Product Catalogue

Cable Management Solutions

T&B® Cable Tray

Power and productivity
for a better world™

T&B® Cable Tray
Cable management solutions

Introduction

Introduction

Introduction
Manufacturing facilities

With over 20 years of experience T&B Cable Tray provides a complete solution in cable management systems including design, manufacturing and technical support by offering a complete solution for your installation.

T&B Cable Tray was acquired by ABB group in 2012 and through the wider network, T&B Cable Tray can now provide the complete solution offering with the combined expertise and experience of ABB products delivering world class solution in cable management

Present factories:
1. Southaven, USA
2. Athens, USA
3. Edmonton, Alberta, Canada
4. Iberville- Quebec, Canada
5. Marostica, Italy
6. Dammam, Saudi Arabia

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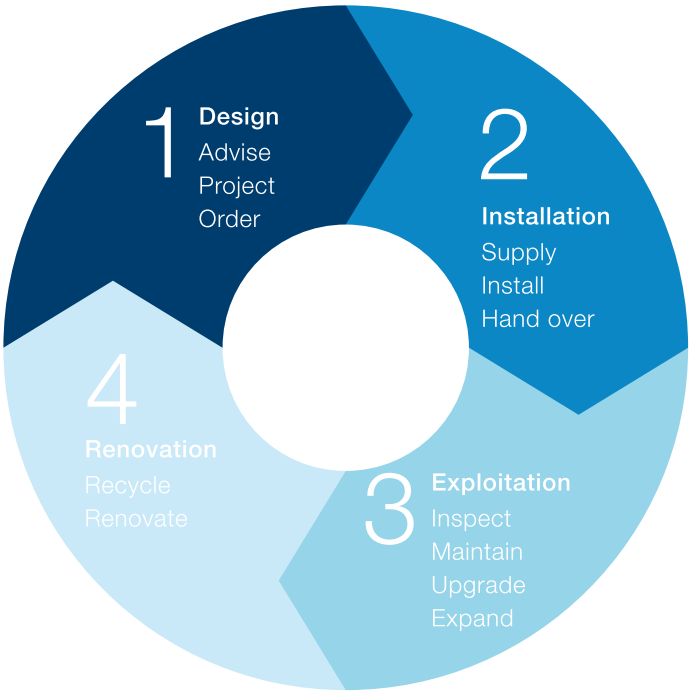
Delivering engineered solutions in cable management

ABB manufacturers a comprehensive range of cable tray systems and solutions including cable ladder, perforated tray, channel tray and metal framing (strut).



With our global presence, we are able to work with you and your global engineering team to select the right products and make sure they match your certification requirements and applications. Whether specifying a major new project, refurbishing existing facilities or doing the engineering, procurement and construction (EPC) for your end user, with T&B Cabletray, ABB offers reliable solutions during the total building life cycle. We offer:

Design stage
- engineering & design support
- global certification
- offering CAD library services online (2D & 3D)
- offering BIM library services, Revit certified note

Installation stage
- fast & easy delivery through our local facilities
- smart designs & accessories for easy installation

Exploitation stage
- harsh & corrosive environment protection
- fabricated from corrosion-resistant steel, stainless steel and aluminium alloys along with corrosion resistant finishes, including zinc, PVC, epoxy and special paints.
- excellent load span classification
- low or maintenance free

Renovation stage
- global design support
- easy adaptable & expandable in existing facilities

Our cable management solutions are ideal for a wide range of projects:

Commercial
Offices & retail centres
Hotels & resorts
Stadium & concert halls

Oil & Gas
Petrochemical plants
Oil & Gas refineries
Offshore platforms

Infrastructure
Airports
Rail terminals
Tunnels

Industrial
Automotive plants
Food processing
Pharmaceutical & manufacturing

Public sector
Schools & universities
Hospitals & healthcare
Government buildings

Utilities
Power stations
Water treatment facilities

Introduction
Features & benefits

T&B cable tray offers a comprehensive range of components forming the elements of a complete cable management system.

The system offered are:

- Cable trays and cable ladders (conforming to NEMA VE1) & IEC 61537 : 2006
- Metal channel cable supports conforming to BS 6946
- Cable trunking
- Hot dip galvanizing conforming to ASTM A123 & ISO 1461 : 2009

The T&B cable tray features & benefits.

- I - Beam siderail for maximum structural strength.
- Snap-in splice for easy installation.
- Alternate rungs for top and bottom accessory installation and cable lashing.
- Continuous open slot for Rungs to accept standard strut pipe clamps that can provide complete barrier strip adjustability.
- Exclusive Ty-Rap® cable tie slots on 1” centers on all ladder and ventilated bottoms. Secures cables without kinks and keeps cables uniform.
- Added support for aluminum and Steel Solid bottoms with a flat sheet for added cable protection.
- Extra wide rung design for maximum cable bearing surface.
- Barrier strips are fully adjustable (side to side) for use in straight sections and fittings.
- UL certified to be used as an equipment grounding conductor

BUREAU VERITAS Certification

THOMAS & BETTS SAUDI ARABIA LTD
2nd Industrial City, Street # 75
P.O. Box 514, Al- Khobar 31952, Kingdom of Saudi Arabia

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the standard detailed below

STANDARD

ISO 9001:2008

SCOPE OF CERTIFICATION

MANUFACTURING, INSPECTION, TESTING & DISTRIBUTION OF CABLE TRAY AND RELATED ACCESSORIES

Certification cycle start date: 18 NOVEMBER 2013
Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on: 17 NOVEMBER 2016
Original certification date: 18 NOVEMBER 2010

Certificate Number: IND 13.9021 UQ Version: 1 Date: 15 NOVEMBER 2013

Certification Authority

UKAS MANAGEMENT SYSTEMS 008

Certification body Address: Brandon House, 180 Borough High Street, London SE1 1LB, United Kingdom.
Local Office Address: Office # 6, 2nd Floor, Al Wafa Towers, King Faisal Bin Abdul Aziz Street, Al Rakia District, P.O.Box 20185, Khobar 31952, Kingdom of Saudi Arabia
Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organization.
To check this certificate validity please call: +966 3 8465701

CERTIFICATE OF COMPLIANCE

Certificate Number	20181004-E167525
Report Reference	E167525-20151106
Issue Date	2018-OCTOBER-04
Issued to:	ABB INSTALLATION PRODUCTS INC 860 RIDGELAKE BLVD MEMPHIS, TN 38120 USA
This is to certify that representative samples of	CABLE TRAYS USC - Perforated Cable Trays, Straight Sections, Cat. Nos. ALP, SPP, and SHP with alpha-numeric suffixes. USC - Perforated Cable Tray, Fittings, Cat. Nos. ALP, SPP, and SHP with alpha-numeric suffixes. USC - Perforated Cable Tray, Splice Plates, Cat. Nos. ALP, SPP, and SHP with alpha-numeric suffixes. USC - Perforated Cable Tray, Couplers, Cat. Nos. ALP, SPP, and SHP with alpha-numeric suffixes. Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	Sections 392.60(A) and 392.60(B) of ANSI/NFPA 70, "National Electrical Code." NEMA VE 1-2017, "Metal Cable Tray Systems"
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program
UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at http://ul.com/aboutul/locations/

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T&B services

Web CAD Library www.tnb.com/CADLibrary over 4,000 2D and 3D CAD models available free!

The T&B CAD library is an on-line source of 2D and 3D CAD models, available free to customers who register. Users can download these files to their desktops for import into their working drawings. Drawing are offered in ninety percentage of the most popular native file formats. This is a valuable tool for CAD designers, OEMs and engineering firms, as it will allow them to quickly locate and download T&B drawing into their projects. Over 4,000 drawings of T&B® fittings, PMA® Cable Protection, Kindort® , Red•Dot® and Superstrut® products and Steel City® and Carlon® Floor boxes and currently available, and we're continually adding more products to the library.

BIM library

Now available to you through Autodesk® Seek (seek. autodesk. com), our BIM (Building Information Modeling) objects can easily be imported to you Revit® models. These BIM objects are fully standards compliant, Revit® Certified and completely configurable.

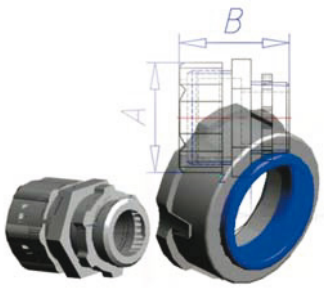
T&B CAD Library

Your source for FREE CAD file downloads.

Site includes:

- Help Guide
- Search Drawings
- Available File Formats

Welcome to the CAD Library. This comprehensive source of CAD drawings has been designed to make it easier than ever to find the right components, right from the start. Drawing are offered in most popular native CAD file formats and are available for instant downloading at no cost to registered users.



Cable ladder & accessories

Cable ladder & accessories
Cable ladder & accessories Overview

T&B cable ladder offers significant advantages over conduit pipe and other wiring systems.

Cable ladder is a more reliable, less expensive solution for supporting cable, which is easier to maintain, proves more adaptable to changing needs, and is more suitable for harsh and corrosive environments.

In specifying T&B cable ladder, you will be choosing a highly versatile solution which delivers quality and performance over the long term.

Extensive product range
T&B cable ladder is available in aluminium or steel with a range of finishes. Straight sections can be ordered in a variety of lengths and bottom styles, and are accompanied by an extensive selection of fittings, covers and accessories to ensure all installation needs are covered.

Enhanced safety
Cable ladder proves much safer than conduit installation, with lower risk of exposure to live, energized parts. In a cable ladder system, cables can be pulled from near one termination enclosure to the next before being connected, rather than being pulled through the conduit after the cable is terminated.

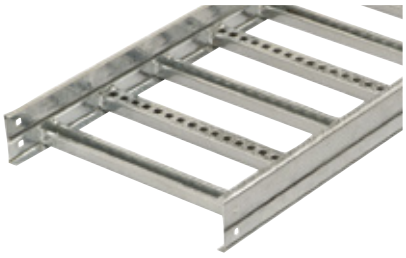
Increased adaptability
More than ever, businesses must have flexibility - to expand facilities quickly, to introduce new processes or product lines as demand dictates. A major advantage of cable ladder is its adaptability to meet new needs and technology. System modification, redesign or expansion is a simple task because cables can enter or exit the ladder at any point. There is no need to replace the entire system, ensuring minimal disruption to site activity.

Reduced costs
The adaptability, reliability and ease of maintenance of T&B cable ladder result in many types of cost saving, including:

Lower installation, engineering and maintenance costs Lower need to reconfigure the system as needs change Reduced downtime for electrical and data handling systems Fewer environmental problems resulting from loss of power to essential equipment

Low maintenance
Cable ladder wiring systems have a lower maintenance demand than conduit systems. When maintenance is necessary, it proves easier, less labour intensive, and requires less time to complete.

First class support
ABB combines global market leadership with local product & technical support, either through our network of distributors, or via our ABB sales office in your country.



Cable ladder & accessories
Cable ladder & accessories Overview

T&B cable ladder is available in four material types and three bottom types, for maximum versatility.

Material types
Aluminium
Steel (pre-galvanized, hot dip galvanized & stainless steel)

Bottom types
Ladder
Ventilated
Solid trough

Aluminium (to 6063 T6)
Aluminium 6063 T6 alloy for lightweight construction, excellent corrosion resistance, and high strength-to-weight ratio. Aluminium cable ladder offers simple installation and low maintenance.

Pre-galvanized steel (to BS EN 10142 & BS EN 10143)
Steel is ideal as a high strength, low cost material for cable ladder. Pre-galvanized steel ladder is produced by passing low-carbon steel through molten zinc before fabrication, and is generally recommended for indoor commercial applications rather than outdoor or industrial environments.

Hot dip galvanized steel (to BS EN ISO 1461)
Hot dip galvanized steel ladder is produced by immersing fabricated ladder in molten zinc, creating a much thicker coating than pre-galvanized. This process is recommended for most outdoor and harsh industrial applications.

Stainless steel (to AISI Type 316 or 304)
Stainless steel offers high strength and high resistance to chemicals, even at high ambient temperatures. T&B stainless steel cable ladder is roll-formed from AISI Type 316 stainless steel as standard, with Type 304 stainless steel available to special order.

Ladder
Longitudinal rungs are welded to extruded siderails for maximum structural strength. Rungs are extra wide for maximum cable bearing, and have continuous open slot for strut pipe clamps and barrier strip adjustability.

Every second rung is reversed for easy top or bottom mounting of cable ties and clamps, with exclusive Ty-Rap® slots on 1” centres. This ensures cables can be secured without kinks and keeps cables uniform.

Ventilated
Comprising longitudinal rails and a bottom with openings sufficient for the passage of air. Rungs are extra wide for maximum cable bearing, and have continuous open slot for strut pipe clamps and barrier strip adjustability. Every second rung is reversed for easy top or bottom mounting of cable ties and clamps, with exclusive Ty-Rap® slots on 1” centres. This ensures cables can be secured without kinks and keeps cables uniform.

Solid trough
A fabricated structure consisting of a bottom without ventilation openings within separate longitudinal siderails. Rungs are not alternated (up/down), however have perforations and, where necessary, Ty-Raps® can be inserted diagonally between rung and bottom sheet for cable fastening. This design offers added cable protection.

Note: cable ladder edges and welds are rounded and smoothed during manufacture to prevent cable damage. Care should be taken when handling cable ladder and protective gloves should be worn to avoid risk of injury.

Cable ladder & accessories
Cable ladder & accessories Overview

ABB delivers the complete, versatile solution for cable management, with straight sections, fittings, and covers etc., developed to overcome the design constraints found in all kinds of buildings and locations.

Straight section
Pre-fabricated steel or aluminium sections with siderails connected by transverse rungs. Available in a range of materials, lengths and bottom types to cover all installation options. Supplied complete with splice plates for connection to fittings, other sections etc. (aluminium splice plates 'snap-in' for easy installation).

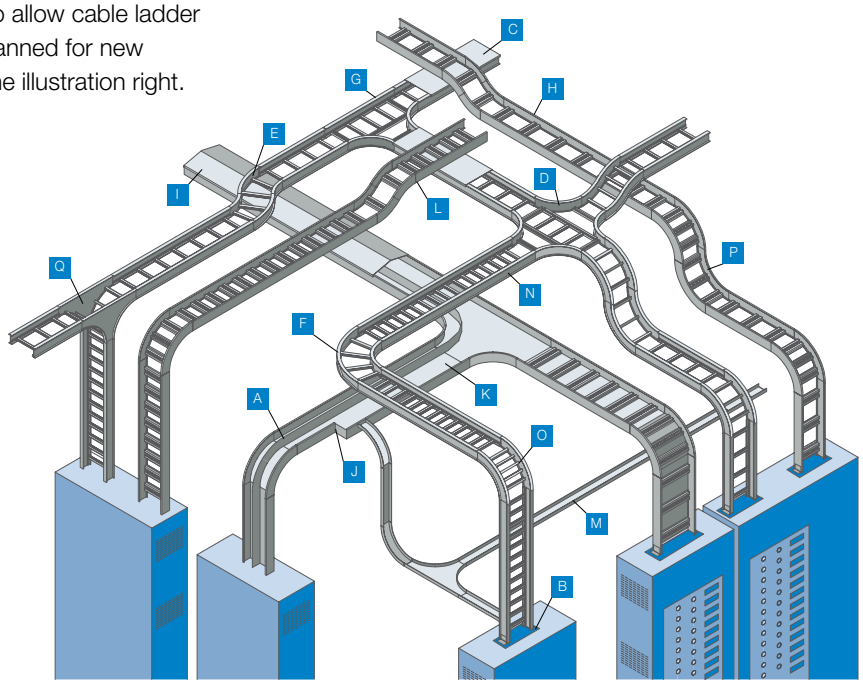
Fittings
Including bends, reducers, wyes, tees and crosses, fittings enable a cable ladder system to change direction, elevation or size to meet building design/cable run constraints. Our aluminum cable ladder is composed of two distinct systems - H-style & U-style. These systems are interchangeable.

Covers
Available for all cable ladder widths and material types, covers provide mechanical protection and should be installed where falling objects may damage cables or where vertical cable ladder runs are accessible by pedestrian or vehicular traffic. Styled as solid, ventilated or peaked, for varying installation needs.

Accessories
A complete line of accessories and supports to supplement the function of straight sections and fittings, including drop-outs, hold down clamps, splice plates, barrier strips, and Superstrut® support solutions. Barrier strips are fully adjustable (side to side) for use in straight sections and fittings.

Straight sections and fittings provide the flexibility to allow cable ladder installations to follow cable runs which are either planned for new projects or already exist in buildings, as shown in the illustration right.

- A Barrier strip
- B Box connector
- C Flat cover
- D Horizontal cross
- E Horizontal 45°
- F Horizontal 90°
- G Horizontal tee
- H Ladder section
- I Peaked cover
- J Right reducer
- K Solid trough section
- L Splice plate
- M Solid channel tray
- N Ventilated section
- O Vertical 90° outside
- P Vertical 90° inside
- Q Vertical tee



Cable ladder & accessories
Cable ladder & accessories Overview

Selection Process
A number of basic decisions must be made before a cable ladder system can be specified. ABB has developed a simple seven-step process to guide you in the process:

1. Select Material and Finish
2. Select the Ladder Load Class
3. Select the Ladder Type
4. Select the Ladder Size
5. Select the Fittings
6. Consider Deflection
7. Electrical Grounding Capacity

Each step is described in detail below. For many applications, however, you may also have to take the following into account:

Weight of the installation, which affects the cost of the support structure and the ease of installation.

Corrosion resistance of the material is one of the most important selection criteria. Cable ladder materials may not respond the same way in different environments. Chemicals or combinations of chemicals have corrosion effects on some materials that can be compounded by temperature or even the speed at which the corrosive elements contact the cable ladder. For example, some grades of stainless steel may be resistant to salt water at high flow rates (perfect for heat exchangers), while exhibiting some corrosion pitting in standing salt water. Only the designer can quantify the various elements that affect the corrosion resistance of the cable ladder system in a specific application. While T&B can provide guidance, the designer is responsible for the final selection. For more information, see “Corrosion” section.

Galvanic effect can cause corrosion even if the cable ladder material is resistant to its chemical environment. Dissimilar metals in contact (e.g., aluminium ladder on steel supports or bare copper bonding conductor in aluminium ladder) in the presence of an electrolyte are susceptible to galvanic effect. If there is a hazard of galvanic corrosion, it may be possible to isolate the ladder system from other metals instead of using a more expensive type of ladder that would resist corrosion in a given application.

Melting point and flammability rating are primarily concerns for non-metallic ladder. Local building codes may restrict the use of a given product if certain performance levels are not met. Check with the appropriate inspection authorities before specifying the product.

Relative cost varies dramatically, including material costs that float with the commodity index. For example, stainless steel prices may vary significantly according to daily changes in the market.

Thermal expansion must also be taken into account on a long cable run, especially in areas where temperature variation is extreme. Expansion connectors may be required if the temperature differential is 25°F or greater. Refer to Tables 1 and 2 on page 61 for expansion plate spacing and gap settings.

The National Electrical code, Article 392-7 allows cable tray to be used as an equipment grounding conductor. All T&B standard cable trays are classified by underwriters laboratories per US NEC Table 392-7 based on their cross sectional area.

Cable ladder & accessories
Selection steps for Cable Ladder

1. Select Material and Finish
The most suitable material and finish for your application will depend on cost, the potential for corrosion, and electrical considerations. T&B Cable Tray offers cable tray systems fabricated from corrosion-resistant steel, stainless steel and aluminum alloys along with corrosion-resistant finishes, including zinc, PVC and epoxy. Special paint is also available. T&B Cable Tray also includes a complete non-metallic Cable Tray and strut system.

2. Select the Ladder Class / Load Capacity (loading)
The standard classes of cable trays, as related to their maximum design loads and to the associated design support spacing based on a simple beam span requirement, shall be designated in accordance with Table 1.
Please note the load ratings in Table 1 are those most commonly used. Other load ratings are acceptable.
(according to NEMA VE-1 / CSA C22.2 No 126.1-02)

Costs vary between different load classes. Since labour and coupling costs are similar for a given length of tray, the heavier classes are more cost-effective on a load length basis. The designer should therefore specify the lightest class of tray compatible with the weight requirements of the cable tray.

Cable Loads:
The cable load is the total weight, expressed in (kg/m), of all the cables that will be placed in the cable ladder.

Ice Loads:
The additional load design due to the ice is determined by the following formula:
Wi = WxTixDi/144
Where:
Wi = ice load (lb/linear foot)
W = width of the ladder (inches)
Ti = maximum ice thickness (inches).
Di = 57 lb/ft3 - ice density
Ice thickness will vary depending on installation location. A value of 1/2 inch can be used as a conservative standard for Canada.

Snow Loads:
The additional design load from snowfall should be determined using the building codes which apply for each installation.

Wind Loads:
The additional loading to be considered is the effect of the impact pressure normal to the side rail.
This loading is determined by the following formula:
Wp = 0.00256xV2 xH/12
Where:
Wp = loading due to the wind (lbs/linear foot)
V = wind velocity (mph)
H = Height of the side rail (inches)

TABLE 1a
Span/Load Class Designation — USA

LOAD	SPAN, m (ft.)				
kg/m (lb./ft.)	1.5 (5)	2.4 (8)	3.0 (10)	3.7 (12)	6.0 (20)
37 (25)	5AA	8AA	10AA	12AA	20AA
74 (50)	5A	8A	10A	12A	20A
112 (75)	–	8B		12B	20B
149 (100)	–	8C		12C	20C

TABLE 1b
Span/Load Class Designation — CANADA

LOAD	SPAN, m (ft.)						
kg/m (lb./ft.)	1.5 (5)	2	2.5	3.0 (10)	4.0	5.0	6.0 (20)
37 (25)				A			
45 (30)			A				
62 (42)		A					
67 (45)							D
82 (55)						D	
97 (65)				C			
99 (67)	A						
112 (75)							E
113 (76)					D		
119 (80)			C				
137 (92)						E	
164 (110)		C					
179 (120)				D			
189 (127)					E		
259 (174)	C						
299 (200)				E			

Note: 8A/B/C, 12A/B/C, 16A/B/C, and 20A/AA/B/C are the USA & Mexico designations. A, C, D, and E are the canadian designations.

Cable ladder & accessories
Selection steps for Cable Ladder

Concentrated loads
A concentrated static load is not included in the 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 on the centerline of the ladder at midspan. When so specified, the concentrated static load may be converted to an equivalent uniform load (We) in kilograms/metre (pounds/linear foot), using the following formula, and added to the static weight of cable in the ladder:

$$We = \frac{2 \times (\text{concentrated static load, kg (lb)})}{\text{Span length, m (ft)}}$$

3 Select the ladder type
Cable ladder is available with three styles of bottom:

Ladder Cable Ladder is a prefabricated structure consisting of two longitudinal siderails connected by individual transverse members.

Ventilated Cable Ladder is a prefabricated structure consisting of a ventilated bottom within integral or separate longitudinal siderails, with no openings exceeding 4 in. in a longitudinal direction.

Solid Bottom Cable Ladder is a prefabricated structure without openings in the bottom.

Ladder is most often used because of its cost-effectiveness. The designer has a choice of four nominal rung spacings: 6, 9, 12, and 18 inches. The greatest rung spacing compatible with an adequate cable bearing surface area should be selected. Heavy power cables often require greater cable bearing area due to the possibility of creep in the jacket material of the cable. If this is a concern, consult the cable manufacturer. This condition may require the use of ventilated ladder, which also offers additional mechanical protection for the cables.

Local building codes may require totally enclosed cable ladder systems under certain conditions. The designer should verify these before specifying the type of ladder to be used.

Note: It is important to note that cable ladder is not designed to support personnel. The user should display appropriate warnings to prevent the use of cable ladder as walkways.

4 Select the ladder size
The width or height of a cable ladder is a function of the number, size, spacing and weight of the cables in the ladder. Available nominal widths are 6, 9, 12, 18, 24, 30, 36 and 42 inches.

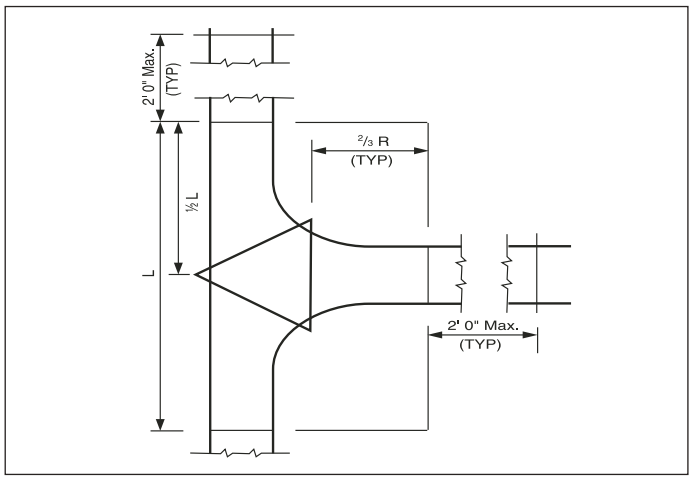
When specifying width, it is important to remember that the load rating does not change as the width increases. Even with six times the volume, a 36 in. wide ladder cannot hold any more weight than a 6 in. wide ladder. If the load rating of the ladder permits, cable can be piled deeper in the ladder. Most ladder classes are available in a nominal 3-1/2, 4, 5, 6 and 7 inches (8 inch height also available as a special - see tables in page 15). Cable ties or other spacing devices may be used to maintain the required air space between cables.

5 Select the fittings
Fittings are used to change the size or direction of the cable ladder. The most important decision to be made in fitting design concerns radius. The radius of the bend, whether horizontal or vertical, can be 12, 24, 36 or 48 in., or even greater on a custom basis. The selection requires a compromise with the considerations being available space, minimum bending radius of cables, ease of cable pulling, and cost. The typical radius is 24 in. Fittings are also available for 30°, 45°, 60°, and 90° angles. When a standard angle will not work, field fittings or adjustable elbows can be used. It may be necessary to add supports to the ladder at these points. Refer to NEMA VE2 Installation Guidelines for suggested support locations. Note that fittings are not subject to NEMA/CSA load ratings.

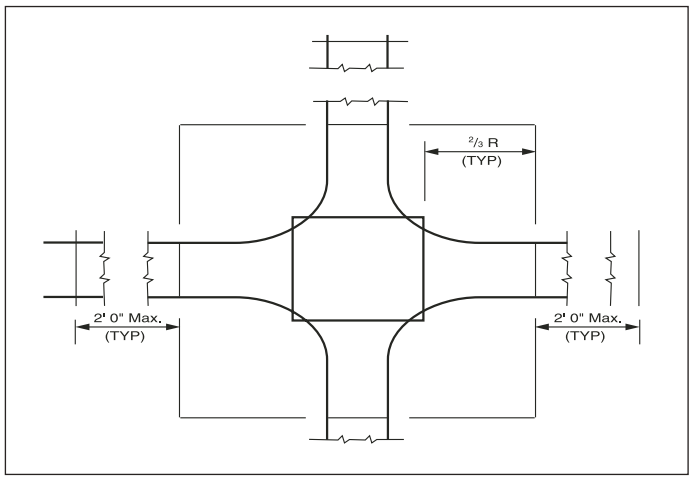
Cable ladder & accessories
Selection steps for Cable Ladder

Support locations for fittings as per NEMA VE-2

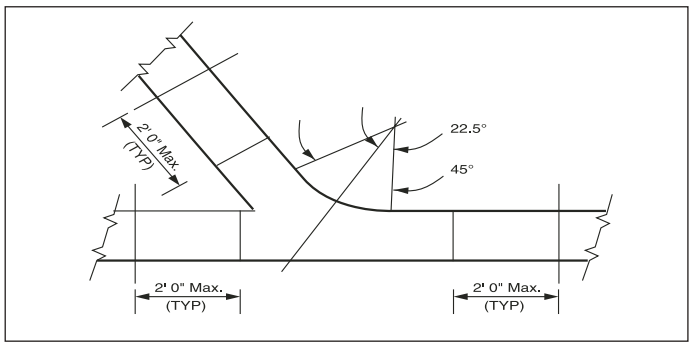
Horizontal Tee



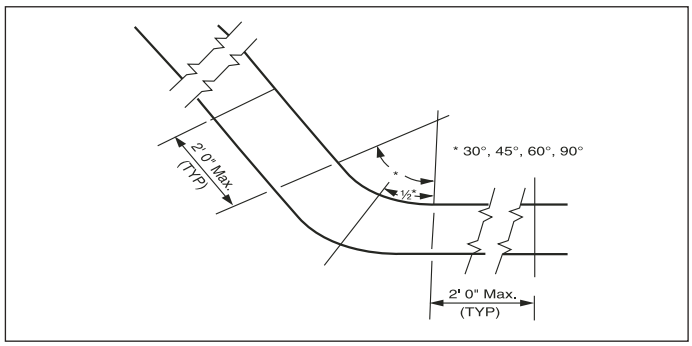
Horizontal Cross



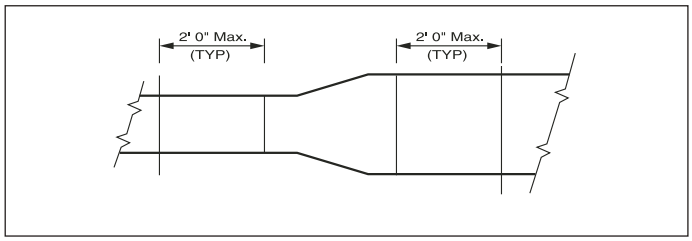
Horizontal Wye



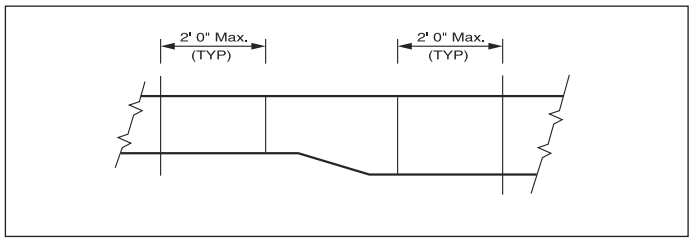
Horizontal Elbow



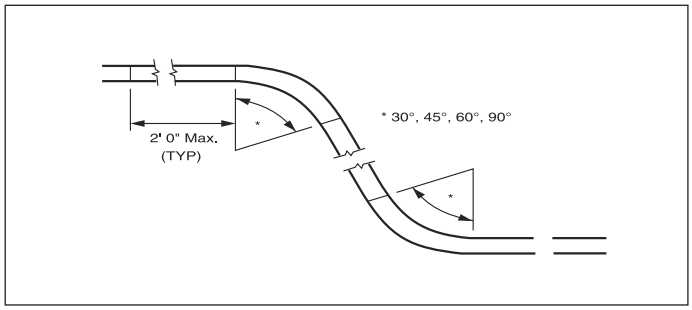
Straight Reducer



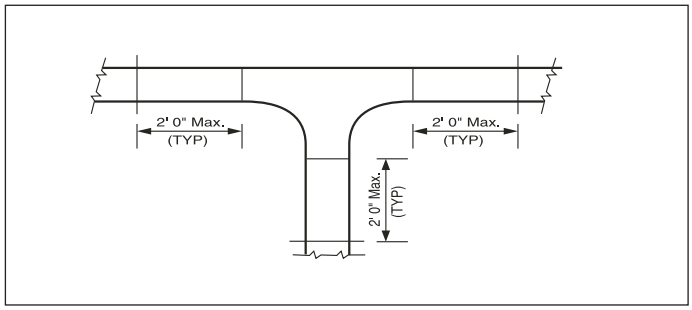
Offset Reducer



Vertical Elbows



Vertical Tee



Alternative options available to reduce the installation and supports cost

6 Consider deflection

Deflection of the cable ladder affects the appearance of an installation, but it is not a structural issue. In the case of non-metallic cable ladder, deflection may be affected by elevated temperatures. The NEMA/CSA load test is a simple beam, uniformly distributed load test. (see Figure 1.2) This type of test was initially selected because:

- It was easiest to test.
- It represents the worst case beam condition compared to continuous or fixed configurations. When consulting the manufacturer's catalog for deflection information, the designer must verify whether the data shown represents simple or continuous beam deflection. If continuous beam deflection is shown, the calculation factor should be given.

NEMA/CSA has one criteria for acceptance under their load test: the ability to support 150% of the rated load.

Simple versus continuous beam deflection

Theoretical maximum deflection for a simple beam, uniformly distributed load may be calculated as:

$$.0130 \times \frac{w L^4}{E I} \times 1728$$

Where: w = Load in lb/ft
L = Length in inches
E = Modulus of Elasticity
I = Moment of Inertia

The maximum deflection calculation for a continuous beam of two spans with a uniformly distributed load is:

$$.00541 \times \frac{w L^4}{E I} \times 1728$$

A continuous beam of two spans therefore has a theoretical maximum deflection of only 42% of its simple beam deflection. As the number of spans increases, the beam behaves increasingly like a fixed beam, and the maximum deflection continues to decrease. As this occurs, the system's load carrying capability increases.

Test Load = 1.5 x rated load x length

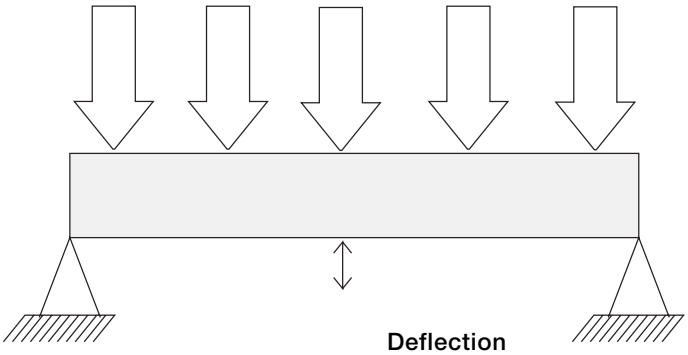
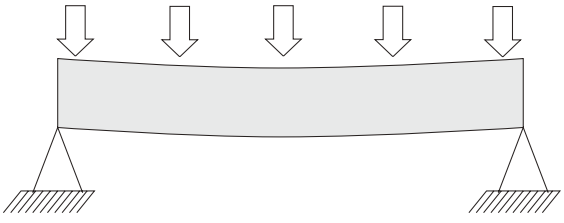


Figure 1.2

Simple vs. Continuous Beam Deflection

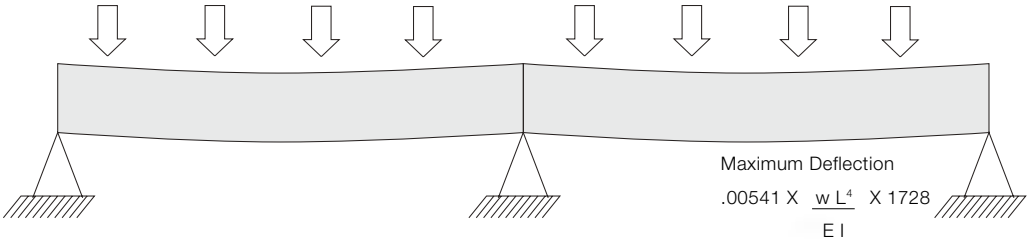
Simple Beam Uniformly Distributed Load



Maximum Deflection

$$.0130 \times \frac{w L^4}{E I} \times 1728$$

Continuous Beam – Two Spans
Uniformly Distributed Load



Maximum Deflection

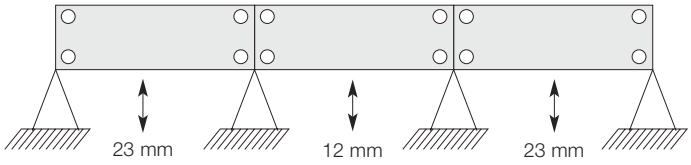
$$.00541 \times \frac{w L^4}{E I} \times 1728$$

Figure 1.3

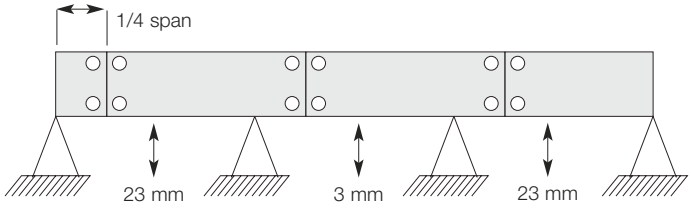
Cable ladder & accessories
Selection steps for Cable Ladder

Location of Couplings
Since different bending moments are created in each span, there is no simple factor to approximate deflection as the number of spans increases. It is possible to calculate these deflections at any given point by using second integration of the basic differential equation for beams. Testing shows that the center span of a three-ladder continuous beam can deflect less than 10 % of its simple beam deflection.

Couplers at Supports - Not Recommended



Couplers at 1/4 Span From Supports - Ideal Layout



The support span should not be greater than the straight section length, to ensure no more than one splice is located between supports.

Location of Couplers. (see Figure 1.4) The location of the coupler dramatically affects the deflection of a cable ladder system under equal loading conditions. Testing indicates that the maximum deflection of the center span of a three-span ladder run can decrease four times if the couplers are moved from one-quarter span to above the supports. This can be a major concern for designers considering modular systems for ladder and pipe racks.

7 Electrical Grounding Capacity

The National Electrical Code, Article 392-7 allows cable tray to be used as an equipment grounding conductor. All T&B standard cable trays are classified by Underwriter's Laboratories per US NEC Table 392-7 based on their cross sectional area. The corresponding cross-sectional area for each siderail design (2-siderails) is listed on the label. This cable tray label is attached to each straight section that is UL classified. Fittings are not subject to CSA or UL.

NEC TABLE 392.7 (B)
Metal Area Requirements for Cable Trays Used as Equipment Grounding Conductors

Maximum Fuse Ampere Rating, Circuit Breaker Ampere Trip Setting, or Circuit Breaker Protective Relay Ampere Trip Setting for Ground Fault Protection of any Cable Circuit in the Cable Tray System	Minimum Cross-Sectional Area of Metal* In Square Inches	
	Steel Cable Trays	Aluminum Cable Trays
60	0.20	0.20
100	0.40	0.20
200	0.70	0.20
400	1.00	0.40
600	1.50 **	0.40
1000	-	0.60
1200	-	1.00
1600	-	1.50
2000	-	2.00 **

For SI units: one square inch = 645 square millimeters.
* Total cross-sectional area of both side rails for ladder or trough-type cable trays: or the minimum cross-sectional area of 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.
For larger ampere ratings an additional grounding conductor must be used.

Cable ladder & accessories
Straight section

Straight section
Straight sections are available in aluminium, or steel in a range of finishes. Straight aluminium sections utilize a 7” splice plate and the fittings have tangents at the extremities. This style offers enhanced aesthetics and rigidity to the end-user.

Aluminium
Pre-fabricated aluminium section with siderails connected by rungs.

Features
6063 T6 Aluminium alloy construction
H-beam siderail design with nominal height
4” to 7”
Loading height 3” to 6”
Extra wide rung design with continuous open slot, reverse position every second rung and Ty-Rap® cable tie slots (5/8” x 5/8”) on 1” centres
Snap-in splice plates included with straight section
Choice of two styles of fitting siderail (U-style & H-style)

Steel
Pre-fabricated steel section with siderails connected by rungs.

Features
Choice of pre-galvanized, hot dip galvanized or type 316 stainless steel (type 304 stainless steel to special order)
Nominal siderail height 3 5/8” to 7”
Loading height 2 5/8” to 6”
Extra wide rung design with continuous open slot, reverse position every second rung and Ty-Rap® cable tie slots (5/8” x 5/8”) on 1” centres

Product selection - straight section
Straight section part numbers are created using a range of selection criteria.

Determine the most suitable cable ladder type based on the parameters 1 to 5 shown right, then use the tables on the following page to create the exact part number for your needs.

1. Select the material best suited to the installation environment
2. Define the ladder series to NEMA class/loadings (see tables below for aluminium/steel loadings)
3. Select the nominal siderail height (depth) and width of ladder
4. Specify the bottom type based on the cables/spacing required
5. Establish the length of cable ladder in metres or inches

Note: All straight section types are suitable for use with both U-style and H-style fitting systems.

Load rating/NEMA Class - aluminium

Siderail height	Series	Load depth (nominal)	NEMA Class
4”	MAH-1-4	3”	12A
	MAH-3-4		12C
	MAH-5-4		20B
5”	MAH-2-5	4”	12C
	MAH-4-5		20B
6”	MAH-1-6	5”	12C
	MAH-3-6		20B
	MAH-4-6		20C
	MAH-5-6		20C
	MAH-6-6		20C
7”	MAH-3-7	6”	20C

Load rating/NEMA Class - steel

Siderail height	Series	Load depth (nominal)	NEMA Class
3-5/8”	MS*-1-3	2-5/8”	12A
4”	MS*-1-4	3”	12C
	MS*-3-4		20A
5”	MS*-2-5	4”	20A
	MS*-4-5		20B
	MS*-5-5		20C
6”	MS*-0-6	5”	12C
	MS*-1-6		20A
	MS*-3-6		20B
	MS*-4-6		20C
7”	MS*-3-7	6”	20C

Replace * with letter reference for material type:
P = Pre-galvanized **H** = Hot dip galvanized **S** = Stainless steel 316

Cable ladder & accessories
Straight section

Straight section - aluminium

Select the preferred component parts and create the specific part number as per the example shown.

Material		Series		Siderail height		Ladder width		Bottom type		Length	
MAH	Aluminium	0	Series 0*	4	4”	06	6”	L06	6” rung spacing	144	12 ft
		1	Series 1**			09	9”	L09	9” rung spacing	288	24 ft
		2	Series 2			12	12”	L12	12” rung spacing	3	3 m
		3	Series 3			18	18”	V	Ventilated	6	6 m
		4	Series 4			24	24”	S	Solid trough	8	8 m
		5	Series 5			30	30”				
						36	36”				
		2	Series 2	5	5”						
		3	Series 3								
		4	Series 4								
		0	Series 0*	6	6”						
		1	Series 1								
		2	Series 2								
		3	Series 3								
		4	Series 4								
		5	Series 5								
		6	Series 6								
		2	Series 2	7	7”						
		2C	Series 2C								
		3	Series 3								

* Series 0 is not available in 24 ft or 6 m lengths.

** Series MAH-1-4 is not available in 24 ft or 6 m lengths.

Example: MAH1624L09-144

Straight section - steel

Select the preferred component parts and create the specific part number as per the example shown.

Material		Series		Siderail height		Ladder width		Bottom type		Length	
MSP	Pre-galvanized steel	1	Series 1**	3	3 5/8”	06	6”	L06	6” rung spacing	144	12 ft
MSH	Hot dip galvanized steel					09	9”	L09	9” rung spacing	288	24 ft
MSS	Stainless steel 316*	1	Series 1**	4	4”	12	12”	L12	12” rung spacing	3	3 m
		3	Series 3			18	18”	V	Ventilated	6	6 m
						24	24”	S	Solid trough	8	8 m
		2	Series 2	5	5”	30	30”				
		4	Series 4			36	36”				
		5	Series 5								
		0	Series 0**	6	6”						
		1	Series 1								
		3	Series 3								
		4	Series 4								
		3	Series 3	7	7”						

Example: MSP1624L09-144

Cable ladder & accessories
Straight lengths metallic – Aluminium

4 in. Straight Sections / Series 1-4
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	* 1	Series 1	4	4”	6	6”	L06	6” rung spacing	144	12 ft
									9	9”	L09	9” rung spacing	288	24 ft
									12	12”	L12	12” rung spacing	3	3 m
									18	18”	**V	Ventilated	6	6 m
									24	24”	S	Solid Trough		
									30	30”				
									36	36”				

Example: Straight section number selection MAH1424L09-144

* Series 1 is not available in 288 in., or 6 meter lengths.

Technical Specifications

All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

Deflection factor

For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.

For Fittings consult pages 2/36 to 2/43.

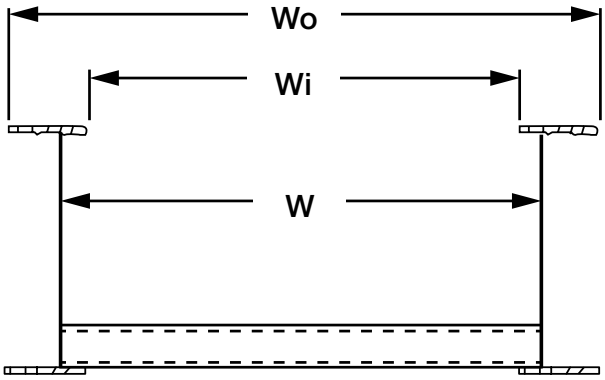
Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MAH1-4	Load (lb./ft.)	239	134	86	60	–	–	–	–
	Deflection (in.)	0.318	0.565	0.884	1.272	–	–	–	–
	Deflection Factor	0.001	0.004	0.010	0.021	–	–	–	–

T&B aluminum cable tray is composed of two distinct systems H-Style and U-Style. These systems are interchangeable.

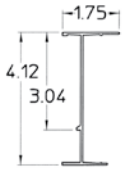
Cable ladder & accessories
Straight lengths metallic – Aluminium

4 in. Straight Sections / Series 1-4
Ladder, Ventilated and Solid Trough



	MAH1-4	
W (in.)	**Wo (in.)**	**Wi (in.)**
6	7.46	4.88
9	10.46	7.88
12	13.46	10.88
18	19.46	16.88
24	25.46	22.88
30	31.46	28.88
36	37.46	34.88

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH1-4		Ix = 2.19 in^4 Sx = 1.05 in^3 Area = 0.906 in^2	12A, 8C	C/3 M	UL Cross Sectional Area : 0.60 in^2

T&B aluminum cable tray is composed of two distinct systems H-Style and U-Style. These systems are interchangeable.

Cable ladder & accessories
Straight lengths metallic – Aluminium

4 in. Straight Sections / Series 3-4, 5-4
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	3	Series 3	4	4”	6	6”	L06	6” rung spacing	144	12 ft
					5	Series 5			9	9”	L09	9” rung spacing	288	24 ft
									12	12”	L12	12” rung spacing	3	3 m
									18	18”	V	Ventilated	6	6 m
									24	24”	S	Solid Trough		
									30	30”				
									36	36”				

Example: Straight section number selection MAH3424L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

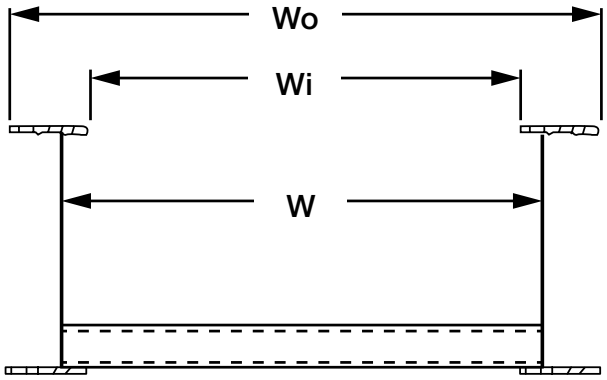
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MAH3-4	Load (lb./ft.)	522	294	188	131	96	73	58	47
	Deflection (in.)	0.477	0.849	1.326	1.909	2.599	3.395	4.296	5.304
	Deflection Factor	0.001	0.003	0.007	0.015	0.027	0.046	0.074	0.113
MAH5-4	Load (lb./ft.)	867	488	312	217	159	122	96	78
	Deflection (in.)	0.505	0.898	1.403	2.021	2.751	3.593	4.547	5.614
	Deflection Factor	0.001	0.002	0.004	0.009	0.017	0.029	0.047	0.072

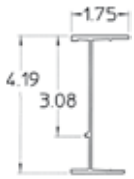
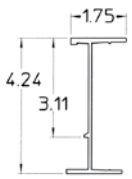
Cable ladder & accessories
Straight lengths metallic – Aluminium

4 in. Straight Sections / Series 3-4, 5-4
Ladder, Ventilated and Solid Trough



	MAH3-4		MAH5-4	
W (in.)	**Wo (in.)**	**Wi (in.)**	**Wo (in.)**	**Wi (in.)**
6	8.38	4.88	8.38	4.88
9	11.38	7.88	11.38	7.88
12	14.38	10.88	14.38	10.88
18	20.38	16.88	20.38	16.88
24	26.38	22.88	26.38	22.88
30	32.38	28.88	32.38	28.88
36	38.38	34.88	38.38	34.88

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH3-4		Ix = 3.34 in^4 Sx = 1.50 in^3 Area = 1.28 in^2	12C,16B	D/6 M	UL Cross Sectional Area : 1.00 in^2
MAH5-4		Ix = 5.32 in^4 Sx = 2.36 in^3 Area = 1.93 in^2	20B,16C	E/6 M	UL Cross Sectional Area : 1.50 in^2

Cable ladder & accessories
Straight lengths metallic – Aluminium

5 in. Straight Sections / Series 2-5, 4-5
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	2	Series 2	5	5”	6	6”	L06	6” rung spacing	144	12 ft
					4	Series 4			9	9”	L09	9” rung spacing	288	24 ft
									12	12”	L12	12” rung spacing	3	3 m
									18	18”	V	Ventilated	6	6 m
									24	24”	S	Solid Trough		
									30	30”				
									36	36”				

Example: Straight section number selection MAH2524L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

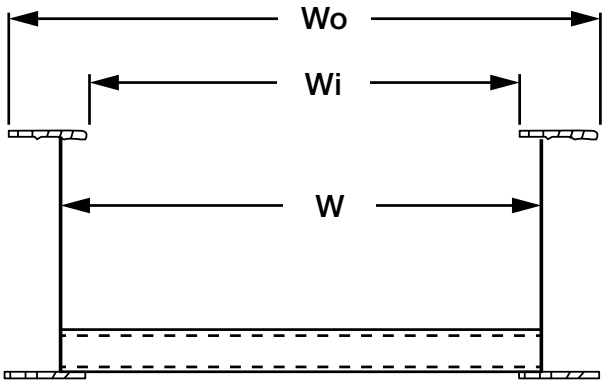
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MAH2-5	Load (lb./ft.)	511	288	184	128	94	72	57	46
	Deflection (in.)	0.328	0.584	0.912	1.313	1.787	2.334	2.955	3.648
	Deflection Factor	0.001	0.002	0.005	0.010	0.019	0.032	0.052	0.079
MAH4-5	Load (lb./ft.)	844	475	304	211	155	119	94	76
	Deflection (in.)	0.337	0.599	0.936	1.348	1.834	2.396	3.033	3.744
	Deflection Factor	0.0004	0.001	0.003	0.006	0.012	0.020	0.032	0.049

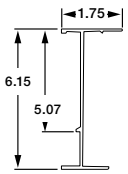
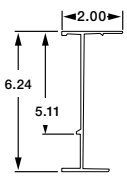
Cable ladder & accessories
Straight lengths metallic – Aluminium

5 in. Straight Sections / Series 2-5, 4-5
Ladder, Ventilated and Solid Trough



	MAH2-5		MAH4-5	
W (in.)	**Wo (in.)**	**Wi (in.)**	**Wo (in.)**	**Wi (in.)**
6	8.39	4.89	8.45	4.95
9	11.39	7.89	11.45	7.95
12	14.39	10.89	14.45	10.95
18	20.39	16.89	20.45	16.95
24	26.39	22.89	26.45	22.95
30	32.39	28.89	32.45	28.95
36	38.39	34.89	38.45	34.95

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH2-5		Ix = 5.236 in^4 Sx = 1.90 in^3 Area = 1.38 in^2	12C,16A	D/6 M	UL Cross Sectional Area : 1.00 in^2
MAH4-5		Ix = 7.654 in^4 Sx = 2.78 in^3 Area = 1.95 in^2	20B,16C	E/6 M	UL Cross Sectional Area : 1.50 in^2

Cable ladder & accessories
Straight lengths metallic – Aluminium

6 in. Straight Sections / Series 1-6, 3-6
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	1	Series 1	6	6”	6	6”	L06	6” rung spacing	144	12 ft
					3	Series 3			9	9”	L09	9” rung spacing	288	24 ft
									12	12”	L12	12” rung spacing	3	3 m
									18	18”	V	Ventilated	6	6 m
									24	24”	S	Solid Trough		
									30	30”				
									36	36”				

Example: Straight section number selection MAH1624L09-144

Technical Specifications

All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

Deflection factor

For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.

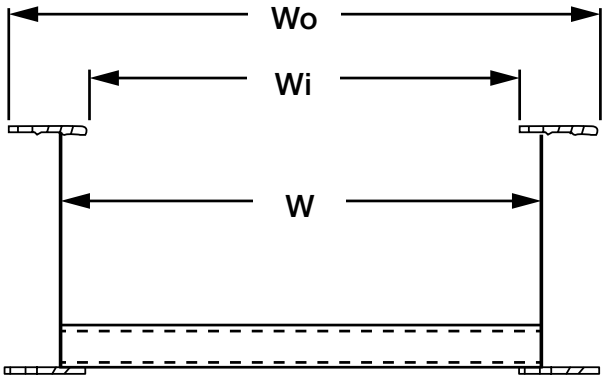
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MAH1-6	Load (lb./ft.)	511	288	184	128	94	71	56	46
	Deflection (in.)	0.191	0.340	0.531	0.764	1.706	1.251	1.583	2.123
	Deflection Factor	0.0004	0.001	0.003	0.006	0.018	0.018	0.028	0.046
MAH3-6	Load (lb./ft.)	889	500	320	222	163	125	99	80
	Deflection (in.)	0.199	0.353	0.552	0.794	1.061	1.386	1.755	2.166
	Deflection Factor	0.0002	0.001	0.002	0.004	0.006	0.011	0.018	0.027

Cable ladder & accessories
Straight lengths metallic – Aluminium

6 in. Straight Sections / Series 1-6, 3-6
Ladder, Ventilated and Solid Trough



	MAH1-6		MAH3-6	
W (in.)	**Wo (in.)**	**Wi (in.)**	**Wo (in.)**	**Wi (in.)**
6	8.37	4.87	8.89	4.89
9	11.37	7.87	11.89	7.89
12	14.37	10.87	14.89	10.89
18	20.37	16.87	20.89	16.89
24	26.37	22.87	26.89	22.89
30	32.37	28.87	32.89	28.89
36	38.37	34.87	38.89	34.89

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH1-6		Ix = 8.472 in^4 Sx = 2.59 in^3 Area = 1.55 in^2	12C,16A	D/6 M	UL Cross Sectional Area : 1.00 in^2
MAH3-6		Ix = 13.296 in^4 Sx = 3.95 in^3 Area = 2.16 in^2	20B,16C	E/6 M	UL Cross Sectional Area : 2.00 in^2

Cable ladder & accessories
Straight lengths metallic – Aluminium

6 in. Straight Sections / Series 4-6, 5-6, 6-6
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	4	Series 4	6	6”	6	6”	L06	6” rung spacing	144	12 ft
					5	Series 5			9	9”	L09	9” rung spacing	288	24 ft
					6	Series 6			12	12”	L12	12” rung spacing	3	3 m
					7	Series 7			18	18”	V	Ventilated	6	6 m
									24	24”	S	Solid Trough	8	8 m
									30	30”				
									36	36”				

Example: Straight section number selection MAH5624L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

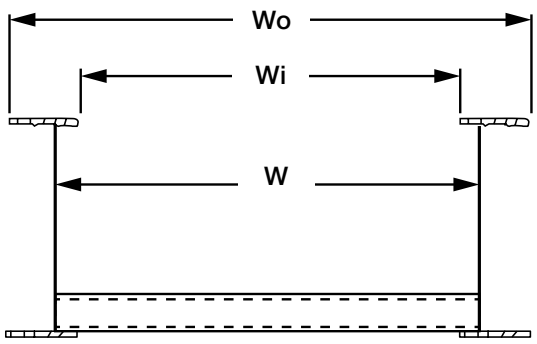
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20	22	24	26	28	30
MAH4-6	Load (lb./ft.)	1133	638	408	283	208	159	126	102	–	–	–	–	–
	Deflection (in.)	0.238	0.238	0.662	0.954	1.298	1.696	2.146	2.649	–	–	–	–	–
	Deflection Factor	0.0002	0.001	0.002	0.003	0.006	0.011	0.017	0.026	–	–	–	–	–
MAH5-6	Load (lb./ft.)	1334	756	484	336	247	189	149	121	–	–	–	–	–
	Deflection (in.)	0.249	0.443	0.693	0.997	1.358	1.773	2.244	2.765	–	–	–	–	–
	Deflection Factor	0.0002	0.001	0.002	0.003	0.005	0.009	0.015	0.023	–	–	–	–	–
MAH6-6	Load (lb./ft.)	1889	1063	680	472	347	266	210	170	–	–	–	–	–
	Deflection (in.)	0.292	0.520	0.812	1.169	1.592	2.079	2.631	3.249	–	–	–	–	–
	Deflection Factor	0.0002	0.001	0.001	0.003	0.005	0.008	0.014	0.021	–	–	–	–	–
MAH7-6	Load (lb./ft.)	–	–	–	–	–	–	208	169	139	117	100	86	75
	Deflection (in.)	–	–	–	–	–	–	2.241	2.767	3.348	3.985	4.676	5.424	6.226
	Deflection Factor	–	–	–	–	–	–	0.011	0.016	0.024	0.034	0.047	0.063	0.083

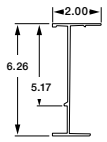
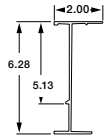
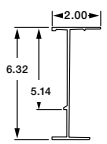
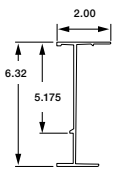
Cable ladder & accessories
Straight lengths metallic – Aluminium

6 in. Straight Sections / Series 4-6, 5-6, 6-6
Ladder, Ventilated and Solid Trough



	MAH4-6		MAH5-6		MAH6-6		MAH7-6	
W (in.)	Wo (in.)	Wi (in.)	Wo (in.)	Wi (in.)	Wo (in.)	Wi (in.)	Wo (in.)	Wi (in.)
6	8.90	4.90	8.93	4.93	9.01	5.01	8.86	4.86
9	11.90	7.90	11.93	7.93	12.01	8.01	11.86	7.86
12	14.90	10.90	14.93	10.93	15.01	11.01	14.86	10.86
18	20.90	16.90	20.93	16.93	21.01	17.01	20.86	16.86
24	26.90	22.90	26.93	22.93	27.01	23.01	26.86	22.86
30	32.90	28.90	32.93	28.93	33.01	29.01	32.86	28.86
36	38.90	34.90	38.93	34.93	39.01	35.01	38.86	34.86
42	–	–	–	–	–	–	44.86	40.86

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH4-6		Ix = 13.86 in^4 Sx = 4.07 in^3 Area = 2.32 in^2	20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2
MAH5-6		Ix = 15.63 in^4 Sx = 4.66 in^3 Area = 2.68 in^2	Exceeds 20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2
MAH6-6		Ix = 18.84 in^4 Sx = 5.51 in^3 Area = 3.25 in^2	Exceeds 20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2
MAH7-6		Ix = 21.96 in^4 Sx = 6.31 in^3 Area = 3.82 in^2	Exceeds 20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2

Cable ladder & accessories
Straight lengths metallic – Aluminium

7 in. Straight Sections / Series 3-7
Ladder, Ventilated and Solid Trough

M	Material		Style		Series		Siderail Depth		Width		Bottom Type		Length	
Middle East	A	Aluminum	H	H-Beam	1	Series 1	7	7”	6	6”	L06	6” rung spacing	144	12 ft
					3	Series 3			9	9”	L09	9” rung spacing	288	24 ft
					4	Series 4			12	12”	L12	12” rung spacing	3	3 m
									18	18”	V	Ventilated	6	6 m
									24	24”	S	Solid Trough	8	8 m
									30	30”				
									36	36”				

Example: Straight section number selection MAH3724L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

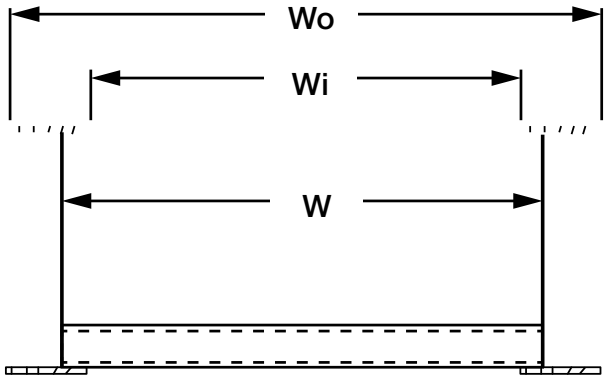
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20	22	24	26	28	30
MAH3-7	Load (lb./ft.)	1456	819	524	364	267	205	162	131	–	–	–	–	–
	Deflection (in.)	0.168	0.298	0.466	0.671	0.913	1.192	1.509	1.863	–	–	–	–	–
	Deflection Factor	0.0001	0.0004	0.001	0.002	0.003	0.006	0.009	0.014	–	–	–	–	–
MAH4-7	Load (lb./ft.)	–	–	–	–	–	–	300	243	201	169	144	124	108
	Deflection (in.)	–	–	–	–	–	–	1.925	2.376	2.876	3.422	4.016	4.658	5.347
	Deflection Factor	–	–	–	–	–	–	0.006	0.010	0.014	0.020	0.028	0.038	0.050

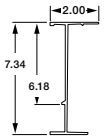
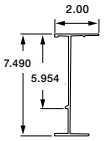
Cable ladder & accessories
Straight lengths metallic – Aluminium

7 in. Straight Sections / Series 3-7
Ladder, Ventilated and Solid Trough



	MAH3-7		MAH4-7	
W (in.)	**Wo (in.)**	**Wi (in.)**	**Wo (in.)**	**Wi (in.)**
6	9.00	5.00	8.86	4.86
9	12.00	8.00	11.86	7.86
12	15.00	11.00	14.86	10.86
18	21.00	17.00	20.86	16.86
24	27.00	23.00	26.86	22.86
30	33.00	29.00	32.86	28.86
36	39.00	35.00	38.86	34.86
42	–	–	44.86	40.86

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MAH3-7		Ix = 25.32 in^4 Sx = 6.35 in^3 Area = 3.30 in^2	Exceeds 20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2
MAH4-7		Ix = 36.81 in^4 Sx = 9.08 in^3 Area = 4.63 in^2	Exceeds 20C	Exceeds E/6 M	UL Cross Sectional Area : 2.00 in^2

Cable ladder & accessories
Straight lengths metallic – Steel

3-5/8 in. Straight Sections Series 1-3
Ladder, Ventilated and Solid Trough

M	Material		Series		Siderail Height		Width		Bottom Type		Length	
Middle East	SP	Pre-Galvanized	1	Series 1	3	3-5/8”	6	6”	L06	6” rung spacing	3	3 m
	SH	Hot Dip Galvanized after fabrication					9	9”	L09	9” rung spacing	144	12 ft
	SS	Stainless Steel 316					12	12”	L12	12” rung spacing		
							18	18”	*V	Ventilated		
							24	24”	S	Solid Trough		
							30	30”				
							36	36”				

Example: Straight section number selection MSH1324L09-3

Technical Specifications

All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

Deflection factor

For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.

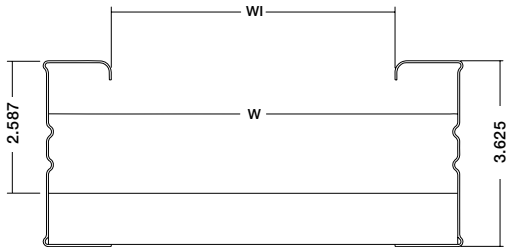
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MSP1-3	Load (lb./ft.)	200	112.5	72	50	–	–	–	–
MSH1-3	Deflection (in.)	0.250	0.445	0.695	1.001	–	–	–	–
MSS1-3	Deflection Factor	0.0013	0.0040	0.0097	0.0097	–	–	–	–

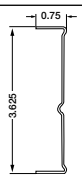
Cable ladder & accessories
Straight lengths metallic – Steel

3-5/8 in. Straight Sections Series 1-3
Ladder, Ventilated and Solid Trough



MSP1-3, SH1-3, SS1-3	
W (in.)	**Wi (in.)**
6	4.5
9	7.5
12	10.5
18	16.5
24	22.5
30	28.5
36	34.5

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MSP1-3 **MSH1-3** **MSS1-3**		Ix = 0.804 in^4 Sx = 0.444 in^3 Area = 0.488 in^2	12A	C/3 M	UL Cross Sectional Area : 0.40 in^2

Cable ladder & accessories
Straight lengths metallic – Steel

4 in. Straight Sections Series 1-4, 3-4
Ladder, Ventilated and Solid Trough

M	Material		Series		Siderail Height		Width		Bottom Type		Length	
Middle East	SP	Pre-Galvanized	1	Series 1	4	4”	6	6”	L06	6” rung spacing	3	3 m
	SH	Hot Dip Galvanized after fabrication	3	Series 3			9	9”	L09	9” rung spacing	6	6 m
	SS	Stainless Steel 316					12	12”	L12	12” rung spacing	144	12 ft
							18	18”	**V	Ventilated	288	24 ft
							24	24”	S	Solid Trough		
							30	30”				
							36	36”				

Example: Straight section number selection MSH3424L09-144

* Series 1-4 not available in 6 meters or 288 in. lengths.

Technical Specifications

All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

Deflection factor

For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.

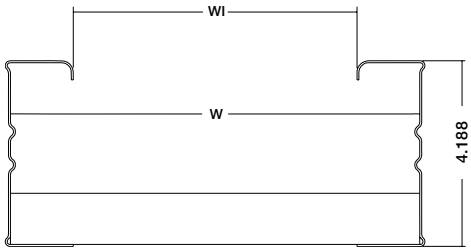
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MSP1-4	Load (lb./ft.)	420	236	151	105	–	–	–	–
MSH1-4	Deflection (in.)	0.420	0.473	0.756	1.155	–	–	–	–
MSS1-4	Deflection Factor	0.001	0.002	0.005	0.011	–	–	–	–
MSP3-4	Load (lb./ft.)	556	313	200	139	102	78	62	50
MSH3-4	Deflection (in.)	0.193	0.344	0.537	0.773	1.052	1.375	1.740	2.148
MSS3-4	Deflection Factor	0.0003	0.0011	0.0027	0.0056	0.0103	0.0176	0.0282	0.0430

Cable ladder & accessories
Straight lengths metallic – Steel

4 in. Straight Sections Series 1-4, 3-4
Ladder, Ventilated and Solid Trough

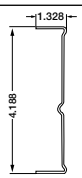
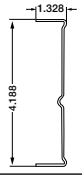


MSP1-4, MSH1-4, MSS1-4 MSP3-4, MSH3-4, MSS3-4	
W (in.)	Wi (in.)
6	3.34
9	6.34
12	9.34
18	15.34
24	21.34
30	27.34
36	33.34

Technical Specifications

Load ratings

1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MSP1-4 **MSH1-4** **MSS1-4**		Ix = 1.974 in^4 Sx = 0.788 in^3 Area = 0.682 in^2	12C	D/3M	UL Cross Sectional Area : 0.70 in^2
MSP3-4 **MSH3-4** **MSS3-4**		Ix = 2.224 in^4 Sx = 1.022 in^3 Area = 1.080 in^2	20A	D/6M	UL Cross Sectional Area : 0.70 in^2

Cable ladder & accessories
Straight lengths metallic – Steel

5 in. Straight Sections Series 2-5, 4-5, 5-5
Ladder, Ventilated and Solid Trough

M	Material		Series		Siderail Height		Width		Bottom Type		Length	
Middle East	SP	Pre-Galvanized	2	Series 2	5	5”	6	6”	L06	6” rung spacing	3	3 m
	SH	Hot Dip Galvanized after fabrication	4	Series 4			9	9”	L09	9” rung spacing	6	6 m
	SS	Stainless Steel 316	5	Series 5			12	12”	L12	12” rung spacing	144	12 ft
							18	18”	V	Ventilated	288	24 ft
							24	24”	S	Solid Trough	8	8 m
							30	30”				
							36	36”				

Example: Straight section number selection MSH2524L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

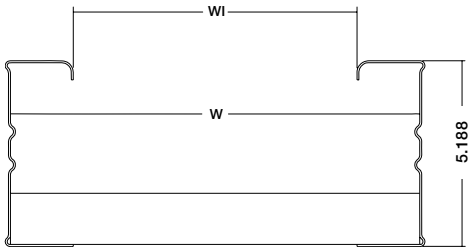
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MSP2-5	Load (lb./ft.)	556	313	200	139	102	78	62	50
MSH2-5	Deflection (in.)	0.193	0.344	0.537	0.773	1.052	1.375	1.740	2.148
MSS2-5	Deflection Factor	0.0003	0.0011	0.0027	0.0056	0.0103	0.0176	0.0282	0.0430
MSP4-5	Load (lb./ft.)	833	469	298	208	153	117	92	75
MSH4-5	Deflection (in.)	0.223	0.397	0.617	0.894	1.217	1.589	1.998	2.483
MSS4-5	Deflection Factor	0.003	0.0008	0.0021	0.0043	0.0079	0.0136	0.0217	0.0331
MSP5-5	Load (lb./ft.)	111	625	298	278	204	156	92	100
MSH5-5	Deflection (in.)	0.241	0.429	0.499	0.964	1.312	1.714	.617	2.678
MSS5-5	Deflection Factor	0.0002	0.0007	0.0017	0.0035	0.0064	0.0110	0.0176	0.0268

Cable ladder & accessories
Straight lengths metallic – Steel

5 in. Straight Sections Series 2-5, 4-5, 5-5
Ladder, Ventilated and Solid Trough

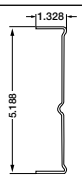
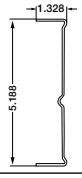
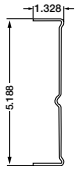


MSP2-5, MSH2-5, MSS2-5 MSP4-5, MSH4-5, MSS4-5 MSP5-5, MSH5-5, MSS5-5	
W (in.)	Wi (in.)
6	3.34
9	6.34
12	9.34
18	15.34
24	21.34
30	27.34
36	33.34

Technical Specifications

Load ratings

1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MSP2-5 **MSH2-5** **MSS2-5**		Ix = 2.89 in^4 Sx = 1.09 in^3 Area = 0.778 in^2	20A	D/3M	UL Cross Sectional Area : 0.70 in^2
MSP4-5 **MSH4-5** **MSS4-5**		Ix = 3.75 in^4 Sx = 1.40 in^3 Area = 1.018 in^2	20B	E/6M	UL Cross Sectional Area : 1.00 in^2
MSP5-5 **MSH5-5** **MSS5-5**		Ix = 4.635 in^4 Sx = 1.732 in^3 Area = 1.24 in^2	20C	–	UL Cross Sectional Area : 1.00 in^2

Cable ladder & accessories
Straight lengths metallic – Steel

6 in. Straight Sections Series 1-6, 3-6, 4-6
Ladder, Ventilated and Solid Trough

M	Material		Series		Siderail Height		Width		Bottom Type		Length	
Middle East	SP	Pre-Galvanized	1	Series 1	6	6”	6	6”	L06	6” rung spacing	3	3 m
	SH	Hot Dip Galvanized after fabrication	3	Series 3			9	9”	L09	9” rung spacing	6	6 m
	SS	Stainless Steel 316	4	Series 4			12	12”	L12	12” rung spacing	144	12 ft
							18	18”	**V	Ventilated	288	24 ft
							24	24”	S	Solid Trough	8	8 m
							30	30”				
							36	36”				

Example: Straight section number selection MSH2524L09-144

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

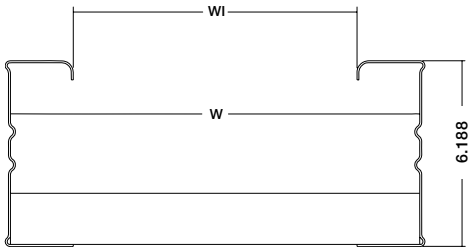
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MSP1-6	Load (lb./ft.)	556	313	200	139	102	78	62	50
MSH1-6	Deflection (in.)	0.126	0.224	0.349	0.503	0.685	0.895	1.132	1.398
MSS1-6	Deflection Factor	0.0002	0.0007	0.0017	0.0036	0.0067	0.0115	0.0183	0.0280
MSP3-6	Load (lb./ft.)	833	469	300	208	153	117	93	75
MSH3-6	Deflection (in.)	0.156	0.277	0.433	0.624	0.849	1.109	1.404	1.733
MSS3-6	Deflection Factor	0.0002	0.0006	0.0014	0.0030	0.0055	0.0095	0.0152	0.0231
MSP4-6	Load (lb./ft.)	1289	725	464	322	237	181	143	116
MSH4-6	Deflection (in.)	0.181	0.321	0.502	0.723	0.984	1.285	1.626	2.008
MSS4-6	Deflection Factor	0.0001	0.0004	0.0011	0.0022	0.0042	0.0071	0.0114	0.0173

Cable ladder & accessories
Straight lengths metallic – Steel

6 in. Straight Sections Series 1-6, 3-6, 4-6
Ladder, Ventilated and Solid Trough

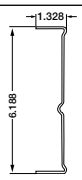
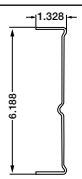
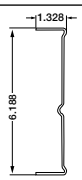


MSP1-6, MSH1-6, MSS1-6 MSP3-6, MSH3-6, MSS3-6 MSP4-6, MSH4-6, MSS4-6	
W (in.)	Wi (in.)
6	3.34
9	6.34
12	9.34
18	15.34
24	21.34
30	27.34
36	33.34

Technical Specifications

Load ratings

1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MSP1-6 **MSH1-6** **MSS1-6**		Ix = 4.44 in^4 Sx = 1.39 in^3 Area = 0.874 in^2	20A	D/3M	UL Cross Sectional Area : 0.70 in^2
MSP3-6 **MSH3-6** **MSS3-6**		Ix = 5.373 in^4 Sx = 1.70 in^3 Area = 1.40 in^2	20B	E/6M	UL Cross Sectional Area : 1.00 in^2
MSP4-6 **MSH4-6** **MSS4-6**		Ix = 7.173 in^4 Sx = 2.250 in^3 Area = 1.40 in^2	Exceeds 20C	–	UL Cross Sectional Area : 1.00 in^2

Cable ladder & accessories
Straight lengths metallic – Steel

7 in. Straight Sections Series 3-7
Ladder, Ventilated and Solid Trough

M	Material		Series		Siderail Height		Width		Bottom Type		Length	
Middle East	SP	Pre-Galvanized	3	Series 3	7	7”	6	6”	L06	6” rung spacing	3	3 m
	SH	Hot Dip Galvanized after fabrication					9	9”	L09	9” rung spacing	6	6 m
	SS	Stainless Steel 316					12	12”	L12	12” rung spacing	144	12 ft
							18	18”	V	Ventilated	288	24 ft
							24	24”	S	Solid Trough	8	8 m
							30	30”				
							36	36”				

Example: Straight section number selection MSH3724L09-288

Technical Specifications
All calculations and data are based on 36 in. wide cable trays with rungs spaced on 12 in. centers with tray supported as simple spans with deflection measured at the midpoint. Continuous spans may reduce deflection by as much as 50%.

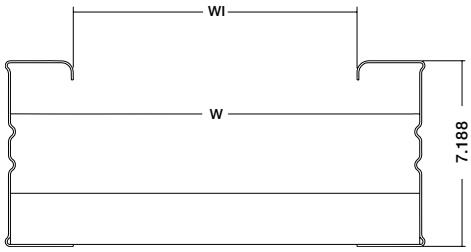
Deflection factor
For lighter loads, deflection at any length can be calculated by multiplying the load by the deflection factor.
For Fittings consult pages 2/36 to 2/43

Support Span (Feet)

Series		6	8	10	12	14	16	18	20
MSP3-7	Load (lb./ft.)	1333	750	480	333	245	188	148	120
MSH3-7	Deflection (in.)	0.133	0.225	0.480	0.667	0.735	1.125	1.333	1.680
MSS3-7	Deflection Factor	0.0001	0.0003	0.001	0.002	0.003	0.006	0.009	0.014

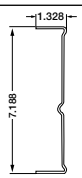
Cable ladder & accessories
Straight lengths metallic – Steel

7 in. Straight Sections Series 3-7
Ladder, Ventilated and Solid Trough



MSP3-7, MSH3-7, MSS3-7	
W (in.)	Wi (in.)
6	3.34
9	6.34
12	9.34
18	15.34
24	21.34
30	27.34
36	33.34

Technical Specifications
Load ratings
1.5 Safety factor. All tray sections will support an additional 200 lb. concentrated load on any portion of tray (siderail, rung, etc.) above and beyond published load class.

Series	Dimensions	Siderail Design Factors • 1 Pair	Classifications		UL
			NEMA	CSA	
MSP3-7 **MSH3-7** **MSS3-7**		Ix = 10.411 in^4 Sx = 2.820 in^3 Area = 1.54 in^2	Exceeds 20C	–	UL Cross Sectional Area : 1.50 in^2

Fittings
Fittings for Cable ladder

Fittings
Fittings enable a cable ladder system to change direction, elevation or size in order to meet building design and cable run constraints.

The range includes:
1. Horizontal bends
2. Vertical bends
3. Tees and crosses
4. Reducers
5. Reducing tees and crosses
6. Expanding tees
7. Horizontal wyes
8. Cable support

For aluminium cable ladder, two styles of fitting are available - H-style and U-style.

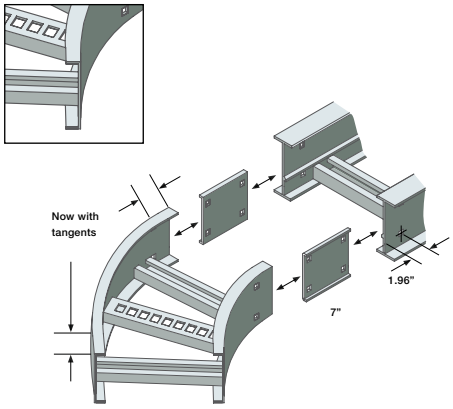
Select the fitting style that is preferred or best meets the project criteria and budget.

Note: H-style and U-style aluminium fittings are interchangeable.

U-Style fitting (Aluminium/steel)
Fittings constructed with the siderail flanges on the inside only, creating a U-shaped fitting style.

Features:
1. Simple, functional design
2. Tangents on fittings
3 7” splice plate (aluminium splice plates ‘snap-in’ for added convenience)

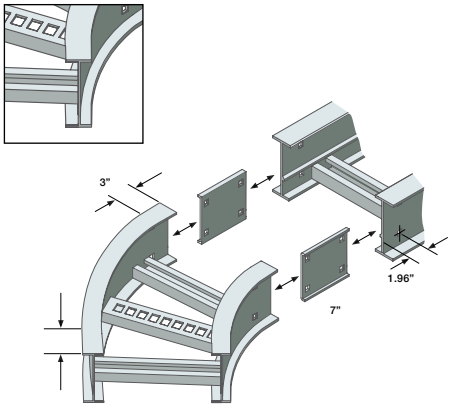
Benefits:
1. Offers maximum quality versus cost ratios of the installation
2. Easy to install
3. Occupies less space in areas where space is restricted
4. Easy alignment between straight sections and fittings
5. Splice plate holds components while hardware is inserted
6. Lighter fittings are easy to handle



H-Style fitting (Aluminium only)
Fittings constructed with the siderail having inner and outer flanges, creating a H-shaped fitting style.

Features:
1. Premium yet simple design
2. 3” tangents on fittings
3 7” splice plate (aluminium splice plates ‘snap-in’ for added convenience)

Benefits:
1. Enhanced aesthetics and customer appeal
2. Easy to install
3. Improved system rigidity
4 Easy alignment between. straight sections and fittings
5. Splice plate holds components while hardware is inserted



Product selection - fittings
Fitting part numbers are base don a range of selection criteria, dependent on the type of fitting and the role undertaken in the cable ladder system.

Over the following pages, the selection criteria for each fitting type is established in table form.

Specifiers should choose the appropriate component part from the lists shown in the tables and create the part number following the example shown.

Images of fittings are provided to assist with selection.

The variables for selection include:
1. Material type
2. Siderail height & ladder width(s)
3. Bottom type and fitting type
4. Angle
5. Nominal radius

Fittings
Horizontal bends

Horizontal bends enable the cable ladder system to change direction in the same plane.

Horizontal bends are available in all material types, siderail heights, ladder widths and bottom types to match straight sections, and have a nominal radius of either 12”, 24”, 36” or 48”.

Available with angles of 30º, 45º, 60º or 90º

Horizontal bend

Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width		Bottom type		Fitting type		Angle		Nominal radius	
MAUF	Aluminium U-style	4	4”	06	6”	L	Ladder	HB	Horizontal bend	30	30º	12	12”
MAHF	Aluminium H-style	5	5”	09	9”	V	Ventilated			45	45º	24	24”
		6	6”	12	12”	S	Solid trough			60	60º	36	36”
		7	7”	18	18”					90	90º	48	48”
				24	24”								
MSPF	Pre-galvanized	3	3 5/8”	30	30”								
	steel U-style	4	4”	36	36”								
MSHF	Hot dip galvanized	5	5”										
	steel U-style	6	6”										
MSSF	Stainless steel 316*	7	7”										
	U-style												

Example: MAUF424LHB4512

Note: Aluminium U-style and H-style fittings are interchangeable.

*Stainless steel 304 is available to special order.

Aluminium U-style/steel **90º** **60º** **45º** **30º**




Aluminium U-style/steel **90º** **60º** **45º** **30º**




Fittings
Tees, crosses & cable support

Horizontal tees and crosses enable joints to be made in the cable ladder system at 90º angles, in the same plane. Vertical tees enable joints to be made in the cable ladder system at 90º angles, between horizontal and vertical planes. Cable support provides a corner support which changes direction of the cable run downwards by 90º to a different plane.

Available in all material types, siderail heights, ladder widths and bottom types to match straight sections, with a nominal radius of either 12”, 24”, 36” or 48”.

Horizontal tee, horizontal cross & cable support

Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width		Bottom type		Fitting type		Nominal radius	
MAUF	Aluminium U-style	4	4”	06	6”	L	Ladder	HT	Horizontal tee	12	12
MAHF	Aluminium H-style	5	5”	09	9”	V	Ventilated	HX	Horizontal cross	24	24
		6	6”	12	12”	S	Solid trough	VTU	Vertical tee up	36	36
		7	7”	18	18”			VTD	Vertical tee down	48	48
				24	24”			CS	Cable support		
MSPF	Pre-galvanized	3	3 5/8”	30	30”						
	steel U-style	4	4”	36	36”						
MSHF	Hot dip galvanized	5	5”								
	steel U-style	6	6”								
MSSF	Stainless steel 316*	7	7”								
	U-style										

Example: MAUF424LVTD12

Note: Aluminium U-style and H-style fittings are interchangeable.

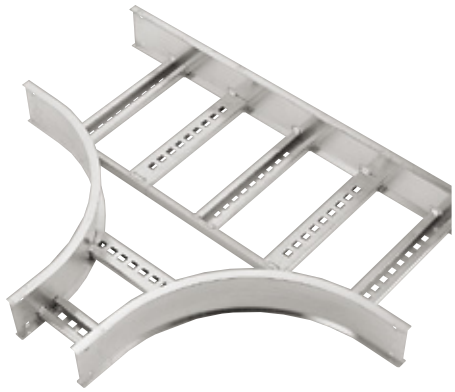
*Stainless steel 304 is available to special order.

	Horizontal tee	Horizontal cross	Cable support
Aluminium U-style/steel			
Aluminium H-style			

	Vertical tee - up	Vertical tee - down
Aluminium U-style/steel		
Aluminium H-style		

Fittings
Horizontal reducing tees

Horizontal reducing tees enable joints to be made in the cable ladder system to more narrow ladder widths, at 90° angles in the same plane.



Available in all material types, siderail heights, ladder widths and bottom types to match straight sections, with a nominal radius of either 12”, 24”, 36” or 48”. Available with angles of 30°, 45°, 60° or 90°

For reduction, ladder width 2 should be less than ladder width 1

Horizontal reducing tee

Select the preferred component parts and create the specific part number as per the example shown.

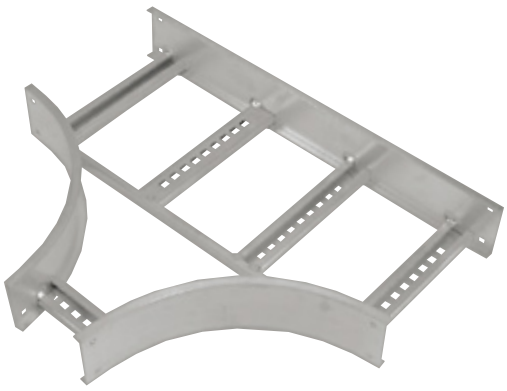
Fitting material & siderail style		Siderail height		Ladder width 1		Ladder width 1		Bottom type		Fitting type		Nominal radius	
MAUF	Aluminium U-style	4	4”	06	6”	06	6”	L	Ladder	RT	Horizontal reducing tee	12	12
MAHF	Aluminium H-style	5	5”	09	9”	09	9”	V	Ventilated			24	24
		6	6”	12	12”	12	12”	S	Solid trough			36	36
		7	7”	18	18”	18	18”					48	48
				24	24”	24	24”						
MSPF	Pre-galvanized	3	3 5/8”	30	30”	30	30”						
	steel U-style	4	4”	36	36”	36	36”						
MSHF	Hot dip galvanized	5	5”										
	steel U-style	6	6”										
MSSF	Stainless steel 316*	7	7”										
	U-style												

Example: MAUF43624LRT12

*Stainless steel 304 is available to special order.

Note: Aluminium U-style and H-style fittings are interchangeable.

Aluminium U-style/steel



Aluminium H-style

Fittings
Horizontal expanding tees & crosses

Horizontal expanding tees and crosses enable joints to be made in the cable ladder system to wider ladder widths, at 90º angles in the same plane.

Available in all material types, siderail heights, ladder widths and bottom types to match straight sections, with a nominal radius of either 12”, 24”, 36” or 48”.

For expansion, ladder width 2 should be greater than ladder width 1

Horizontal expanding tee & cross

Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width 1		Ladder width 1		Bottom type		Fitting type		Nominal radius	
MAUF	Aluminium U-style	4	4”	06	6”	06	6”	L	Ladder	ET	Horizontal expanding tee	12	12
MAHF	Aluminium H-style	5	5”	09	9”	09	9”	V	Ventilated	EX	Horizontal expanding cross	24	24
		6	6”	12	12”	12	12”	S	Solid trough			36	36
		7	7”	18	18”	18	18”					48	48
				24	24”	24	24”						
MSPF	Pre-galvanized	3	3 5/8”	30	30”	30	30”						
	steel U-style	4	4”	36	36”	36	36”						
MSHF	Hot dip galvanized	5	5”										
	steel U-style	6	6”										
MSSF	Stainless steel 316*	7	7”										
	U-style												

Example: MAUF42436LEX12

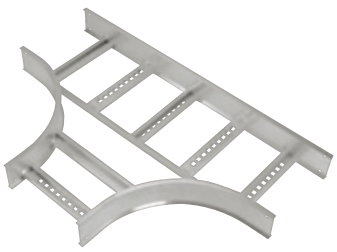
Note: Aluminium U-style and H-style fittings are interchangeable.

*Stainless steel 304 is available to special order.

Expanding tee

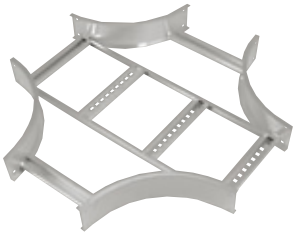
Aluminium U-style/steel

Aluminium H-style

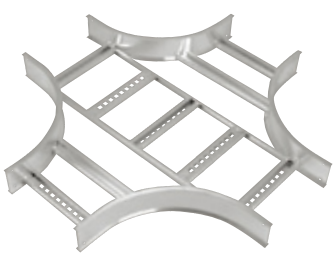


Expanding cross

Aluminium U-style/steel



Aluminium H-style



Fittings
Horizontal wyes

Horizontal wyes enable joints to be made in the cable ladder system in three directions, at a 45° interval in the same plane.

Available in all material types, siderail heights, ladder widths and bottom types to match straight sections.

Horizontal wye

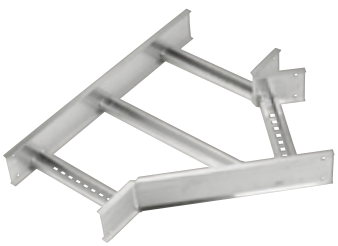
Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width		Bottom type		Fitting type	
MAUF	Aluminium U-style	4	4”	06	6”	L	Ladder	HYL	Horizontal wye - left
MAHF	Aluminium H-style	5	5”	09	9”	V	Ventilated	HYR	Horizontal wye - right
		6	6”	12	12”	S	Solid trough		
		7	7”	18	18”				
				24	24”				
MSPF	Pre-galvanized	3	3 5/8”	30	30”				
	steel U-style	4	4”	36	36”				
MSHF	Hot dip galvanized	5	5”						
	steel U-style	6	6”						
MSSF	Stainless steel 316*	7	7”						
	U-style								

Example: MAUF436LHYL

Note: Aluminium U-style and H-style fittings are interchangeable.

*Stainless steel 304 is available to special order.

Horizontal wye	Left	Right
Aluminium U-style/steel		
Aluminium H-style		

Fittings
Reducers

Reducers enable joints to be made in the cable ladder system to fittings or straight sections of different widths, in the same plane.

An offset reducer has the reduction set to a single side (right or left). A straight reducer has two symmetrical offset sides. Available in all material types, siderail heights, ladder widths and bottom types to match straight sections.

For reduction, ladder width 2 should be less than ladder width 1

Offset & straight reducer

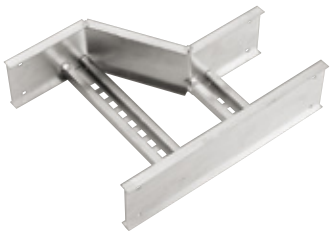
Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width 1		Ladder width 1		Bottom type		Fitting type	
MAUF	Aluminium U-style	4	4”	06	6”	06	6”	L	Ladder	HLR	Offset reducer - left
MAHF	Aluminium H-style	5	5”	09	9”	09	9”	V	Ventilated	HSR	Straight reducer
		6	6”	12	12”	12	12”	S	Solid trough	HRR	Offset reducer - right
		7	7”	18	18”	18	18”				
				24	24”	24	24”				
MSPF	Pre-galvanized	3	3 5/8”	30	30”	30	30”				
	steel U-style	4	4”	36	36”	36	36”				
MSHF	Hot dip galvanized	5	5”								
	steel U-style	6	6”								
MSSF	Stainless steel 316*	7	7”								
	U-style										

Example: MAUF43624LHLR

Note: Aluminium U-style and H-style fittings are interchangeable.

*Stainless steel 304 is available to special order.

Reducer	Left	Straight	Right
Aluminium U-style/steel			
Aluminium H-style			

Fittings
Vertical bends

Vertical bends enable the cable ladder system to change direction to a different plane.

An inside vertical bend changes direction upward from the horizontal plane. An outside vertical bend changes direction downward from the horizontal plane. Vertical bends are available in all material types, siderail heights, ladder widths and bottom types to match straight sections, and have a nominal radius of either 12”, 24”, 36” or 48”.

Available with angles of 30º, 45º, 60º or 90º

Vertical bend

Select the preferred component parts and create the specific part number as per the example shown.

Fitting material & siderail style		Siderail height		Ladder width		Bottom type		Fitting type		Angle		Nominal radius	
MAUF	Aluminium U-style	4	4”	06	6”	L	Ladder	VI	Vertical inside bend	30	30º	12	12”
MAHF	Aluminium H-style	5	5”	09	9”	V	Ventilated	VO	Vertical outside bend	45	45º	24	24”
		6	6”	12	12”	S	Solid trough			60	60º	36	36”
		7	7”	18	18”					90	90º	48	48”
				24	24”								
MSPF	Pre-galvanized	3	3 5/8”	30	30”								
	steel U-style	4	4”	36	36”								
MSHF	Hot dip galvanized	5	5”										
	steel U-style	6	6”										
MSSF	Stainless steel 316*	7	7”										
	U-style												

Example: MAUF424LVO4512

Note: Aluminium U-style and H-style fittings are interchangeable.

*Stainless steel 304 is available to special order.

Inside bend	90º	60º	45º	30º
Aluminium U-style/steel				
Aluminium H-style				

Outside bend	90º	60º	45º	30º
Aluminium U-style/steel				
Aluminium H-style				

Fittings
Covers

Covers are available for all cable ladder widths and material types, in a range of styles - solid, ventilated or peaked - for varying installation needs. Covers provide mechanical protection to cable runs and should be installed where falling objects may damage cables or where vertical cable ladder run is accessible by pedestrian or vehicular traffic.

Outside cable ladder runs should be covered with a flanged cover to protect cable from adverse weather conditions.

Solid cover
Solid covers provide maximum mechanical protection for cables which have limited heat build up. This version is supplied without a flange.

Solid flanged cover
The solid flanged cover is comparable to the solid cover, providing maximum mechanical protection for cables which have limited heat build up, but also includes a 1/2” flange.

Ventilated flanged cover
Ventilated flanged covers offer excellent mechanical protection while allowing heat produced by cables to dissipate through vents in the surface.

Peaked flanged cover
Peaked covers have 15° rise at the peak, and offer mechanical protection plus prevent accumulation of liquids on the cover (due to adverse weather condition or accident). Covers greater than 12” wide are available in 72” and 3 m lengths only.

Note: cover mounting hardware must be ordered separately for all cover types.

Fittings
Covers

Peaked flanged cover
Cover part numbers are based on a range of selection criteria, dependent on the type of cover required, and the need to cover straight sections or fittings.

Covers are suitable for use with both U-style and H-style fittings.

Over the following pages, the selection criteria for each cover type is established in table form.

Specifiers should choose the appropriate component part from the lists shown in the tables and create the part number following the example shown.

The variables for selection include:

Material type & series
Siderail height & ladder width(s)
Cover and fitting type
Angle
Nominal radius

Cover - aluminium straight section

Select the preferred component parts and create the specific part number as per the example shown.

Material type		Series		Ladder width		Cover type		Length	
WAB	Aluminium	1	For cable ladder series: MAH-0-4, MAH-1-4	06	6”	SNC	Solid non-flanged cover	72	72”
		2	For cable ladder series: MAH-2-4, MAH-3-4, MAH-4-4, MAH-5-4, MAH-2-5, MAH-3-5, MAH-4-5, MAH-0-6, MAH-1-6, MAH-2-6	09	9”	SFC	SFC Solid flanged cover	144	12 ft
		3	3 For cable ladder series: MAH-3-6, MAH-4-6, MAH-5-6, MAH-6-6, MAH-2-7, MAH-2C-7, MAH3-7	12	12”	VFC	Ventilated flanged cover	3	3 m
				18	18”	PFC	Peaked flanged cover*	4	4 m
				24	24”	PVC	Peaked vented flanged cover		
				30	30”				
				36	36”				

* Peaked covers greater than 12” wide available in 72” and 3 m lengths only.

Example: WAB112SNC72

Cover - steel straight section

Select the preferred component parts and create the specific part number as per the example shown.

Material type		Ladder width		Cover type		Length	
WSP	Pre-galvanized steel	06	6”	SNC	Solid non-flanged cover	72	72”
WSH	Hot dip galvanized steel*	09	9”	SFC	SFC Solid flanged cover	144	12 ft
WSS	Stainless steel 316**	12	12”	VFC	Ventilated flanged cover	3	3 m
		18	18”	PFC	Peaked flanged cover*	15	1.5 m*
		24	24”	PVC	Peaked vented flanged cover	4	4 m
		30	30”				
		36	36”				

* Hot dip galvanized covers are available in 72” & 1.5 m lengths only. Other materials available in 72”, 12 ft & 3 m lengths only

** Stainless steel 304 is available to special order.

Example: WSP12SNC3

Fittings
Covers

Cover - aluminium & steel - horizontal bend & vertical inside bend
Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Ladder width		Cover type		Fitting type		Angle		Nominal radius	
WAU	Aluminium U-style	06	6”	SNC	Solid non-flanged cover	HB	Horizontal bend	30	30º	12	12”
WAH	Aluminium H-style	09	9”	SFC	Solid flanged cover	VI	Vertical inside bend	45	45º	24	24”
		12	12”	VFC	Ventilated flanged cover			60	60º	36	36”
WSP	Pre-galvanized steel	18	18”	PFC	Peaked flanged cover**			90	90º	48	48”
WSH	Hot dip galvanized steel	24	24”	PVC	Peaked vented flanged cover**						
WSS	Stainless steel 316*	30	30”								
		36	36”								

* Stainless steel 304 is available to special order.

** Peaked covers are not available in pre-galvanized steel.

Example: WAH24SNCHB6012

Cover - aluminium & steel - vertical outside bend
Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Siderail height		Ladder width		Cover type		Fitting type		Angle		Nominal radius	
WAU	Aluminium U-style	4	4”	06	6”	SNC	Solid non-flanged cover	VO	Vertical outside bend	30	30º	12	12”
WAH	Aluminium H-style	5	5”	09	9”	SFC	Solid flanged cover			45	45º	24	24”
		6	6”	12	12”	VFC	Ventilated flanged cover			60	60º	36	36”
		7	7”	18	18”	PFC	Peaked flanged cover**			90	90º	48	48”
				24	24”	PVC	Peaked vented flanged cover**						
WSP	Pre-galvanized steel	3	3 5/8”	30	30”								
WSH	Hot dip galvanized steel	4	4”	36	36”								
WSS	Stainless steel 316*	5	5”										
		6	6”										
		7	7”										

* Stainless steel 304 is available to special order.

** Peaked covers are not available in pre-galvanized steel.

Example: WAH424SNCVO9012

Fittings
Covers

Cover - aluminium & steel - horizontal tee & cross, vertical tee up
Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Ladder width		Cover type		Fitting type		Nominal radius	
WAU	Aluminium U-style	06	6”	SNC	Solid non-flanged cover	HT	Horizontal tee**	12	12”
WAH	Aluminium H-style	09	9”	SFC	Solid flanged cover	HX	Horizontal cross	24	24”
		12	12”	VFC	Ventilated flanged cover	VTU	Vertical tee up	36	36”
WSP	Pre-galvanized steel	18	18”	PFC	Peaked flanged cover**			48	48”
WSH	Hot dip galvanized steel	24	24”	PVC	Peaked vented flanged cover**				
WSS	Stainless steel 316*	30	30”						
		36	36”						

* Stainless steel 304 is available to special order.

** Peaked covers are not available in pre-galvanized steel, and are only available as horizontal tee.

Example: WAH24SNCHT12

Cover - aluminium & steel - vertical tee down & cable support
Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Siderail height		Ladder width		Cover type		Fitting type		Nominal radius	
WAU	Aluminium U-style	4	4”	06	6”	SNC	Solid non-flanged cover	VTD	Vertical tee down	12	12”
WAH	Aluminium H-style	5	5”	09	9”	SFC	Solid flanged cover	CS	Cable support	24	24”
		6	6”	12	12”	VFC	Ventilated flanged cover			36	36”
		7	7”	18	18”					48	48”
				24	24”						
WSP	Pre-galvanized steel	3	3 5/8”	30	30”						
WSH	Hot dip galvanized steel	4	4”	36	36”						
WSS	Stainless steel 316*	5	5”								
		6	6”								
		7	7”								

* Stainless steel 304 is available to special order.

Example: WAH624SNCVTD12

Fittings
Covers

Cover - aluminium & steel - horizontal reducing tee, horizontal expanding tee & cross

Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Ladder width 1		Ladder width 2		Cover type		Fitting type		Nominal radius	
WAU	Aluminium U-style	06	6”	06	6”	SNC	Solid non-flanged cover	RT	Horizontal reducing tee	12	12”
WAH	Aluminium H-style	09	9”	09	9”	SFC	Solid flanged cover	ET	Horizontal expanding tee	24	24”
		12	12”	12	12”	VFC	Ventilated flanged cover	EX	Horizontal expanding cross	36	36”
WSP	Pre-galvanized steel	18	18”	18	18”					48	48”
WSH	Hot dip galvanized steel	24	24”	24	24”						
WSS	Stainless steel 316*	30	30”	30	30”						
		36	36”								

* Stainless steel 304 is available to special order.

Example: WAH3612SNCRT12

Note: for reduction, ladder width 2 should be less than ladder width 1. For expansion, ladder width 2 should be greater than ladder width 1.

Cover - aluminium & steel - horizontal reducer

Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Ladder width 1		Ladder width 2		Cover type		Fitting type	
WAU	Aluminium U-style	09	9”	06	6”	SNC	Solid non-flanged cover	HLR	Horizontal reducer - left
WAH	Aluminium H-style	12	12”	09	9”	SFC	Solid flanged cover	HSR	Horizontal reducer- straight
		18	18”	12	12”	VFC	Ventilated flanged cover	HRR	Horizontal reducer - right
WSP	Pre-galvanized steel	24	24”	18	18”				
WSH	Hot dip galvanized steel	30	30”	24	24”				
WSS	Stainless steel 316*	36	36”	30	30”				

* Stainless steel 304 is available to special order.

Example: WAH3612SNCHLR

Note: for reduction, ladder width 2 should be less than ladder width 1.

Cover - aluminium & steel - horizontal wye

Select the preferred component parts and create the specific part number as per the example shown.

Material & fitting style		Ladder width		Cover type		Fitting type	
WAU	Aluminium U-style	06	6”	SNC	Solid non-flanged cover	HYR	Horizontal wye - right
WAH	Aluminium H-style	09	9”	SFC	Solid flanged cover	HYL	Horizontal wye - left
		12	12”	VFC	Ventilated flanged cover		
WSP	Pre-galvanized steel	18	18”				
WSH	Hot dip galvanized steel	24	24”				
WSS	Stainless steel 316*	30	30”				

* Stainless steel 304 is available to special order.

Example: WAH24SNCHYL

Fittings
Accessories

Accessories and supports supplement installation of straight sections, covers and fittings.

Accessories enable clamping of covers, separation of cables within the ladder rack and variable mounting, support and suspension of the cable ladder system.

Quantity of standard cover clamps required:

Straight section	6 ft	4 pieces
	12 ft/3 m	6 pieces
Horizontal and vertical bends		4 pieces
Tees		6 pieces
Crosses		8 pieces

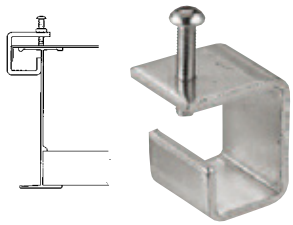
Note: when using the heavy duty cover clamp, only half the quantity of pieces are required.

IMPORTANT NOTE: where the aluminium accessory part number prefix includes 'B' (e.g. 'WAB'), this accessory can be used with both U-style and H-style fittings.

Economical cover clamp

Rigid indoor cover clamp for flat and flanged covers.
Cannot be used with U-style fittings - use with MAH straights and MAHW fittings only.

Part No.	Material	Siderail height
WAB-SCC	Zinc plated steel	All sizes

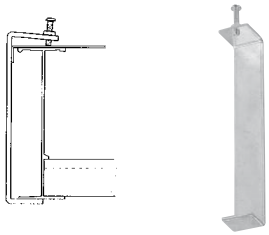


Cover clamp

Rigid indoor cover clamp for flat and flanged covers.

Part No.	Material	Part No. variable (*)
WAB-(*)-FCC	Zinc plated steel	Replace (*) with single digit reference for
WSP-(*)-SCC	Steel (pre-galvanized)	siderail height
WSS-(*)-SCC	Stainless steel 316	3 = 35/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.



Heavy duty cover clamp

Wrap around design offers added protection for rugged applications and outdoor conditions. Hardware included.

Part No.	Material	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-HCC	Aluminium	Replace (*) with single digit reference for siderail height	Replace (+) with double digit reference for ladder width:
WSP-(*)-(+)-HCC	Steel (pre-galvanized)	3 = 35/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"	06 = 6" 09 = 9" 12 = 12" 18 = 18"
WSH-(*)-(+)-HCC	Steel (hot dip galvanized)		24 = 24" 30 = 30" 36 = 36"
WSS-(*)-(+)-HCC	Stainless steel 316		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Fittings
Accessories

Extreme heavy duty cover clamp

Wraparound design offers added protection for rugged applications and outdoor conditions. Hardware included.

Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-ECC	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for ladder width:
		4 = 4” 5 = 5” 6 = 6” 7 = 7”	06 = 6” 09 = 9” 12 = 12” 18 = 18”
			24 = 24” 30 = 30” 36 = 36”

Heavy duty peaked cover clamp

Wraparound design formed to fit peaked cover for outdoor applications. Hardware included.

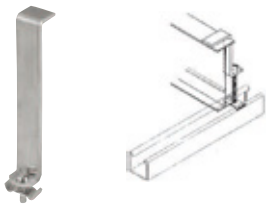
Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-HPC	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for ladder width:
WSP-(*)-(+)-HPC	Steel (pre-galvanized)	3 = 3 5/8” 4 = 4” 5 = 5” 6 = 6” 7 = 7”	06 = 6” 09 = 9” 12 = 12” 18 = 18”
WSH-(*)-(+)-HPC	Steel (hot dip galvanized)		24 = 24” 30 = 30” 36 = 36”
WSS-(*)-(+)-HPC	Stainless steel 316		

Note: 3 5/8” siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Combination hold down cover clamp

Designed to secure flat and flanged covers with hold down feature.

Part No.	Material/ Ladder type	Part No. variable (*)
WAB-(*)-CCC	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-CCC	Steel (pre-galvanized)	3 = 3 5/8” 4 = 4” 5 = 5” 6 = 6” 7 = 7”
WSS-(*)-CCC	Stainless steel 316	

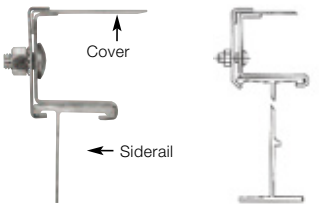


Note: 3 5/8” siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Raised cover clamp

Designed to raise cover above cable ladder for added ventilation.

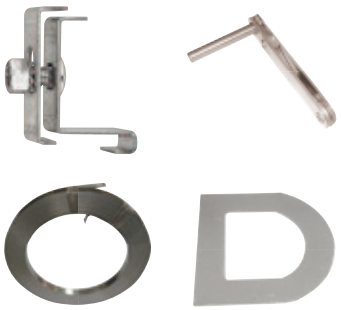
Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)(+)-RCC	Aluminium	Replace (*) with single digit reference for cover series:	Replace (+) with single digit reference for cover offset:
WSP-(+)-RCC	Steel (pre-galvanized)	1 = Series 1 2 = Series 2 3 = Series 3	1 = 1” 2 = 2” 3 = 3”
WSS-(+)-RCC	Stainless steel 316		



Note: cover series reference is only required for aluminium cable ladder. Stainless steel 304 available to special order.

Banding clips and banding tools

All covers may be secured with banding strap. Stainless steel banding strap is available with banding clips. Banding is 0.020” X 1/2” wide type 304 or 316 stainless steel strips. Clips are used to secure banding, only a piece of wood and a pair of pliers are required to tighten and fasten in place, although a special banding tool is used when a considerable amount of banding is to be done or when uniform tensioning of the banding is desirable. This tool has a built in cut-off and extremely short(6”) handles with aluminium knobs for use in tight quarters. The 36-tooth ratchet creates high tensioning power.



Fittings
Accessories

Peaked end cap

Used for transition between peaked covers and straight covers.

Part No.	Material/ Ladder type	Part No. variable (*)
WAB-(*)-PEC	Aluminium	Replace (*) with double digit reference for ladder width:
WSP-(*)-PEC	Steel (pre-galvanized)	06 = 6” 09 = 9” 12 = 12” 18 = 18” 24 = 24” 30 = 30” 36 = 36”
WSH-(*)-PEC	Steel (hot dip galvanized)	
WSS-(*)-PEC	Stainless steel 316	

Stainless steel 304 available to special order.

Cover joint strip

Strip used for joining covers end to end. Manufactured from durable plastic material.

Part No.	For ladder type	Part No. variable (*)
WAB-(*)-SCS	Aluminium	Replace (*) with double digit reference for ladder width:
WSP-(*)-SCS	Steel (pre-galvanized)	06 = 6” 09 = 9” 12 = 12” 18 = 18” 24 = 24” 30 = 30” 36 = 36”
	Steel (hot dip galvanized)	
	Stainless steel 316	

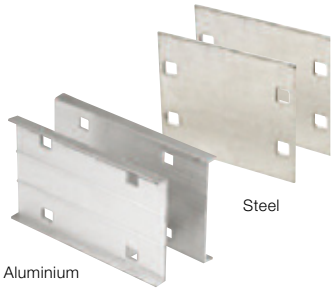
Splice plate

Packaged in pairs with zinc plated hardware. Aluminium versions ‘snap-in’ and are designed to lock into place for easy alignment and installation.

Part No.	For ladder type	Part No. variable (*)
WAB-(*)-SSP	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-SSP	Steel (pre-galvanized)	3 = 3 5/8” 4 = 4” 5 = 5” 6 = 6” 7 = 7”
WSH-(*)-SSP	Steel (hot dip galvanized)	
WSS-(*)-SSP	Stainless steel 316	

Siderail available for steel cable ladder only.

Stainless steel 304 available to special order.

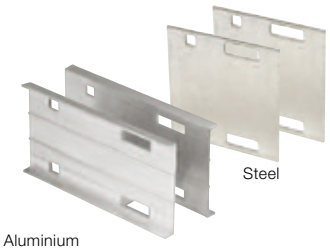


Expansion splice plate

Allows for a 1” expansion or contraction of the cable ladder system. Aluminium versions ‘snap-in’ and are designed to lock into place for easy alignment and installation. Packaged in pairs with hardware designed to lock into place for easy alignment and installation.

Part No.	For ladder type	Part No. variable (*)
WAB-(*)-ESP	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-ESP	Steel (pre-galvanized)	3 = 3 5/8” 4 = 4” 5 = 5” 6 = 6” 7 = 7”
WSH-(*)-ESP	Steel (hot dip galvanized)	
WSS-(*)-ESP	Stainless steel 316	

Note: 3 5/8” siderail available for steel cable ladder only. Stainless steel 304 available to special order.

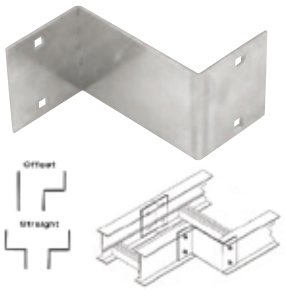


Fittings
Accessories

Reducing splice plate

Use in pairs to provide a straight reduction or with a standard splice plate for an offset reduction. Packaged with hardware.

Note: (+) For offset reduction: insert width to be reduced. For straight reduction: insert half width to be reduced (2 required). Example: MABW-4-03-RSP = 3" offset reducer.

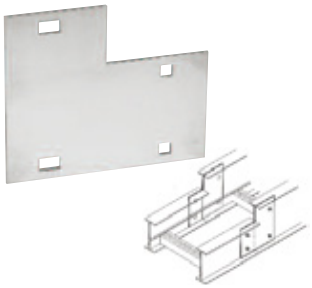


Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-RSP	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for reduction value - single figures are
WSP-(*)-(+)-RSP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"	preceded by '0' and decimals use first digit.
WSH-(*)-(+)-RSP	Steel (hot dip galvanized)		e.g.: 03 = 3" 15 = 15"
WSS-(*)-(+)-RSP	Stainless steel		01 = 1.5" 04 = 4.5"

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Step down splice plate

Connects siderails of different heights. Hardware included.

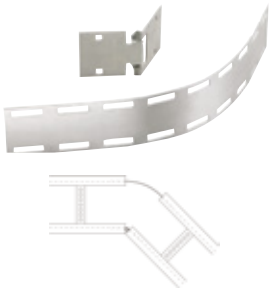


Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-SDS	Aluminium	Replace (*) with single digit reference for siderail height 1:	Replace (+) with single digit reference for siderail height 2:
WSP-(*)-(+)-SDS	Steel (pre-galvanized)	4 = 4" 5 = 5" 6 = 6" 7 = 7"	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6"
WSH-(*)-(+)-SDS	Steel (hot dip galvanized)		
WSS-(*)-(+)-SDS	Stainless steel 316		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order. When ordering, siderail height 2 should be less than siderail height 1.

Horizontal adjustable plate

Adjustable hinge plates provide maximum horizontal installation flexibility. Furnished in pairs with hardware.

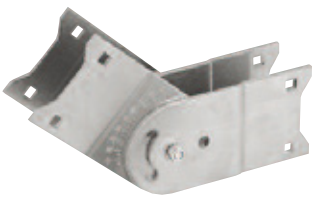


Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-HAP	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for ladder width:
WSP-(*)-(+)-HAP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"	06 = 6" 09 = 9" 12 = 12" 18 = 18" 24 = 24" 30 = 30" 36 = 36"
WSH-(*)-(+)-HAP	Steel (hot dip galvanized)		
WSS-(*)-(+)-HAP	Stainless steel 316		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Vertical adjustable plate

Hinged vertical plates provide maximum flexibility for changes in elevation. Furnished in pairs with hardware.



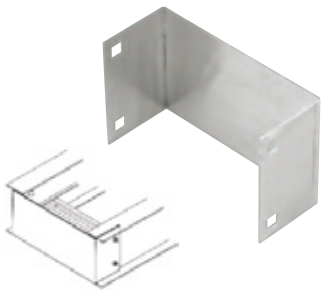
Part No.	For ladder type	Part No. variable (*)
WAB-(*)-VSP	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-VSP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"
WSH-(*)-VSP	Steel (hot dip galvanized)	
WSS-(*)-VSP	Stainless steel 316	

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Fittings
Accessories

Closure end plate

Provides closure for any cable ladder end. Packaged with hardware.

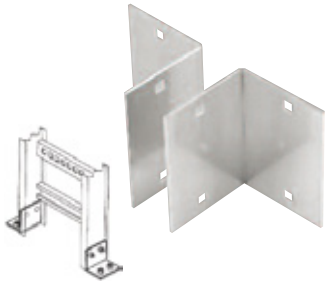


Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-CEP	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (*) with single digit reference for siderail height:
WSP-(*)-(+)-CEP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"
WSH-(*)-(+)-CEP	Steel (hot dip galvanized)		
WSS-(*)-(+)-CEP	Stainless steel		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Box to cable ladder plate

Designed to secure cable ladder to electrical panels or boxes, walls or end supports. Furnished in pairs with hardware.

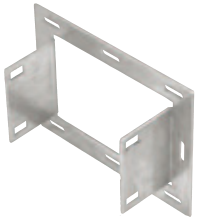


Part No.	Material/Ladder type	Part No. variable (*)
WAB-(*)-BSP	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-BSP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"
WSH-(*)-BSP	Steel (hot dip galvanized)	
WSS-(*)-(+)-SDS	Stainless steel 316	

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Frame type cable ladder to box plate

Designed to secure cable ladder to electrical enclosures and panels. Hardware included.



Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-FBP	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for ladder width:
WSP-(*)-(+)-FBP	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"	06 = 6" 09 = 9" 12 = 12" 18 = 18" 24 = 24" 30 = 30" 36 = 36"
WSH-(*)-(+)-FBP	Steel (hot dip galvanized)		
WSS-(*)-(+)-FBP	Stainless steel 316		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Wall penetration sleeve

Designed to pass through walls and fire walls. Hardware included.

Note: Not Fire Rated. Fire Stop not included.

Part No.	Material/ Ladder type	Part No. variable (*)	Part No. variable (+)
WAB-(*)-(+)-WPS	Aluminium	Replace (*) with single digit reference for siderail height:	Replace (+) with double digit reference for ladder width:
WSP-(*)-(+)-WPS	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7	06 = 6" 09 = 9" 12 = 12" 18 = 18" 24 = 24" 30 = 30" 36 = 36"
WSH-(*)-(+)-WPS	Steel (hot dip galvanized)		
WSS-(*)-(+)-WPS	Stainless steel 316		

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Fittings
Accessories

Drop-out

Designed to provide a smooth radiused surface at any position on the ladder or trough bottom. Drop-outs are easily attached using hardware provided. Standard Radius = 4".

Part No.	Material	Bottom type	Part No. variable (*)
WAB-(*)-DO	Aluminium	Ladder/Ventilated	Replace (*) with double digit reference for ladder width:
WAB-(*)-DOS	Aluminium	Solid	06 = 6"
WSP-(*)-DO	Steel (pre-galvanized)	Ladder/Ventilated	09 = 9"
WSP-(*)-DOS	Steel (pre-galvanized)	Solid	12 = 12"
WSH-(*)-DO	Steel (hot dip galvanized)	Ladder/Ventilated	18 = 18"
WSH-(*)-DOS	Steel (hot dip galvanized)	Solid	24 = 24"
WSS-(*)-DO	Stainless steel 316	Ladder/Ventilated	30 = 30"
WSS-(*)-DOS	Stainless steel 316	Solid	36 = 36"

Stainless steel 304 available to special order.

Barrier strip

Barrier strips provide a method for separating cables in cable ladder systems. Easily installed using supplied hardware or barrier strip clamps (sold separately).
72" Barriers are flexible for use with horizontal fittings. WSH hot dip galvanized available in 72" and 1.5 m lengths only. Other materials available in 72", 144" and 3 m lengths only with hardware.

Part No.	Length	Part No. variable (*)	Part No. variable (+)
(*)-(+)-SBH-72	72"	Replace (*) with three letter reference for material type:	Replace (+) with single digit reference for siderail height:
(*)-(+)-SB-144	144"	WAB = Aluminium	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7
(*)-(+)-SB-3	3 m	WSP = Steel (pre-galvanized)	
(*)-(+)-SB-15	1.5 m	WSH = Steel (hot dip galvanized)	
		WSS = Stainless steel 316	

Note: 3 5/8" siderail available for steel cable ladder only. 72" barriers supplied as standard with 3 WSP-10-SCR (self-drilling tapping screw), 144" & 3 m barriers supplied as standard with 6 WSP-10-SCR. Stainless steel 304 available to special order.

Inside/outside vertical bend barrier

Pre-formed to fit all standard vertical bends. Provided with hardware.

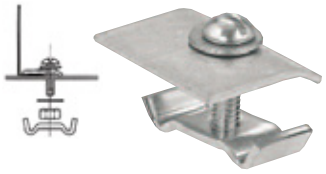
Part No.	Siderail height	Part No. variable (*)	Part No. variable (+) (%)
Vertical inside bend			
(*)-3-VIB-(+)-(%)	3 5/8"	Replace (*) with three letter reference for material type:	Replace (+) with bend angle:
(*)-4-VIB-(+)-(%)	4"	WAB = Aluminium	90 = 90° 60 = 60° 45 = 45° 30 = 30°
(*)-5-VIB-(+)-(%)	5"	WSP = Steel (pre-galvanized)	Replace (%) with bend radius:
(*)-6-VIB-(+)-(%)	6"	WSH = Steel (hot dip galv.)	12 = 12" 24 = 24" 36 = 36" 48 = 48"
(*)-7-VIB-(+)-(%)	7"	WSS = Stainless steel 316	
Vertical outside bend			
(*)-3-VOB-(+)-(%)	3 5/8"	Replace (*) with three letter reference for material type:	Replace (+) with bend angle:
(*)-4-VOB-(+)-(%)	4"	WAB = Aluminium	90 = 90° 60 = 60° 45 = 45° 30 = 30°
(*)-5-VOB-(+)-(%)	5"	WSP = Steel (pre-galvanized)	Replace (%) with bend radius:
(*)-6-VOB-(+)-(%)	6"	WSH = Steel (hot dip galv.)	12 = 12" 24 = 24" 36 = 36" 48 = 48"
(*)-7-VOB-(+)-(%)	7"	WSS = Stainless steel 316	

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.

Fittings
Accessories

Barrier strip clamp

Barrier strip clamps mount barrier strips to ladder rungs and ventilated bottoms.
Complete mounting hardware supplied.



Part No.	Material
WSP-BSC	Zinc plated steel
WSS-BSC	Stainless steel 316

Stainless steel 304 available to special order.

Barrier strip splice

Alignment splice for joining connecting barrier strips.

Part No.	Material
WAB-BSS	Plastic

Standard hold down clamp

Designed for most indoor installations. Easy to use and install. Order 3/8“ hardware separately.

Part No.	Material
WSP-(*)-SHC	Zinc plated steel
WSS-(*)-SHC	Stainless steel 316
WSP-(*)-SHC-HDW	Zinc plated steel, supplied with 1/4” hardware
WSS-(*)-SHC-HDW	Stainless steel 316, supplied with 1/4” hardware

Stainless steel 304 available to special order.

Combination hold down/expansion guide clamp

Order hardware separately.

Part No.	Material
WAB-HEC	Aluminium
WSP-HEC	Steel (pre-galvanized)
WSH-HEC	Steel (hot dip galvanized)
WSS-HEC	Stainless steel 316

Stainless steel 304 available to special order.

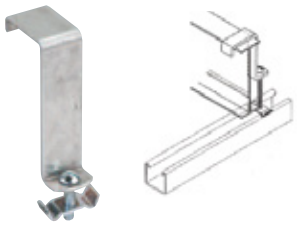
Fittings
Accessories

Hold down clamp

Designed to secure cable ladder to support system. Hardware included.

Part No.	Material/Ladder type	Part No. variable (*)
WAB-(*)-HDC	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-HDC	Steel (pre-galvanized)	3 = 3 5/8" 4 = 4" 5 = 5" 6 = 6" 7 = 7"
WSH-(*)-HDC	Steel (hot dip galvanized)	
WSS-(*)-HDC	Stainless steel	

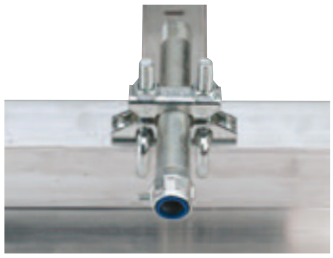
Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.



Conduit to cable ladder clamp

Standard finish: electro-galvanized steel.

Part No.	Conduit size
M6210	1/2" - 3/4"
M6212	1" - 1 1/4"



Conduit to cable ladder swivel clamp

Swivel clamp for aluminium and steel cable ladder with regular or reinforced flanges.
Material: zinc plated malleable iron hub, with steel U-bolt included.

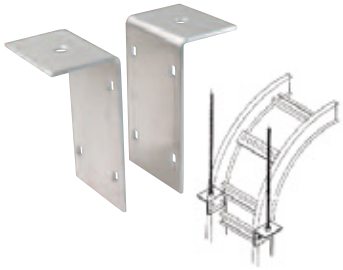
Serrations and biting teeth on clamping saddle provide a high quality bond between conduit and clamp 1/2" to 4" can be clamped to any position in a 90° arc

Part No.	Conduit size
M6209	1/2" - 3/4"
M6211	1" - 1 1/4"
M6214	1 1/2" - 2"
M6216	2 1/2" - 3"
M6218	3 1/2" - 4"

Vertical cable ladder hanger

Part No.	Material/Ladder type	Part No. variable (*)
WAB-(*)-VTH	Aluminium	Replace (*) with single digit reference for siderail height:
WSP-(*)-VTH	Steel (pre-galvanized)	3=35/8" 4=4" 5=5" 6=6" 7=7"
WSH-(*)-VTH	Steel (hot dip galvanized)	
WSS-(*)-VTH	Stainless steel 316	

Note: 3 5/8" siderail available for steel cable ladder only. Stainless steel 304 available to special order.



Fittings
Accessories

Cable ladder guide

Expansion guide for single or double runs of cable ladder. No need to field drill the channel or H-beam.

Part No.	Material
WSP-CTG	Zinc plated steel
WSH-CTG	Steel (hot dip galvanized)
WSS-CTG	Stainless steel 316

Stainless steel 304 available to special order.

Cable ladder clamp

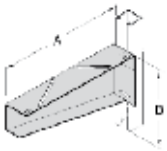
Clamps for single run of cable ladder. No need to field drill the channel or H-beam.

Part No.	Material
WSP-CTG	Zinc plated steel
WSH-CTG	Steel (hot dip galvanized)
WSS-CTG	Stainless steel 316

Stainless steel 304 available to special order.

Cantilever support

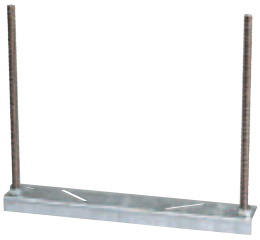
Standard finish: hot dip galvanized steel.

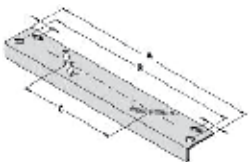
Part No.	A	B	Design load	
MS203-14HDG	14 1/2”	5 3/8”	1200 lbs	
MS203-20HDG	20 1/2”	6 11/16”	1200 lbs	
MS203-26HDG	26 1/2”	8”	1200 lbs	
MS203-32HDG	32 1/2”	8”	1200 lbs	
MS203-38HDG	38 1/2”	8”	1200 lbs	

Note: order hold down clips separately - Part No. WSS-SHC.

Cross member

Standard finish: hot dip galvanized steel. Hanging rods not included.



Part No.	A	B	C	
MS202-6HDG	6”	5”	-	
MS202-9HDG	9”	8”	2”	
MS202-15HDG	15”	14”	8”	
MS202-21HDG	21”	20”	14”	
MS202-27HDG	27”	26”	20”	
MS202-33HDG	33”	32”	26”	

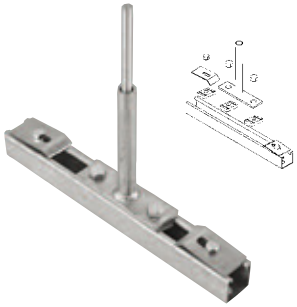
Note: order hold down clips separately - Part No. WSS-SHC.

Fittings
Accessories

Centre support bracket

Cable support brackets are designed to reduce cable pulling by allowing access from both sides of the cable ladder. Installation cost and time are reduced significantly by single point suspension.

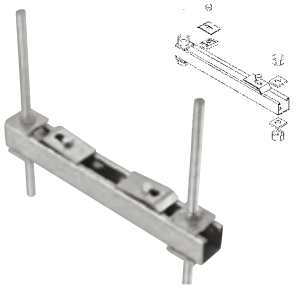
Supplied as a complete kit
Uses 1/2” threaded rod (order separately)
For use with up to 24” wide cable ladder
Load capacity : 700 lb per kit



Part No.	Description	Part No. variable (*)
WSP-(*)-CSB	Steel (hot dip galvanized)	Replace (*) with double digit reference for channel width:
		18 = 18” (for 6” cable ladder)
		30 = 30” (for 9” to 24” cable ladder)

Trapeze kit

Trapeze kits are designed to support various cable ladder widths in a suspending installation. Kit consists of 1 piece of strut cut to length, 4 x 3/8” strut nuts, 2 hold down clips, 4 x 1/2” hex nuts, 2 x 3/8” x 7/8” hex head cap screws, 4 x 1/2” square washers. Uses 1/2” threaded rod (order separately).

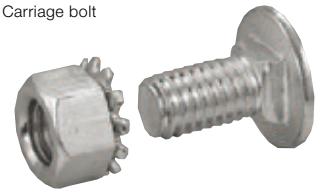


Part No.	Description	Part No. variable (*)	
WSP-(*)-TPK	Steel (pre-galvanized)	Replace (*) with double digit reference for ladder width:	Ladder width: channel width ratio:
WSH-(*)-TPK	Steel (hot dip galvanized)	06 = 6” 09 = 9” 12 = 12” 18 = 18”	6”:16 7/8” 9”:18 3/4” 12”:22 1/2”
WSS-(*)-TPK	Stainless steel 316	24 = 24” 30 = 30” 36 = 36”	18”:28 1/8” 24”:35 5/8” 30”:41 1/4” 36”:46 7/8”

Stainless steel 304 available to special order.

Tray hardware

Carriage bolt



Self-drilling tapping screw

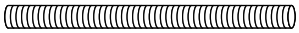
Part No.	Material/Ladder type	Part No. variable (*)
WSP-1/4-CB	Zinc plated steel	Square shoulder self-positioning 1/4” carriage bolt
WSP-3/8-CB	Zinc plated steel	Square shoulder self-positioning 3/8” carriage bolt
WSP-1/4-HN	Zinc plated steel	1/4” Hex. nut
WSP-3/8-HN	Zinc plated steel	3/8” Hex. nut
WSS-3/8-CB	Stainless steel 316	3/8” Carriage bolt
WSS-3/8-HN	Stainless steel 316	3/8” Hex. nut
WSS-3/8-HWK	Stainless steel 316	Hardware kit inc. 8 nuts, 8 bolts & 8 lockwashers
WSP-10-SCR	Zinc plated steel	Self-drilling tapping screw

Stainless steel 304 available to special order. Hardware available in metric sizes to special order

Fittings
Accessories

Threaded rod

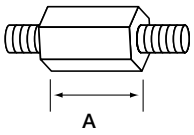
Part No.	Size	Threads/inch	Design load	Part No. variable (*)
H104-1/4x3(*)	1/4”	20	150 lb	Replace (*) with reference for material type:
H104-3/8x3(*)	3/8”	16	610 lb	EG = Electro-galvanized
H104-1/2x3(*)	1/2”	13	1130 lb	HDG = Hot dip galvanized
H104-5/8x3(*)	5/8”	11	1810 lb	SS4 = Stainless steel 304
H104-3/4x3(*)	3/4”	10	2710 lb	SS6 = Stainless steel 316
H104-7/8x3(*)	7/8”	9	3770 lb	
H104-1x3(*)	1”	8	4960 lb	



Standard length 3 m. Rod available in metric sizes to special order.

Threaded rod coupling

Part No.	Rod size	A	Part No. variable (*)
H119-1/4(*)	1/4”	7/8”	Replace (*) with reference for material type:
H119-5/16(*)	5/16”	7/8”	EG = Electro-galvanized
H119-3/8(*)	3/8”	1 1/8”	HDG = Hot dip galvanized
H119-1/2(*)	1/2”	1 1/4”	SS4 = Stainless steel 304
H119-5/8(*)	5/8”	2 1/8”	SS6 = Stainless steel 316
H119-3/4(*)	3/4”	2 1/4”	
H119-7/8(*)	7/8”	2 1/2”	
H119-1(*)	1”	2 1/4”	



Coupling available in metric sizes to special order.

Bonding jumper

Part No.	
CBJ	C4 x 100
CBJ	C16 x 100

Area: 16 mm2. Length: 112 mm centre to centre
Bonding jumper for earthing connectivity of cable tray is produced from braided tinned copper with M6 copper lugs on both sides. M6 x 12 roofing bolts,nuts and washer are used. To be ordered separately.

Perforated tray & accessories

Perforated tray & accessories

Perforated tray & accessories Overview

T&B perforated tray delivers the comprehensive, flexible solution for supporting cable.

Our perforated tray is a durable and cost effective solution for supporting cable, which is easy to install, modify and maintain.

Suitable for a wide variety of industries and installations, our perforated tray offers the sure choice for high quality, high performance cable management.

Extensive product range
Our perforated tray is available in aluminium or steel, from medium duty to ultra heavy duty, to cover all types of installation. Straight sections are complemented by an extensive selection of fittings, covers and accessories to permit specification of full perforated tray systems from a single source.

Enhanced safety
Our perforated tray offers enhanced safety with lower risk of exposure to live, energized parts. In a perforated tray system, cables can be pulled from near one termination enclosure to the next before being connected, rather than being pulled through conduit after the cable is terminated.

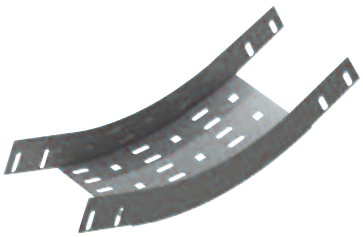
Increased adaptability
Businesses must remain flexible - to be able to expand facilities quickly, or introduce new processes or product lines as markets dictate. Our perforated tray offers a major advantage in being highly adaptable to meet new needs and technology, with no need to replace the system with each new development. Modifications or expansions are achieved quickly as cables can enter or exit the tray at any point, thus keeping business disruption and downtime to a minimum.

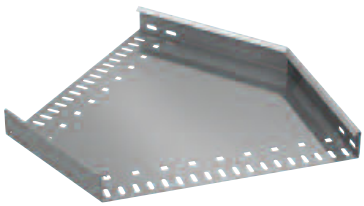
Reduced costs
Reliability and adaptability coupled with ease of maintenance result in perforated tray systems delivering many types of cost saving, including:

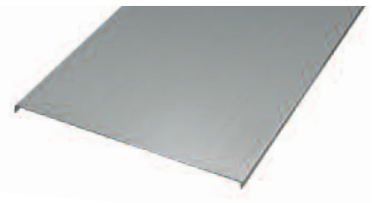
Lower installation, engineering and maintenance costs Lower need to reconfigure the system as needs change Reduced downtime for electrical and data handling systems Fewer environmental problems resulting from loss of power to essential equipment

Low maintenance
Cable ladder wiring systems have a lower maintenance demand than conduit systems. When maintenance is necessary, it proves easier, less labour intensive, and requires less time to complete.

First class support
ABB combines global market leadership with local product & technical support, either through our network of distributors, or via ABB sales office in your country.







Perforated tray & accessories

Perforated tray & accessories Overview

Perforated tray is available in four material types for maximum versatility in installation.

Material types
Aluminium
Steel (pre-galvanized, hot dip galvanized and stainless steel grades 304 and 316)

Perforated tray has four duty types with differing siderail heights
- 25 mm (medium duty), 50 mm (heavy duty), 75 mm (extra heavy duty) and 100 mm (ultra heavy duty).

This design permits specification across the widest possible range of projects with each duty type including the standard perforation pattern.

Note: cable tray edges and welds are rounded and smoothed during manufacture to prevent cable damage. Care should be taken when handling cable tray and protective gloves should be worn to avoid risk of injury.

Aluminium (to 1050 H14)
Aluminium 1050 H14 alloy for lightweight construction, excellent corrosion resistance, and high strength-to-weight ratio. Aluminium cable tray offers simple installation and low maintenance.

Pre-galvanized steel (to BS EN 10142 & BS EN 10143)
Steel is ideal as a high strength, low cost material for cable tray. Pre-galvanized steel tray is produced by passing the low-carbon steel through molten zinc before fabrication, and is generally recommended for indoor commercial applications rather than outdoor or industrial environments.

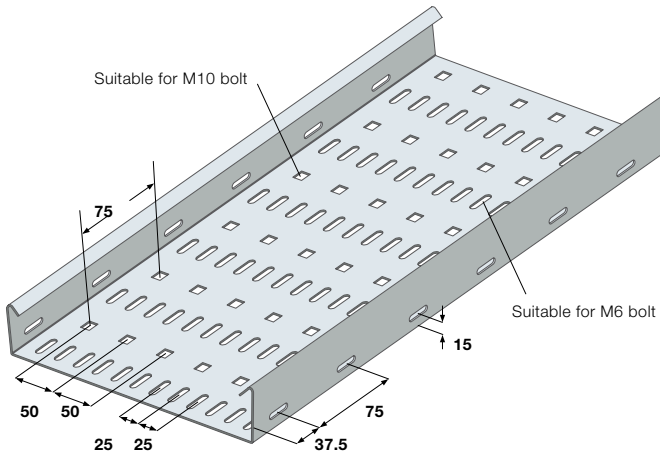
Hot dip galvanized steel (to BS EN ISO 1461 or ASTM A123)
Hot dip galvanized steel tray is produced by immersing the fabricated tray in molten zinc, creating a much thicker coating than pre-galvanized. This process is recommended for most outdoor and harsh industrial applications.

Stainless steel (to AISI Type 316 or 304)
Stainless steel offers high strength and high resistance to chemicals, even at high ambient temperatures. T&B stainless steel cable tray is roll-formed from AISI Type 316 or 304 stainless steel.

Conforms to BSEN 61537:2006

Perforation pattern
The pattern used on perforated tray has been specifically designed to meet market expectations and to ensure all component parts can be quickly and easily coupled together, keeping installation time to a minimum.

Included in the pattern are burr free slots and squares for securing barrier strips, mounts and supports, and also for securing Ty-Rap® cable ties when bundling cable.



Perforated tray & accessories
Straight section

Straight sections are available in aluminium, or steel in a range of finishes, and are supplied complete with standard coupler and tray hardware.

Features & benefits
- High quality manufacturing delivers enhanced system rigidity
- Choice of aluminium, pre-galvanized, hot dip galvanized, or stainless (304 or 316) steel
- Siderails include return flange for increased strength, safety, enhanced aesthetics and customer appeal
- Siderail heights from 25 mm to 100 mm for medium to ultra heavy duty applications
- Extensive range of tray widths, from 50 mm to 900 mm
- Aluminium & hot dipped galvanized perforated cable tray's are UL certified to be used as an equipment grounding conductor

Product selection - straight section

Straight section part numbers are created using a range of selection criteria. Determine the most suitable perforated tray type based on the parameters shown, then use the table below to create the exact part number for your needs.

IMPORTANT NOTE: When specifying perforated tray, note that the tray width must always be greater than the siderail height. For example, medium duty tray with 25 mm siderail can have tray widths from 50 mm to 900 mm as per the table below, whereas for heavy duty tray with 50 mm siderail, tray width starts at 75 mm, and so on for extra heavy duty (75 mm siderail/minimum width 100 mm) and ultra heavy duty (100 mm siderail/minimum width 150 mm).

Straight section

Select the preferred component parts and create the specific part number as per the example shown.

Material		Siderail height		Tray width		Type		Material thickness*		Length	
ALP	Aluminium	25	25 mm	50	50 mm	SL	Straight section	12	1.2 mm	3	3 m
SPP	Pre-galvanized steel	50	50 mm	75	75 mm			15	1.5 mm		
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm			20	2 mm		
SS4P	Stainless steel 304	100	100 mm	150	150 mm						
SS6P	Stainless steel 316			225	225 mm						
				300	300 mm						
				450	450 mm						
				600	600 mm						
				750	750 mm						
				900	900 mm						

Example: SHP75450SL153

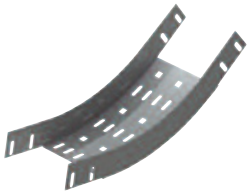
* Medium duty perforated tray (25 mm siderail) is supplied with a material thickness of 1 mm for tray widths 50 mm to 225 mm, and 1.5 mm for tray widths 300 mm to 900 mm. Heavy to ultra heavy duty perforated tray (50 mm, 75 mm and 100 mm siderail) is supplied with a material thickness of 1.5 mm for tray widths 75 mm to 300 mm, and 2 mm for tray widths 450 mm to 900 mm.

Other thicknesses are available on request

Fittings
Fittings for Perforated tray

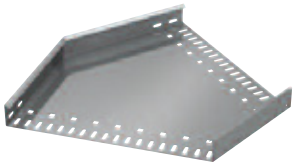
Fittings enable a perforated tray system to change direction, elevation or size in order to meet building design and cable run constraints.

Features & benefits
- All fittings follow a simple, functional design with connection points at all siderail ends for attachment to straight sections/couplers
- Easy to install with straightforward alignment between straight sections and fittings
- Available in all material types - aluminium, pre-galvanized, hot dip galvanized and stainless (304 or 316) steel
- Siderail heights from 25 mm to 100 mm
- Extensive range of tray widths from 50 mm to 900 mm
- Lightweight design for easy handling on-site
- Aluminium & hot dipped galvanized perforated cable tray's are UL certified to be used as an equipment grounding conductor



Range of fittings
A full suite of fittings ensures the cable tray system can be planned to fit building and cable run constraints within all types of installation.

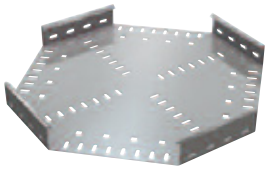
The full range includes:
- Horizontal bends - from 30° to 90°
- Vertical bends - inside and outside bends from 30° to 90°
- Horizontal tee
- Horizontal cross
- Straight, left or right reducer



All perforated tray components have been designed to allow a cable bend radius of 300 mm, to simplify planning, design and installation.

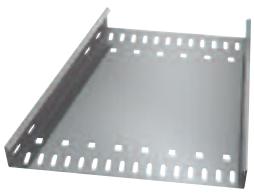
Fittings with radius are available upon request.

Product selection - fittings
Fitting part numbers are based on a range of selection criteria, dependent on the type of fitting and the role undertaken in the cable tray system.



Over the following pages, the selection criteria for each fitting type is established in table form.

Specifiers should choose the appropriate component part from the lists in the tables and create the part number following the example shown.



Fittings
Horizontal bend

Horizontal bend 30° / 45° / 60° / 90°

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Material		Siderail height		Tray width		Fitting type		Length	
ALP	Aluminium	25	25 mm	50	50 mm	HB	Horizontal bend	30	30°
SPP	Pre-galvanized steel	50	50 mm	75	75 mm			45	45°
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm			60	60°
SS4P	Stainless steel 304	100	100 mm	150	150 mm			90	90°
SS6P	Stainless steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				
				750	750 mm				
				900	900 mm				

Example: ALP50300HB45

Horizontal adjustable bend

Adjustable elbow can be fixed to any desired angle to suit site requirements.

Material		Siderail height		Tray width		Fitting type	
ALP	Aluminium	25	25 mm	50	50 mm	HAB	Horizontal Adjustable bend
SPP	Pre-galvanized steel	50	50 mm	75	75 mm		
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm		
SS4P	Stainless steel 304	100	100 mm	150	150 mm		
SS6P	Stainless steel 316			225	225 mm		
				300	300 mm		
				450	450 mm		
				600	600 mm		
				750	750 mm		
				900	900 mm		

Example: SHP50450HAB

Fittings
Vertical bends

Vertical bends enable the cable tray system to change direction to a different plane.

An inside vertical bend changes direction upward from the horizontal plane. An outside vertical bend changes direction downward from the horizontal plane.

Vertical bends are available in all material types, siderail heights and tray widths to match straight sections.

Available with angles of 30°, 45°, 60° or 90°

Vertical bend
Select the preferred component parts and create the specific part number as per the example shown.

Material		Siderail height		Tray width		Fitting type		Length	
ALP	Aluminium	25	25 mm	50	50 mm	VI	Vertical inside bend	30	30°
SPP	Pre-galvanized steel	50	50 mm	75	75 mm	VO	Vertical outside bend	45	45°
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm			60	60°
SS4P	Stainless steel 304	100	100 mm	150	150 mm			90	90°
SS6P	Stainless steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				
				750	750 mm				
				900	900 mm				

Example: ALP50300VI45

Inside bend

90°

60°

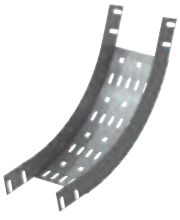
45°

30°

Outside bend

90°

60°



45°

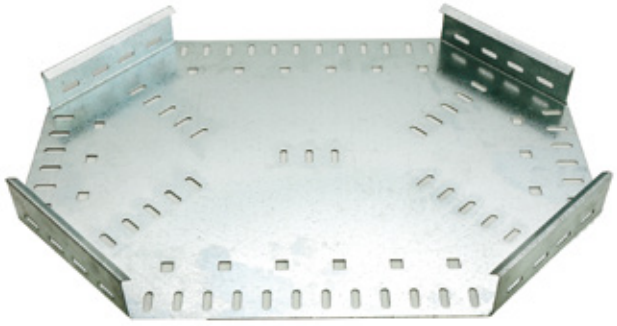
30°

Fittings
Vertical Adjustable bends

Vertical adjustable bend

Material		Siderail height		Tray width		Fitting type	
ALP	Aluminium	25	25 mm	50	50 mm	VIA	Vertical Inside Adjustable bend
SPP	Pre-galvanized steel	50	50 mm	75	75 mm		
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm		
SS4P	Stainless steel 304	100	100 mm	150	150 mm		
SS6P	Stainless steel 316			225	225 mm		
				300	300 mm		
				450	450 mm		
				600	600 mm		
				750	750 mm		
				900	900 mm		

Example : SHP50100VIA



Horizontal unequal cross

For Unequal Cross specify the widths as W1,W2,W3,W4 in anti-clockwise direction as shown in the fig.
Thickness for Unequal Cross to be followed of the larger size.

Material		Siderail height		Tray width 1		Tray width 2		Fitting type	
ALP	Aluminium	25	25 mm	50	50 mm	50	50 mm	UX	Unequal Cross
SPP	Pre-galvanized steel	50	50 mm	75	75 mm	75	75 mm		
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm	100	100 mm		
SS4P	Stainless steel 304	100	100 mm	150	150 mm	150	150 mm		
SS6P	Stainless steel 316			225	225 mm	225	225 mm		
				300	300 mm	300	300 mm		
				450	450 mm	450	450 mm		
				600	600 mm	600	600 mm		
				750	750 mm	750	750 mm		
				900	900 mm	900	900 mm		

Example: SHP50450300UX

Fittings
Tees & crosses

Horizontal tees and crosses enable joints to be made in the cable tray system at 90° angles, in the same plane.

Available in all material types, siderail heights and tray widths to match straight sections.

Horizontal tee & cross

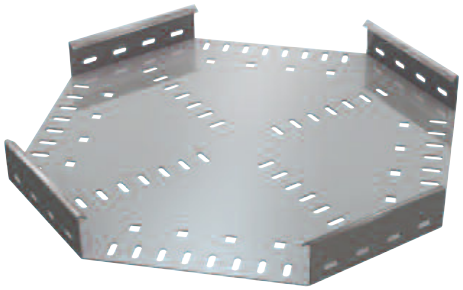
Select the preferred component parts and create the specific part number as per the example shown.

Material		Siderail height		Tray width		Fitting type	
ALP	Aluminium	25	25 mm	50	50 mm	HT	Horizontal tee
SPP	Pre-galvanized steel	50	50 mm	75	75 mm	HX	Horizontal cross
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm		
SS4P	Stainless steel 304	100	100 mm	150	150 mm		
SS6P	Stainless steel 316			225	225 mm		
				300	300 mm		
				450	450 mm		
				600	600 mm		
				750	750 mm		
				900	900 mm		

Example: SS6P100750HT

Horizontal tee

Horizontal cross



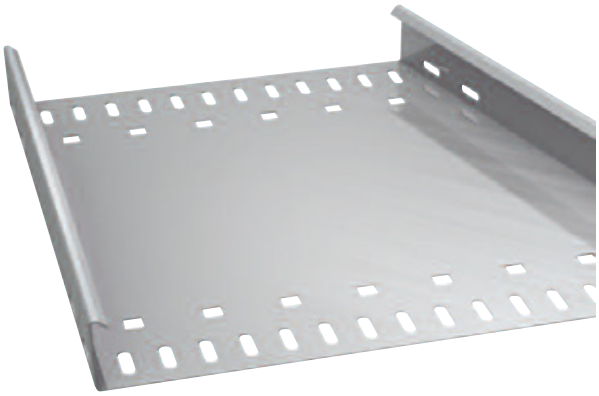
Fittings
Reducers

Reducers enable joins to be made in the cable tray system to fittings or straight sections of different widths, in the same plane.

An offset reducer has the reduction set to a single side (right or left). A straight reducer has two symmetrical offset sides.

Available in all material types, siderail heights and tray widths to match straight sections.

– For reduction, tray width 2 should be less than tray width 1



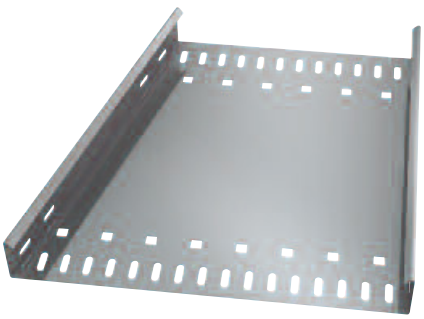
Reducer

Select the preferred component parts and create the specific part number as per the example shown.

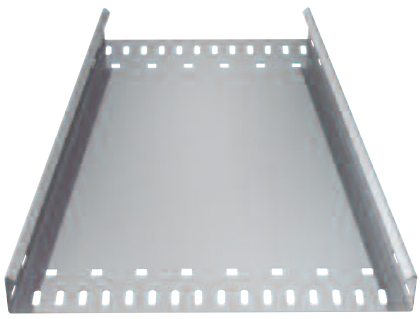
Material		Siderail height		Tray width 1		Tray width 2		Fitting type	
ALP	Aluminium	25	25 mm	75	75 mm	50	50 mm	SR	Straight reducer
SPP	Pre-galvanized steel	50	50 mm	100	100 mm	75	75 mm	LR	Offset reducer -left
SHP	Hot dip galvanized steel	75	75 mm	150	150 mm	100	100 mm	RR	Offset reducer -right
SS4P	Stainless steel 304	100	100 mm	225	225 mm	150	150 mm		
SS6P	Stainless steel 316			300	300 mm	225	225 mm		
				450	450 mm	300	300 mm		
				600	600 mm	450	450 mm		
				750	750 mm	600	600 mm		
				900	900 mm	750	750 mm		

Example : SHP50100VIA

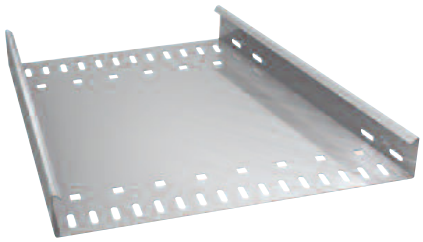
Reducer Right



Reducer Straight



Reducer Left



Fittings
Covers

Tray covers are available for all cable tray widths and material types, in solid flanged or ventilated flanged format.

Covers provide mechanical protection to cable runs and should be installed where falling objects may damage cables or where vertical tray run is accessible by pedestrian or vehicular traffic.

Solid flanged covers provide maximum mechanical protection for cables which have limited heat build up. Ventilated flanged covers offer excellent mechanical protection whilst allowing heat produced by cables to dissipate through vents in the surface.

Both solid and ventilated covers include a 15 mm (nominal) flange which enables easy location of the cover above the tray.

Note: cover mounting hardware must be ordered separately for all cover types.

Product selection - covers

Cover part numbers are based on a range of selection criteria, dependent on the type of cover required, and the need to cover straight sections or fittings.

The tables shown below and over the following pages establish the selection criteria for each cover type. Specifiers should choose the appropriate component part from the lists shown in the tables and create the part number following the example shown.

Cover - straight section

Select the preferred component parts and create the specific part number as per the example shown.

Material		Tray width		Cover type		Length	
ALP	Aluminium	50	50 mm	SFC	Solid flanged cover	3	3 m
SPP	Pre-galvanized steel	75	75 mm	VFC	Ventilated flanged cover		
SHP	Hot dip galvanized steel	100	100 mm				
SS4P	Stainless steel 304	150	150 mm				
SS6P	Stainless steel 316	225	225 mm				
		300	300 mm				
		450	450 mm				
		600	600 mm				
		750	750 mm				
		900	900 mm				

Example: SPP75SFC-3

Note: Standard thickness of cover 1mm

Fittings
Covers

Cover - horizontal bend & vertical inside bend

Select the preferred component parts and create the specific part number as per the example shown.

Material		Tray width		Cover type		Fitting type		Angle	
ALP	Aluminium	50	50 mm	SFC	Solid flanged cover	HB	Horizontal bend	30	30º
SPP	Pre-galvanized steel	75	75 mm	VFC	Ventilated flanged cover	VI	Vertical inside bend	45	45º
SHP	Hot dip galvanized steel	100	100 mm					60	60º
SS4P	Stainless steel 304	150	150 mm					90	90º
SS6P	Stainless steel 316	225	225 mm						
		300	300 mm						
		450	450 mm						
		600	600 mm						
		750	750 mm						
		900	900 mm						

Example: SHP75SFCHB45

Cover - vertical outside bend

Select the preferred component parts and create the specific part number as per the example shown.

Material		Siderail height		Tray width		Cover type		Fitting type		Angle	
ALP	Aluminium	25	25 mm	50	50 mm	SFC	Solid flanged cover	VO	Vertical outside bend	30	30º
SPP	Pre-galvanized steel	50	50 mm	75	75 mm	VFC	Ventilated flanged cover			45	45º
SHP	Hot dip galvanized steel	75	75 mm	100	100 mm					60	60º
SS4P	Stainless steel 304	100	100 mm	150	150 mm					90	90º
SS6P	Stainless steel 316			225	225 mm						
				300	300 mm						
				450	450 mm						
				600	600 mm						
				750	750 mm						
				900	900 mm						

Example: ALP2575SFCVO90

Note: Other thicknesses are available on request

Fittings
Covers

Cover - reducer

Select the preferred component parts and create the specific part number as per the example shown.

Material		Tray width 1		Tray width 2		Cover type		Fitting type	
ALP	Aluminium	75	75 mm	50	50 mm	SFC	Solid flanged cover	SR	Straight reducer
SPP	Pre-galvanized steel	100	100 mm	75	75 mm	VFC	Ventilated flanged cover	LR	Offset reducer - left
SHP	Hot dip galvanized steel	150	150 mm	100	100 mm			RR	Offset reducer - right
SS4P	Stainless steel 304	225	225 mm	150	150 mm				
SS6P	Stainless steel 316	300	300 mm	225	225 mm				
		450	450 mm	300	300 mm				
		600	600 mm	450	450 mm				
		750	750 mm	600	600 mm				
		900	900 mm	750	750 mm				

Example: ALP2575SFCVO90

Note: for reduction, tray width 2 should be less than tray width 1.

Cover - horizontal tee & cross

Select the preferred component parts and create the specific part number as per the example shown.

Material		Tray width		Cover type		Fitting type	
ALP	Aluminium	50	50 mm	SFC	Solid flanged cover	HT	Horizontal tee
SPP	Pre-galvanized steel	75	75 mm	VFC	Ventilated flanged cover	HX	Horizontal cross
SHP	Hot dip galvanized steel	100	100 mm				
SS4P	Stainless steel 304	150	150 mm				
SS6P	Stainless steel 316	225	225 mm				
		300	300 mm				
		450	450 mm				
		600	600 mm				
		750	750 mm				
		900	900 mm				

Example: SS4P75SFCHT

Note: Other thicknesses are available on request

Fittings
Accessories

Accessories and supports supplement installation of straight sections, covers and fittings.

Accessories enable clamping of covers, separation of cables within trays and variable mounting, support and suspension of the perforated tray system.

Quantity of standard cover brackets required:

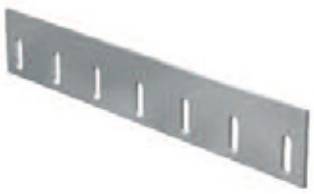
Straight section	6 pieces
Horizontal and vertical bends	4 pieces
Tees	6 pieces
Crosses	8 pieces

Note: when using the heavy duty cover clamp, only half the quantity of pieces are required.

IMPORTANT NOTE: tray hardware, where included with accessories, is supplied in electro-galvanized format. Stainless steel hardware is available through addition of a suffix, as noted with each applicable accessory.

Straight coupler

For connecting straight sections to fittings and other straight sections. Electro-galvanized hardware included as standard.



Part No.	Material	Part No. variable (*)
ALP-(*)-SSP	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-SSP	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-SSP	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-SSP	Stainless steel 304	75 = 75 mm
SS6P-(*)-SSP	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.
Example: ALP-25-SSP-S4 = 25 mm siderail coupler with stainless steel 304 hardware.

Reducer coupler

For connections between straight sections and fittings or other straight sections, with varying tray widths. Electro-galvanized hardware included as standard.

Part No.	Material	Part No. variable (*)	Part No. variable (+)
ALP-(*)-(+)-RSP	Aluminium	Replace (*) with reference for siderail height:	Replace (+) with reduction amount, eg:
SPP-(*)-(+)-RSP	Steel (pre-galvanized)	25 = 25 mm	25 = 25 mm
SHP-(*)-(+)-RSP	Steel (hot dip galvanized)	50 = 50 mm	300 = 300 mm etc
SS4P-(*)-(+)-RS	Stainless steel 304	75 = 75 mm	
SS6P-(*)-(+)-RSP	Stainless steel 316	100 = 100 mm	

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.
Example: ALP-25-300-RSP-S4 = 25 mm siderail reducer coupler with stainless steel 304 hardware.

Expansion coupler

For connecting straight sections to fittings and other straight sections allowing for up to 25 mm expansion of the perforated cable tray system.

Part No.	Material	Part No. variable (*)
ALP-(*)-ESP	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-ESP	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-ESP	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-ESP	Stainless steel 304	75 = 75 mm
SS6P-(*)-ESP	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.
Example: ALP-25-ESP-S4 = 25 mm siderail expansion coupler with stainless steel 304 hardware.

Fittings
Accessories

45º Cranked coupler

For connections between straight sections and fittings or other straight sections, at 45º. Electro-galvanized hardware included as standard.

Part No.	Material	Part No. variable (*)
ALP-(*)-CCP	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-CCP	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-CCP	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-CCP	Stainless steel 304	75 = 75 mm
SS6P-(*)-CCP	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.

Example: ALP-25-CCP-S4 = 25 mm siderail cranked coupler with stainless steel 304 hardware.

45º Cranked reducer coupler

For connections between straight sections and fittings or other straight sections with reduced tray widths, at a 45º angle. Electrogalvanized hardware included as standard.

Part No.	Material	Part No. variable (*)	Part No. variable (+)
ALP-(*)-(+)-CRP	Aluminium	Replace (*) with reference for siderail height:	Replace (+) with reduction amount, eg:
SPP-(*)-(+)-CRP	Steel (pre-galvanized)	25 = 25 mm	25 = 25 mm
SHP-(*)-(+)-CRP	Steel (hot dip galvanized)	50 = 50 mm	300 = 300 mm etc
SS4P-(*)-(+)-CRP	Stainless steel 304	75 = 75 mm	
SS6P-(*)-(+)-CRP	Stainless steel 316	100 = 100 mm	

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.

Example: ALP-25-300-CRP-S4 = 25 mm siderail cranked reducer coupler with stainless steel 304 hardware.

Horizontal adjustable coupler

For connecting straight sections to fittings and other straight sections at an angle in the horizontal plane. Electro-galvanized hardware included as standard.

Part No.	Material	Part No. variable (*)
ALP-(*)-HAP	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-HAP	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-HAP	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-HAP	Stainless steel 304	75 = 75 mm
SS6P-(*)-HAP	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.

Example: ALP-25-HAP-S4 = 25 mm siderail horizontal adjustable coupler with stainless steel 304 hardware.

Vertical adjustable coupler

For connecting straight sections to fittings and other straight sections at an angle in the vertical plane. Electro-galvanized hardware included as standard.

Part No.	Material	Part No. variable (*)
ALP-(*)-VSP	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-VSP	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-VSP	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-VSP	Stainless steel 304	75 = 75 mm
SS6P-(*)-VSP	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.

Example: ALP-25-VSP-S4 = 25 mm siderail vertical adjustable coupler with stainless steel 304 hardware.

Fittings
Accessories

Cover bracket
For securing covers to straight sections and fittings, with flush fit. Order hardware separately.

Part No.	Material	Part No. variable (*)
ALP-(*)-SCC	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-SCC	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-SCC	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-SCC	Stainless steel 304	75 = 75 mm
SS6P-(*)-SCC	Stainless steel 316	100 = 100 mm

Raised cover bracket
For securing covers to straight sections and fittings, whilst allowing a nominal 25 mm gap for additional ventilation. Order hardware separately.

Part No.	Material	Part No. variable (*)
ALP-(*)-RCC	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-RCC	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-RCC	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-RCC	Stainless steel 304	75 = 75 mm
SS6P-(*)-RCC	Stainless steel 316	100 = 100 mm

Heavy duty cover clamp
Wraparound design offers added protection for rugged applications. Electro-galv. hardware included.

Part No.	Material	Part No. variable (*)	Part No. variable (+)
ALP-(*)(+)-HCC	Aluminium	Replace (*) with reference for siderail height:	Replace (+) with reduction amount, eg:
SPP-(*)(+)-HCC	Steel (pre-galvanized)	25 = 25 mm	50 = 50 mm 75 = 75 mm
SHP-(*)(+)-HCC	Steel (hot dip galvanized)	50 = 50 mm	100 = 100 mm 150 = 150 mm
SS4P-(*)(+)-HCC	Stainless steel 304	75 = 75 mm	225 = 225 mm 300 = 300 mm
SS6P-(*)(+)-HCC	Stainless steel 316	100 = 100 mm	450 = 450 mm 600 = 600mm
			750 = 750 mm 900 = 900 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No.
Example: ALP-25300-HCC-S4 = cover clamp with stainless steel 304 hardware.

Hold down clamp
Designed to secure perforated cable tray to support system. Electro-galvanized hardware included as standard.

Part No.	Material	Part No. variable (*)
ALP-(*)-HDC	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-HDC	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-HDC	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-HDC	Stainless steel 304	75 = 75 mm
SS6P-(*)-HDC	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No. Example: ALP-25-HDC-S4 = 25 mm siderail hold down clamp with stainless steel 304 hardware.

Fittings
Accessories

Barrier strip

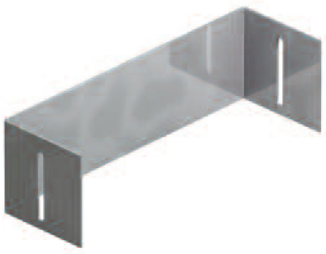
Barrier strips provide a method of separating cables in tray systems. Easily installed using supplied electro-galvanized hardware. Length 3 m.

Part No.	Material	Part No. variable (*)
ALP-(*)-SBH-3	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-SBH-3	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-SBH-3	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-SBH-3	Stainless steel 304	75 = 75 mm
SS6P-(*)-SBH-3	Stainless steel 316	100 = 100 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No. Example: ALP-25-SBH-3-S4 = 25 mm siderail barrier strip with stainless steel 304 hardware.

Closure end plate

Provides closure to any tray end. Electro-galvanized hardware included.



Part No.	Material	Part No. variable (*)	Part No. variable (+)
ALP-(*)(+)-CEP	Aluminium	Replace (*) with reference for siderail height:	Replace (+) with reduction amount, eg:
SPP-(*)(+)-CEP	Steel (pre-galvanized)	25 = 25 mm	50 = 50 mm 75 = 75 mm
SHP-(*)(+)-CEP	Steel (hot dip galvanized)	50 = 50 mm	100 = 100 mm 150 = 150 mm
SS4P-(*)(+)-CEP	Stainless steel 304	75 = 75 mm	225 = 225mm 300 = 300 mm
SS6P-(*)(+)-CEP	Stainless steel 316	100 = 100 mm	450 = 450 mm 600 = 600 mm
			750 = 750 mm 900 = 900 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No. Example: ALP-25150-CEP-S4 = closure end plate with stainless steel 304 hardware.

Drop-out

Designed to provide a smooth radiused surface at any position on the tray bottom. Drop-outs are easily attached using electro-galvanized hardware provided. Nominal radius 100 mm.

Part No.	Material	Part No. variable (*)
ALP-(*)-DO	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-DO	Steel (pre-galvanized)	50 = 50 mm 75 = 75 mm 100 = 100 mm
SHP-(*)-DO	Steel (hot dip galvanized)	150 = 150 mm 225 = 225 mm 300 = 300 mm
SS4P-(*)-DO	Stainless steel 304	450 = 450 mm 600 = 600 mm 750 = 750 mm
SS6P-(*)-DO	Stainless steel 316	900 = 900 mm

Note: to order stainless steel hardware, add suffix -S4 (stainless steel 304), or -S6 (stainless steel 316) to Part No. Example: ALP-600-DO-S4 = drop-out with stainless steel 304 hardware.

Vertical tray hanger

For suspension of vertically hanging perforated tray. Requires threaded rod and hardware (order separately).

Part No.	Material	Part No. variable (*)
ALP-(*)-VTH	Aluminium	Replace (*) with reference for siderail height:
SPP-(*)-VTH	Steel (pre-galvanized)	25 = 25 mm
SHP-(*)-VTH	Steel (hot dip galvanized)	50 = 50 mm
SS4P-(*)-VTH	Stainless steel 304	75 = 75 mm
SS6P-(*)-VTH	Stainless steel 316	100 = 100 mm

Fittings
Accessories

Fish plate
Roofing Bolt M6 x 12, nuts & washers are used for fastening.

Bonding jumper

Part No.	
FBJ	C4 x 100
FBJ	C16 x 100

Area: 16 mm2. Length: 112 mm centre to centre
Bonding jumper for earthing connectivity of cable tray is produced from braided tinned copper with M6 copper lugs on both sides. M6 x 12 roofing bolts,nuts and washer are used. To be ordered separately.

Fittings
Accessories

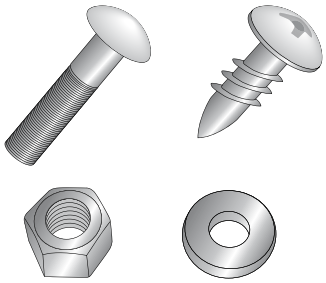
Trapeze kit

Trapeze kits are designed to support various cable tray widths in a suspending installation. Kit includes strut (cut to length) and all appropriate hardware including hex nuts, screws and washers. Uses 1/2” threaded rod (order separately).

Part No.	Material	Part No. variable (*)
WSP-(*)-TPK	Steel (pre-galvanized)	Replace (*) with reference for siderail height:
WSH-(*)-TPK	Steel (hot dip galvanized)	50 = 50 mm 75 = 75 mm 100 = 100 mm
WSS-(*)-TPK	Stainless steel 316*	150 = 150 mm 225 = 225 mm 300 = 300 mm
		450 = 450 mm 600 = 600 mm 750 = 750 mm
		900 = 900 mm

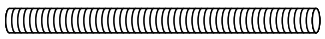
* Stainless steel 304 available to special order.

Tray hardware



Part No.	Material	Part No. variable (*)
(*)-M616-RHB	M6 x 16 round head bolt	Replace (*) with reference for material:
(*)-M616-HN	M6 hex. nut	SPP = Zinc plated steel
(*)-M6-FW	M6 flat washer	SS4P = Stainless steel 304
(*)-M616-HWK	Hardware kit inc. 8 nuts,	SS6P = Stainless steel 316
	8 bolts & 8 flat washers	
WSP-10-SCR	Self-drilling tapping screw	Material : zinc plated steel

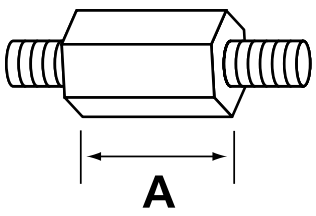
Threaded rod



Part No.	Size	Threads/inch	Design load	Part No. variable (*)
H104-1/4x3(*)	1/4”	20	68 kg (150 lb)	Replace (*) with reference for material type:
H104-3/8x3(*)	3/8”	16	277 kg (610 lb)	EG = Electro-galvanized
H104-1/2x3(*)	1/2”	13	513 kg (1130 lb)	HDG = Hot dip galvanized
H104-5/8x3(*)	5/8”	11	822 kg (1810 lb)	SS4 = Stainless steel 304
H104-3/4x3(*)	3/4”	10	1231 kg (2710 lb)	SS6 = Stainless steel 316
H104-7/8x3(*)	7/8”	9	1713 kg (3770 lb)	
H104-1x3(*)	1”	8	2254 kg (4960 lb)	

Standard length 3 m. Rod available in metric sizes to special order - contact Thomas & Betts.

Vertical tray hanger



Part No.	Rod size	A	Part No. variable (*)
H119-1/4(*)	1/4”	7/8”	Replace (*) with reference for material type:
H119-5/16(*)	5/16”	7/8”	EG = Electro-galvanized
H119-3/8(*)	3/8”	1 1/8”	HDG = Hot dip galvanized
H119-1/2(*)	1/2”	1 1/4”	SS4 = Stainless steel 304
H119-5/8(*)	5/8”	2 1/8”	SS6 = Stainless steel 316
H119-3/4(*)	3/4”	2 1/4”	
H119-7/8(*)	7/8”	2 1/2”	
H119-1(*)	1”	2 1/4”	

Coupling available in metric sizes to special order - contact Thomas & Betts.

Trunking & accessories

Trunking & accessories
Cable trunking & accessories

T&B Metal Trunking has a versatile design to suit the client's requirements for laying any sensitive cables, instrument cables, and light duty electrical cables for industrial and commercial buildings, malls, Airports etc.

T&B Metal Trunking are manufactured from various metals like Aluminum, Pre-Galvanized Steel, Hot Dip Galvanized Steel, Stainless Steel 304 & 316L etc. Other choices of finishes are available like with Powder coated finish of various colors as per the project requirements. Our Trunking covers are fixed with screws for ensuring the rigidity of the system and comes with the various type of fittings and accessories to suit the project site requirements.

Extensive product range
T&B Metal Trunking comes in various thicknesses from 1.0mm, 1.5mm & 2mm. Other thicknesses are available upon request. T&B Metal Trunking widths ranges from 50mm, 75mm, 100mm, 150mm, 225mm, 300mm, 450mm, 600mm, 750mm, 900mm etc. Other widths are available upon request.

T&B Metal Trunking heights ranges from 50mm, 75mm, 100mm etc. Other heights are available upon request.

T&B Metal Trunking conforms to BS 4678 Part 1.

Enhanced safety
T&B Metal Trunking offers enhanced safety with lower risk of exposure to live, energized parts.

In metal trunking system, cables can be pulled from near one termination enclosure to the next before being connected, rather than being pulled through conduit after the cable is terminated.

Increased adaptability
Businesses must remain flexible - to be able to expand facilities quickly, or introduce new processes or product lines as markets dictate. Our metal trunking offers a major advantage in being highly adaptable to meet new needs and technology, with no need to replace the system with each new development. Modifications or expansions are achieved quickly as cables can enter or exit the tray at any point, thus keeping business disruption and downtime to a minimum.

Reduced costs
Reliability and adaptability coupled with ease of maintenance result in metal trunking systems delivering many types of cost saving, including:

Lower installation, engineering and maintenance costs Lower need to reconfigure the system as needs change Reduced downtime for electrical and data handling systems Fewer environmental problems resulting from loss of power to essential equipment

Low maintenance
Metal trunking wiring systems have a lower maintenance demand than conduit systems. When maintenance is necessary, it proves easier, less labour intensive, and requires less time to complete.

First class support
ABB combines global market leadership with local product & technical support, either through our network of distributors, or via ABB sales office in your country.

Trunking & accessories
Cable trunking & accessories

Straight section cable trunking

Material		Siderail height		Tray width		Type		Material thickness		Length	
ALT	Aluminum	50	50 mm	50	50 mm	SL	Straight section	10	1.0 mm	3	3M
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			15	1.5 mm		
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			20	2.0 mm		
SS4T	Stainless Steel 304			150	150 mm						
SS6T	Stainless Steel 316			225	225 mm						
				300	300 mm						
				450	450 mm						
				600	600 mm						
				750	750 mm						
				900	900 mm						

Example: SS4P75SFCHT

Horizontal tee

Material		Siderail height		Tray width		Type	
ALT	Aluminum	50	50 mm	50	50 mm	HT	Horizontal tee
SPT	Pre-galvanized steel	75	75 mm	75	75 mm		
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm		
SS4T	Stainless Steel 304			150	150 mm		
SS6T	Stainless Steel 316			225	225 mm		
				300	300 mm		
				450	450 mm		
				600	600 mm		

Example: SS6T50100HT

Trunking & accessories

Cable trunking & accessories

Horizontal bend

Angle 30º, 45º, 60º & 90º

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Material		Siderail height		Tray width		Fitting Type		Angle	
ALT	Aluminum	50	50 mm	50	50 mm	HB	Horizontal bend	30	30º
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			45	45º
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			60	60º
SS4T	Stainless Steel 304			150	150 mm			90	90º
SS6T	Stainless Steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				

Example: ALT50300HB45

Horizontal cross

Material		Siderail height		Tray width		Type	
ALT	Aluminum	50	50 mm	50	50 mm	HX	Horizontal cross
SPT	Pre-galvanized steel	75	75 mm	75	75 mm		
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm		
SS4T	Stainless Steel 304			150	150 mm		
SS6T	Stainless Steel 316			225	225 mm		
				300	300 mm		
				450	450 mm		
				600	600 mm		

Example: SS4T50300HX

Trunking & accessories
Cable trunking & accessories

Vertical inside bend

Material		Siderail height		Tray width		Fitting Type		Angle	
ALT	Aluminum	50	50 mm	50	50 mm	VI	Vertical inside bend	30	30°
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			45	45°
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			60	60°
SS4T	Stainless Steel 304			150	150 mm			90	90°
SS6T	Stainless Steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				

Example: ALT50300VI45

Vertical outside bend

Material		Siderail height		Tray width		Fitting Type		Angle	
ALT	Aluminum	50	50 mm	50	50 mm	VO	Vertical outside bend	30	30°
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			45	45°
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			60	60°
SS4T	Stainless Steel 304			150	150 mm			90	90°
SS6T	Stainless Steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				

Example: ALT50300VO45

Trunking & accessories
Cable trunking & accessories

Reducer

SR - Straight reducer

LR - Offset reducer- Left

RR - Offset reducer- reducer

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Material		Siderail height		Tray width 1		Tray width 2		Fitting Type	
ALT	Aluminum	50	50 mm	75	75 mm	50	50 mm	SR	Straight reducer
SPT	Pre-galvanized steel	75	75 mm	100	100 mm	75	75 mm	LR	Offset reducer- Left
SHT	Hot dip galvanized steel	100	100 mm	150	150 mm	100	100 mm	RR	Offset reducer- Reducer
SS4T	Stainless Steel 304			225	225 mm	150	150 mm		
SS6T	Stainless Steel 316			300	300 mm	225	225 mm		
				450	450 mm	300	300 mm		
				600	600 mm	450	450 mm		

Example: ALT50300150SR

Reducer tee

Material		Siderail height		Tray width 1		Tray width 2		Fitting Type	
ALT	Aluminum	50	50 mm	75	75 mm	50	50 mm	RT	Reducer tee
SPT	Pre-galvanized steel	75	75 mm	100	100 mm	75	75 mm		
SHT	Hot dip galvanized steel	100	100 mm	150	150 mm	100	100 mm		
SS4T	Stainless Steel 304			225	225 mm	150	150 mm		
SS6T	Stainless Steel 316			300	300 mm	225	225 mm		
				450	450 mm	300	300 mm		
				600	600 mm	450	450 mm		

Example: SS6T100300150RT

Trunking & accessories

Cable trunking & accessories

Expanding tee

Material		Siderail height		Tray width 1		Tray width 2		Fitting Type	
ALT	Aluminum	50	50 mm	50	50 mm	75	75 mm	SR	Straight reducer
SPT	Pre-galvanized steel	75	75 mm	75	75 mm	100	100 mm	LR	Offset reducer- Left
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm	150	150 mm	RR	Offset reducer- Reducer
SS4T	Stainless Steel 304			150	150 mm	225	225 mm		
SS6T	Stainless Steel 316			225	225 mm	300	300 mm		
				300	300 mm	450	450 mm		
				450	450 mm	600	600 mm		

Example: SS6T100150300ET

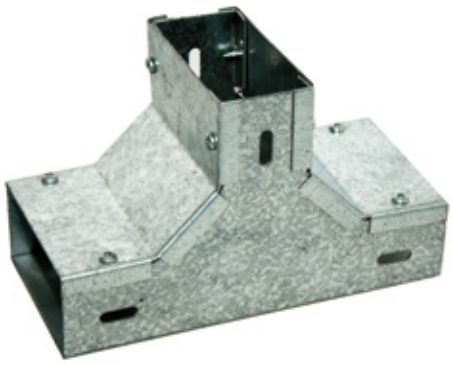
Vertical tee down

Material		Siderail height		Tray width 1		Fitting Type
ALT	Aluminum	50	50 mm	50	50 mm	Vertical tee down
SPT	Pre-galvanized steel	75	75 mm	75	75 mm	
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm	
SS4T	Stainless Steel 304			150	150 mm	
SS6T	Stainless Steel 316			225	225 mm	
				300	300 mm	
				450	450 mm	
				600	600 mm	

Example: ALT50300VTD

Trunking & accessories
Cable trunking & accessories

Vertical tee up



Material		Siderail height		Tray width 1		Fitting Type
ALT	Aluminum	50	50 mm	75	75 mm	Vertical tee up
SPT	Pre-galvanized steel	75	75 mm	100	100 mm	
SHT	Hot dip galvanized steel	100	100 mm	150	150 mm	
SS4T	Stainless Steel 304			225	225 mm	
SS6T	Stainless Steel 316			300	300 mm	
				450	450 mm	
				600	600 mm	

Example: ALT50300VTU

Vertical inside bend

Material		Siderail height		Tray width		Fitting Type		Angle	
ALT	Aluminum	50	50 mm	50	50 mm	VI	Vertical inside bend	30	30°
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			45	45°
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			60	60°
SS4T	Stainless Steel 304			150	150 mm			90	90°
SS6T	Stainless Steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				

Example: ALT75300VI45

Trunking & accessories
Cable trunking & accessories

Vertical outside bend

Material		Siderail height		Tray width		Fitting Type		Angle	
ALT	Aluminum	50	50 mm	50	50 mm	VO	Vertical outside bend	30	30°
SPT	Pre-galvanized steel	75	75 mm	75	75 mm			45	45°
SHT	Hot dip galvanized steel	100	100 mm	100	100 mm			60	60°
SS4T	Stainless Steel 304			150	150 mm			90	90°
SS6T	Stainless Steel 316			225	225 mm				
				300	300 mm				
				450	450 mm				
				600	600 mm				

Example: ALT75300VO45

Standard splice plate

Material		Siderail height		Description	
ALT	Aluminum	50	50 mm	SSP	Standard Splice Plate
SPT	Pre-galvanized steel	75	75 mm		
SHT	Hot dip galvanized steel	100	100 mm		
SS4T	Stainless Steel 304				
SS6T	Stainless Steel 316				

Example: ALT50SSP

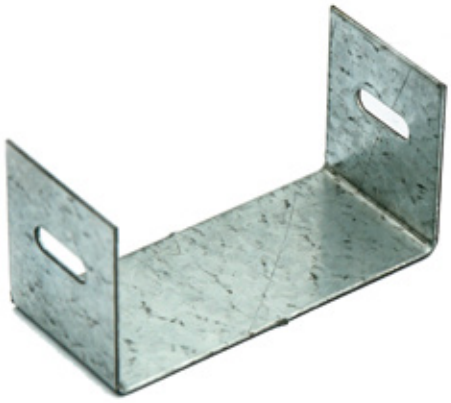
Trunking & accessories
Cable trunking & accessories

Expansion splice plate

Material		Siderail height		Description	
ALT	Aluminum	50	50 mm	SSP	Standard Splice Plate
SPT	Pre-galvanized steel	75	75 mm		
SHT	Hot dip galvanized steel	100	100 mm		
SS4T	Stainless Steel 304				
SS6T	Stainless Steel 316				

Example: ALT100ESP

Closure end plate



Material		Siderail height		H	Tray width		Description
ALT	Aluminum	50	50 mm	35 mm	50	50 mm	Closure end plate
SPT	Pre-galvanized steel				75	75 mm	
SHT	Hot dip galvanized steel				100	100 mm	
SS4T	Stainless Steel 304				150	150 mm	
SS6T	Stainless Steel 316				225	225 mm	
					300	300 mm	
					450	450 mm	
					600	600 mm	

Example: ALT50100CEP

Channel tray & accessories

Channel tray & accessories

5

Channel tray & accessories
Channel tray & accessories Overview

T&B channel tray provides the ideal support system for lighter duty copper and fibre optic cable used in data, signal, telecoms and computer applications.

With many installations now reliant on electronic communications, T&B channel tray offers the easy to install, highly flexible yet robust solution for supporting smaller, lightweight cable runs.

Extensive product range
T&B channel tray offers a complete system including straight sections, fittings, covers and accessories for optimum versatility when planning cable runs.

Components are available in a range of materials to cover the variety of installation requirements across the Middle East.

Increased adaptability
A major advantage of channel tray is its adaptability. Modification of the system is easy because cables can enter or exit a tray at any point.

Channel tray is often used to provide support to smaller cable runs from a larger cable ladder or perforated cable tray system.

Channel tray can be easily affixed to larger systems, and is revised or expanded simply without disruption or the need to replace the entire cable management system.

Low maintenance
The simplicity of the channel tray system ensures installation and maintenance routines can be conducted quickly and effortlessly.

When maintenance is necessary, it requires less labour and time than alternative cabling solutions.

Enhanced safety
Channel tray proves much safer than conduit installation, with lower risk of exposure to live, energized parts. In a channel tray system, cables can be pulled from near one termination enclosure to the next before being connected, rather than being pulled through the conduit after the cable is terminated.

Reduced costs
Reliability, adaptability and ease of maintenance are some of the many benefits of channel tray which deliver savings during installation and over the lifetime of the system.

Straightforward installation ensures costs are reduced considerably compared to the time needed to pull cables through conduit.

High adaptability permits rapid system adjustment, ensuring downtime is kept to a minimum in electrical and data handling systems.

First class support
Thomas & Betts combines global market leadership with local product & technical support, either through our network of distributors, or via our T&B sales office in Dubai and our production facility at Dammam.

Channel tray & accessories
Channel tray & accessories Overview

T&B channel tray is available in four material types and two tray bottom types, for maximum versatility.

Material types
- Aluminium
- Steel (pre-galvanized, hot dip galvanized & stainless steel)

Tray bottom types
- Solid
- Ventilated

Aluminium (to 6063 T6)
Aluminium 6063 T6 alloy for lightweight construction, excellent corrosion resistance, and high strength-to-weight ratio. Aluminium channel tray offers simple installation and low maintenance.

Pre-galvanized steel (to BS EN 10142 & BS EN 10143)
Steel is ideal as a high strength, low cost material for channel tray. Pre-galvanized steel tray is produced by passing the low-carbon steel through molten zinc before fabrication, and is generally recommended for indoor commercial applications rather than outdoor or industrial environments.

Hot dip galvanized steel (to BS EN ISO 1461)
Hot dip galvanized steel tray is produced by immersing the fabricated tray in molten zinc, creating a much thicker coating than pre-galvanized. This process is recommended for most outdoor and harsh industrial applications.

Stainless steel (to AISI Type 316 or 304)
Stainless steel offers high strength and high resistance to chemicals, even at high ambient temperatures. T&B stainless steel channel tray is roll-formed from AISI Type 316 stainless steel, as standard, with Type 304 stainless steel available to special order.


Solid tray


Ventilated tray 1 1/2”

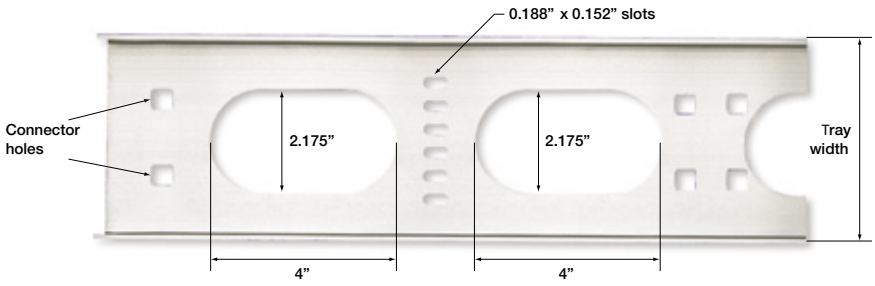

Ventilated tray 3”, 4” & 6”

Channel tray bottom types
Solid channel tray is offered in all widths (1 1/2”, 3”, 4”, 6”), and includes connector holes at each end for attachment of fittings or other straight sections via a splice plate.

3”, 4” and 6” ventilated channel tray includes burr free oblong punched holes for easy access. Ty-Rap® slots are provided between each opening for securing and maintaining air space between cables. Ty-Rap® slots are provided at intervals in 1 1/2” ventilated tray.

Note: fittings supplied in solid bottom type only.

Punched hole dimensions (ventilated tray widths 3” to 6”)



Note: channel tray edges and welds are rounded and smoothed during manufacture to prevent cable damage.
Care should be taken when handling channel tray and protective gloves should be worn to avoid risk of injury.

Channel tray & accessories
Straight section

Straight sections are available in aluminium, or steel in a range of finishes, with solid or ventilated bottom type.

Aluminium
Extruded 6063 T6 Aluminium alloy construction

Nominal channel width from 1 1/2” to 6”

Ventilated bottom type includes pre-punched burr free holes with Ty-Rap® slots between each opening

One splice plate and hardware supplied with each section

Steel
Roll formed pre-galvanized, hot dip galvanized or stainless steel 316 (stainless steel 304 available to special order)

Nominal channel width from 1 1/2” to 6”

Ventilated bottom type includes pre-punched burr free holes with Ty-Rap® slots between each opening

One splice plate and hardware supplied with each section

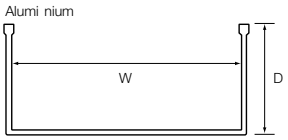
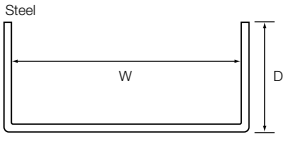
Product selection - straight section

Part numbers are created using a range of selection criteria (shown below). Determine the most suitable channel tray type for your needs, then use the table to create the exact part number.

Material		Type		Tray width		Bottom type		Length	
MALT	Aluminum	C	Straight section	01	1 1/2”	V	Ventilated	144	12 ft
MSPT	Pre-galvanized steel			03	3”	S	Solid trough	288	24ft
MSHT	Hot dip galvanized steel			04	4”			3	3m/10ft
MSST	Stainless Steel 304			06	6”				
* Stainless steel 304 available to special order									

Example: MSPT-C-04-S-144

Channel tray load rating (lb/ft)

Material	Channel Width (W)	Channel Depth (D)	Solid Channel Tray Support Span (Feet)					ventilated channel tray Support span (feet)				
			2	4	6	8	10	2	4	6	8	10
Alumi nium 	**Aluminium channel tray - MALT-C**											
	1 1/2”	3/4”	47.5	11.9	5.4	3.0	1.9	47.5	11.9	5.4	3.0	1.9
	3”	1 3/8”	362.5	90.6	40.3	22.7	17.0	300.0	75.0	33.3	18.8	14.0
	4”	1 5/8”	580.0	145.0	64.4	36.3	24.0	525.0	131.3	58.3	32.8	19.0
	6”	1 3/4”	607.5	151.9	67.5	38.0	25.0	580.0	145.0	64.4	36.3	21.0
Steel 	**Steel channel tray - MSPT-C, MSHT-C, MSST-C**											
	1 1/2”	3/4”	97.5	24.4	10.8	6.1	3.9	97.5	24.4	10.8	6.1	3.9
	3”	1 3/8”	252.0	63.0	28.0	15.8	17.0	207.0	51.8	23.0	12.9	14.0
	4”	1 5/8”	408.0	102.0	45.3	25.5	24.0	363.0	90.8	40.3	22.7	19.0
	6”	1 3/4”	432.0	108.0	48.0	27.0	25.0	405.0	101.3	45.0	25.3	21.0

Channel tray & accessories
Fittings

Fittings enable a channel tray system to change direction or elevation in order to meet building design and cable run constraints.

The channel tray range of fittings includes:
- Horizontal bends
- Vertical inside bends
- Vertical outside bends
- Horizontal tees
- Horizontal crosses

The most important decision to be made in fitting design concerns radius.

Selection of the most appropriate radius requires a compromise with the considerations being available space, minimum bending radius of cables, ease of cable pulling, and cost.

Whether horizontal or vertical application, a standard radius of either 12” or 24” is available, with options for zero (non-radius), or custom sizes greater than 24” to special order.

The typical radius specified in channel tray installations is 24”.

Horizontal bend	**90°**	**60°**	**45°**	**30°**
Horizontal bends enable the channel tray system to change direction in the same plane.				
Vertical inside bend	**90°**	**60°**	**45°**	**30°**
Vertical inside bends enable the channel tray system to change direction, upwards to a different plane.				
Vertical outside bend	**90°**	**60°**	**45°**	**30°**
Vertical outside bends enable the channel tray system to change direction, downwards to a different plane.				
Horizontal tee & cross	**Tee**		**Cross**	
Horizontal tees and crosses enable joins to be made in the channel tray system at 90° angles, in the same plane.				

Channel tray & accessories
Fittings

Product selection - fittings

Fitting part numbers are based on a range of selection criteria, dependent on the type of fitting and the role undertaken in the channel tray system.

For product ordering, specifiers should choose the appropriate component part from the lists shown in the tables below and create a specific part number following the example shown.

Horizontal and vertical bends are available with standard angles of 30°, 45°, 60° and 90°. When a standard angle is not suitable, field fittings or adjustable splice plates can be used. It may be necessary to add supports to the tray at these points (our range of accessories and Superstrut® is shown on pages 10 to 14).

Refer to NEMA VE-2 Installation Guidelines for suggested support locations for fittings.

Horizontal & vertical bend

Select the preferred component parts and create the specific part number as per the example shown.

Material		Type		Tray width		Bottom type		Fitting type		Angle		Nominal radius	
MALT	Aluminum	F	Fitting	01	1 1/2”	S	Solid trough	HB	Horizontal bend	30	30º	12	12”
MSPT	Pre-galvanized steel			03	3”			VI	Vertical inside bend	45	24”	24	24”
MSHT	Hot dip galvanized steel			04	4”			VO	Vertical outside bend	60	60º	0	Zero radius**
MSST	Stainless steel 316*			06	6”					90	90º		

Example: MALT-F-04-S-HB-90-24

* Stainless steel 304 available to special order.

** Contact your local sales office for availability of zero radius fittings.

Horizontal tee & horizontal cross

Select the preferred component parts and create the specific part number as per the example shown.

Material		Type		Tray width		Bottom type		Fitting type		Nominal radius	
MALT	Aluminum	F	Fitting	01	1 1/2”	S	Solid trough	HT	Horizontal tee	12	12”
MSPT	Pre-galvanized steel			03	3”			HX	Horizontal cross	24	24”
MSHT	Hot dip galvanized steel			04	4”					0	Zero radius**
MSST	Stainless steel 316*			06	6”						

Example: MALT-F-04-S-HT-12

* Stainless steel 304 available to special order.

** Contact your local sales office for availability of zero radius fittings.

Channel tray & accessories
Covers

Tray covers are available for all channel tray widths and material types, in solid style for both straight sections and fittings.

Covers provide mechanical protection to cable runs and should be installed where falling objects may damage cables, or where vertical tray run is accessible by pedestrian or vehicular traffic.

Solid flanged cover
Solid covers provide maximum mechanical protection for cables which have limited heat build up, and include a 1/2” flange for secure positioning above the channel tray.

Solid cover for fittings
Covers for fittings (bends, tees and crosses) are available in solid cover type only and include a 1/2” flange for secure positioning above the channel tray.

Note: cover mounting hardware must be ordered separately for all cover types.

Product selection - covers
Cover part numbers are based on a range of selection criteria, dependent on the type of cover required, and the need to cover straight sections or fittings.

On the following page, the selection criteria for each cover type is established in table form.

Specifiers should choose the appropriate component part from the lists shown in the tables and create the part number following the example shown.

Channel tray & accessories
Covers

Cover - straight section

Select the preferred component parts and create the specific part number as per the example shown.

Material		Type		Tray width		Cover type		Length	
MALT	Aluminum	F	Fitting	01	1 1/2”	SFC	Solid flanged cover	72	72”
MSPT	Pre-galvanized steel			03	3”			144	12ft
MSHT	Hot dip galvanized steel			04	4”			3	3m/ 10 ft
MSST	Stainless steel 316*			06	6”				

Example: MSHTF04SFC-144

* Stainless steel 304 available to special order.

Cover - horizontal bend, vertical inside bend & vertical outside bend

Select the preferred component parts and create the specific part number as per the example shown.

Material		Type		Tray width		Fitting type		Angle		Nominal radius	
MALT	Aluminum	F	Fitting	01	1 1/2”	HBC	Horizontal bend	30	30º	12	12”
MSPT	Pre-galvanized steel			03	3”	VIC	Vertical inside bend	45	24”	24	24”
MSHT	Hot dip galvanized steel			04	4”	VOC	Vertical outside bend	60	60º	0	Zero radius**
MSST	Stainless steel 316*			06	6”			90	90º		

Example: MSPTF04HBC-60-12

* Stainless steel 304 available to special order.

** Contact your local sales office for availability of zero radius covers for fittings.

Cover - horizontal tee & cross

Select the preferred component parts and create the specific part number as per the example shown.

Material		Type		Tray width		Fitting type		Angle		Nominal radius	
MALT	Aluminum	F	Fitting	01	1 1/2”	HTC	Horizontal tee	30	30º	12	12”
MSPT	Pre-galvanized steel			03	3”	HXC	Horizontal cross	45	24”	24	24”
MSHT	Hot dip galvanized steel			04	4”			60	60º	0	Zero radius**
MSST	Stainless steel 316*			06	6”			90	90º		

Example: MSPTF04HXC-24

* Stainless steel 304 available to special order.

** Contact your local sales office for availability of zero radius covers for fittings.

Channel tray & accessories
Accessories

Accessories and supports supplement installation of straight sections, covers and fittings.

Accessories enable clamping of covers, variable mounting, support and suspension of the channel tray system.

Available materials are described in the tables. Unless otherwise stated, 'stainless steel' refers to grade 316.

Stainless steel 304 is available to special order - contact your local sales office for details.

Quantity of standard clamps required to secure tray covers:

Straight section	72" 10 or 12 ft 6 pieces	4 pieces
Horizontal and vertical bends		4 pieces
Tees		6 pieces
Crosses		8 pieces

Standard 1 1/2" splice plate

Connects 1 1/2" straight sections to fittings and other straight sections. Supplied with zinc plated hardware.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCS	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCS	Steel (pre-galvanized)	01 = 1 1/2"
WSHT-(*)-CCS	Steel (hot dip galvanized)	
WSST-(*)-CCS	Stainless steel	

Standard splice plate

Connects 3" to 6" straight sections to fittings and other straight sections. Supplied with zinc plated hardware.

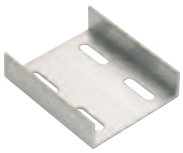
Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCS	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCS	Steel (pre-galvanized)	03 = 3" 04 = 4"
WSHT-(*)-CCS	Steel (hot dip galvanized)	06 = 6"
WSST-(*)-CCS	Stainless steel	

Expansion splice plate

Allows expansion & contraction of channel tray systems with widths 3" to 6". Supplied with zinc plated hardware.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-ESP	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-ESP	Steel (pre-galvanized)	03 = 3" 04 = 4"
WSHT-(*)-ESP	Steel (hot dip galvanized)	06 = 6"
WSST-(*)-ESP	Stainless steel	

Wrap around splice plate



Provides all round support for connections between straight sections and fittings/ other straight sections. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-ACS	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-ACS	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-ACS	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-ACS	Stainless steel	

Horizontal adjustable splice plate

Hinged horizontal plate allows maximum flexibility for changes in direction of the tray system. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CHA	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CHA	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CHA	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CHA	Stainless steel	

Vertical adjustable splice plate

Hinged vertical plate allows maximum flexibility for changes in elevation of the tray system. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCV	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCV	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CCV	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CCV	Stainless steel	

Channel tray & accessories
Accessories

Wraparound vertical adjustable splice plate

Splice plate with hinges and siderails for maximum flexibility in tray elevation plus additional support to tray sides. Order hardware separately

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-WAV	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-WAV	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-WAV	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-WAV	Stainless steel	

Standard hold down clamp

For securing the tray system to the support system. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-SHC	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-SHC	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-SHC	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-SHC	Stainless steel	

Channel expansion guide clamp

For securing the tray system to the support system, allowing for expansion. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CEG	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CEG	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CEG	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CEG	Stainless steel	

Combination hold down/cover clamp

For securing a covered tray system to the support system. Order hardware separately.

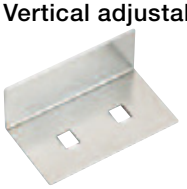
Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCC	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCC	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CCC	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CCC	Stainless steel	

Heavy duty cover clamp

Wraparound design offers added protection for rugged applications. Hardware included.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-HCC	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-HCC	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-HCC	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-HCC	Stainless steel	

Vertical adjustable splice plate



Hinged vertical plate allows maximum flexibility for changes in elevation of the tray system. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CEP	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CEP	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CEP	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CEP	Stainless steel	

Channel mounting bracket

For mounting the tray system to a data center or distribution box. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCB	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCB	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CCB	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CCB	Stainless steel	

Channel to cable tray plate

For mounting channel tray to a cable tray system. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CCT	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CCT	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CCT	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CCT	Stainless steel	

Channel tray & accessories
Accessories

Channel to floor base plate

For securing the tray system to the floor/horizontal surfaces. Order hardware separately.

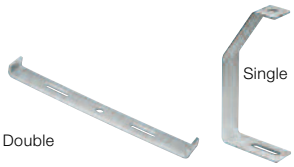
Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-CBP	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-CBP	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-CBP	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-CBP	Stainless steel	

Channel to tray mounting bracket

For mounting channel tray to supports or cable tray systems. Order hardware separately.

Part No.	Material/Tray type	Part No. variable (*)
WALT-(*)-TCB	Aluminium	Replace (*) with double digit reference for tray width:
WSPT-(*)-TCB	Steel (pre-galvanized)	01 = 1 1/2" 03 = 3"
WSHT-(*)-TCB	Steel (hot dip galvanized)	04 = 4" 06 = 6"
WSST-(*)-TCB	Stainless steel	

Channel hanger



Single or double channel hanger enables suspension of the tray system. Designed for use with 1/2" threaded rod (order rod and hardware separately).

Part No.	Material/Tray type	Part No. variable (*)
WALT-F-06-(*)	Aluminium	Replace (*) with reference for channel hanger type:
WSPT-F-06-(*)	Steel (pre-galvanized)	CCH = Single channel hanger
WSHT-06-(*)	Steel (hot dip galvanized)	DCH = Double channel hanger
WSST-06-(*)	Stainless steel	

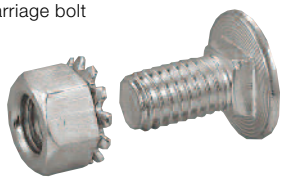
Channel straight reducer plate

For securing channel tray to trays with reduced width. Order hardware separately.

Part No.	Material/ Tray type	Part No. variable (*)	Part No. variable (+)
WALT-(*)-(+)-RSP	Aluminium	Replace (*) with double digit ref. for tray width 1:	Replace (+) with double digit ref. for tray width 2:
WSPT-(*)-(+)-RSP	Steel (pre-galvanized)	03 = 3" 04 = 4"	01 = 1 1/2"
WSHT-(*)-(+)-RSP	Steel (hot dip galvanized)	06 = 6"	03 = 3" 04 = 4"
WSST-(*)-(+)-RSP	Stainless steel		

Tray hardware

Carriage bolt

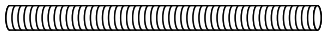


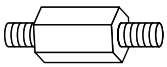
Self-drilling tapping screw

Part No.	Material	Part No. variable (*)
WSP-1/4-CB	Zinc plated steel	Square shoulder self-positioning 1/4" carriage bolt
WSP-3/8-CB	Zinc plated steel	Square shoulder self-positioning 3/8" carriage bolt
WSP-1/4-HN	Zinc plated steel	1/4" Hex. nut
WSP-3/8-HN	Zinc plated steel	3/8" Hex. nut
WSS-3/8-CB	Stainless steel (316)	3/8" Carriage bolt
WSS-3/8-HN	Stainless steel (316)	3/8" Hex. nut
WSS-3/8-HWK	Stainless steel (316)	Hardware kit inc. 8 nuts, 8 bolts, 8 lockwashers
WSP-10-SCR	Zinc plated steel	Self-drilling tapping screw

Stainless steel 304 available to special order. Hardware available in metric sizes to special order - contact Thomas & Betts.

Threaded rod & coupling





Part No.	Description	Part No. variable (*)
H104-1/2x3(*)	1/2" threaded rod (13 threads/inch) with design load of 1130 lbs	Replace (*) with double digit reference for tray width:
H119-1/2(*)	Coupling for 1/2" threaded rod (length 1 1/4")	EG = Electro-galvanized
		HDG = Hot dip galvanized
		SS4 = Stainless steel 304
		SS6 = Stainless steel 316

Standard rod length 3 m. Rod & coupling available in metric sizes to special order - contact Thomas & Betts.

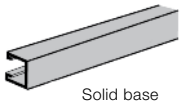
Superstrut® framing channel

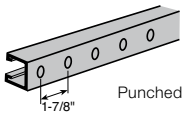
Superstrut® framing channel

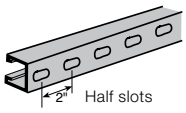
Superstrut® framing channel
Framing channel Overview

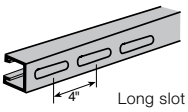
Superstrut® 2.5 mm (12 Ga.) & 2 mm (14 Ga.) channel - type A and type B

Metal framing channel available in 2.5 mm (12 Gauge) and 2 mm (14 Gauge) thickness. Aluminium, hot dip galvanized or stainless steel channels are recommended to support aluminium, steel or stainless steel cable ladder. Offered in lengths of 10 ft, 20 ft, 3 m or 6 m.

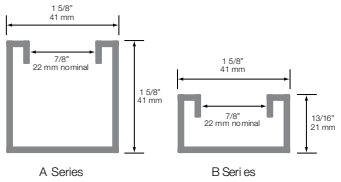






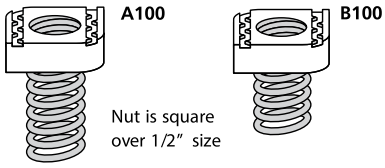


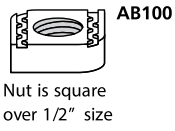
Part No. (12 Ga.)	Part No. (14 Ga.)	Description	Part No. variable (*)	Part No. variable (+)
A Series channel - 1 5/8” x 1 5/8” / 41 mm x 41 mm				
A1200-(*)-(+)M	**A1400-(*)-(+)M**	Solid base	Replace (*) with ref. for length:	Replace (+) with ref. for material/finish type:
A1200-P-(*)-(+)M	**A1400-P-(*)-(+)M**	Punched s	10 = 10 ft	AL = Aluminium
A1200-HS-(*)-(+)M	**A1400-HS-(*)-(+)M**	Half slots	20 = 20 ft	HDG = Hot dip galvanized
A1200-S-(*)-(+)M	**A1400-S-(*)-(+)M**	Long slots	3 = 3 m	PG = Pre-galvanized
A1202-(*)-(+)M	**A1402-(*)-(+)M**	Back to back	6 = 6 m	T304 = Stainless steel 304
				T316 = Stainless steel 316
B Series channel - 1 5/8” x 13/16” / 41 mm x 21 mm				
B1200-(*)-(+)M	**B1400-(*)-(+)M**	Solid base	Replace (*) with ref. for length:	Replace (+) with ref. for material/finish type:
B1200-P-(*)-(+)M	**B1400-P-(*)-(+)M**	Punched	10 = 10 ft	AL = Aluminium
B1200-HS-(*)-(+)M	**B1400-HS-(*)-(+)M**	Half slots	20 = 20 ft	HDG = Hot dip galvanized
B1200-S-(*)-(+)M	**B1400-S-(*)-(+)M**	Long slots	3 = 3 m	PG = Pre-galvanized
B1202-(*)-(+)M	**B1402-(*)-(+)M**	Back to back	6 = 6 m	T304 = Stainless steel 304
				T316 = Stainless steel 316



Channel nuts

Standard finish: electro-galvanized. Stainless steel channel nuts are recommended for aluminium channel - change suffix to SS4 or SS6 as required.
A100 is designed for A Series channel, and B100 is for B Series. A100 and B100 available in imperial sizes ranging from 1/4” to 7/8”, and metric sizes from M6 to M22. AB100 available in imperial sizes ranging from 1/4” to 3/4”, and metric sizes from M6 to M20.



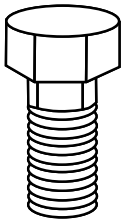


Part No.	Description	Part No. variable (*)	Part No. variable (+)
A100-(*)-(+)	Spring nut	Replace (*) with reference for thread size:	Replace (+) with ref. for material/ finish type:
B100-(*)-(+)	Spring nut	1/4 = 1/4”/M6 5/16 = 5/16”/M8	EG = Electro-galvanized
AB100-(*)-(+)	Springless nut	3/8 = 3/8”/M10 1/2 = 1/2”/M12	HDG = Hot dip galvanized
		5/8 = 5/8”/M16 3/4 = 3/4”/M20	SS4 = Stainless steel 304
		7/8 = 7/8”/M22	SS6 = Stainless steel 316

Hex head cap screw

Standard finish: electro-galvanized. Stainless steel channel nuts are recommended for aluminium channel - change suffix to SS4 or SS6 as required.

Part No.	Description	Part No. variable (*)	Part No. variable (+)
E142-(*)-(+)	Hex head cap screw	Replace (*) with reference for size:	Replace (+) with reference for material/finish type:
		1/4x100 = 1/4” x 1”	EG = Electro-galvanized
		1/4x150 = 1/4” x 1 1/2”	HDG = Hot dip galvanized
		3/8x100 = 3/8” x 1”	SS4 = Stainless steel 304
		3/8x150 = 3/8” x 1 1/2”	SS6 = Stainless steel 316
		1/2x100 = 1/2” x 1”	
		1/2x150 = 1/2” x 1 1/2”	

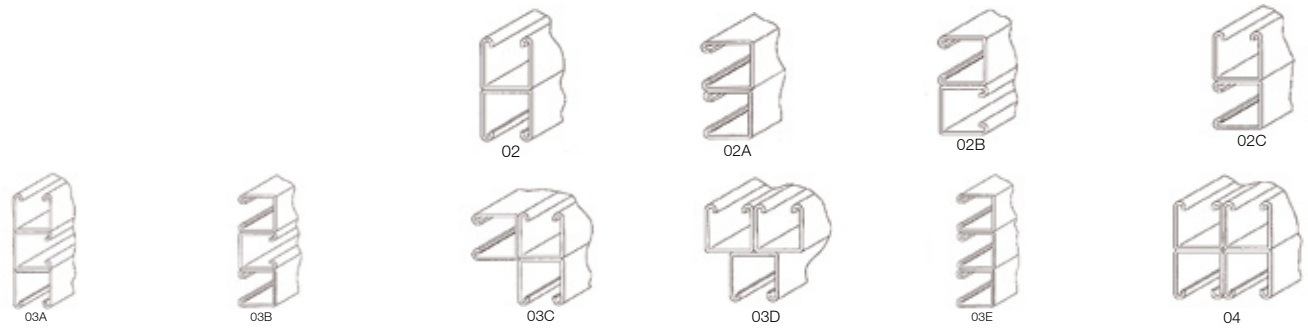


Cap screw available in metric sizes to special order

Superstrut® framing channel
Welded combinations

Superstrut® framing channel (Cont'd)
Welded combinations

Examples: Two A1200 channels back to back are ordered as A1202. Two A1200 channels back to side are ordered as A1202C

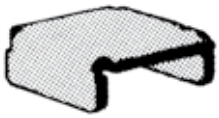


Back to back steel channel is riveted at every 4 inches. Aluminum back to back channel are extruded profiles. All other combinations are spot welded at every 4 inches.

End caps and closure strips

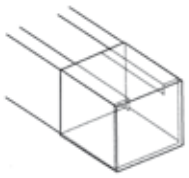
A804

End cap



Cat No.	For channel	Wt./C lb
A804EG	A1200	10
B804EG	A1400 AR1600	10
C804EG	B1400 BR1600	5
E804EG	C1200	8
H804	E1200	15
	H1200	20

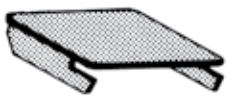
Safety end cap



Cat No.	For channel	Wt./C lb
A804NEOPWH	A1200 AR1600	1.75
B804NEOPWH	A1400	1.5
H804NEOPWH	B1200-BR1600	2
	H1200	

A2431

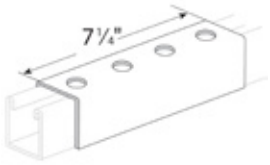
End cap



For A1200 channel available in GoldGalv® or Electrogalvanized (EG)

Wt./C 16 lb

A208



A208HDGC	Does not include stud nut
A208EG	or bolts. For A and AR
A208	series channel.
A208SS6C	Wt./C 275 lb

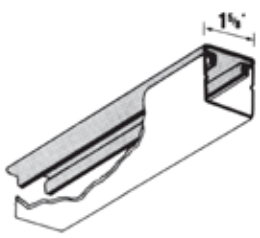
A213

Inside joiner

For A1200 series only.

AB844PGC

Pre-Galvanized closure strip



AB844PCGY

Plastic closure strip

Colour: Grey

AB844PC

Plastic closure strip

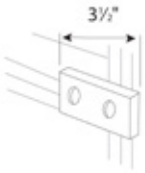
Colour: Gold

For all channel. Standard lengths 10ft / 3m

Superstrut® framing channel
Fittings and brackets

Flat Fittings

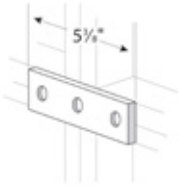
AB206



AB206HDG
AB206EG
AB206
AB206SS6

Wt./C 35 lb

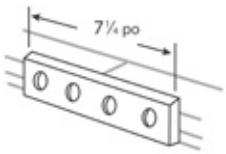
AB207



AB207HDG
AB207EG
AB207
AB207SS6

Wt./C 52 lb

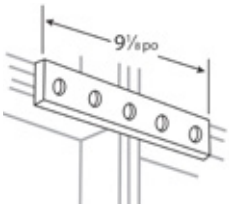
X207



X207HDG
X207EG
X207
X207SS6

Wt./C 78 lb

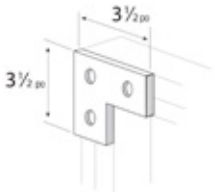
X208



X208HDG
X208EG
X208
X208SS6

Wt./C 88 lb

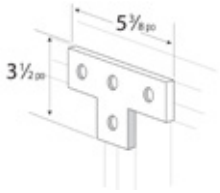
AB219



AB219HDGC
AB219EG
AB219
AB219SS6

Wt./C 53 lb

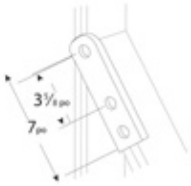
AB220



AB220HDGC
AB220EG
AB220
AB220SS6

Wt./C 78 lb

AB240



AB240HDG
AB240EG
AB240

Wt./C 69 lb

AB241

Cat No.	Bolt Size	Wt./C lb
AB241-1/4*	1/4	18
AB241-5/16*	5/16	18
AB241-3/8*	3/8	18
AB241-1/2*	1/2	17
AB241-5/8*	5/8	15
AB241-3/4*	3/4	14

*Finishes HDGCEG GoldGalv® SS6C

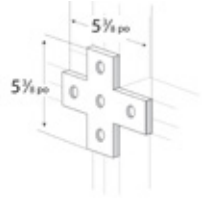
AB242

AB242HDG
AB242EG
AB242

For use with either 3/8" or 1/2" hanger rod.

Wt./C 9 lb

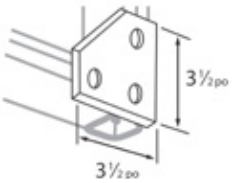
AB253



AB253HDG
AB253EG
AB253
AB253SS6

Wt./C 97 lb

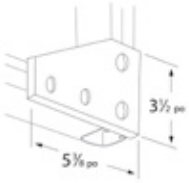
AB255



AB255HDG
AB255EG
AB255

Wt./C 70 lb

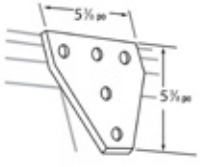
AB257



AB257HDG
AB257EG
AB257

Wt./C 105 lb

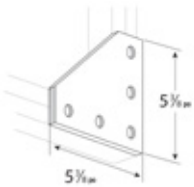
AB261



AB261HDG
AB261EG
AB261

Wt./C 148 lb

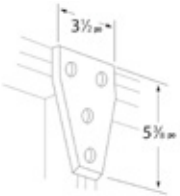
AB263



AB263HDG
AB263EG
AB263
AB263SS6

Wt./C 150 lb

AB265



AB265HDG
AB265EG
AB265

Wt./C 105 lb

Standard Dimensions

Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

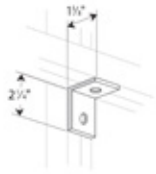
Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv® - (US & Canada only)
SS6(C)	Stainless Steel 316

Superstrut® framing channel
90° Fittings

AB201

AB201HDG
AB201EG
AB201
AB201SS6



Wt./C 35 lb

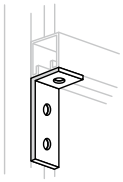
AB202

AB202HDG
AB202EG
AB202
AB202SS6

Wt./C 35 lb

AB203

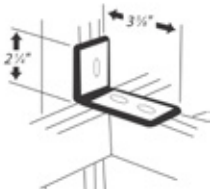
AB203HDG
AB203EG
AB203
AB203SS6



Wt./C 58 lb

AB204

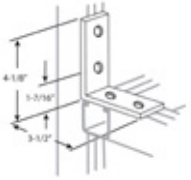
AB204HDG
AB204EG
AB204
AB204SS6



Wt./C 58 lb

AB205

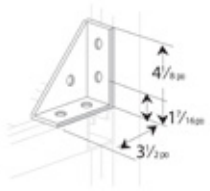
AB205HDG
AB205EG
AB205
AB205SS6



Wt./C 78 lb

AB213

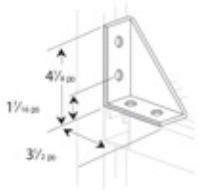
AB213HDG
AB213EG
AB213



Wt./C 125 lb

AB214

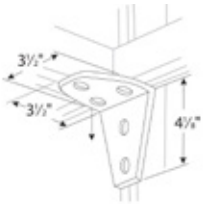
AB214HDG
AB214EG
AB214
AB214SS6



Wt./C 125 lb

AB216

AB216HDG
AB216EG
AB216SS6

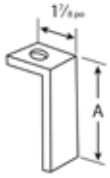


Wt./C 135 lb

AB252

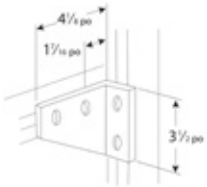
Cat No.	A	Wt./C lb
AB252-1*	3-7/8	61
AB252-2*	5-7/8	84
AB252-3*	7-7/8	107
AB252-4*	9-7/8	130

*Finishes HDGC GoldGalv® EG



AB254R

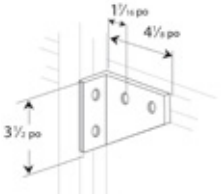
AB254RHDG
AB254REG
AB254R



Wt./C 105 lb

AB254L

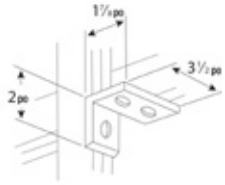
AB254LHDG
AB254LEG
AB254L



Wt./C 105 lb

AB260R

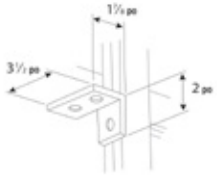
AB260RHDG
AB260REG
AB260R



Wt./C 58 lb

AB260L

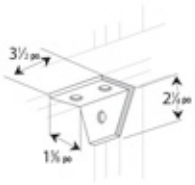
AB260LHDG
AB260LEG
AB260L



Wt./C 58 lb

AB274

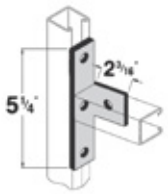
AB274HDG
AB274EG
AB274



Wt./C 70 lb

AB275

AB275HDG
AB275EG
AB275SS6C



Wt./C 77 lb

Standard Dimensions

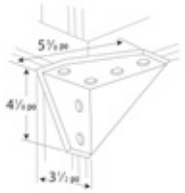
Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv®
SS6(C)	Stainless Steel 316

Superstrut® framing channel
90° Fittings

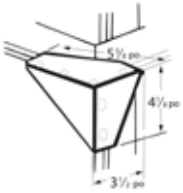
AB284R



AB284RHDG
AB284REG
AB284R

Wt./C 230 lb

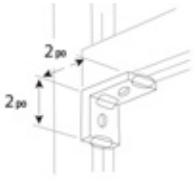
AB284L



AB284LHDG
AB284LEG
AB284L

Wt./C 230 lb

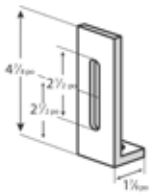
AB299



AB299HDG
AB299EG
AB299

Wt./C 40 lb

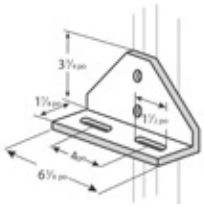
X201



X201HDG
X201EG
X201

Wt./C 65 lb

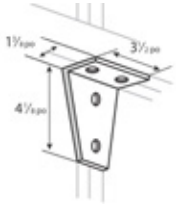
X204



X204HDG
X204EG
X204

Wt./C 1-90 lb

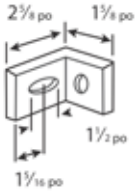
X289



X289HDGC
X289EG
X289

Wt./C 105 lb

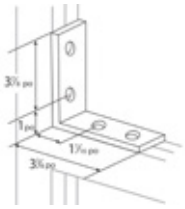
X299



X299HDGC
X299EG
X299

Wt./C 38 lb

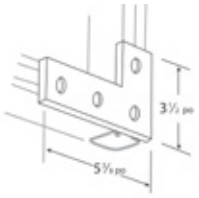
N205



N205HDGC
N205EG
N205
N205SS6C

Wt./C 74 lb

N219



N219HDG
N219EG
N219
N219SS6

Wt./C 71 lb

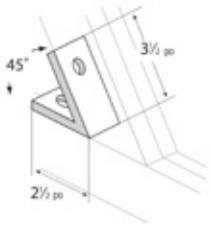
Standard Dimensions

Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

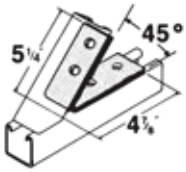
HDG(C)	Hot-Dipped Galvanized	
EG(C)	Electrogalvanized	
(No suffix)	tSS6(C)	Stainless Steel 316

AB225



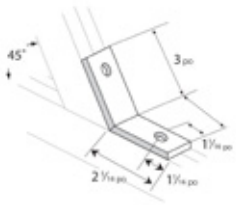
Other ang
Contact Customer Service.
AB225HDG
AB225EG
AB225
AB225SS6 Wt./C 58 lb

AB226



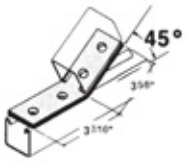
Other angles available.
Contact Customer Service.
AB226HDG
AB226SS6 Wt./C 119 lb

AB227



Other ang
Contact Customer Service.
AB227HDG
AB227EG
AB227
AB227SS6 Wt./C 58 lb

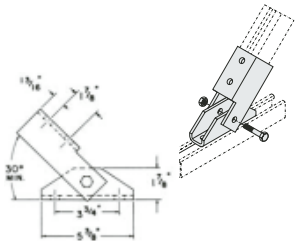
AB228



Other angles available.
AB225HDG Contact Customer Service.
AB228HDG
AB228SS6 Wt./C 69 lb

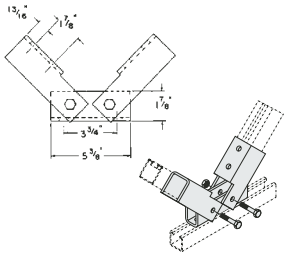
6

AB231



AB231EG

AB232

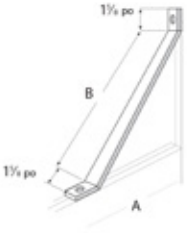


AB232EG

AB239

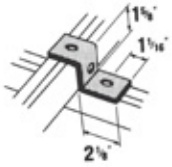
Cat No.	A	A	Wt./C lb
AB239-1*	7-13/16	8-1/2	148
AB239-2*	13-3/4	17	255
AB239-3*	19-3/4	25-1/2	363

*Finishes HDGC GoldGalv® EG



"Z" Shape Fittings

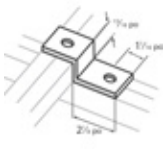
A209



A209HDG
A209EG
A209
A209SS6

For attachingA and AR series channel
Wt./C 55 lb

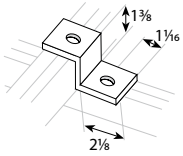
B209



B209HDG
B209EG
B209

For attaching B and BR series channel.
Wt./C 43 lb

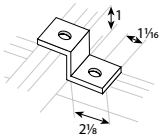
C209



C209

For attaching C series channel.
Wt./C 49 lb

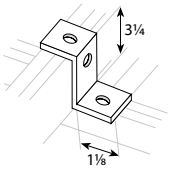
D209



D209HDG
D209EG
D209

For attaching D series channel.
Wt./C 45 lb

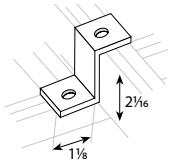
CZ209



CZ209EG
CZ209

For attaching H series and A back to back.
Wt./C 70 lb

EZ209



EZ209HDGC
EZ209EG
EZ209
EZ209SS6

For attaching E series channel.
Wt./C 70 lb

Standard Dimensions

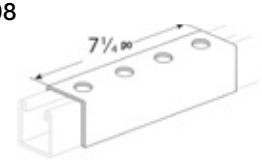
Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv®
SS6(C)	Stainless Steel 316

Superstrut® framing channel
“U” Shape fittings

A208



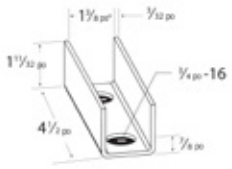
A208HDG
A208EG
A208
A208SS6C

Does not include stud nut or bolts.

For A and AR series channel.

Wt./C 275 lb

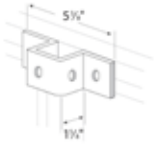
A213
Inside Joiner



For A1200 series Available only in GoldGalv® finish

Wt./C 40 lb

A210

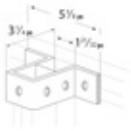


A210HDG
A210EG
A210
A210SS6C

For attaching A and AR series channel.

Wt./C 88 lb

A211

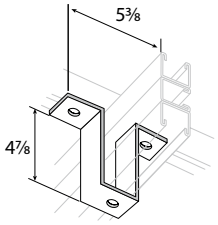


A211HDGC
A211EG
A211

For attaching A and AR series double channel, and H series

Wt./C 128 lb

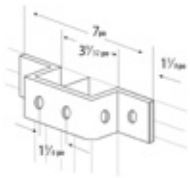
AN211



AN211HDG
AN211EG
AN211

Wt./C 181 lb

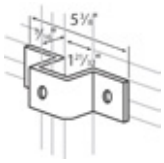
A212



A212HDG
A212EG
A212
A212SS6

Wt./C 113 lb

B210

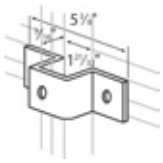


B210HDG
B210EG
B210
B210SS6

For attaching B and BR series.

Wt./C 65 lb

C210

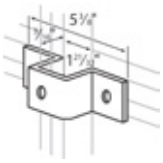


C210HDG
C210EG
C210

For attaching C series channel.

Wt./C 77 lb

D210

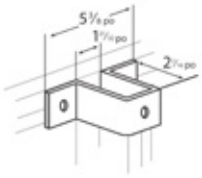


D210HDG
D210EG
D210
D210SS6

For attaching D series channel.

Wt./C 71 lb

E210

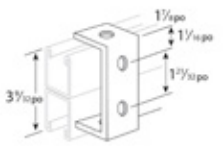


E210HDGC
E210EG
E210D209

For attaching E series channel.

Wt./C 112 lb

AB245



AB245HDG
AB245EG
AB245

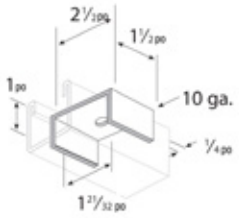
For attaching A and AR series double channel.

Wt./C 70 lb

AB288

Cat No.	Size	Wt./C lb
AB288-3/8*	3/8	37
AB288-1/2*	1/2	37
AB288-5/8*	5/8	37

*Finishes HDGC GoldGalv® EG



Standard Dimensions

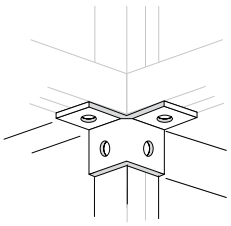
Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv® - (US & Canada only)
SS6(C)	Stainless Steel 316

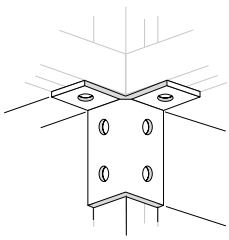
Superstrut® framing channel
Wing fittings

AW204



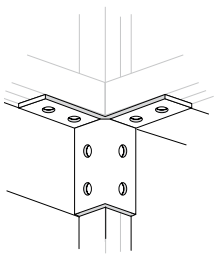
AW204HDG
AW204EG
AW204 Wt./C 76 lb

AW214



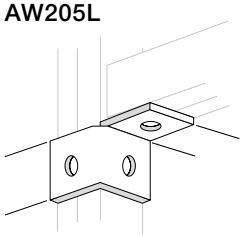
AW214HDG
AW214EG
AW214 Wt./C 115 lb

A217



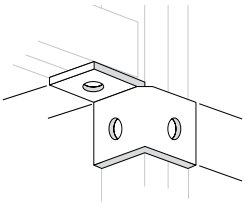
AW217HDG
A217EG
A217 Wt./C 155 lb

AW205L



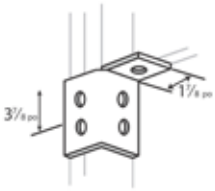
AW205LHDG
AW205LEG
AW205L

AW205R



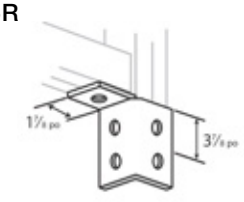
AW205RHDG
AW205REG
AW205R Wt./C 59 lb

AW215L



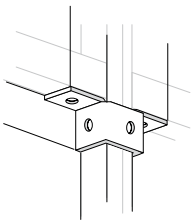
AW215LHDG
AW215LEG
AW215L

AW215R



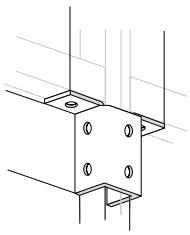
AW215RHDG
AW215REG
AW215R Wt./C 98 lb

AW220



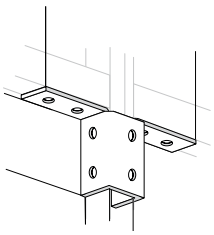
AW220HDG
AW220EG
AW220 Wt./C 90 lb

AW224



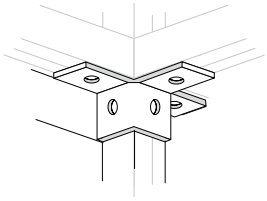
AW224HDG
AW224EG
AW224 Wt./C 147 lb

AW219



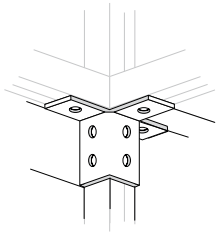
AW219HDG
AW219EG
AW219 Wt./C 187 lb

AW226



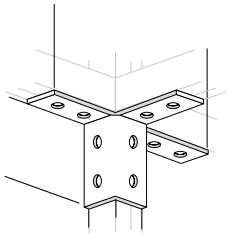
AW226HDG
AW226 Wt./C 113 lb

A218



A218HDG
A218EG
A218 Wt./C 177 lb

AW228



AW228HDG
AW228EG
AW228 Wt./C 230 lb

Standard Dimensions

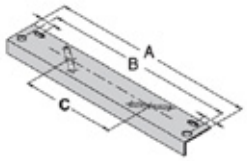
Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv®
SS6(C)	Stainless Steel 316

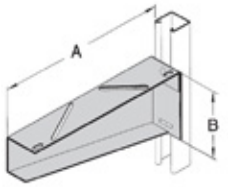
Superstrut® framing channel
Brackets

S202



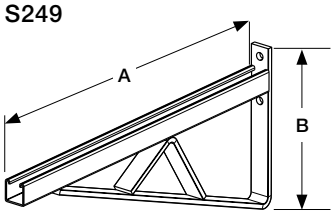
Cat No.	A	B	C	Wt./C lb
S202-6*	6	5	–	75
S202-9*	9	8	2	100
S202-15*	15	14	18	175
S202-21*	21	20	14	250
S202-27*	27	26	20	325
S202-33*	33	32	26	400

S203



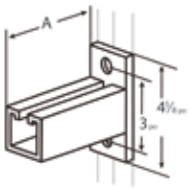
Cat No.	A	B	Design C	Wt./C lb
S203-8*	8-1/2	4-1/16	1200	180
S203-14*	14-1/2	5-3/8	1200	325
S203-20*	20-1/2	6-11/16	1200	525
S203-26*	26-1/2	8	1200	675
S203-32*	32-1/2	8	1200	840
S203-38*	38-1/2	8	1200	1050

S249



Cat No.	A	B	Design Load/lb, Uniform Load, Safety Factor (S.F) 2.5	Wt./C lb
S249-8	8-1/2	8	1600	320
S249-14	14-1/2	9	1325	520
S249-20	20-1/2	9	1000	660
S249-26	26-1/2	11-1/2	850	870
S249-32	32-1/2	11-1/2	750	1030
S249-38	38-1/2y	11-1/2	60	1230
Note: Inside bracing for 249-26 and over.				
S203-8 to S203-38			325	

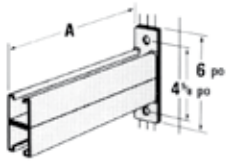
S250



Cat No.	A	Design Load lb	Wt./C lb
S250-6*	6	1500	150
S250-8*	8-1/2	1500	150
S250-12*	12	800	250
S250-14*	14-1/2	800	250
S250-18*	18	550	350
S250-20*	20-1/2	550	350
S250-24*	24	400	450
S250-26*	26-1/2	400	450

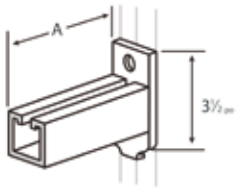
May be installed inverted with no change in load ratings.

S251



Cat No.	A	Design Load lb	Wt./C lb
S251-12*	12	1650	514
S251-14*	14-1/2	1650	514
S251-18*	18	1050	714
S251-20*	20-1/2	1050	714
S251-24*	24	800	914
S251-26*	26-1/2	800	914
S251-30*	30	650	1114
S251-32*	32-1/2	650	1114
S251-36*	36	500	1314
S251-38*	38-1/2	500	1314

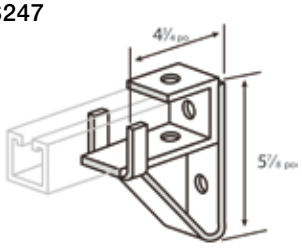
S256



Cat No.	A	Design Load lb	Wt./C lb
S256-6*	6	1000	151
S256-8*	8-1/2	1000	151
S256-12*	12	500	251
S256-14*	14-1/2	500	251
S256-18*	18	300	351
S256-20*	20-1/2	300	351
S256-24*	24	250	451
S256-26*	26-1/2	250	451

When installed in inverted position reduce load rating 40%.

S247

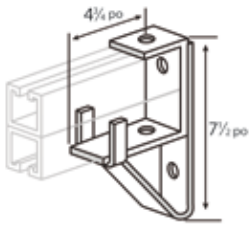


Design Moment
(channel upright as shown)
When Supported By
A-1200 5250 inch lb
A-1400 3650 inch lb
Applies to fitting only, not to the arm.

S247HDG
S247
S247SS6

Wt./C 229 lb

S248



Design Moment
(channel upright as shown)
When Supported By
A-1202 10800 inch lb
A-1402 7550 inch lb
Applies to fitting only, not to the arm.

S248HDG
S248

Wt./C 272 lb

Standard Dimensions

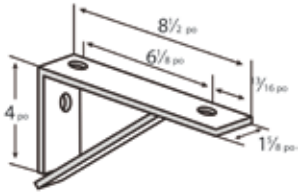
Hole Spacing	13/16" From End
Hole Spacing	1-7/8" Centers
Hole Size	9/16" Diam.
Material	1-5/8" Width
Material	1/4" Thick

Materials

HDG(C)	Hot-Dipped Galvanized
EG(C)	Electrogalvanized
(No suffix)	GoldGalv® - (US & Canada only)
SS6(C)	Stainless Steel 316

Superstrut® framing channel
Brackets

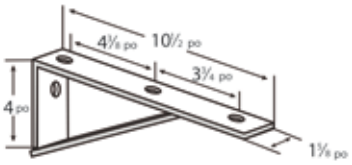
S204



Design Uniform Load/lb	
A-1200	750
A-1400	500

S204HDG
S204
Wt./C 174 lb

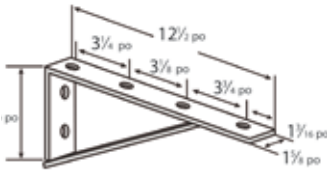
S205



Design Uniform Load/lb	
A-1200	750
A-1400	500

S205HDG
S205
Wt./C 264 lb

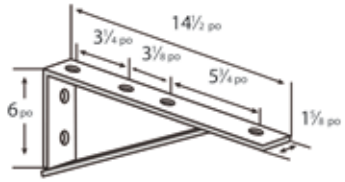
S217



Design Uniform Load/lb	
A-1200	750
A-1400	650

S217HDG
S217
S217SS6
Wt./C 264 lb

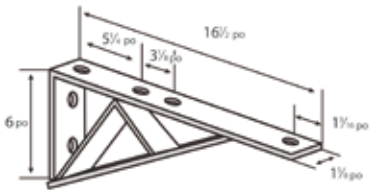
S218



Design Uniform Load/lb	
A-1200	750
A-1400	650

S218HDG
S218
Wt./C 295 lb

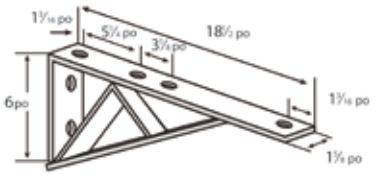
S222



Design Uniform Load/lb	
A-1200	1000
A-1400	750

S222HDG
S222
Wt./C 385 lb

S226

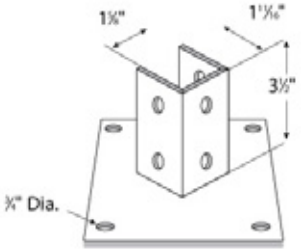


Design Uniform Load/lb	
A-1200	1000
A-1400	750

S226HDG
S226
Wt./C 421 lb

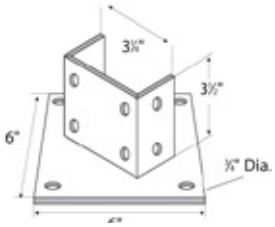
Post bases

AP232



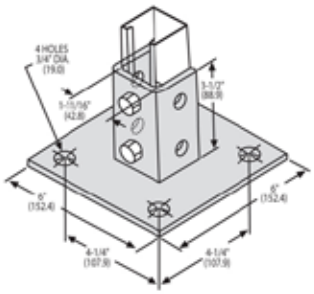
AP232HDG
AP232EG
AP232
Wt./C 384 lb

AP235



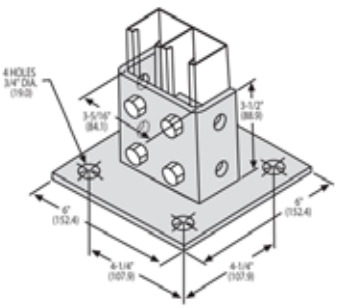
AP235HDG
AP235EG
AP235
Wt./C 400 lb

AP232SQ



AP232SQHDG
AP232SQEG
AP232SQSS6
Wt./C 384 lb

AP235SQ



AP235SQHDG
AP235SQEG
AP235SQ
AP235SQSS6
Wt./C 400 lb

Technical information

Technical information

Technical information
Technical information Overview

The Benefits of Cable ladder
Cable ladder wiring systems offer significant advantages over conduit pipe and other wiring systems. Cable ladder is less expensive, more reliable, more adaptable to changing needs and easier to maintain. In addition, its design does not contribute to potential safety problems associated with other wiring systems.

An evaluation of the costs and benefits of various wiring systems should be done in the design phase. Unfortunately, many engineers who are unfamiliar with wiring systems avoid the system selection process or defer it until construction—often resulting in higher costs, scheduling delays and a system that will not meet future needs.

Selection of a wiring system that is not the most suitable for a particular application in terms of cost, potential corrosion and electrical considerations can lead to numerous problems, including excessive initial cost, poor design, faulty installation, extra maintenance, future power outages and unnecessary safety concerns.

Cost
Extensive experience has shown that the initial cost of a cable ladder installation (including conductor, material and installation labor costs) could be 60% less than a comparable conduit wiring system. Cable ladder systems, including ladders, supports, fittings and other materials, are generally much less expensive than conduit wiring systems. In addition, major cost savings are generated by the relative ease of installation. Labor costs of installing a cable ladder system can run up to 50 percent less. Total cost savings will vary with the complexity and size of the installation.

Direct cost savings are easy to calculate during the design phase of an installation, but the enormous advantages of cable ladder may occur only over time. The system's reliability, adaptability, ease of maintenance and inherent safety features result in many other types of cost savings, including:

- lower engineering and maintenance costs
- less need to reconfigure system as needs change
- less down time for electrical and data handling systems
- fewer environmental problems resulting from loss of power to essential equipment.

Reliability
Cable tray systems offer unsurpassed reliability, resulting in less need for maintenance and less down time—important considerations for all installations but especially for such industries as data communications and financial services.

In addition, since cable tray is not a closed system, moisture build up problems are eliminated and damage to cable insulation during installation is also greatly reduced.

Maintenance
Cable tray wiring systems require less maintenance than conduit systems. When maintenance is necessary, it is easier, less time-consuming and less labor intensive.

The physical condition and status of both the cable tray and the tray cables can be inspected visually, something that is not possible with conduit systems. In addition, it is also easy to see if there is sufficient capacity in the trays for additional cables. As was noted above, changing or adding cables can also be accomplished without difficulty.

Another comparative benefit of cable tray systems is that they do not act as channels of moisture paths, as conduit wiring systems do. Conduit systems tend to collect condensation resulting from changes in temperature and then channel the moisture to electrical equipment, where it can lead to corrosion and failure.

Cable tray and tray cable are also less susceptible to fire loss than conduit. An external fire usually results in damage to only a few feet of a cable tray system, while wire insulation inside a conduit suffers significant damage and thermoplastic insulation may actually fuse to the conduit.

Technical information
Technical information Overview

Adaptability
A major advantage of cable tray systems derives from their adaptability to new needs and technology. The pace of change in the economy, constantly shifting competitive pressures and rapid introduction of innovative technologies are all accelerating. More than ever before, businesses must be prepared to quickly expand facilities, change products or introduce new processes. The flexibility of the wiring system is a key consideration.

Modifying a cable tray system or adding cables to meet new needs is relatively easy because cables can enter or exit a tray at any point. And initial design considerations can build-in extra capacity as part of the planning process. Cable tray's inherent adaptability allows rewiring for future expansion, building redesign or new technologies without disruption or need to replace the entire wiring system.

Safety
Cable tray wiring systems lack the inherent safety concerns of conduit systems. By it's nature, a conduit wiring system can serve as a flow-through for corrosive, explosive and toxic gases in the same way that it channels moisture.

The conduit installation process can also present a safety issue for electricians. The process requires that a conduit system be installed from one enclosure to another before pulling in the conductors, leaving the electricians exposed to any live, energized equipment that may be in the enclosures. In contrast, installers can pull tray cables from near one termination enclosure to the next before they are inserted into the enclosures and then terminated.

Finally, in installations where cable tray can be used as the equipment grounding conductor (per NEC standards), it is easy to visually check the system components as well as conduct checks for electrical continuity.

Why use T&B Cable Tray?

Expertise
Specialist advise from our fully qualified technical engineers - focusing on your Cable Management solutions and concerns.

Experience
Providing the optimum design - one that doesn't use more material than is necessary, saving you money.

Products
Our knowledge of the latest products ensures a tailored design that can be installed using the most appropriate and up-to-date technology.

Technical
With over 20 years accumulated knowledge of developing cable support and management solutions, we provide design systems to relevant recognized standard.

Customer service
Our sales and technical teams are ready to assist with all your cable management needs.

Knowledge
Our knowledge of the latest standards ensures designs and selection of products products comply with the latest standards

Technical information
Thermal expansion and contraction

Thermal Expansion and Contraction

A cable tray system may be affected by thermal expansion and contraction, which must be taken into account during installation. To determine the number of expansion splice plates you need, decide the length of the straight cable tray runs and the total difference between the minimum winter and maximum summer temperatures. To function properly, expansion splice plates require accurate gap settings between trays. To find the gap (see Table 2):

PLOT YOUR GAP SETTING

a. Locate the lowest metal temperature on low temperature line.
b. Locate the highest metal temperature on high temperature line.
c. Connect these two points.
d. Locate installation temperature and plot to high/low line. Drop plot to gap setting.

MAXIMUM DISTANCE BETWEEN EXPANSION JOINTS (For 1" Movement)

Temperature Differential (°F)	Steel (Feet)	Aluminum (Feet)
25	512	260
50	256	130
75	171	87
100	128	65
125	102	52
150	85	43
175	73	37

Note: Every pair of expansion splice plates requires two bonding jumpers for grounding continuity.

Table 1

Gap Setting of Expansion Splice Plate

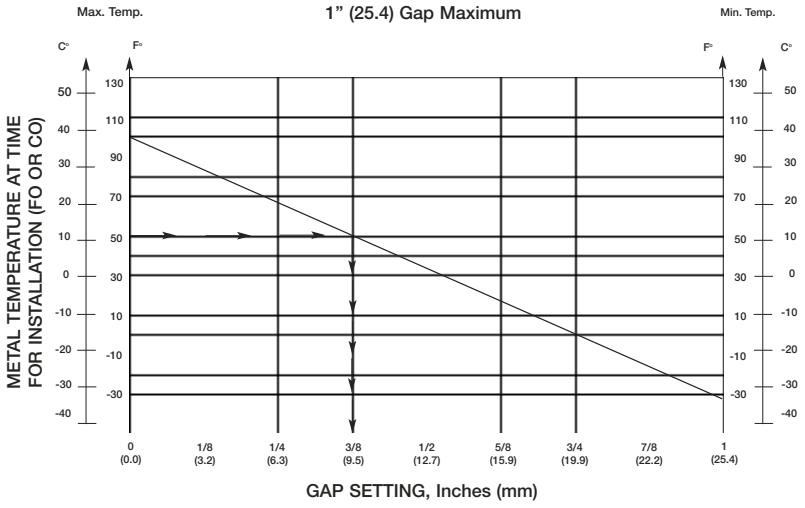
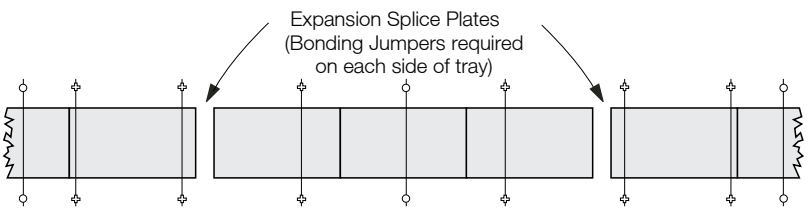


Table 2

The support nearest the midpoint between expansion splice plates should be anchored, allowing the tray longitudinal movement in both directions. All other support location should be secured by expansion guides. (see Table 3)
When a cable tray system is used as an equipment grounding conductor, it is important to use bonding jumpers at all expansion connections to keep the electrical circuit continuous.

Typical Cable Tray Installation



○ = *hold down clamp (anchor) at support*
⌖ = *expansion guide clamp at support*

Table 3

Technical information
Materials and finishes

Choice of an appropriate material / finish is always an important consideration in system design because maintenance of components once installed will be extremely difficult. Clients will undoubtedly expect a long life for the installed system and the choice of appropriate material / finish must be consider to adapt the prevailing atmosphere and its effect on the system components.

Materials

Most cable tray systems are fabricated from a corrosion resistant metal (low-carbon steel, stainless steel or an aluminum alloy) or from a metal with a corrosion-resistant finish (zinc or epoxy). The choice of material for any particular installation depends on the installation environment (corrosion and electrical considerations) and cost.

Mild steel

Mild steel is an economical material for load bearing structures but if the surface remains untreated, it would rapidly begin to show signs of corrosion even in only mildly aggressive environments. When mild steel corrodes, the iron content is converted to oxides (rust), this progressively changes the strong steel into weak oxides which rapidly reduces the load bearing capacity of the affected part. If mild steel is coated with zinc, not only is the steel protected by the envelope of zinc whose chemical corrosion rate is low but since zinc is higher in the electro-chemical series, the zinc will always pass into solution before the iron content of steel. The strength of the steel structure will not be weakened by corrosion until the zinc coating has been sacrificed. The length of time it takes for the zinc coating to dissolve is in proportion to the thickness of the coating and the aggressiveness of the environment in which it is exposed.

Aluminum

Cable trays fabricated of extruded aluminum are often used for their high strength-to-weight ratio, superior resistance to certain corrosive environments, and ease of installation. They also offer the advantages of being light weight (approximately 50% that of a steel tray) and maintenance free, and since aluminum cable trays are non-magnetic, electrical losses are reduced to a minimum.
T&B cable tray products are formed from the 6063 series alloys which by design are copper free alloys for marine applications. These alloys contain silicon and magnesium in appropriate proportions to form magnesium silicide, allowing them to be heat treated. These magnesium silicon alloys possess good formability and structural properties, as well as excellent corrosion resistance.

The unusual resistance to corrosion, including weathering, exhibited by aluminum is due to the self-healing aluminum oxide film that protects the surface. Aluminum's resistance to chemicals in the application environment should be tested before installation.

Pre-Galvanised steel (PG) Mill Galvanized Steel.

Whilst the mild steel is still in wide coil form at the steel mill, it is processed in a continuous operation to clean the steel and pass it through a bath of molten zinc which forms iron / zinc alloys and a coating of pure zinc on the surfaces of the steel which is then cooled and re-coiled. This means that the steel is galvanized before it is slit to width, cut to length, pierced and formed to shape. The coating cannot be allowed to become thick because it would split during the forming process. However, since zinc offers electro-chemical protection, it will offer protection for what might be considered unprotected edges where the flat material has been cut or pierced. This is an effective and economic anti corrosion finish suitable for interior applications except where there is continual high humidity and / or corrosive atmosphere.

T&B Cable Tray offers a range of cable management products in a variety of materials and finishes to suit the environmental conditions where components will be installed.

Steel

Steel cable trays are fabricated from structural quality steels using a continuous roll-formed process. Forming and extrusions increase the mechanical strength.

The main benefits of steel cable tray are its high strength and low cost. Disadvantages include high weight, low electrical conductivity and relatively poor corrosion resistance.

The rate of corrosion will vary depending on many factors such as the environment, coating or protection applied and the composition of the steel. T&B Cable Tray includes offers finishes and coatings to improve the corrosion resistance of steel. These include pre-galvanized, hot dip galvanized (after fabrication), epoxy and special paints.

Technical information
Materials and finishes

Stainless Steel (SS)
Stainless steel differs from mild steel. It contains a variety of alloyed elements, which very significantly reduce the rate at which the iron content will oxidize. The name „stainless“ is a misnomer because many pollutants and chemicals will mark or stain the surface but this does not erode the strength of the steel as rusting weakens mild steel. To obtain good forming and outstanding corrosion resistance properties austenitic grades of stainless steel are used. They also have the property that they will withstand aggressive chemicals, used to wash down the processing areas where good hygiene is a high priority. The fact that stainless steel can maintain strength properties even when exposed to high temperature is also a valuable asset. This portfolio of useful properties makes stainless steel suitable for systems exposed to very aggressive atmospheres, including marine environments, high levels of pollution, caustic soda and temperatures of 1000ºC for periods long enough to give some integrity to electrical circuits in a fire emergency.

Hot Dip Galvanised Steel (HDG)
To achieve this finish, components made from mild steel are cleaned and dipped into a bath of molten zinc after all the other manufacturing processes have been completed. Not only does this ensure that the whole of the component is coated, it offers the opportunity to develop a much thicker zinc coating than is possible with pre-galvanising. T&B Cable Tray takes particular care to ensure that a coating to British standards is achieved and that the distortion of components is minimized. However, this is a hot working process and some distortion and surface roughness may be in evidence. Since the zinc thickness is triple that of pre-galvanised steel, the anti-corrosive properties are enhanced. This finish will be suitable for most exterior installations except where there is a very aggressive atmosphere.

Coating thickness is determined by the length of time each part is immersed in the bath and the speed of removal. Hot dip galvanizing after fabrication creates a much thicker coating than the pre-galvanized process, a minimum of 3.0 ounces per square foot of steel or 1.50 ounces per square foot on each side of the sheet (according to ASTMA123, grade 65).The process is recommended for cable tray used in most outdoor environments and many harsh industrial environment applications.

Other Coatings
Epoxy and special paint coatings are available on request.

Finishes

Galvanized Coatings
The most widely used coating for cable tray is galvanizing. It is cost-effective, protects against a wide variety of environmental chemicals, and is self-healing if an area becomes unprotected through cuts or scratches.

Steel is coated with zinc through electrolysis by dipping steel into a bath of zinc salts. A combination of carbonates, hydroxides and zinc oxides forms a protective film to protect the zinc itself. Resistance to corrosion is directly related to the thickness of the coating and the harshness of the environment.

Epoxy Powder Coatings (PC)
These coatings are applied to mild steel components. The coatings can be offered in a wide variety of colours to meet the architectural project requirements. The coatings themselves are resilient to damage and will withstand atmospheric pollution and ultra-violet exposure from sunlight. However, if the coating envelope is broken the steel substrate will have little defence to corrosive agents. A highly decorative appearance can be achieved but longevity of this finish cannot be guaranteed.

Pre-Galvanized
Pre-galvanized, also known as mill-galvanized or hot dip mill-galvanized, is produced in a rolling mill by passing steel coils through molten zinc. These coils are then slit to size and fabricated.

Areas not normally coated during fabrication, such as cuts and welds, are protected by neighboring zinc, which works as a sacrificial anode. During welding, a small area directly affected by heat is also left bare, but the same self-healing process occurs.

G90 requires a coating of .90 ounces of zinc per square foot of steel, or .32 ounces per square foot on each side of the metal sheet. In accordance with A653/A653M-06a, pre-galvanized steel is not generally recommended for outdoor use or in industrial environments.

Apart from the standard materials and finishes listed T&B Cable Tray can offer other materials and finishes, which are required for a specific project specification. Please contact our technical department to discuss fully any such situation and the effect that this may have on other data associated with components shown in our catalogue range.

Technical information
Corrosion

Corrosion
Corrosion of metal occurs naturally when the metal is exposed to chemical or electrochemical attack. The atoms on the exposed surface of the metal come into contact with a substance, leading to deterioration of the metal through a chemical or electrochemical reaction. The corroding medium can be a liquid, gas or solid.

Although all metals are susceptible to corrosion, they corrode in different ways and at various speeds. Pure aluminum, bronze, brass, most stainless steels and zinc corrode relatively slowly, but some aluminum alloys, structural grades of iron and steel and the 400 series of stainless steels corrode quickly unless protected.

Various types of metal corrosion are categorized by its appearance or the method of acceleration:

Chemical corrosion occurs through dissolution of the metal by reaction with a corrosive medium.

Electrochemical corrosion involves chemical dissolution.

Galvanic corrosion is accelerated by a difference in potential between metals that are in contact.

Pitting corrosion is accelerated by a difference in the concentration of an ion or another dissolved substance.

Crevice corrosion is accelerated by oxygen concentration or ion cell formation.

Erosion corrosion is accelerated by a flow of liquid or gas.

Intergranular corrosion occurs at grain (or crystal boundaries.

Electrochemical Corrosion
Electrochemical corrosion is caused by an electrical current flow between two dissimilar metals, or if a difference of potential exists, between two areas of the same metal surface.

The energy flow occurs only in the presence of an electrolyte, a moist conductor that contains ions, which carry an electric charge. Solutions of acids, alkalies, and salts contain ions, making water—especially salt water—an excellent electrolyte.

Galvanic Corrosion
Galvanic corrosion results from the electrochemical reaction that occurs in the presence of an electrolyte when two dissimilar metals are in contact. The strength of the reaction—and the extent of the corrosion—depend on a number of factors, including the conductivity of the electrolyte and potential difference of the metals.

The metal with less resistance becomes anodic and more subject to corrosion, while the more resistant becomes cathodic. The Galvanic Series Table, developed through laboratory tests on industrial metal alloys in sea water (a powerful electrolyte), list metals according to their relative resistance to galvanic corrosion. Those less resistant to galvanic corrosion (anodic) are at the top, and those more resistant (cathodic) are at the bottom. The metals grouped together are subject to only slight galvanic effect when in contact, and metals at the top will suffer galvanic corrosion when in contact with metals at the bottom (in the presence of an electrolyte). The farther apart two metals are on the table, the greater the potential corrosion.

Galvanic Series Table	
Anodic End	
Magnesium	Type 304 stainless steel (active)
Magnesium alloys	Type 316 stainless steel (active)
Zinc	Lead
Galvanized steel	Tin
Naval brass (C46400)	
Aluminum 5052H	Muntz metal (C28000)
Aluminum 3004	Manganese bronze (C67500)
Aluminum 3003	
Aluminum 1100	Nickel (active)
Aluminum 6053	Inconel (active)
Alclad aluminum alloys	
Aluminum bronze (C61400)	Cartridge brass (C26000)
Cadmium	Admiralty metal (C44300)
Copper (C11000)	
Aluminum 2017	Red brass (C23000)
Aluminum 2024	
	Silicon bronze (C 65100)
Low-carbon steel	Copper nickel, 30% (C71500)
Wrought iron	
Cast iron	Nickel (passive)
Monel	Inconel (passive)
Ni-resist	
Type 304 stainless steel (passive)	Gold
Type 410 stainless steel (passive)	
Type 316 stainless steel (active)	Platinum
50Pb-50Sn solder	
Silver	**Cathodic End**

Technical information
Corrosion

Pitting
Pitting corrosion is localized and is identified by a cavity with a depth equal to or greater than the cavity's surface diameter. Pits may have different sizes and depths and most often appear randomly distributed. Aluminum and stainless steels in chloride environments are especially susceptible to pitting.

Pitting begins when surface defects, foreign particles or other variations in the metal lead to fixation of anodic (corroded) and cathodic (protected) sites on the metal surface. Acidic metal chlorides, which form and accumulate in the pit as a result of anodes attracting chloride ions, accelerate the pitting process over time. The nature of pitting often makes it difficult to estimate the amount of damage.

Crevice Corrosion
Crevice corrosion is a specialized form of pitting that particularly attacks metals or alloys protected by oxide films or passive layers. It results from a relative lack of oxygen in a crevice, with the metal in the crevice becoming anodic to the metal outside. For the crevice to corrode, it must be large enough to admit the electrolyte, but small enough to suffer oxygen depletion.

Erosion Corrosion
While erosion is a purely mechanical process, erosion corrosion combines mechanical erosion with chemical or electrochemical reaction. The process is accelerated by the generally rapid flow of liquid or gas over an eroded metal surface, removing dissolved ions and solid particles. As a result, the metal surface develops grooves, gullies, waves, rounded holes and valleys.

Erosion corrosion can damage most metals, especially soft ones like aluminum that are susceptible to mechanical wear, and those that depend for protection on a passive surface film, which can be eroded. Resulting damage can also be enhanced by particles or gas bubbles in a suspended state.

Intergranular Corrosion
Intergranular corrosion occurs between the crystals (or grains) that formed when the metal solidified. The composition of the areas between the crystals differs from that of the crystals themselves, and these boundary areas can become subject to intergranular corrosion. Weld areas of austenitic stainless steels are often affected by this form of corrosion, and the heat-treatable aluminum alloys are also susceptible.

Technical information
Corrosion resistance guide

The following table has been compiled as a guide for selecting appropriate cable trays for various industrial environments. The information can only be used as a guide because corrosion processes are dictated by the unique circumstances of any particular assembly.

Corrosion is significantly effected by trace impurities which, at times, can become concentrated through wet/ dry cycles in locations that are prone to condensation and evaporation. It is not uncommon to find aggressive mists created from contaminant species, notably from sulfur or halogen sources.

Temperature greatly influences corrosion, sometimes increasing the rate of metal loss, [a rule-of- thumb guide is that a 30°C change in temperature results in a 10X change in corrosion rate]. Sometimes corrosion attack slows down at higher temperatures because oxygen levels in aqueous solutions are lowered as temperatures increase. If an environment completely dries out then there can be no corrosion.

Stress-associated corrosion might occur when assemblies are poorly installed and/or fabricated, e.g., on-site welding or mechanical fastening. Premature failure can result from: corrosion fatigue, which can occur in any environment; stress corrosion cracking, which occurs in the presence of a specific chemical when the metal is under a tensile stress, which may be residual or applied, (e.g., from poor fabrication or welding); fretting, where two adjacent surfaces (under load) **are** subjected to an oscillatory motion across the mating surfaces.

Design - good design should minimize the risk of stress concentrations within a structure. Examples include sharp profiles, abrupt section changes, and threaded screws. These measures are particularly important for metals that are prone to stress corrosion cracking in specific media.

Design plays a significant role in exacerbating corrosion. Non-draining locations create liquid traps; local metal-to metal (or metal-to-non-metal) contact points (e.g., mechanical assemblies (bolts) with washers or spacers), permit crevice corrosion and/or galvanic corrosion to occur. Areas that are poorly maintained, (e.g., surfaces are not regularly (or properly) washed and stubborn deposits remain on the metal surface), are particularly prone to localized corrosion damage due to different levels of oxygen under and adjacent to the location in question (differential aeration). Resulting damage from these situations is in the form of small holes (pits). In each of the examples just quoted there is a restricted supply of oxygen. Thus, metals (e.g., aluminum, stainless steels, zinc) that rely on oxygen to form protective corrosion films (oxides, hydroxides, carbonates, etc.,) may be prone to localized pitting and/or crevice corrosion.

A further example of localized corrosion occurs when dissimilar metals contact each other in the presence of a corrodent, i.e., galvanic corrosion. Each metal will corrode but the one that is most active [anode] can be more corroded especially when there is a large surrounding area of the less active [cathodic] metal. It is wise to avoid small anodic areas. Some examples include: steel bolts [small area of anodic metal] in stainless steel plate, [large area of cathodic metal]; steel bolts in copper plate - the steel corrodes). There can be environmental influences, for example a fluid that contains active metallic species, for example copper ion contact with aluminum (copper picked up from aqueous solutions conveyed in copper pipe) - the aluminum corrodes. A further dramatic example is provided when trace quantities of mercury contact aluminum - the aluminum corrodes very rapidly. These are examples of deposit corrosion.

Technical information
Corrosion resistance guide

Chemical Species

	Aluminum	HDG/Steel	316SS
Acetaldehyde	++	+	++
Acetic acid - aerated	(+)T,C	X	(++)T
Acetic acid - not aerated	(+)T,C	X	(++)T
Acetone	++	++	++
Acetylene	++	nd	++
Allyl alcohol	+	nd	++
Aluminum chloride - dry	+	nd	(+)T,P
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	(+)P,S
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

	Aluminum	HDG/Steel	316SS
Boric acid (boracic acid)	++	nd	(++)T,P
Bromine - wet	X	X	X
Butadiene (butylene)	+	+	+
Butyl alcohol (butanol)	++	++	++
Butyric acid	+	X	+
Cadmium sulfate	+	nd	++
Calcium carbonate	-	nd	+

Key to Symbols in Table

The following symbols 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. Further details have been given elsewhere.

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 ipy.
- can use; corrosion rate up to 50 mpy (0.05 ipy); 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"]; or, due to stress corrosion cracking, [symbol "S"].
nd no available data

Technical information
Corrosion resistance guide

Chemical Species (cont'd)

	Aluminum	HDG/Steel	316SS
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	+	(++)P,S

Carbolic acid - see phenol
Carbonic acid - see carbon dioxide
Caustic potash - see potassium hydroxide
Caustic soda - see sodium hydroxide

	Aluminum	HDG/Steel	316SS
Chlorine gas - wet	X	++	(-)P,S
Chloroform	(+)dry	+	(+)T,S
Chromic acid	+	nd	(+)P
Citric acid - dilute	(+)T,C	X	(++)P
Copper chloride	X	X	(-)P
Copper nitrate	X	nd	++
Copper sulfate	X	-	+
Cresol	+	+	+
Crude oil	++	++	++
Diethylamine	+	++	++

Dimethyl ketone - see acetone

	Aluminum	HDG/Steel	316SS
Ethyl acetate	(++)dry	++	+
Ethyl alcohol (ethanol)	++	++	++
Ethylene dichloride	(-)dry	++	(+)P,S
Ethylene glycol (glycol)	++	++	++
Ferric chloride	X	X	X
Ferric nitrate - 10%	X	nd	+
Ferrous sulfate	+	nd	(+)P
Formaldehyde (methanal)	(+)P	++	(++)T,C
Fluorine gas - moist	X	X	X

Formalin - see formaldehyde

	Aluminum	HDG/Steel	316SS
Formic acid (methanoic acid) - 10%	(+)T	X	(+)P,C
Furfural (furfuraldehyde)	+	nd	+

Furol - see furfural

	Aluminum	HDG/Steel	316SS
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	+

Technical information
Corrosion resistance guide

Chemical Species

	Aluminum	HDG/Steel	316SS
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	(+)P,S

Hypo - see sodium thiosulfate

	Aluminum	HDG/Steel	316SS
Hypochlorous acid	X	X	X
Iodine solution - satd.	X	X	X
Lactic acid	(+)T	nd	(+)P,I
Latex	++	-	++
Lithium chloride - to 30%	X	nd	++
Linseed oil	+	nd	.++
Magnesium chloride - 50%	X	X	(+)P,S
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	(+)P,S
Nickel sulfate	X	nd	+
Nitric acid	X	X	(++)I
Oleic acid	(++)T	nd	++
Oxalic acid - dilute	-	nd	+
Oxalic acid - saturated	(+)T	X	X
Paraformaldehyde - to 30%	+	nd	++
Perchloroethylene	+	X	(++)P
Phenol (carbolic acid)	+	+	++
Phosphoric acid - dilute	X	X	++
Phosphoric acid - 50%	X	X	(++)I
Picric acid	++	nd	+
Potassium bicarbonate - 30%	X	nd	++
Potassium carbonate	X	nd	++
Potassium chloride - to 25%	X	X	(++)P
Potassium dichromate - 30%	(++)T	X	++
Potassium hydroxide	X	nd	(+)S
Potassium nitrate	++	++	+
Potassium sulfate	++	++	++
Propionic acid (propanoic acid)	(+)T	X	(+)T
Propyl alcohol (propane)	++	++	++

Technical information
Corrosion resistance guide

Chemical Species

Prussic acid - see hydrocyanic acid

	Aluminum	HDG/Steel	316SS
Pyridine	+	nd	++
Soaps	+	-	+
Sodium bicarbonate - 20%	+	nd	++
Sodium bisulfate	X	X	(+)T
Sodium bisulfite	X	X	+
Sodium chloride - to 30%	X	X	(+)P,S
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	+	(-)P,S
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	++	++
Turpentine	+	+	(+)P
Water - acid, mine	X	-	(++)P
Water - potable	+	+	++
Water - sea	+	+	++
Xylene	++	nd	++
Zinc chloride - dilute	++	nd	(++)P,S

Technical information
Design considerations

Cable Tray & Ladder System
T&B Cable Tray includes a complete range of cable tray and ladder products conforming to BS EN 61537. To design a safe and economical system, it is necessary to consider all the loads applied to the system and establish the criteria by which it will be judged.

Loads applied to the system
The weight of cables to be fixed on the system will provide the basic loading data. However, it is always advisable to consider that future system requirements can be expected and allow 20% for additions at a later date. The following should also be considered:
1. The capacity charts provided in this catalogue assume that loading is uniform, both along length and across width. If a point
load is applied to the tray / ladder it will potentially have a significant effect and this must be quantified.
2. If components are incorporated in an exterior installation there may be other loading factors to consider, such as wind, ice and snow.

LOADING DIAGRAM

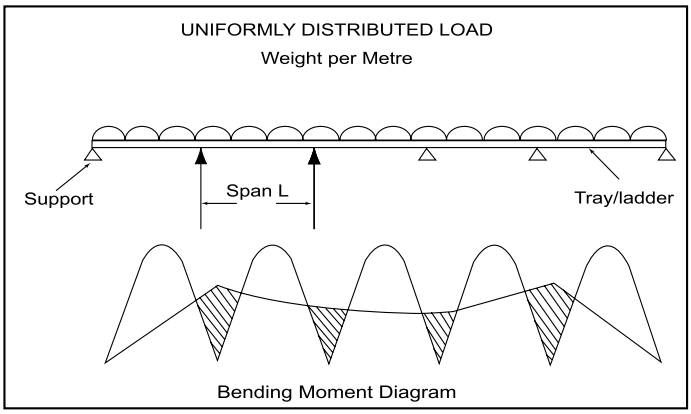


Diagram: 1

Safe loading and deflections
Cable tray & ladder acts as a structural load carrying beam when installed horizontally. The loads imposed and the type and location of supports will create a pattern of bending moment in the structure. Stress will be induced and deflections (vertical displacements) will be observed.

A properly specified system will ensure that the stress does not exceed to that which is safe for the materials used in the components. BS EN 61537 specifies that published safe working loads can be increased by 1.7 times without system collapse.

A suitable installation will require choice of appropriate style of tray / ladder and the location of supports. Increasing the span (horizontal distance between supports) will always reduce safe load carrying capacity and increase deflection.

Technical information
Design considerations

Location of supports and connections
Normally cable tray / ladder is connected together forming a continuous beam over several supports. A typical bending moment diagram shown on the previous page shows the following:

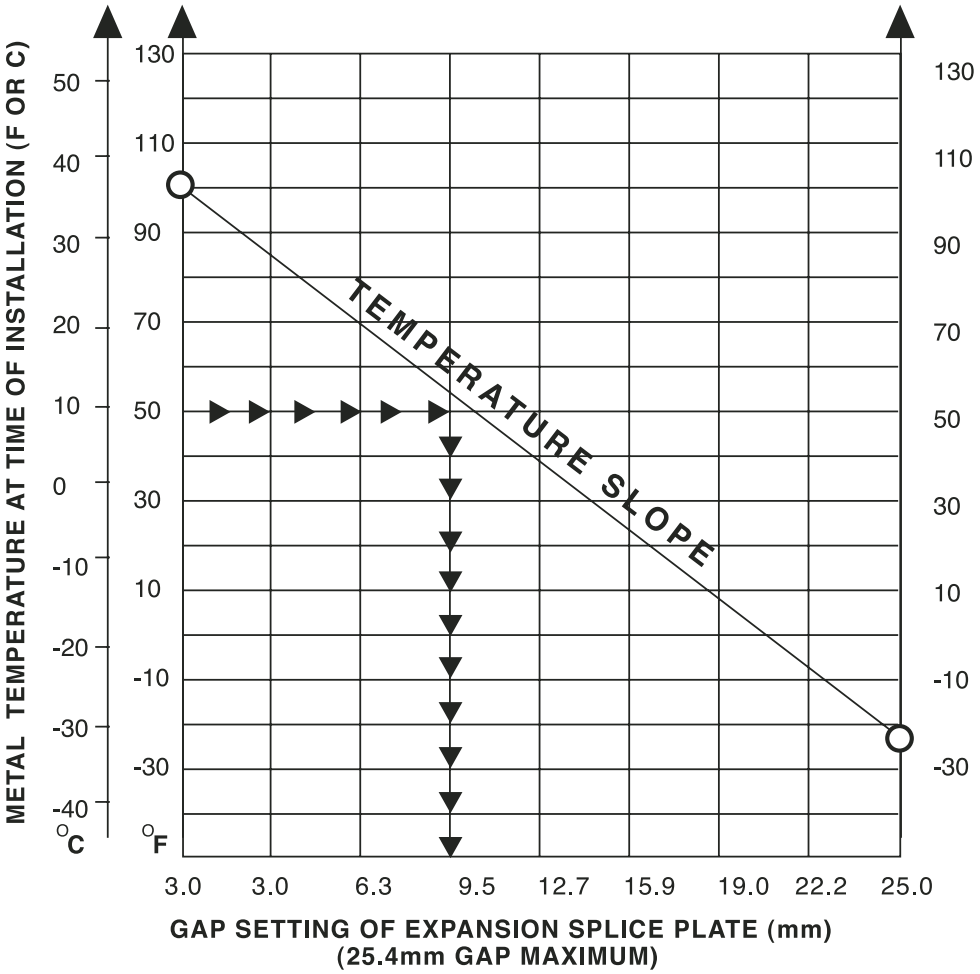
1. Bending moment is much larger in the end spans of the continuous beam than the intermediate spans; which will reduce the load carrying capacity in the end spans. If an installation requires full load carrying capacity along the whole length, than full capacity of the intermediate spans can be used if the end spans are reduced to 0.75L (length of intermediate spans).

2. Bending moment is zero at approximately 0.25L either side of the intermediate supports. These are therefore ideal places to locate connections between component lengths of cable tray/ladder. The installer should avoid placing connections in mid-span positions and at supports. These are positions of maximum bending moment.

3. The diagram shows a typical multi-span beam loading condition. If a loading condition occurs where there is only a single span loading condition it can be taken that the permissible load is reduced to 0.5 that shown for intermediate span in multi-span beams.

4. Only straight length beams are discussed above. When accessories (bends, tees, risers etc.) are involved in an installation they will require extra local support. It is always recommended to use fish plates in conjunction with connectors, particularly when cable trays of greater than 200mm are used. Where earth continuity is an important consideration in a cable tray or ladder system, bonding jumper leads should be used.

Cable ladders runs exposed to wide ambient temperature & the variation should incorporate expansion connectors. The chart below illustrates suitable gap setting.



Technical information
Design considerations

Structural Design
An installed cable tray system functions as a beam under a uniformly distributed load. The four basic beam configurations found in cable installations are simple, continuous, cantilever and fixed. Each is attached to the cable tray support in a different way.

Continuous Beam
Cable tray sections forming spans constitute a continuous beam configuration, the most common found in cable tray installations. This configuration exhibits characteristics of the simple beam and the fixed beam. For example, with loads applied to all spans at the same time, the ends spans function like simple beams, while the counterbalancing loads on either side of a support function like a fixed beam. As the number of spans increases, the continuous beam behaves increasingly like a fixed beam, and the maximum deflection continues to decrease. As this occurs, the system's load carrying capability increases.

Simple Beam
A straight section of cable tray supported at both ends but not fastened functions as a simple beam. Under a load, the tray will exhibit deflection. The load carrying capacity of a cable tray unit should be based on simple beam loading, since this type of loading occurs at run ends, offsets, etc., in any tray system. The NEMA/CSA Load Test is a simple beam, uniformly distributed load test, used primarily because it is easy to test and represents the worst case beam condition compared to continuous or fixed configurations. The only criterion for NEMA/CSA acceptance is the ability to support 150% of the rated load.

Fixed Beam
Like the cantilever beam, a fixed beam applies more to the cable tray supports than the tray itself, because both ends of a fixed beam are firmly attached to the supports. The rigid attachment prevents movement and increases load bearing ability.

Cantilever Beam
A cantilever beam has more to do with the cable tray supports than the tray. Attaching one end of a beam to a support while the other end remains unsupported, as when wall mounting a bracket, creates a cantilever beam configuration. Obviously, with one end unsupported, the load rating of a cantilever beam is significantly less than that of a simple beam.

Design Loadings
Basic cable trays are designed on the basis of maximum allowable stress for a certain section and material. The allowable cable load varies with the span, type and width of the tray.

Splicing
Since the need for a continuous system requires that siderails be spliced, splice plates must be both strong and easy to install. Aluminum Snap-In Splice Plate allows hands free installation of hardware for easier assembly. If practical, splices in a continuous span cable tray system should be installed at points of minimum stress. Unspliced straight sections should be used on all simple spans and on end spans of continuous span runs. Straight section lengths should be equal to or greater than the span length to ensure not more than one splice between supports.

Basic Design Stresses
Allowable working stresses are the basis for all structural design. Since they must be of such magnitude as to assure the safety of the structure against failure, their selection is a matter of prime importance. In practice, a basic design stress is determined by dividing the strength of the material by a factor of safety. The determining factors in establishing a set of basic design stresses for a structure are therefore the mechanical properties of the materials and suitable factors of safety. Yield strength and ultimate strength are the mechanical properties most commonly considered to govern design. Values for these properties are readily obtainable. In determining the factor of safety, the designer must usually be guided by current practice—the "standard specifications" adopted by various technical societies and associations—and his or her own judgment and experience.

Technical information
Design considerations

Factors of safety
Since a low value for the factor of safety results in economy of material, the designer seeks to establish a value as low as is practical, based on sound engineering judgment and experience. In making the determination, consideration of the following factors are highly important:

The accuracy with which the loads to represent service conditions are selected and assumed. If there is much doubt concerning these loads, the basic design stress will have to be more conservative than under conditions where the loads are known with considerable accuracy.

The accuracy with which the stresses in the members of a structure are calculated. Many approximations are used in structural design to estimate stress distribution. The choice of a factor of safety should be consistent with how accurate the analysis is. The more precise the method, the greater the allowable unit stress may be.

The significance of the structure being designed. The designer must keep in mind the relative importance of the structure and appraise the possibility of its failure causing significant property damage or loss of life. In this respect, the significance of the design will govern the choice of a factor of safety to a considerable extent. The factors of safety used in designing most common types of structures are an outgrowth of the experience gained from many applications and tests—even failures. The trend in recent years has been to reduce the factors of safety in line with improved quality of material and increasing knowledge of stress distribution. Further reductions may be made in the future as greater accuracy in determinations becomes possible and practicable.

Application of design stresses to cable tray systems
A cable tray manufacturer must design standard products to accommodate the great variations encountered in applications. The factors affecting the selection of a suitable basic design stress necessarily result in more conservative stresses than might otherwise be required.

An engineer, who is in a position to determine specific stress requirements with a far greater degree of accuracy, may consider that the manufacturer's basic design stresses are too conservative for a particular project. Using individual experience and judgment, he or she would establish a new set of basic design stresses, selecting those safety factors that would result in a cable tray system best suited to meet the projected service conditions. With these stresses, the engineer can easily calculate an increase or decrease in the manufacturer's loading data, since the load is always in direct proportion to the stress.

The factors of safety used in determining maximum allowable stresses are as follows:

Aluminum Alloys
a. For tension: the lower of 1/3 the minimum ultimate strength or 1/2 the minimum yield strength in tension.

b. For compression: the lower of 1/3 the minimum ultimate strength or 2/5 the minimum yield strength in compression.

c. For shear: the lower of 1/3 the minimum ultimate strength or 1/2 the minimum yield strength in shear.

For Hot Rolled Steels
a. For tension: the lower of 1/2 the minimum ultimate strength or the minimum yield point in tension times .61.
b. For compression: the lower of 1/2 the minimum ultimate strength or the minimum yield point in compression times .61.
c. For shear: maximum stress not to exceed a value of 2/3 the basic design stress for tension.

Design Efficiency
A tray designed to perform its required function with the minimum weight (which facilitates installation) requires the material to be used in the most effective manner. The design requirements of siderails are different from those of rungs or ventilated bottom; fabricated tray allows the designer to use different shapes and thicknesses of metal to the best advantage. The strength of the siderail and rungs is increased by the proper use of metal in the high strength heat treated aluminum or continuously rolled cold-worked steel sections.

Loading
It is important to note that, per NEMA Standard VE1, cable tray is not designed to support personnel. The user should display appropriate warnings to prevent the use of cable tray as walkways.

Cable Loads
The cable load is the total weight, expressed in kg/m or lb/ft, of all the cables that will be placed in the cable tray.

Seismic Loads
It is now known that cable tray systems can withstand stronger earthquakes than previously thought. The tray itself and the support material are highly ductile, and the cables moving within the tray tend to dissipate energy. However, if you have specific seismic specifications for selected cable tray, please consult to ensure your specifications are met.

Technical information
Load diagrams for beams

Cantilever beams
Uniform load

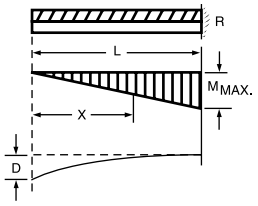
w per unit of length: total load w
Reaction R = wL = W

Moment at any point: M = $\frac{WX^2}{2} = \frac{WX^2}{2L}$

Maximum moment Mmax = $\frac{wL^2}{2} = \frac{WL}{2}$

Maximum deflection, D = $\frac{wL^4}{BEI} = \frac{WL^3}{BEI}$

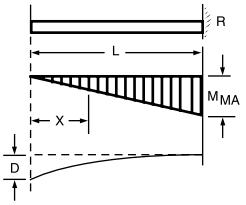
Maximum Shear, V = wL



Concentrated Load at Free End

Reaction; R = P
Moment at any point: M = Px
Maximum moment, Mmax = PL
Maximum deflection, D = $\frac{PL^3}{3EI}$

Maximum Shear, V = P



Continuous beams

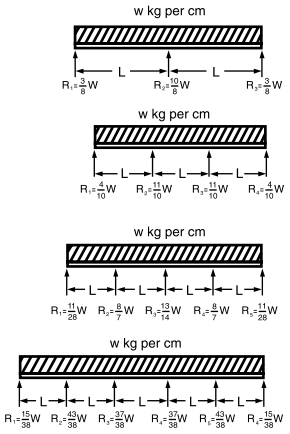
Two span

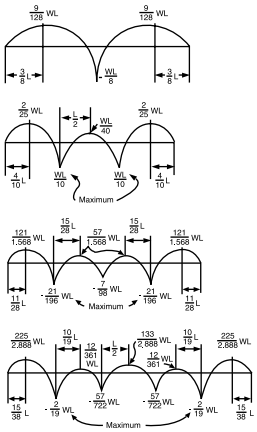
W = wL
R = Reaction, kg
L = Span Length, cm R1 = cw

Three span

Four span

Five span





Simple beams

Uniform load

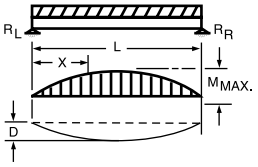
w per unit of length, total load w
ReactionS: Rl = Rr = $\frac{WL}{2} = \frac{W}{2}$

Moment at any point: M = $\frac{wX(L-X)}{2} = \frac{WX(L-X)}{2L}$

Maximum moment, AT CENTRE Mmax = $\frac{wL^2}{8} = \frac{WL}{8}$

Maximum deflection: D = $\frac{5wL^4}{384EI} = \frac{5WL^3}{384EI}$

Maximum Shear: V = $\frac{WL}{2}$



Concentrated load at any point

Reaction: RL = $\frac{Pb}{L}$, Rr = $\frac{Pa}{L}$

Moment at any point: X <= a,M = RlX = $\frac{PbX}{L}$

X >= a,M = Rr (L-X) = $\frac{Pa\ (L-X)}{L}$

Maximum moment, At X = a, Mmax = $\frac{Pab}{L}$

Maximum deflection, D = $\frac{Pab(L+b)3a(L+b)}{27EIL}$

Maximum Shear, V = $\frac{Pa}{L}$, WHEN a > b

Concentrated load at center

Reaction Rl = Rr = $\frac{P}{2}$

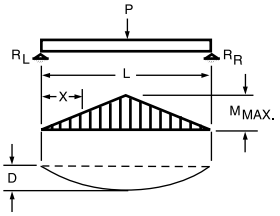
Moment at any point: X <= $\frac{L}{2}$, M = $\frac{PX}{2}$

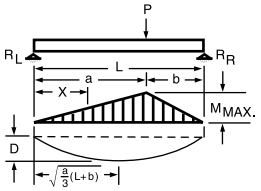
X > = $\frac{L}{2}$, M = $\frac{P\ (L-X)}{2}$

Maximum moment, At Center, Mmax = $\frac{PL}{4}$

Maximum deflection, D = $\frac{PL^3}{384EI}$

Maximum Shear, V = $\frac{P}{2}$





Engineering Data & Specifications
Design Data – Metal Framing Channel

Table 3
Design loads for channel used as beam or column

Beam loads
Table 3 contains simple beam, uniformly-distributed loads calculated at 25,000 psi material stress. Beam loads are based on channel being loaded across the x-x axis. Loads are also listed at reduced deflections for long spans.

Maximum loads at 25,000 psi stress
Maximum allowable deflections and maximum uniform loads for all spans at 25,000 psi material stress.

Reduced load for all 1/180 Span Deflection
For moderate deflections on the longer spans, reduced loads are listed which will produce a deflection equal to 1/180 of the span. When maximum loads do not induce deflections exceeding 1/180 x the span length reduced loads are not required.

Reduced load for 1/360 Span Deflection
For very slight deflections on the longer spans, reduced loads are listed which will produce a deflection equal to 1/360 of the span. When maximum loads do not induce deflections exceeding 1/360 x the span length reduced loads are not required.

Concentrated loads
To obtain values for concentrated loads from Table 3, multiply uniform load by 0.5 and deflection by 1.25.

Slotted, Punched, or KO Channel
Reduce load rating by 5%.

Long span deep beams
Support in a manner to prevent rotation at supports and tie between supports to prevent twist.

Column loads
Allowable column loads given are for uniform axial loading with pinned ends. For eccentric loading or other end conditions reduce allowable loads according to standard engineering practice.

Dynamic loads
Allowable dynamic loads may be calculated by dividing the static loads shown in Table 3, by 2.08.

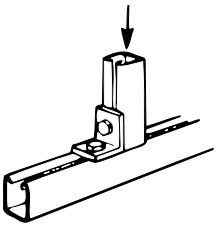
Maximum beam and column loading for special materials is multiplied with the following factors:

Channel Type	Beam Type	Column Load
Stainless Steel	1	1
Aluminum	0.33	0.33

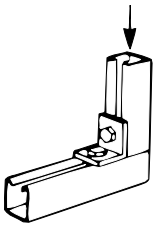
Warning
Load tables, charts and design criteria provided in this section are intended as guides only. Selection of proper product, installation intervals, erection, and placement are the responsibility of the user. Thomas & Betts reserves the right to change material and finish specifications without notice, to improve its products.

Engineering Data & Specifications
Design Data – Metal Framing Channel

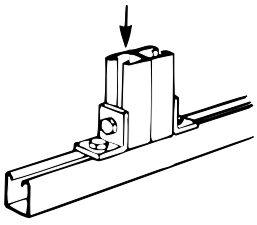
Table 4
Safe bearing loads for 1-5/8 in. channel and combinations.
Safety factor of 2-1/2



Section	Recommended Load in lb.
A1200	5000
A1400	3500
B1200	6000
B1400	3400
C1200	5000
E1200	5000
H1200	4000



Section	Recommended Load in lb.
A1200	3500
A1400	2500
B1200	4000
B1400	2600
C1200	3500
E1200	3500
H1200	2000

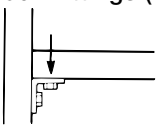


Section	Recommended Load in lb.
A1200	8000
A1400	5500
B1200	9000
B1400	4800
C1200	8000
E1200	8000
H1200	5500

Table 5
Design load table for typical channel connections.

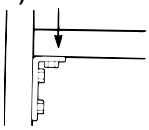
Safety factor of 2-1/2 based on ultimate strength of the connection. Load diagrams indicate up to three design loads, for 12 gauge and 14 gauge channel applications.

90° Fittings (When used in position shown)



Both ends supported

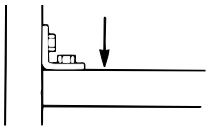
AB202	A1200	1500 lb.
	A1400	1000 lb.



Both ends supported

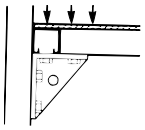
AB203	A1200	2000 lb.
	A1400	1500 lb.

AB201	**AB203**
700 lb.	700 lb.



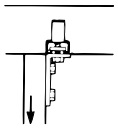
Both ends supported

AB202	A1200	1000 lb.
	A1400	650 lb.

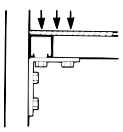


Both ends supported

AB213	A1200	3000 lb.
AB214	A1400	2000 lb.

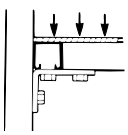


AB20	1500 lb.



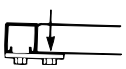
Both ends supported

AB205	A1200	2000 lb.
AB216	A1400	2000 lb.



Both ends supported

AB204	A1200	1500 lb.
AB215	A1400	1000 lb.



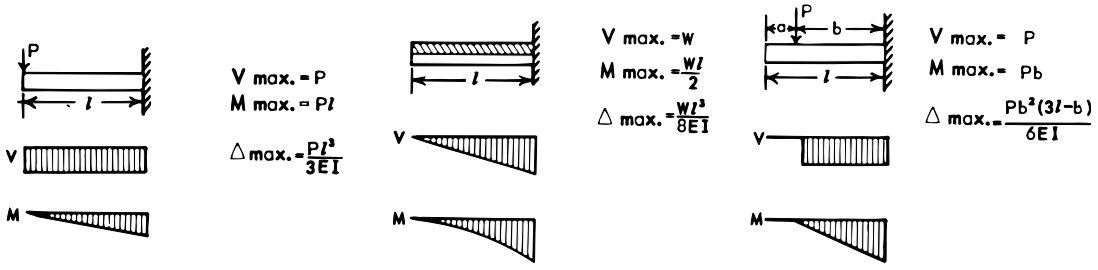
Both ends supported

AB206	A1200	1000 lb.
A1400	800 lb.	

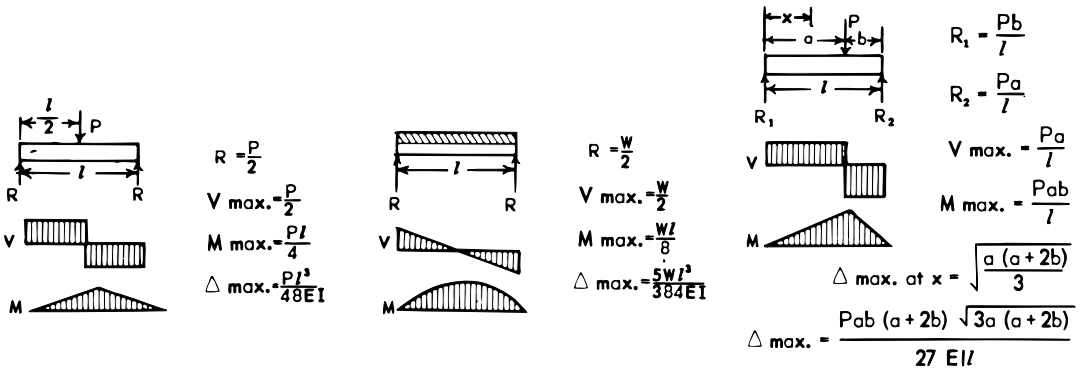
Technical information
Metal Framing

Engineering Data & Specifications
Design Applications

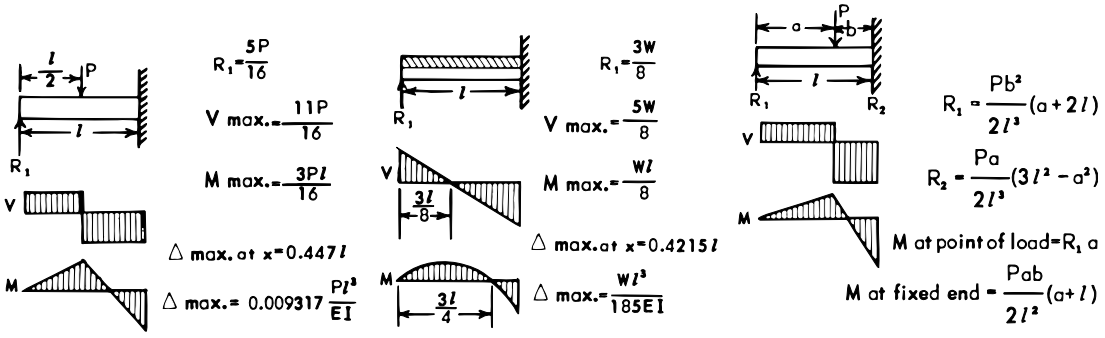
Cantilever beams



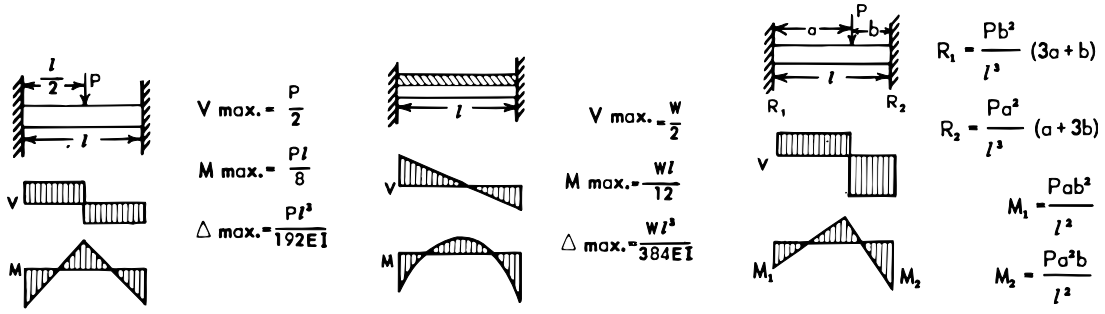
Simple beams



Beams fixed on one end, supported at the other end



Beams fixed at both ends



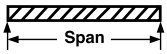
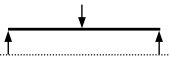
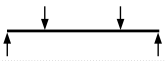
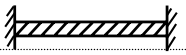
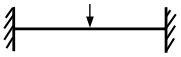
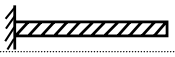
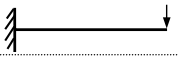
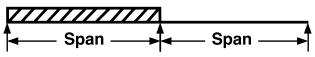
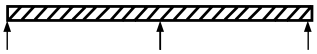
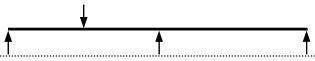
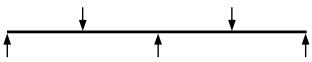
R – Reaction
M – Moment
P – Concentrated load

W – Total uniform load
V – Shear

Δ – Deflection
E – Modulus of Elasticity
I – Moment of Inertia

Engineering Data & Specifications - Design Applications

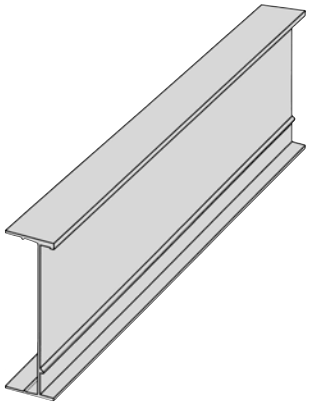
Table 6
Conversion Factors for Beams with Various Static Loading Conditions
Load tables on pages A59 through A63 for A, B, C, E, and H Series channel are for single span beams supported at the ends. These can be used in the majority of cases. There are times when it is necessary to know what happens with other loading and support conditions. Some common arrangements are shown in Table 6. Simply multiply the loads from the Design Load Tables times the factors given in Table 6.

	LOAD AND SUPPORT CONDITION		LOAD FACTOR	DEFLECTION FACTOR
1	Simple beam - uniform load		1.00	1.00
2	Simple beam - concentrated load at center		0.50	1.25
3	Simple beam - two equal concentrated loads at 1/4 points		1.00	1.10
4	Beam fixed at both ends - uniform load		1.50	0.30
5	Beam fixed at both ends - concentrated load at center		1.00	0.40
6	Cantilever beam - uniform load		0.25	2.40
7	Cantilever beam - concentrated load at end		0.12	3.20
8	Continuous beam - two equal spans - uniform load on one span		1.30	0.92
9	Continuous beam - two equal spans - uniform load on both ends		1.00	0.42
10	Continuous beam - two equal spans - concentrated load at center of one span		0.62	0.71
11	Continuous beam - two equal spans - concentrated load at center of both spans		0.67	0.48

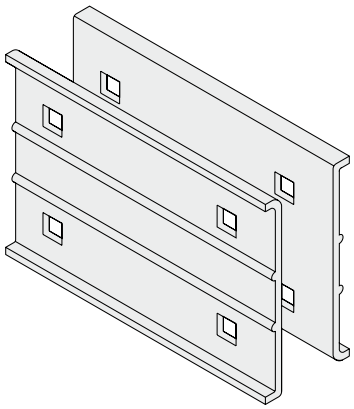


Technical information
Unique design features

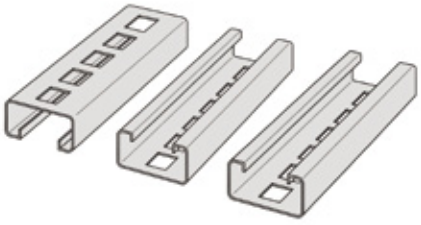
I-Beam siderail (Aluminium)
Maximum structural strength



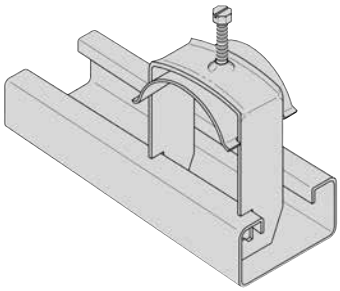
Snap-in splice plates (Aluminium)
Snap-in aluminium splice plates for easy installation



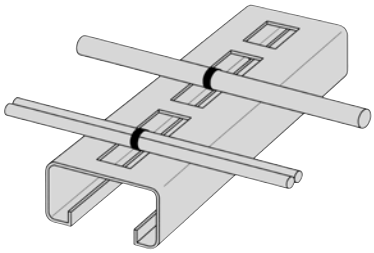
Alternating rungs (Aluminium & steel)
Alternating rungs for top and bottom accessory installation and cable lashing



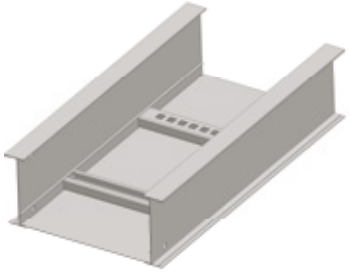
Continuous open slot (Aluminium & steel)
Rungs have continuous open slot to accept standard strut pipe clamps and provide complete barrier strip adjustability



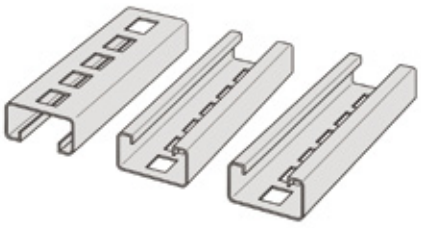
Ty-Rap® cable tie slots (Aluminium & steel)
Exclusive Ty-Rap® cable tie slots on 1 in. Centres on all ladder and ventilated bottoms. Secure cables without kinks and keeps cables uniform



Added support (Aluminium & steel)
Aluminium and steel solid bottoms are constructed with a flat sheet for added cable protection



Extra wide rung design (Aluminium & steel)
Extra wide rung design for maximum cable bearing surface



Adjustable barrier strips (Aluminium & steel)
Barrier strips are fully adjustable (side to side) for use in straight sections and fittings

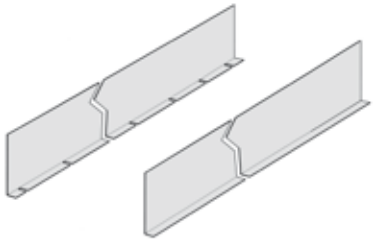


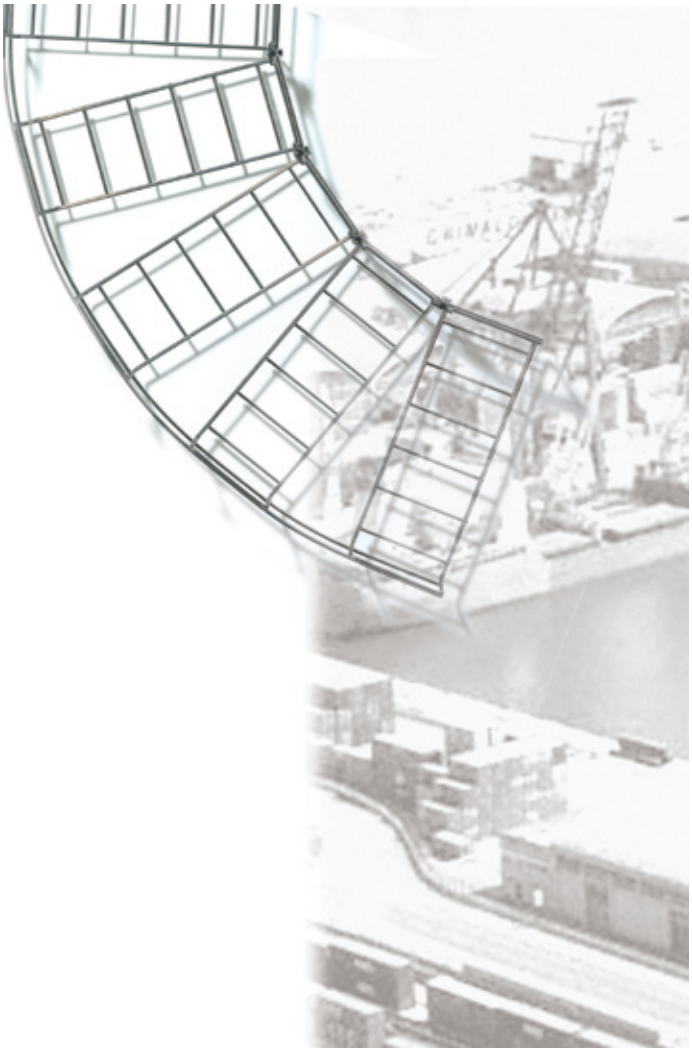
ABB Steel wire cable trays

Technical details

- mechanical protection against impacts Ik 10 (up to 20 J)
- classified in “D” class as for the drilling index >30% and in “Z” class as for free base index >90%, in compliance with EN 61537 Standard
- available in three different heights and with very resistant finishing:

- sendzimir painted galvanization (mica-colors grey)
- sendzimir galvanization (on request)
- hot dip galvanization after production (on request)

- the universal joint guarantees electrical continuity even in the painted sendzimir version
- painted with thermosetting, epoxy-polyester powders; average thickness 60 micron
- cable trays can be equipped with couplers, corners, shelves and other products of the ABB SACE metal trunking range
- fields of application: industrial, commercial and naval



Non-metallic cable trays

Non-metallic cable tray is tested and proven in the harsh environment of the offshore oil & gas industry, where exposure to adverse and corrosive conditions demands a solution with unique material properties. Non-metallic cable tray is lightweight, neither rusts nor requires painting, and provides the load capacity of steel.

Non-metallic Cable Tray Systems have been tested and proven in the harsh environment of the offshore oil and gas industry. Subject to the corrosive conditions inherent in petroleum products, plus the daily punishment of exposure to wind, weather and saltwater – Non-metallic Cable Tray has stood up!

Non-metallic Cable Tray gives you the load capacity of steel plus the inherent characteristics afforded by our Pultrusion Technology: non conductive, non magnetic and corrosion-resistant. Although light in weight, their strength-to-weight ratio surpasses that of equivalent steel products. Non-metallic Cable Tray will not rust, nor does it ever require painting. Available in both polyester and vinylester resin systems, they are manufactured to meet ASTM E-84, Class 1 Flame Rating and self-extinguishing requirements of ASTM D-635. The CSA/NEMA loadings, both listed in this brochure, are load-tested in accordance with NEMA/CSA guidelines.

colors : Slate grey (polyester resin) and Beige (vinyl ester resin). Custom colors are available on request.

Non-metallic cable tray & strut systems
T&B offers non-metallic cable channel in solid or ventilated straight sections. Horizontal and vertical solid bottom fittings are also available to complete your system layout.

T&B is proud to present its new line of Non-metallic Struts and Accessories. You'll find a complete selection of non-metallic accessories, fasteners, hangers, pipe clamps and channels. Most T&B Strut Products are available in a choice of resins – either vinyl ester or polyester. Our design and engineering staff is ready to help you select the material that best suits your needs.

E-Klips spring steel fasteners
E-Klips spring steel fasteners offer a quick, easy and reliable method of fixing services to steelwork without the need for bracket making, drilling holes or use of nuts and bolts.

E-Klips fasteners are suitable for almost every application, including cables, cable tray, ducting, pipework, trunking, light fittings, conduit and suspended ceilings.

Large radius cable tray
Custom-built cable support for petrochemical project tanks or towers. This cable tray system is usually installed around the outer perimeter of the catwalks and stairs which are mounted on the tank or vessel.

Designed to special order to meet specific project needs. Perforated cable tray, Channel tray, Non-metallic cable tray, ExpressTray™, Wire frame cable tray, E-Klips spring steel fasteners, Large radius cable tray

Cable ties and fasteners
ABB offers a broad range of cable ties designed to make the task of fastening, bundling, clamping and managing wires easier for all types of commercial, industrial and OEM applications.

Strength and reliability are hallmarks of the cable tie range, which are available in a variety of styles under the core brands: Ty-Rap®, Ty-Met®, Ty-Fast®, Ty-Grip® and Deltec® .

Terminals and connectors
Sta-Kon®, Shield-Kon®, Spec-Kon® Color-Keyed® and Dragon Tooth® connectors offer secure, reliable, and highly conductive termination of shielded cables, power cables and magnet wire.

All connectors are complemented by manual and hydraulic crimping tools to enable fast, high quality crimps with the minimum of effort.

Flexible conduit systems
ABB's flexible conduit provides excellent protection for electrical cables against aggressive/corrosive environments, moisture and liquids, pressure loads, oil, dust, chemical pollutants and extreme temperatures.

Flexible conduit is available under the core brands: Adaptaflex®, Kopex, Kopex-Ex, PMA, Harnessflex.

Heat shrink technologies
Shrink-Kon® heavy, medium and thin wall heat shrink products protect cables and connectors against moisture, corrosion and abrasion. Additionally providing mechanical and electrical insulation, Shrink-Kon® products range from highly flexible to semi-rigid for a multitude of applications in industry and OEM.

Imperial to metric conversion chart
All cable ladder measurements in this publication are based on imperial sizes. Please use the following chart for conversions of imperial measurements to metric as required when assessing cable ladder projects.

inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
1/4”	6.35 mm	1 1/2”	38.1 mm	4”	101.6 mm	12”	304.8 mm	26 1/2”	673.1 mm
5/16”	7.94 mm	1 5/8”	41.28 mm	4 1/8”	104.78 mm	14”	355.6 mm	27”	685.8 mm
3/8”	9.53 mm	1 11/16”	42.86 mm	4 5/8”	117.48 mm	14 1/2”	368.3 mm	28 1/8”	714.38 mm
1/2”	12.7 mm	1 7/8”	47.63 mm	5”	127 mm	15”	381 mm	30”	762 mm
9/16”	14.29 mm	2”	50.8 mm	5 3/8”	136.53 mm	16 7/8”	428.63 mm	32”	812.8 mm
5/8”	15.9 mm	2 1/8”	53.98 mm	6”	152.4 mm	18”	457.2 mm	32 1/2”	825.5 mm
3/4”	19.05 mm	2 1/4”	57.15 mm	6 11/16”	169.86 mm	18 3/4”	476.25 mm	33”	838.2 mm
13/16”	20.64 mm	2 1/2”	63.5 mm	7”	177.8 mm	20”	508 mm	35 5/8”	904.88 mm
7/8”	22.23 mm	2 5/8”	66.68 mm	7 1/4”	184.15 mm	20 1/2”	520.7 mm	36”	914.4 mm
1”	25.4 mm	3”	76.2 mm	8”	203.8 mm	21”	533.4 mm	38 1/2”	977.9 mm
1 1/8”	28.58 mm	3 1/4”	82.55 mm	8 1/2”	215.9 mm	22 1/2”	571.5 mm	41 1/4”	1047.75 mm
1 1/4”	31.75 mm	3 1/2”	88.9 mm	9”	228.6 mm	24”	609.6 mm	46 7/8”	1190.63 mm
1 7/16”	36.51 mm	3 5/8”	92.08 mm	11 1/2”	292.1 mm	26”	660.4 mm	48”	1219.2 mm

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