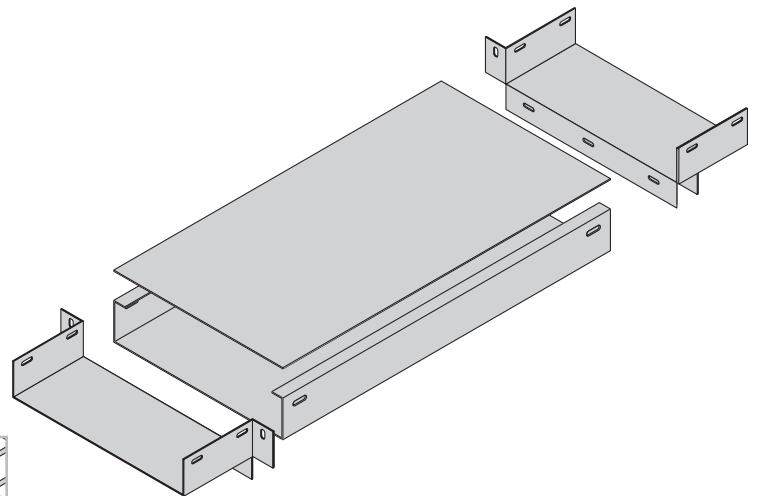


Wall Sleeve [CAT(H)-(W)WS]

- Standard finish is pregalvanized (PG)
- Standard use per wall sleeve is:
 - (4 pc) CH3 (5 pc) 6112-0
 - (4 pc) 5003-1 (4 pc) 5009-1
 - (8 pc) EM -CC
 - (all sold separately)

NOTES:

- Always place nut on outside of tray
- Example CAT2-12WS

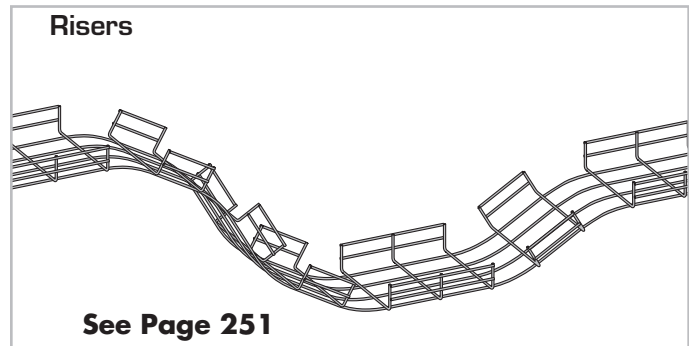
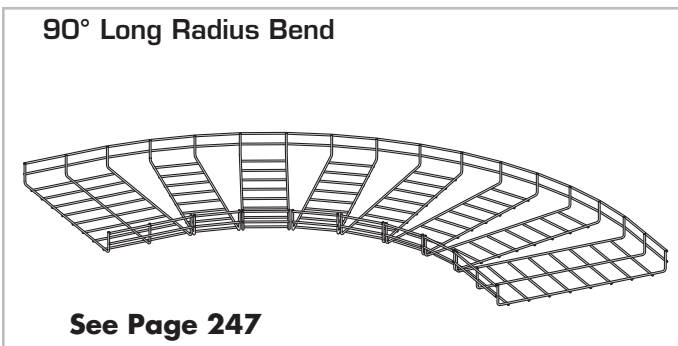
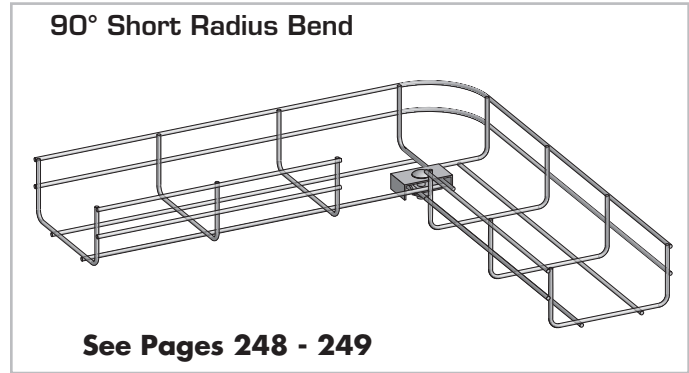
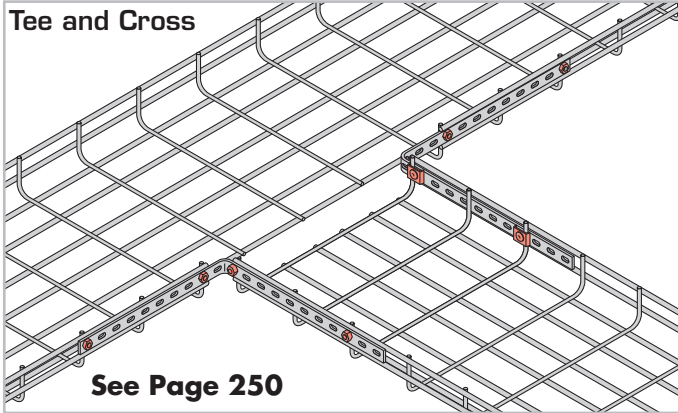


FITTINGS OVERVIEW

Fittings Overview

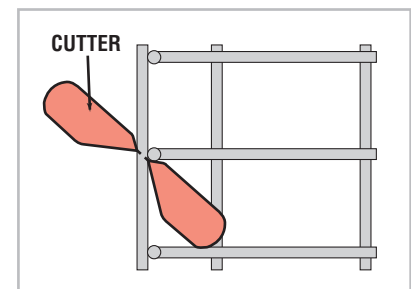
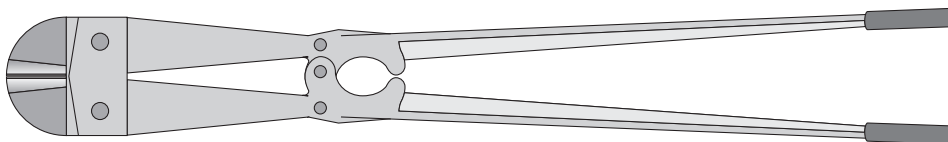
Fittings are typically fabricated on the job. However, prefabricated fittings are available upon request. Please contact factory.

To determine the fitting hardware required to create a set of fittings, please consult our online calculator. [Choose Wire basket tray from the Products menu on the front page of "www.copecabletray.com".]



Cutting Tool [CAT-CUT]

Fittings can be formed easily on-site by cutting the bottom and side wires. Cut the tray bars on an angle as shown in the illustration.



NOTE: When cutting, keep the remaining sharp edge away from the inside of the tray.

90° Bends - Long Radius

1 CUT THE BOTTOM AND SIDE WIRES

To form 90° bends in the tray, cut out the number of sections shown below based on the width of the tray used

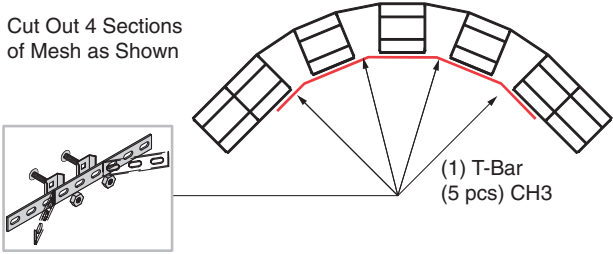
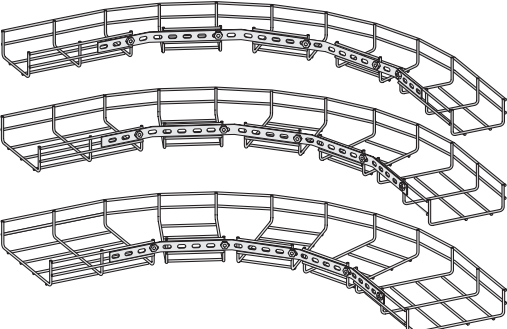
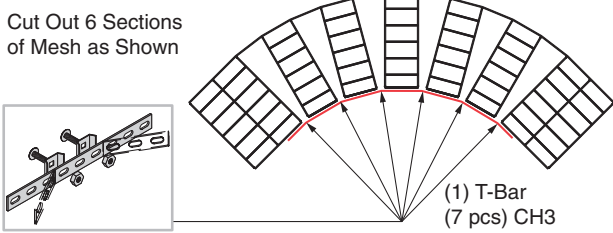
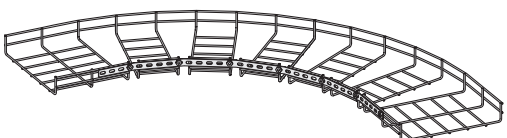
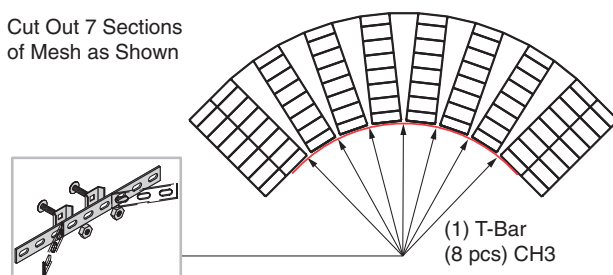
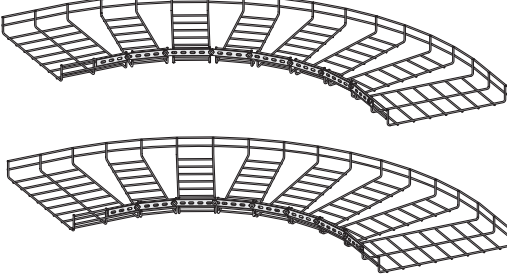
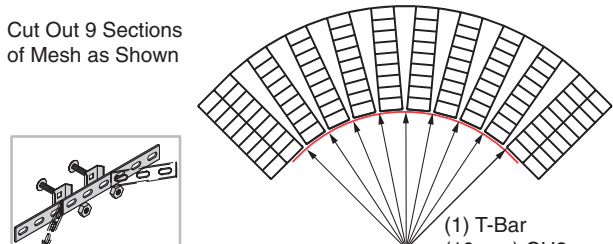
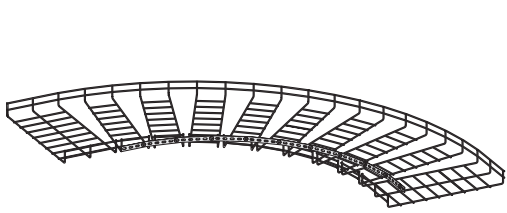
2 ASSEMBLE USING APPROPRIATE HARDWARE

- Standard hardware is shown with each bend size.

Advantages:

- Use as bonding jumper
- Vertical support of standing sections
- Adjustable radius allowances

NOTE: Always place nut on outside of tray

<p>Cut Out 4 Sections of Mesh as Shown</p>  <p>(1) T-Bar (5 pcs) CH3</p>	 <p>CAT2-04 16" Inside Radius</p> <p>CAT2-06 12" Inside Radius</p> <p>CAT2-08 12" Inside Radius</p>
<p>Cut Out 6 Sections of Mesh as Shown</p>  <p>(1) T-Bar (7 pcs) CH3</p>	 <p>CAT2-12 17" Inside Radius</p>
<p>Cut Out 7 Sections of Mesh as Shown</p>  <p>(1) T-Bar (8 pcs) CH3</p>	 <p>CAT2-16 18" Inside Radius</p> <p>CAT2-18 18" Inside Radius</p>
<p>Cut Out 9 Sections of Mesh as Shown</p>  <p>(1) T-Bar (10 pcs) CH3</p>	 <p>CAT2-20 24" Inside Radius</p> <p>CAT2-24 24" Inside Radius</p>

WIRE BASKET SYSTEM



90° SHORT RADIUS BENDS

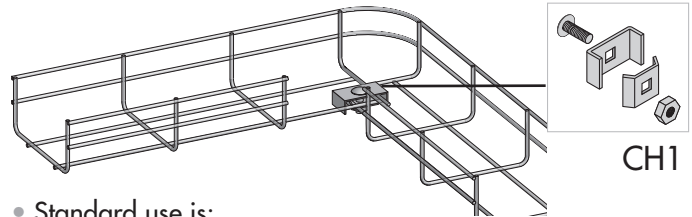
90° Bends - Forming Instructions

To form 90° bends in the tray, cut the wires shown in the color shaded area of the drawing which corresponds to the width of the tray used.

1 CUT THE BOTTOM AND SIDE WIRES

Bends can be formed easily on-site by cutting the bottom and side wires. The shaded areas indicated should be cut and removed. Then, simply bend Wire basket tray cable tray to form a 90° angle and you are ready to install. Make sure you use the appropriate hardware.

2 ASSEMBLE USING APPROPRIATE HARDWARE

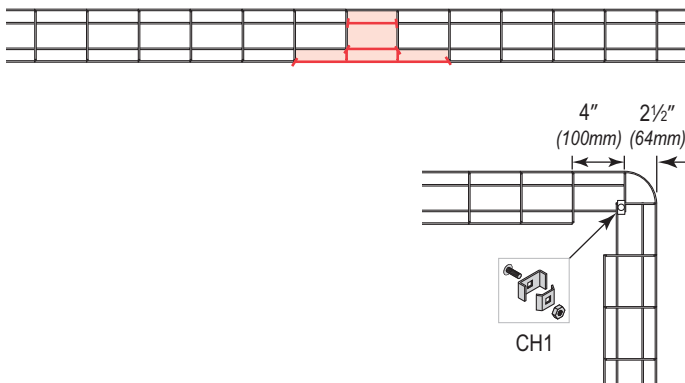


- Standard use is:
Sizes 4" - 12" (1 pc) CH1
Sizes 16" - 24" (2 pc) CH1

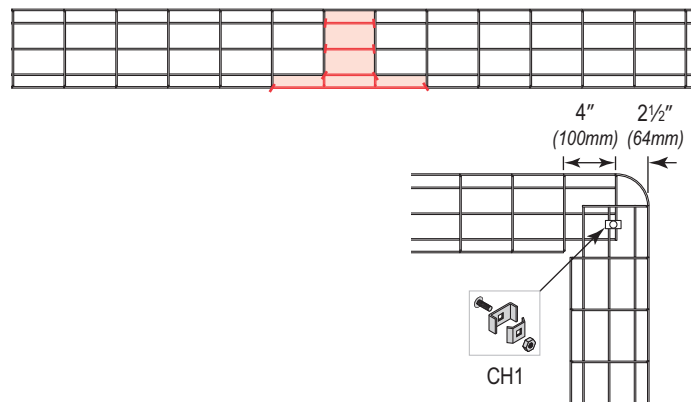
NOTE: Always place nut on outside of tray)

90° Bends - Cutting Diagrams

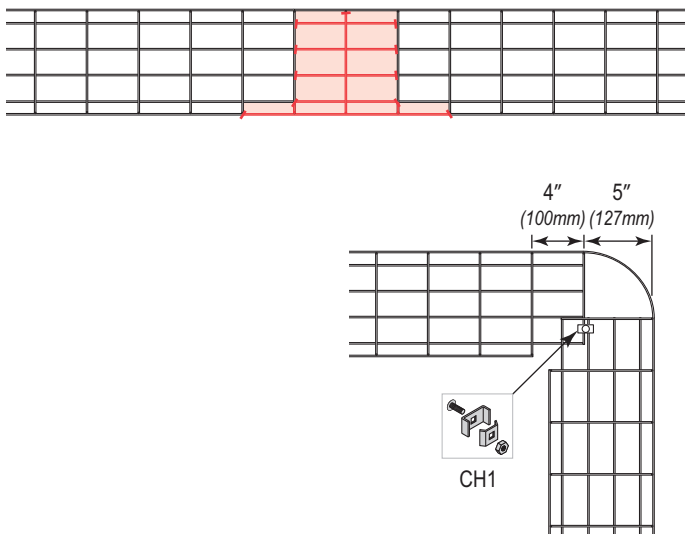
4" (100mm)



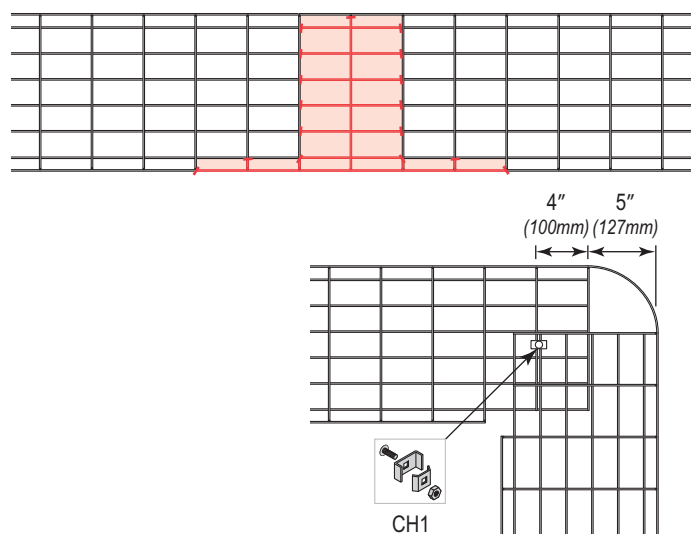
6" (150mm)



8" (200mm)

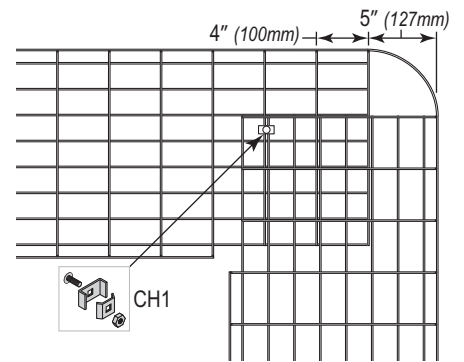
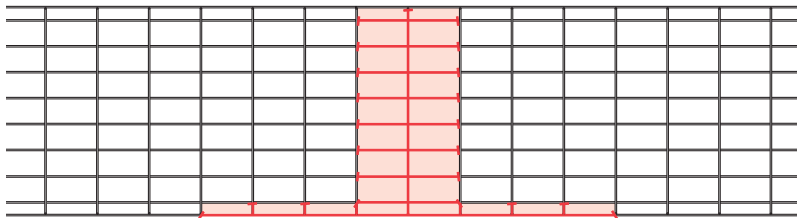


12" (300mm)

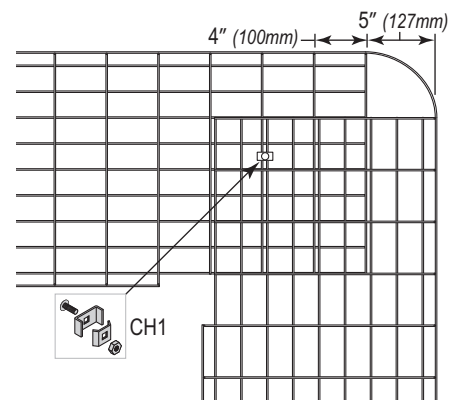
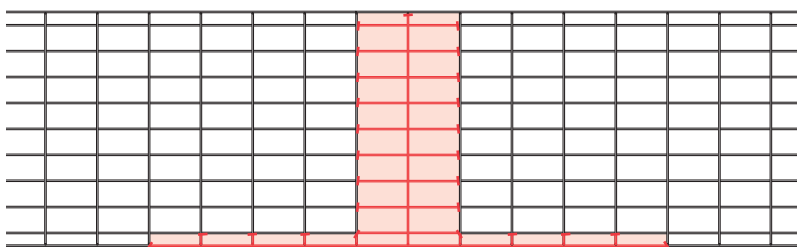


90° Bends - Cutting Diagrams

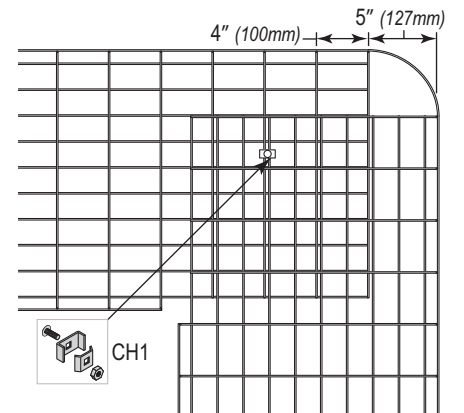
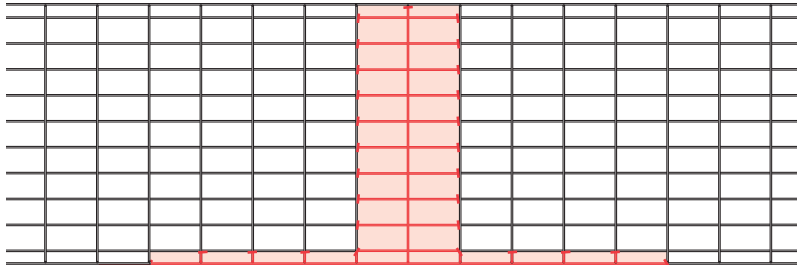
16" (400mm)



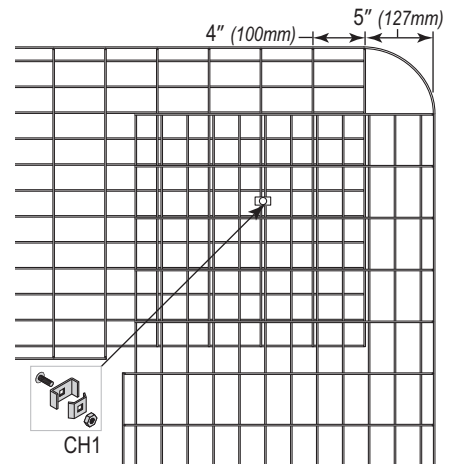
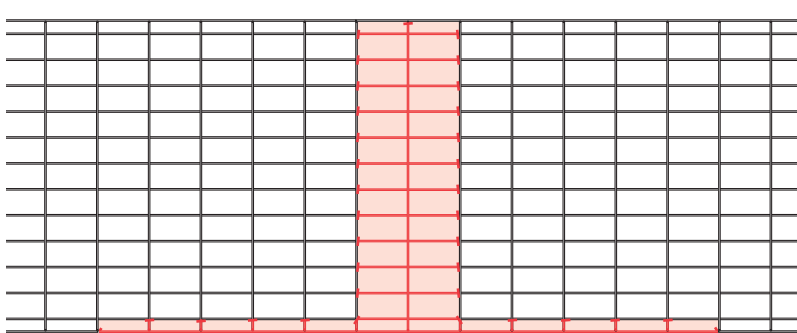
18" (450mm)



20" (500mm)



24" (600mm)



WIRE BASKET SYSTEM



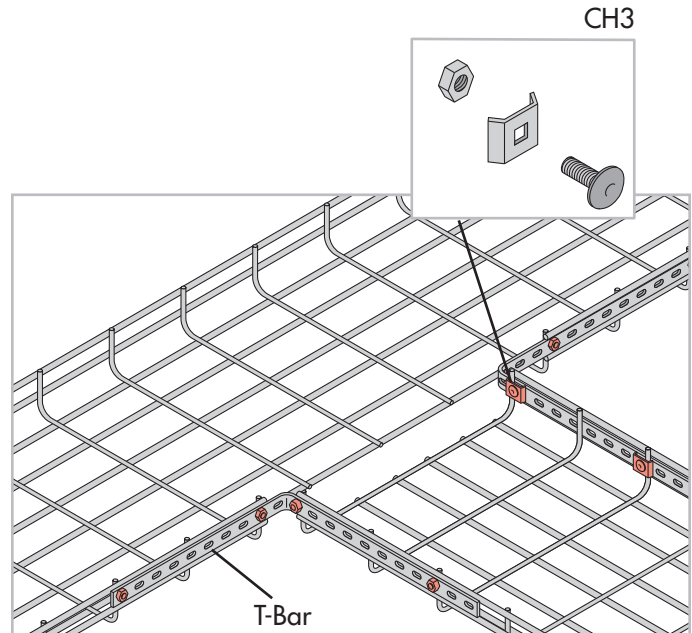
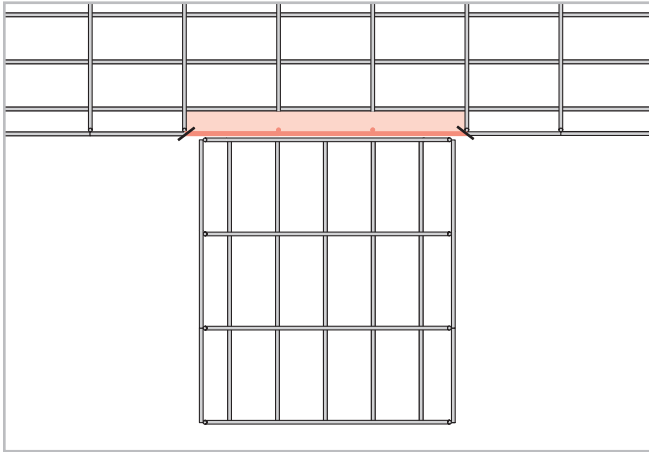
CROSS & TEE FITTINGS

Standard Tee

- Standard use per tee is:
(2 pc) T-Bar-22 or (1 pc) T-Bar cut in half
(8 pc) CH3

NOTE: Always place nut on outside of tray

To form a tee, cut the wires marked in yellow.

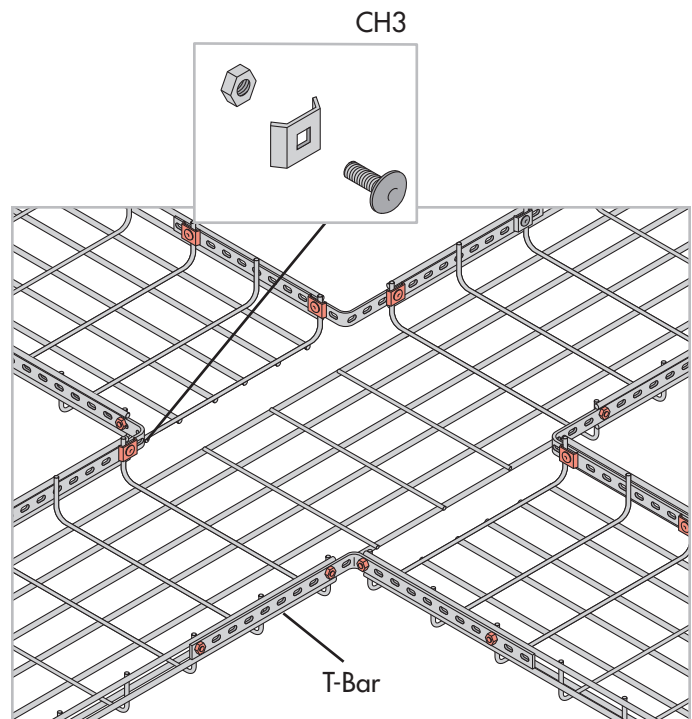
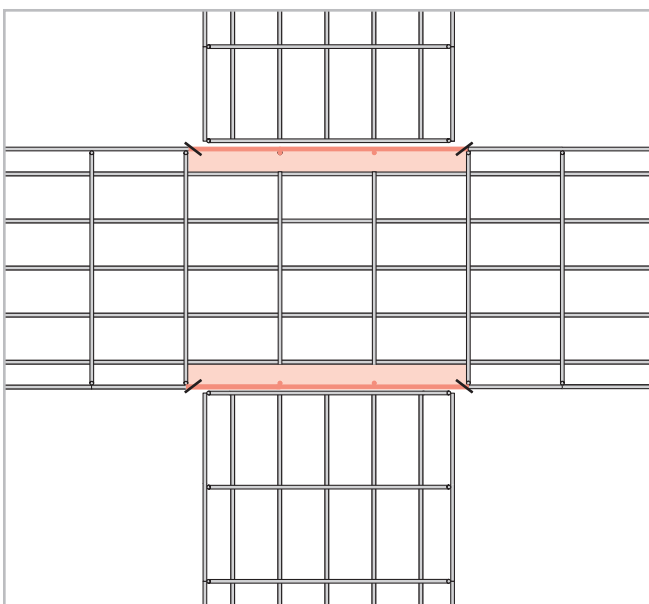


Cross

- Standard use per cross is:
(4 pc) T-Bar-22 or (2 pc) T-Bar cut in half
(16 pc) CH3

NOTE: Always place nut on outside of tray

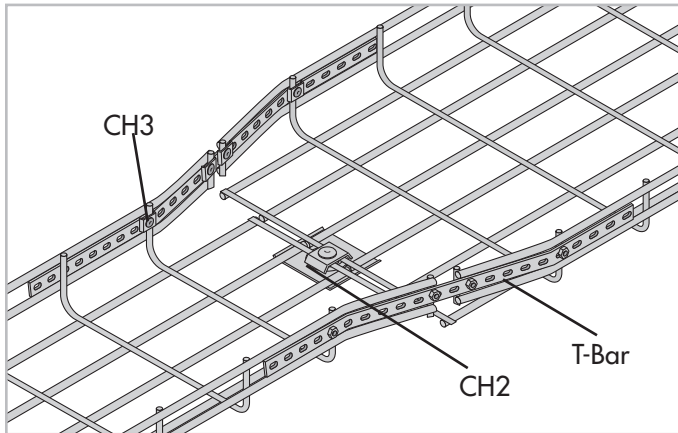
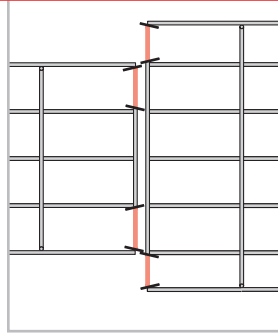
To form a cross, cut the wires marked in yellow.



Reducer

- Standard use per reducer is:
 (2 pc) T-bar
 (8 pc) CH3
 (1 pc) CH2

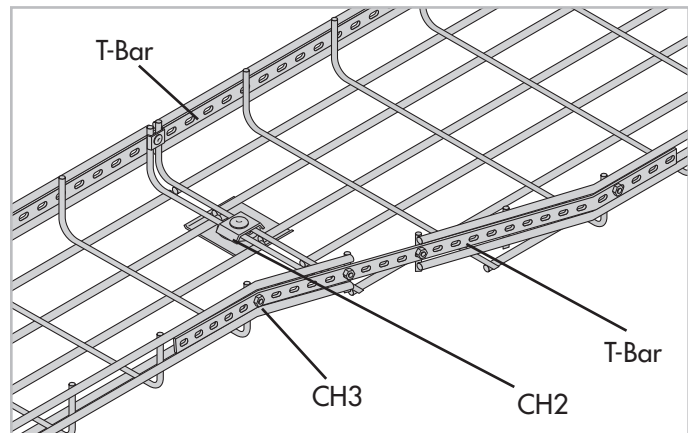
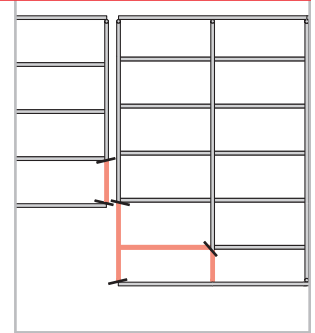
NOTE: Always place nut on outside of tray



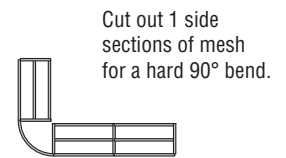
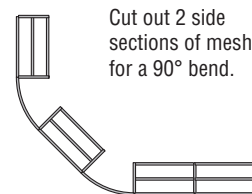
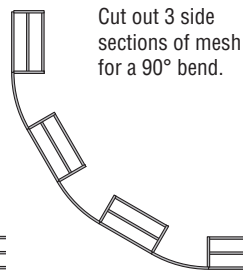
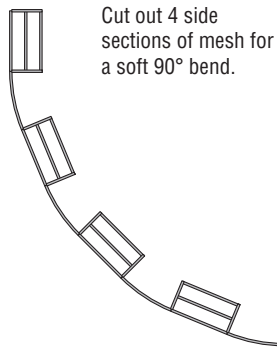
Offset

- Standard use per offset is:
 (2 pc) T-Bar
 (8 pc) CH3
 (1 pc) CH2

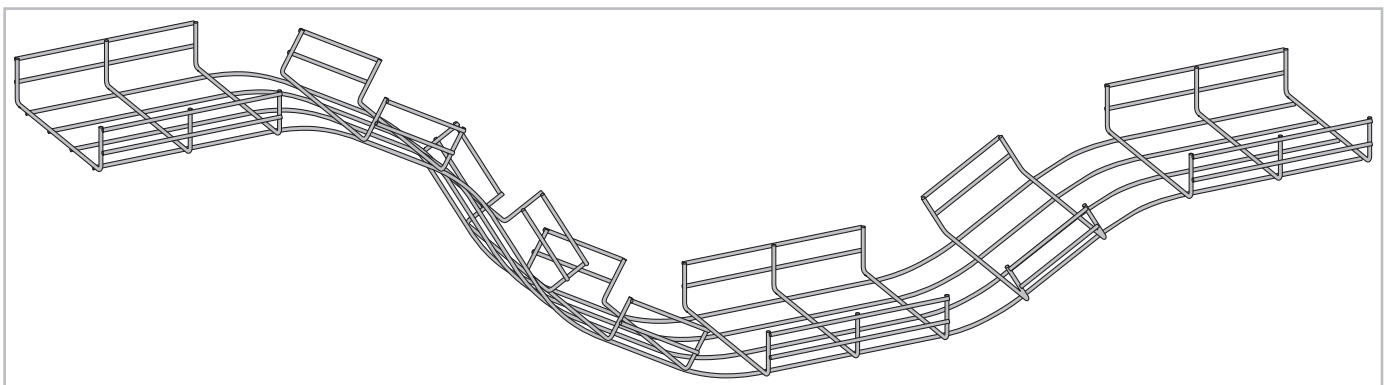
NOTE: Always place nut on outside of tray



Riser



Risers and drops can be created to avoid different obstacles in the job path. Simply cut out the required number of side mesh sections and bend a vertical riser or drop to fit the application.



GROUNDING

Grounding

UL CLASSIFIED SYSTEMS

The Cope brand of wire basket systems which meet the UL Classification are referenced on pages 228 & 229.

Notes: Cope recommends use of a separate ground wire for equipment grounding.

Any non-conductive coating to wire basket must be removed by the contractor/end-user to maintain electrical continuity.

Straight Sections - The grounding of two straight sections requires the use of
(2) CAT-GC's and (2) EG-CBN's.

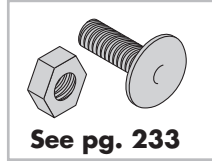
These items consist of grounding clips and the appropriate hardware, for connecting to the trays. One clip should be placed on both sides of the tray, attached at the self-splicing bar.

Fittings - Grounding of fittings requires special attention. Typically, fittings are fabricated in the field by cutting straight sections, thus altering the cross sectional area of the tray. A bonding jumper, and/or a T-Bar Splice, along with the appropriate hardware must be used on either side of the fitting to ensure electrical continuity.

Straights

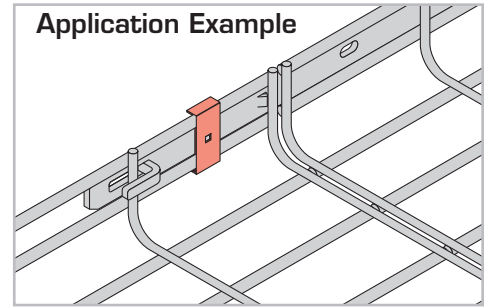
2 pcs of CAT-GC
2 pcs of EG-CBN

EG-CBN



See pg. 233

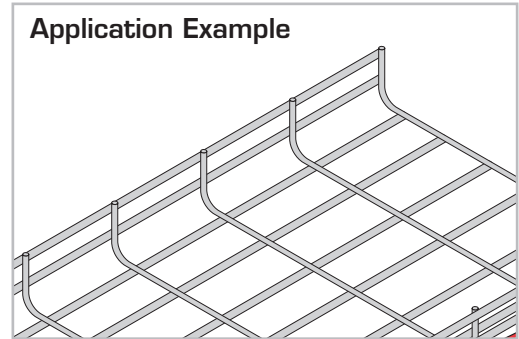
Application Example



Fittings

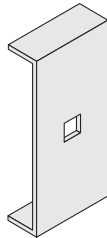
T-Bar and
CH3s

Application Example



Grounding Clip [CAT-GC]

- Standard finish is pregalvanized (PG)
- Sold in packs of 10
- Connection to splice bars requires a nut and bolt assembly (EG-CBN) purchased separately
- Use on both sides of tray

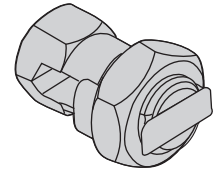


NOTE: Always place nut on outside of tray

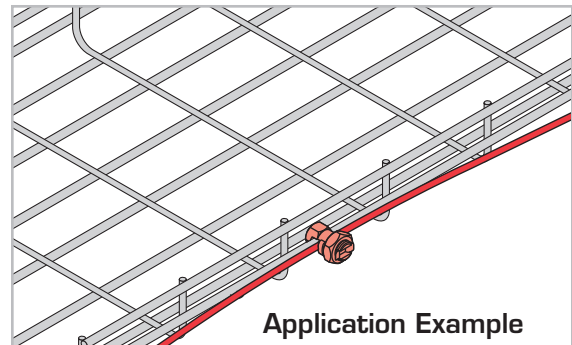
CAT-GC's must be utilized if the tray is to be utilized as an equipment ground conductor.

Grounding Clamp/Split Bolt [SPLIT-BOLT]

- Split bolts are utilized for the attachment of a separate ground wire.
- Use with #6 AWG Ground Conductor



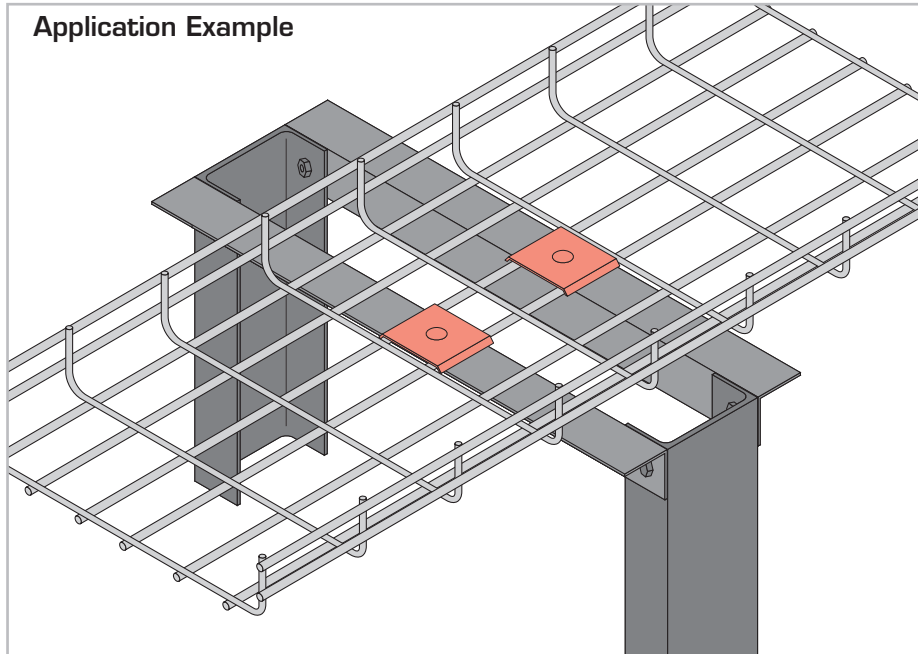
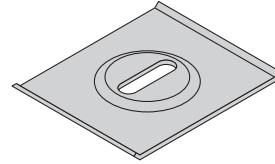
NOTE: Always place nut on outside of tray



Application Example

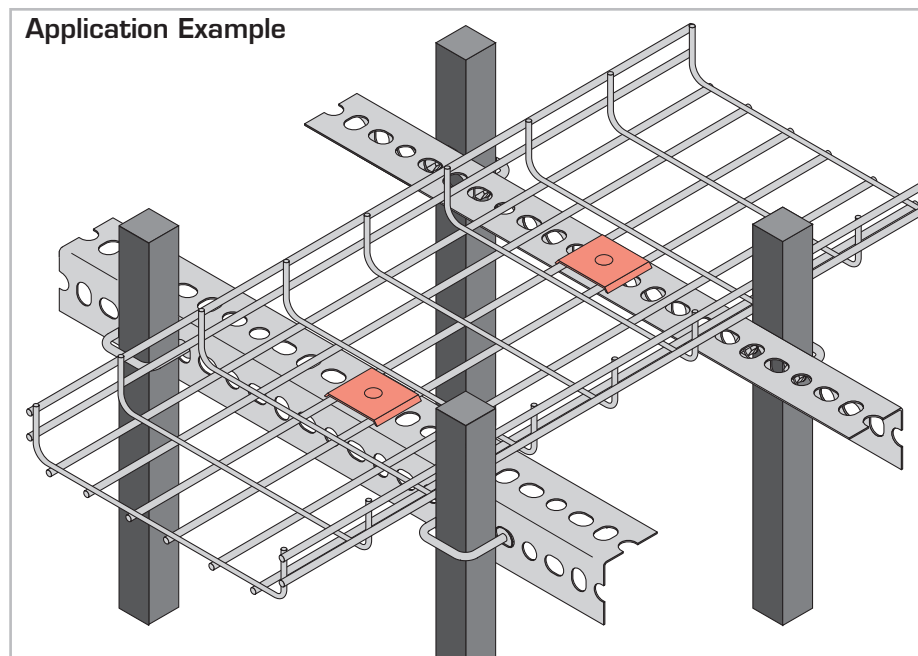
Bottom Clip [BOTTOM-CLIP]

- Bottom-clip used a hold-down clip



Drill hole in aluminum angle of relay rack.

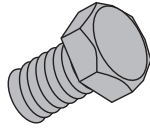
Use bottom-clip to hold Wire basket tray to relay rack using 1/4"-20 round head machine screw and bolt and washer.



HARDWARE

Hex Head Cap Screws

- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 6024	1/4"-20 x 1" Long
PS 6024	1/4"-20 x 1 1/2" Long
PS 6024	3/8"-16 x 5/8" Long
PS 6024	3/8"-16 x 1" Long
PS 6024	3/8"-16 x 1 1/2" Long
PS 6024	3/8"-16 x 2" Long

Hex Nuts

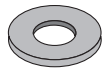
- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 83	1/4"-20
PS 83	3/8"-16
PS 83	1/2"-13

Flat Washers

- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 209	1/4"
PS 209	3/8"
PS 209	1/2"

Round Head Machine Screws

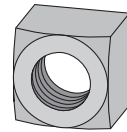
- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 6072	1/4"-20 x 1" Long
PS 6072	1/4"-20 x 1 1/2" Long
PS 6072	3/8"-16 x 5/8" Long
PS 6072	3/8"-16 x 1" Long
PS 6072	3/8"-16 x 1 1/2" Long
PS 6072	3/8"-16 x 2" Long

Square Nuts

- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 6108	1/4" - 20
PS 6108	3/8" - 16
PS 6108	1/2" - 13

Lock Washers

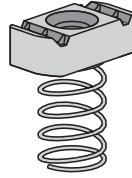
- Standard finish is electro-galvanized (EG)



Part No.	Description
PS 211	1/4"
PS 211	3/8"
PS 211	1/2"

Strut Nuts

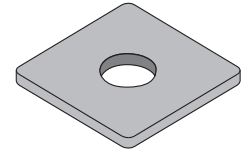
- Standard finish is electro-galvanized (EG)



Part No.	Description
PSRS-1/4	1/4" - 20
PSRS-3/8	3/8" - 16
PSRS-1/2	1/2" - 13

Square Strut Washers

- Standard finish is electro-galvanized (EG)

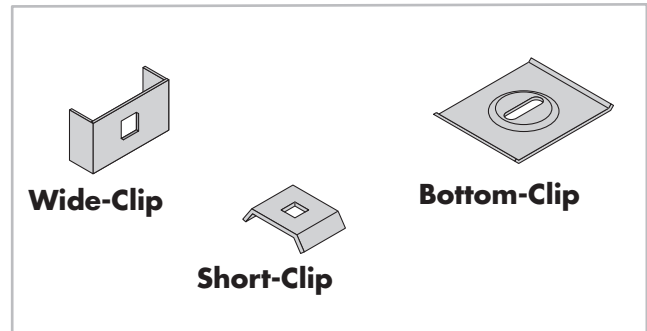


Part No.	Description
PS 619	1/4" hole
PS 619	3/8" hole
PS 619	1/2" hole

Tray Clips (See Page 233 for Connector Kits)

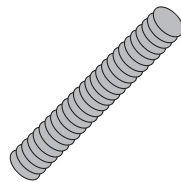
- Standard finish is electro-galvanized (EG)

Single Part	WEIGHT	NO./ PKG
Short-Clip	.20	10
Wide-Clip	.31	10
Bottom-Clip	.92	10



Threaded Rod

- Standard finish is electro-galvanized (EG)



Part No.	Description	Weight		
		6' Lengths	10' Lengths	12' Lengths
PS 146	1/4" - 20	73	121	146
PS 146	3/8" - 16	175	292	350
PS 146	1/2" - 13	319	531	638

Sample Specification

1.0 Acceptable Manufacturer

Provide "Cope™" Wire Basket type of cable management system as manufactured by Allied Tube & Conduit Corporation or engineered approved equal.

All cable trays shall be installed in a neat uniform fashion. Installing contractor shall field modify tray system to accommodate the exact routing requirements.

2.0 Material/Finishes

Wire basket tray to be fabricated from high strength steel wires.

2.1 Acceptable finishes;

2.1.a Standard Finish

EG – Electro-Galvanized Steel in accordance with ASTM 633 Type I SC3.

2.1.b Special Finishes

HD – Hot dipped Galvanized Steel in accordance with ASTM 123.

ZD – Electro- Galvaned Steel with a Yellow Dichromate applied over the Standard EG finish per ASTM633 type II, SC3.

EP – Epoxy Coated Steel.

SS – AISI 304L stainless or AISI 316L stainless steel.

3.0 - Straight Sections

Straight sections shall be manufactured from high strength steel wires forming 2" X 4" openings and shall conform to the following dimensions

3.1 Length

Straight sections shall be supplied in 10' lengths

3.2 Width

Widths shall be 2", 4", 6", 8", 12", 16", 18", 20", or 24" as called out on drawings.

3.3 - Load depths

The load depths shall include 2", 4", & 6" as required.

4.0 Splices

All straight sections shall be supplied with pre-installed, auto-locking, splices plates, where possible, as per "Cope" brand. Trays design shall allow for a snap together type connection and shall require no nut and bolt assembly.

5.0 Fittings

All fittings shall be fabricated in the field as required, per manufacturer's recommendations. Radius of the fittings shall be based on the "minimum bending" radius of the cables being installed.

6.0 Accessories

Accessories such as blind ends, dropouts, and barriers, etc... shall be installed as specified on drawings.

7.0 Supports

Supports shall include, but are not limited to, center type, trapeze type, wall supports, and floor supports.

7.1 Auto Locking

All supports shall be supplied with an Auto locking feature, requiring no special tools for attachment of the trays.

7.2 Finish

All supports, including threaded rod and associated hardware shall be electro-galvanized coated to ASTM B633 SC1, or ASTM B633 SC3.

REFERENCE DATA

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COPE™ Quotation Check List
Corrosion Resistance Guide
Table of Conversions
Fractions & Decimal Equivalents

COPE™ Quotation Check List

Allied Tube & Conduit Corporation – Customer Service
 16100 S. Lathrop Ave. • Harvey, IL 60426
 Phone: 800-882-5543 ext. 7533 • Fax: 708-339-7814

www.copetray.com
 Electrical & Support Division

PROJECT INFORMATION

Name:		Dist:		Date:	
Location:		Contact:		Email/Phone:	

TRAY TYPE:	<input type="checkbox"/> Ladder *	<input type="checkbox"/> Hat *	<input type="checkbox"/> Vent Trof	<input type="checkbox"/> Solid Trof
	<input type="checkbox"/> Channel		<input type="checkbox"/> Wire Basket	<input type="checkbox"/> I-Beam

TRAY MATERIAL:	<input type="checkbox"/> Aluminum	<input type="checkbox"/> Steel, Pre-Galvanized	<input type="checkbox"/> Steel, HDGAF	<input type="checkbox"/> Other, _____
	<input type="checkbox"/> 304 Stainless Steel	<input type="checkbox"/> 316 Stainless Steel	<input type="checkbox"/> Fiberglass	

TRAY LENGTH:	<input type="checkbox"/> 10'	<input type="checkbox"/> 12'	<input type="checkbox"/> 20'	<input type="checkbox"/> 24'
---------------------	------------------------------	------------------------------	------------------------------	------------------------------

TRAY WIDTH:	<input type="checkbox"/> 6"	<input type="checkbox"/> 9"	<input type="checkbox"/> 12"	<input type="checkbox"/> 18"
	<input type="checkbox"/> 24"	<input type="checkbox"/> 30"	<input type="checkbox"/> 36"	<input type="checkbox"/> 42" or 48" <i>Note: Ladder Tray Only, not NEMA Standard</i>

* RUNG SPACING:	<input type="checkbox"/> 6"	<input type="checkbox"/> 9"	<input type="checkbox"/> 12"	<input type="checkbox"/> 18"
------------------------	-----------------------------	-----------------------------	------------------------------	------------------------------

LOAD DEPTH:	<input type="checkbox"/> 3"	<input type="checkbox"/> 4"	<input type="checkbox"/> 5"	<input type="checkbox"/> 6"
--------------------	-----------------------------	-----------------------------	-----------------------------	-----------------------------

FITTING RADIUS:	<input type="checkbox"/> 12"	<input type="checkbox"/> 24"	<input type="checkbox"/> 36"
------------------------	------------------------------	------------------------------	------------------------------

STRUCTURAL REQUIREMENTS (NEMA CLASS):	<input type="checkbox"/> 8A	<input type="checkbox"/> 8B	<input type="checkbox"/> 8C
	<input type="checkbox"/> 12A	<input type="checkbox"/> 12B	<input type="checkbox"/> 12C
	<input type="checkbox"/> 16A	<input type="checkbox"/> 16B	<input type="checkbox"/> 16C
	OR,	<input type="checkbox"/> 20A	<input type="checkbox"/> 20B

CABLE WEIGHT SUPPORT SPAN	_____
----------------------------------	-------

SPECIAL REQUIREMENTS:	_____
------------------------------	-------

DELIVERY REQUIREMENTS:	_____
-------------------------------	-------



CABLE TRAY/WIRE BASKET LOADINGS REFERENCE

NEMA (VE-1) Loadings¹

Tray/Load Designation	Class A	Class B	Class C
lbs/ft	50	75	100

Power Cables^{1,2}

Tray Dimension	36" Wide	30" Wide	24" Wide	18" Wide	12" Wide	9" Wide	6" Wide
Cable Fill Weight	140	115	90	70	45	35	25

Data/Communication Cables^{1,3,4}

Tray Size	36" Wide	30" Wide	24" Wide	18" Wide	12" Wide	9" Wide	6" Wide
6" Depth	89	74	59	45	30	23	15
5" Depth	74	62	49	37	25	19	13
4" Depth	59	49	40	30	20	15	10
3" Depth	45	37	30	23	15	12	8
2" Depth	30	25	20	15	10	8	5

Note:

1. All Cable Weight/Loads are in Lbs/ft unless otherwise noted.
2. Larger diameter cables used in weight estimation.
3. Max 50% fill ratio used in calculations for Data/Communication Cables
4. CAT6/CAT6E cables, O.D. = 0.25" nominal, weight = 0.040 lbs/ft

Cope™ WIRE BASKET COPE-GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

Reference

CORROSION RESISTANCE GUIDE

The symbols to the right have been used throughout the table in order to provide an indication about the suitability of a potential candidate material for a specific chemical environment.

NOTE: These tables should be regarded only as GUIDES to anticipated performance because of possible contributions from temperature, pollutant (contaminant) species, etc.

SYMBOLS:

++	First choice; very low corrosion rate, typically <5 mpy, or <0.005 Inch/year, (1 mil = 1/1000 inch).
+	Good choice; low corrosion rate, typically <20 mpy, or <0.02 lpy.
-	Can use; corrosion rate up to 50 mpy (0.05 lpy); some limitations may apply.
X	Not recommended.
(-)	Brackets indicate probable limitations, E.G., At higher temperatures, [symbol "T"]; at higher concentrations, [symbol "C"]; due to pitting, [symbol "P"]; due to local grain boundary attack in the metal - intergranular corrosion, [symbol "I"]; due to stress corrosion cracking, [symbol "S"].
nd	No available data

Corrosion Resistance Guide			
Chemical Species	Aluminum	HDG/Steel	316SS
Acetaldehyde	++	+	++
Acetic acid - aerated	(+) ^{TC}	X	(++) ^T
Acetic acid - not aerated	(+) ^{TC}	X	(++) ^T
Acetone	++	++	++
Acetylene	++	nd	++
Allyl alcohol	+	nd	++
Aluminum chloride - dry	+	nd	(+) ^{TP}
Aluminum chloride - wet	X	X	(-) ^P
Aluminum sulfate - satd.	X	nd	+
Ammonia - anhydrous	++	++	++
Ammonia - gas	-	+	(+) ^T
Ammonium acetate	+	nd	+
Ammonium bicarbonate	-	nd	(+) ^T
Ammonium carbonate - satd.	+	X	+
Ammonium chloride - 28%	X	X	(+) ^{PS}
Ammonium chloride - 50%	X	X	X
Ammonium hydroxide	+	+	(++) ^C
Ammonium nitrate	+	X	(++) ^S
Ammonium phosphate - 40%	X	nd	+
Ammonium sulfate - to 30%	X	-	+
Amyl acetate	++	++	++
Asphalt	++	+	+
Beer	++	X	++
Benzene (benzol)	++	+	(+) ^P
Benzoic acid	+	nd	+
Benzol - see benzene	++	nd	(++) ^{TP}
Boric acid (boracic acid)	++	nd	(++) ^{TP}
Bromine - wet	X	X	X
Butadiene (butylene)	+	+	+
Butyl alcohol (butanol)	++	++	++
Butyric acid	+	X	+
Cadmium sulfate	+	nd	++

Corrosion Resistance Guide			
Chemical Species	Aluminum	HDG/Steel	316SS
Calcium carbonate	-	nd	+
Calcium chloride - satd.	+	X	(+) ^S
Calcium hydroxide - satd.	X	nd	+
Calcium hypochlorite - satd.	X	X	(-) ^P
Carbon dioxide - wet	++	+	+
Carbon disulfide (bisulfide)	++	+	++
Carbon tetrachloride	X	+	(++) ^{PS}
Carbolic acid - see phenol			
Carbonic acid - see carbon dioxide			
Caustic potash - see potassium hydroxide	X	++	(-) ^{PS}
Caustic soda - see sodium hydroxide			
Chlorine gas - wet			
Chloroform	(+) ^{dry}	+	(+) ^{TS}
Chromic acid	+	nd	(+) ^P
Citric acid - dilute	(+) ^{TC}	X	(++) ^P
Copper chloride	X	X	(-) ^P
Copper nitrate	X	nd	++
Copper sulfate	X	-	+
Cresol	+	+	+
Crude oil	++	++	++
Diethylamine	+	++	++
Dimethyl ketone - see acetone	(++) ^{dry}	++	+
Ethyl alcohol (ethanol)	++	++	++
Ethylene dichloride	(-) ^{dry}	++	(+) ^{PS}
Ethylene glycol (glycol)	++	++	++
Ferric chloride	X	X	X
Ferric nitrate - 10%	X	nd	+
Ferrous sulfate	+	nd	(+) ^P
Formaldehyde (methanal)	(+) ^P	++	(++) ^{TC}
Fluorine gas - moist	X	X	X
Formalin - see formaldehyde	(+) ^T	X	(+) ^{PC}
Formic acid (methanoic acid) - 10%	(+) ^T	X	(+) ^{PC}
Furfural (furfuraldehyde)	+	nd	+



REFERENCE DATA

CORROSION RESISTANCE GUIDE

Corrosion Resistance Guide			
Chemical Species	Aluminum	HDG/Steel	316SS
Furol - see furfural Gelatin	++	+	++
Glycerine (glycerol)	++	++	++
Hexamine - 80%	++	nd	++
Hydrobromic acid	X	X	X
Hydrochloric acid (muriatic acid)	X	X	X
Hydrocyanic acid - dilute	+	nd	+
Hydrocyanic acid - conc	X	nd	+
Hydrofluoric acid	X	X	X
Hydrogen chloride gas - dry	X	X	(++) ^S
Hydrogen chloride gas - wet	X	X	+
Hydrogen fluoride	(-) ^T	nd	+
Hydrogen peroxide - to 40%	++	nd	+
Hydrogen sulfide - wet	(+) ^P	nd	(+) ^{PS}
Hypo - see sodium thiosulfate			
Hypochlorous acid	X	X	X
Iodine solution - satd	X	X	X
Lactic acid	(+) ^T	nd	(+) ^{PI}
Latex	++	-	++
Lithium chloride - to 30%	X	nd	++
Linseed oil	+	nd	++
Magnesium chloride - 50%	X	X	(+) ^{PS}
Magnesium hydroxide	+	nd	++
Magnesium sulfate	+	X	+
Maleic acid (maleinic acid) - 20%	+	nd	+
Methyl alcohol (methanol)	++	++	++
Methyl ethyl ketone	+	++	+
Milk	++	X	++
Molasses	+	nd	++
Naptha	+	+	+
Natural fats	++	++	++
Nickel chloride	X	nd	(+) ^{PS}
Nickel sulfate	X	nd	+
Nitric acid	X	X	(++)
IOleic acid	(++) ^T	nd	++
Oxalic acid - dilute	-	nd	+
Oxalic acid - saturated	(+) ^T	X	X
Paraformaldehyde - to 30%	+	nd	++
Perchloroethylene	+	X	(++)
PPhenol (carbolic acid)	+	+	++
Phosphoric acid - dilute	X	X	++
Phosphoric acid - 50%	X	X	(++)
IPicric acid	++	nd	+
Potassium bicarbonate - 30%	X	nd	++
Potassium carbonate	X	nd	++
Potassium chloride - to 25%	X	X	(++) ^P

Corrosion Resistance Guide			
Chemical Species	Aluminum	HDG/Steel	316SS
Potassium dichromate - 30%	(++) ^T	X	++
Potassium hydroxide	X	nd	(+) ^S
Potassium nitrate	++	++	+
Potassium sulfate	++	++	++
Propionic acid (propanoic acid)	(+) ^T	X	(+) ^T
Propyl alcohol (propane)	++	++	++
Prussic acid - see hydrocyanic acid			
Pyridine	+	nd	++
Soaps	+	-	+
Sodium bicarbonate - 20%	+	nd	++
Sodium bisulfate	X	X	(+) ^T
Sodium bisulfite	X	X	+
Sodium chloride - to 30%	X	X	(+) ^{PS}
Sodium cyanide	X	nd	(+) ^T
Sodium hydroxide - 10-30%	X	X	(+) ^S
Sodium hydroxide - 50%	X	X	(++) ^S
Sodium hydroxide - conc	X	X	++
Sodium hypochlorite - conc	X	+	(-) ^{PS}
Sodium nitrate	++	X	++
Sodium peroxide - 10%	+	nd	+
Sodium silicate	++	nd	++
Sodium sulfate	(++) ^{30%}	X	++
Sodium sulfide - to 50%	X	nd	(+) ^T
Sodium thiosulfate	+	nd	++
Steam	(+) ^P	++	++
Stearic acid	+	nd	++
Sorbital (hexahydric alcohol)	++	+	++
Sulfur dioxide - dry	+	+	++
Sulfur dioxide - wet	X	X	(+) ^T
Sulfuric acid - to 80%	X	X	X
Sulfuric acid - 80-90%	X	X	(-) ^I
Sulfuric acid - 98%	X	X	(+) ^I
Tannic acid (tannin)	X	X	+
Tartaric acid - to 50%	(+) ^T	nd	++
Toluene (Toluol; methyl benzene)	++	++	++
Trichloroethylene	(++) ^T	+	(+) ^P
Turpentine	+	++	++
Water - acid, mine	X	-	(++) ^P
Water - potable	+	+	++
Water - sea	+	+	++
Xylene	++	nd	++
Zinc chloride - dilute	++	nd	(++) ^{PS}

NOTE: These tables should be regarded only as GUIDES to anticipated performance because of possible contributions from temperature, pollutant (contaminant) species, etc.

TABLE OF CONVERSIONS

English to Metric			Metric to English		
To Convert From	To	Multiply By	To Convert From	To	Multiply By
Length					
Inch [in]	Millimeter [mm]	25.400 000	Millimeter [mm]	Inch [in]	0.039 370
Foot [ft]	Meter [m]	0.304 800	Meter [m]	Foot [ft]	3.280 840
Yard [yd]	Meter [m]	0.914 400	Meter [m]	Yard [yd]	1.093 613
Mile (U.S. Statute) [mi]	Kilometer [km]	1.609 347	Kilometer [km]	Mile (U.S. Statute) [mi]	0.621 370
Area					
Square Inch [in ²]	Square Millimeter [mm ²]	645.16	Square Millimeter [mm ²]	Square Inch [in ²]	0.001550
Square Foot [ft ²]	Square Meter [m ²]	0.092 903	Square Meter [m ²]	Square Foot [ft ²]	10.763 915
Square Yard [yd ²]	Square Meter [m ²]	0.836 127	Square Meter [m ²]	Square Yard [yd ²]	1.195 991
Square Mile [mi ²] (U.S. Statute)	Square Kilometer [km ²]	2.589 998	Square Kilometer [km ²]	Square Mile [mi ²] (U.S. Statute)	0.386 101
Acre	Square Meter [m ²]	4,046.873	Square Meter [m ²]	Acre	0.000 247
Acre	Hectare	0.404 687	Hectare	Acre	2.471 046
Volume					
Cubic Inch [in ³]	Cubic Millimeter [mm ³]	16,387.06	Cubic Millimeter [mm ³]	Cubic Inch [in ³]	0.000061
Cubic Foot [ft ³]	Cubic Meter [m ³]	0.028 317	Cubic Meter [m ³]	Cubic Foot [ft ³]	35.314 662
Cubic Yard [yd ³]	Cubic Meter [m ³]	0.764 555	Cubic Meter [m ³]	Cubic Yard [yd ³]	1.307 950
Gallon (U.S. Liquid) [gal]	Litre [l]	3.785 412	Litre [l]	Gallon (U.S. Liquid) [gal]	0.264 172
Quart (U.S. Liquid) [qt]	Litre [l]	0.946 353	Litre [l]	Quart (U.S. Liquid) [qt]	1.056 688
Mass					
Ounce (Avoirdupois) [oz]	Gram [g]	28.349 520	Gram [g]	Ounce (Avoirdupois) [oz]	0.035 274
Pound (Avoirdupois) [lb]	Kilogram [kg]	0.453 592	Kilogram [kg]	Pound (Avoirdupois) [lb]	2.204 624
Short Ton	Kilogram [kg]	907.185	Kilogram [kg]	Short Ton	0.00110
Force					
Ounce-Force	Newton [N]	0.278 014	Newton [N]	Ounce-Force	3.596 941
Pound-Force [lbf]	Newton [N]	4.448 222	Newton [N]	Pound-Force [lbf]	0.224 809
Bending Moment					
Pound-Force-Inch [lbf-in]	Newton-Meter [N-m]	0.112 985	Newton-Meter [N-m]	Pound-Force-Inch [lbf-in]	8.850 732
Pound-Force-Foot [lbf-ft]	Newton-Meter [N-m]	1.355 818	Newton-Meter [N-m]	Pound-Force-Foot [lbf-ft]	0.737 562
Pressure, Stress					
Pound-Force per Square Inch [lbf/in ²]	Kilopascal [kPa]	6.894 757	Kilopascal [kPa]	Pound-Force per Square Inch [lbf/in ²]	0.145 038
Foot of Water (39.2 F)	Kilopascal [kPa]	2.988 980	Kilopascal [kPa]	Foot of Water (39.2 F)	0.334 562
Inch of Mercury (32 F)	Kilopascal [kPa]	3.386 380	Kilopascal [kPa]	Inch of Mercury (32 F)	0.295 301
Energy, Work, Heat					
Foot-Pound-Force [ft-lbf]	Joule [J]	1.355 818	Joule [J]	Foot-Pound-Force [ft-lbf]	0.737 562
British Thermal Unit [Btu]	Joule [J]	1,055.056	Joule [J]	British Thermal Unit [Btu]	0.000948
Calorie [cal]	Joule [J]	4.186 800	Joule [J]	Calorie [cal]	0.238 846
Kilowatt Hour [kW-h]	Joule [J]	3,600,000	Joule [J]	Kilowatt Hour [kW-h]	2.78⁻⁷
Power					
Foot-Pound-Force /Second [ft-lbs/s]	Watt [W]	1.355 818	Watt [W]	Foot-Pound-Force /Second [ft-lbs/s]	0.737 562
British Thermal Unit /Hour [Btu/h]	Watt [W]	0.293 071	Watt [W]	British Thermal Unit /Hour [Btu/h]	3.412 142
Horsepower (550 Ft. Lbf/s) [hp]	Kilowatt [kW]	0.745 700	Kilowatt [kW]	Horsepower (550 Ft. Lbf/s) [hp]	1.341 022
Angle					
Degree	Radian [rad]	0.017 453	Radian [rad]	Degree	57.295 788
Temperature					
Degree Fahrenheit [F]	Degree Celsius [C]	(F° -32)/1.8	Degree Celsius [C]	Degree Fahrenheit [F]	1.8xC°+32



REFERENCE DATA

FRACTIONS & DECIMAL EQUIVALENTS

	1/64	0.015625		33/64	0.515625	
	1/32	0.03125		17/32	0.53125	
		3/64	0.046875		35/64	0.546875
1/16			0.0625	9/16		0.5625
		5/64	0.078125		37/64	0.578125
	3/32		0.09375		19/32	0.59375
		7/64	0.109375		39/64	0.609375
1/8			0.125	5/8		0.625
		9/64	0.140625		41/64	0.640625
	5/32		0.15625		21/32	0.65625
		11/64	0.171875		43/64	0.671875
3/16			0.1875	11/16		0.6875
		13/64	0.203125		45/64	0.703125
	7/32		0.21875		23/32	0.71875
		15/64	0.234375		47/64	0.734375
1/4			0.25	3/4		0.75
		17/64	0.265625		49/64	0.765625
	9/32		0.28125		25/32	0.78125
		19/64	0.296875		51/64	0.796875
5/16			0.3125	13/16		0.8125
		21/64	0.328125		53/64	0.828125
	11/32		0.34375		27/32	0.84375
		23/64	0.359375		55/64	0.859375
3/8			0.375	7/8		0.875
		25/64	0.390625		57/64	0.890625
	13/32		0.40625		29/32	0.90625
		27/64	0.421875		59/64	0.921875
7/16			0.4375	15/16		0.9375
		29/64	0.453125		61/64	0.953125
	15/32		0.46875		31/32	0.96875
		31/64	0.484375		63/64	0.984375
1/2			0.5	1		1.

Cope™ WIRE BASKET COPE™ GLAS™ COPE™ CHANNEL COPE™ TROF COPE™ HAT COPE™ I-BEAM™ COPE™ LADDER NEMA Intro.

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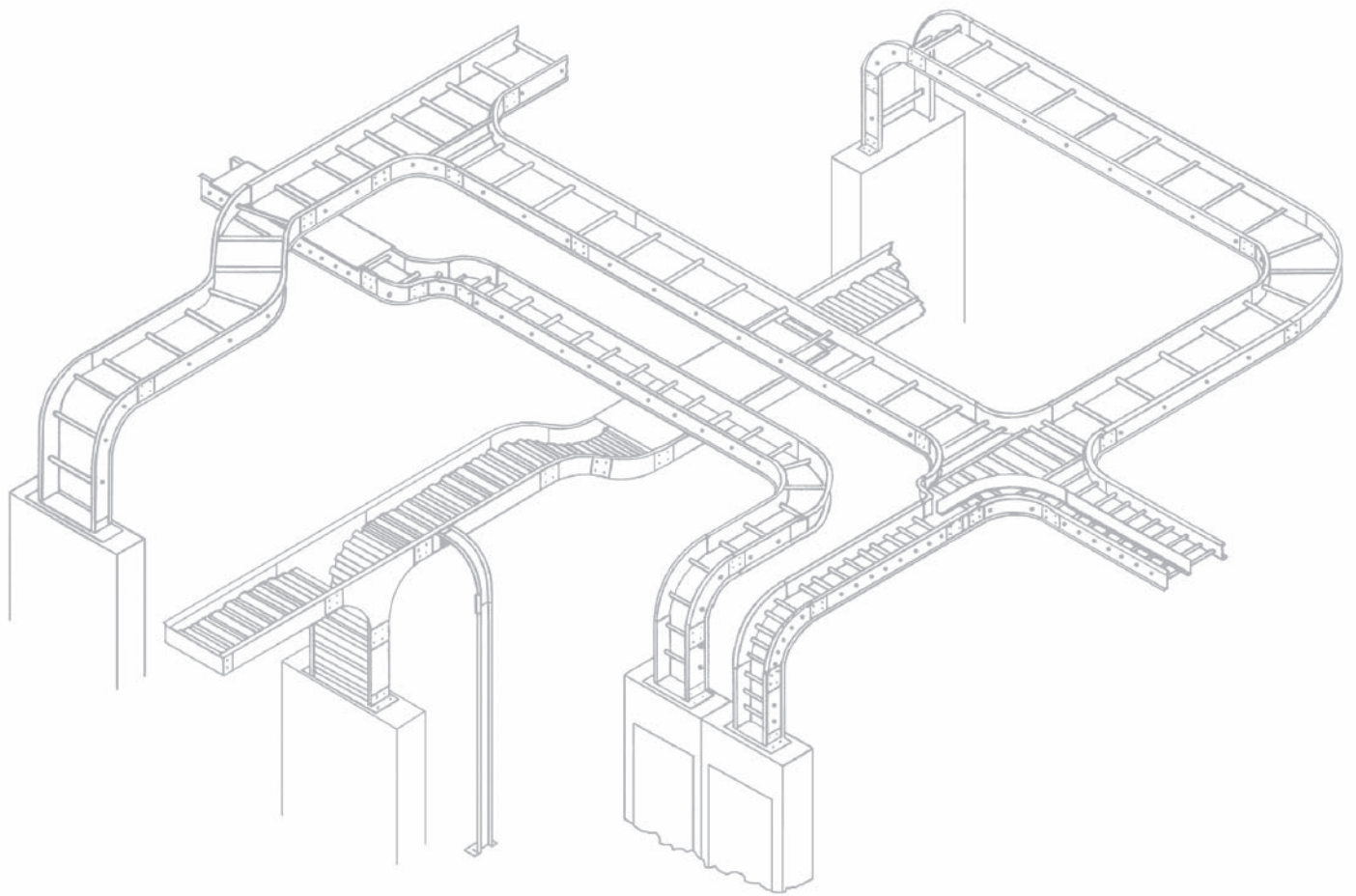


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