Cable Support Solutions

Wibe Cable Trays

For demanding applications

مصر الشام
للصناعات الكهربائية المتكاملة
APV®
Assured Product Value Egypt
CABLES MANAGEMENT SYSTEMS


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TECHNICAL SERVICES

A crucial factor in the job of a factory is to provide continuous technical services and consultations.
That's why WATAN has invested in a professional team of researchers and specialists.

WATAN has recruited brilliant graduates and experienced engineers having the appropriate knowhow on the on latest technology changes and development in the steel building materials industry.

The product range is developed and updated according to the relevant standards of fabrication across markets,whilst the business processes are evaluated to achieve maximum efficiency.

WATAN R&D Core Objectives
- Carry out responsibilities effectively in a safe and healthy work environment.
- Develop and implement research programs relevant to the products and solutions introduced and ensure that the results are communicated clearly in-house and among the clients , concisely and accurately.

SOCIAL RESPONSIBILITY

Being socially responsible is a part of who we are and how we do our business. We aim to provide useful products and services, to provide jobs and development opportunities for our communities, and to gain satisfaction through meaningful work.
We make a difference by acting on the values and principles of our societies and we inspire others to do so. At WATAN, we anticipate and reduce threats caused by environmental changes or natural disasters, and we are well adapted to significant social changes.
We contribute to a more sustainable society by means of value and support to our consumers, supply chains, and stakeholders. We are keen to identify ways they can improve our impacts on the people and places we work and live in, and thereby become more valuable and valued members of society.

- Organizational governance: We promote accountability and transparency at all levels, thus, promoting responsibility
- Human care: We treat individuals with respect; and make efforts to help members of vulnerable groups
- Labor practices: We provide just, safe and favorable conditions to workers
- Environment: At WATAN, we Identify and improve environmental impacts of our operations, including the resource use of natural resources and waste disposal.
- Fair operating practices: Practicing accountability and fairness in dealings with other businesses

At WATAN, we are committed to continuous improvement – ongoing learning, process review and innovative thinking that foster new initiatives; and better practices. Our environmental programs evolve to meet today's changing needs while; protecting resources for future; generations.

HEALTH AND SAFETY

The Factory Management regard the health and safety of the employees, clients and all others that may be affected by their operations to be of a major importance.

In support of this, the management promotes health and safety throughout the Factory's operations and endeavour to engender a positive attitude in all employees towards the prevention of accidents and maintenance of healthy working arrangements.

The Factory satisfies the requirements of the Health, Safety and related legislation by setting out the responsibilities of all levels of staff and the arrangements for carrying out those responsibilities and in particular do what is reasonably practicable to:
1. Maintains safe & healthy working conditions.
2. Ensures that all facilities and equipment are safe and properly maintained.
3. Provides products that can be applied and used safely and without risk to health.
4. Provides and maintain working procedures, that are safe and without risk to health, throughout the its operations in respect of:
   - The use, handling, storage, transport and disposal of materials and substances.
   - The use of factory equipment.
   - Potential emergency situations, including first aid, fire and escape of substances.
5. Ensure the competence of employees.

The factory is an OHSAS 18001:2007 Occupational, Health and Safety Management certified Factory.

ENVIRONMENTAL AWARENESS

WATAN is committed to the following:

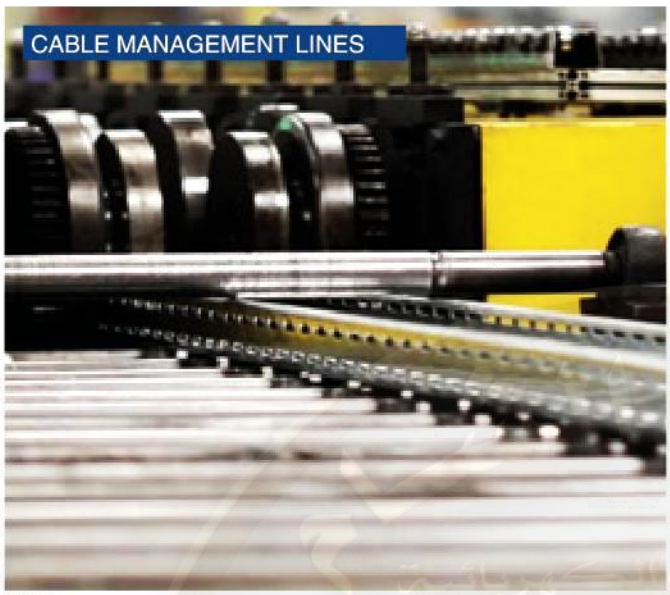
- Compliance with all statutory and regulatory requirements related to its activities, products and services and the environmental aspects.
- Identifying quality and environmintal objectives by review and audit of the processes both in-house and on-site.
- Formally setting objectives based on the result of the process reviews and their significance in relation to their impact on the environment and the continual improvement of the quality and environmental management system.
- Implementing management programs to achieve these objectives.
- Investing in a well-trained and motivated workforce.
- Working closely with suppliers and customers to ensure mutual understanding and benefits of the environmental aspects consideration.
- Reviewing our policy and objectives as part of the Management Review Process.
- Communicating this policy to all persons working for or on behalf of the organization.
- Preventing and minimizing pollution to the environment.

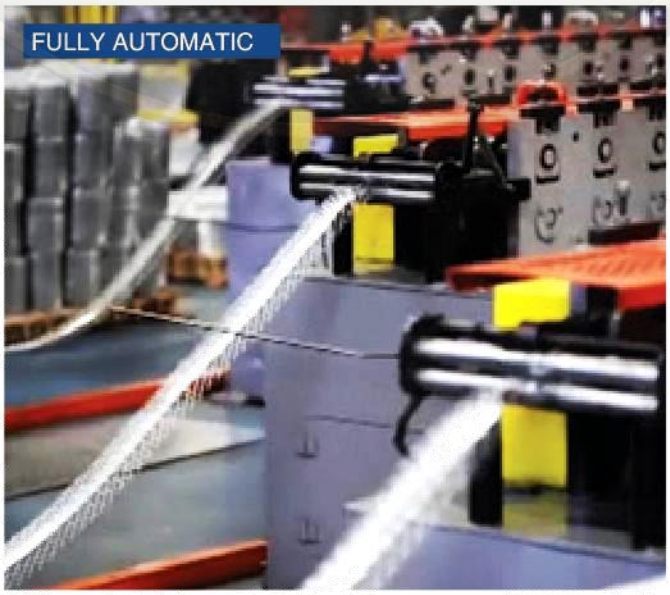
WATAN operates under environmental management system certification BS EN ISO 14001:2004 and maintain it through registration and annual review.

facilities are equipped with the most technologically advanced machinery amongst are Laser Cut Machines, Robot Bending Sets, Welding Robot Sets, sophisticated Cable Management Production Lines, as well as Specialized Industrial Sections for its Hot Dip Galvanization facilities.

MACHINES

WATAN latest machineries ensure a top - notch high end products delivered with accuracy and within a timely manner.

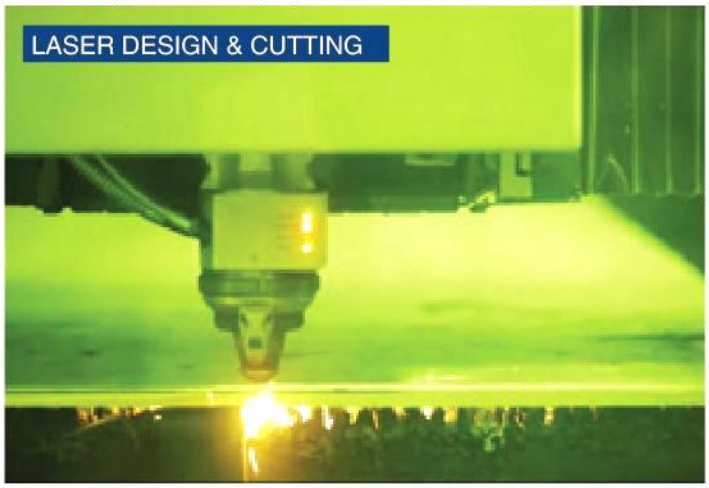


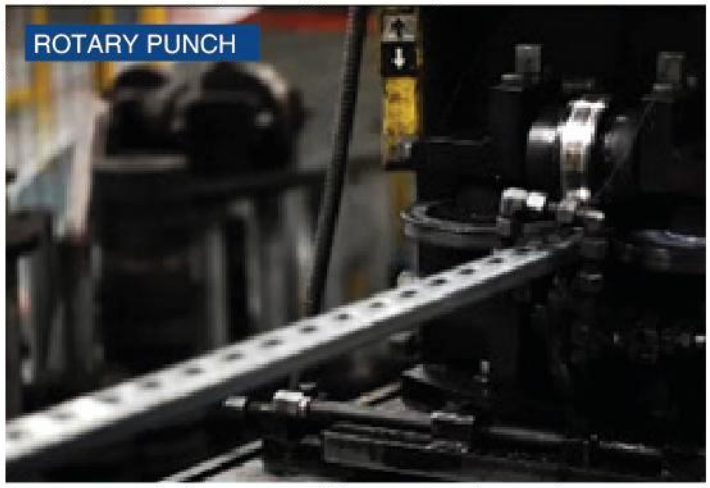


MACHINES


HIGH CAPACITY LIVES


HOT-DIP GALVANIZATION

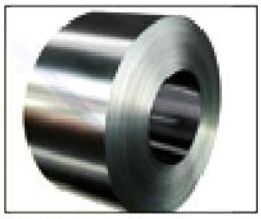

LASER DESIGN & CUTTING


ROTARY PUNCH

Materials & Finishes

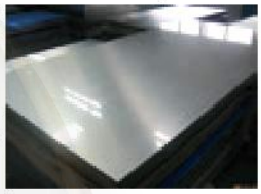
Mild Steel - Plain

A. Hot Rolled Steel Plates, Sheets and Coils S235 JR, as per:
EN 10025 -2 / DIN 17100 / BS 4360 / ASTM A 653M / ASTM A 1011 / ASTM A 1011-01a
JIS 3101 / JIS 3106 / GB 700 / GB / T1591.
ASTM A 907 / ASTM A 1018M.
ASTM A 570M / ASTM A 572M.
B. Cold Rolled Steel DC 01, as per:
EN 10130 / DIN 1623, Part 2 / BS 1449:1 / ASTM A366 / ASTM A 1008 / JIS G 3141 / GB 699.
EN 10131 / ASTM A 568M



Mild Steel - Galvanized

C. Continuously Pre- Galvanized Hot–Dip Zinc Coated Steel DX 51D + Z, as per:
EN 10327 / DIN 17162 / BS 2989/ ASTM A 527M / ASTM A 653M / JIS G 3302.
EN 10326/ EN 10142 / ASTM A 526, 527, 528/ ASTM A 146



D. Electro Galvanized Steel (Electrolytic Coating) DC01 + ZE v, as per:
EN 10152 / DIN 17163 / ASTM A591 / JIS G 3313 / JIS G 3141/BS 1449:1
EN 10131

Aluminum

E. Aluminum 6063 T6

Stainless Steel

F.Austenitic Stainless Steels SS 304 & SS 316, as per:
ASTM A 240 /EN 10088-2/ DIN 17400 / BS 1449:2 / ASTM A480 / ASTM A666 / ISO 3506 / EN 10028-7 /JIS G 4304
F.١ Stainless Steel Fasteners EN 3506
F.٢ Stainless Steel Wire BS 1554 ,ASTM A276

Finishes

1- Hot–DIP Galvanization after Fabrication

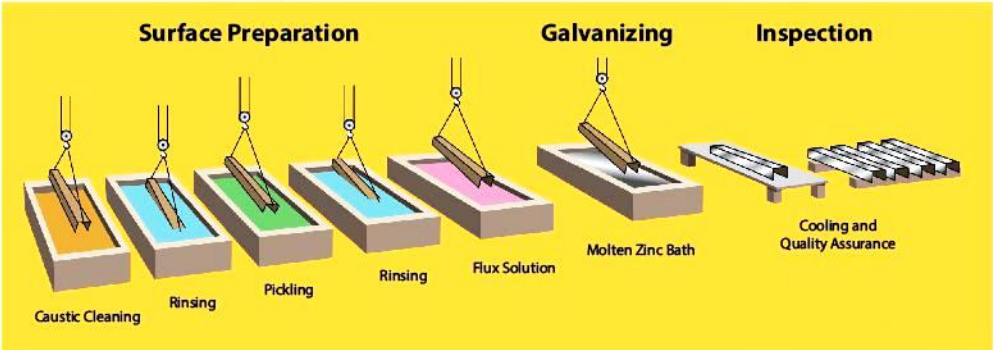
as per:
ASTM A 123 / ASTM A 153 / ISO 1461.
BS 729 / DIN 50976

2- Zinc Electroplating after Fabrication

as per:
ASTM B633 / EN 12329 / ISO 4042/ BS 1706 / BS 3382 / DIN 50961

3- Powder Coating

Epoxy / Polyester / Epoxy & Polyester
BS 3900 / ISO 2409 / ISO 1519 / ISO 1520



The right surface treatment – crucial for a successful outcome

A cable support installation is considered to be a long-lasting solution and the life expectancy is dependent on the environment in which it is placed. A thorough investi gation of the setting in terms of corrosion, pollution, humidity, salt, sanitary regulations etc will help you make the best choice. Our range of cable trays and accessories covers all types of surface treatments, enabling a reliable, cost-efficient and long-lasting cable support solution.

W1 Electro-galvanized

Indoor environments: Schools, shops, hotels, offices, sports halls etc.

- Very low environmental corrosion.
- Heated areas.
- Arid atmosphere.
- Insigni cant quantities of pollutant.
- DIN 50961/ISO 2081.

W2 Pre-galvanized

Partly outdoor environments: Industries, sports halls, warehouses, shops, rural outdoor areas etc.

- Low environmental corrosion.
- Non-heated areas with uctuating levels of temperature and humidity.
- Few instances of condensation and low levels of airborn pollution.
- SS-EN 10327:2004.

W3 Hot-dip galvanized

Indoor- and outdoor environments: Urban and light industrial areas, breweries, dairies, laundries etc.

- Average environmental corrosion.
- Areas with average levels of humidity and some airborn pollution caused by production processes.
- Atmospheres containing some salt or average levels of airborne pollution.
- EN-ISO1461:2009

W4 Hot-dip galvanized

Indoor- and outdoor environments: Chemical plants, industrial and coastal areas, swimming pools, farms, dockyards etc.

- High environmental corrosion.
- Areas with high levels of humidity and considerable air - born pollution.
- Atmospheres with average salt content or discernible levels of airborne pollution.
- EN-ISO1461:2009.

W5-I Zinkpox (Hot dip galv. + powder coated) Stainless steel AISI 304

Indoor- and outdoor environments: Chemical and heavy industries, tunnels, swimming pools, dockyards etc.

- Very high (industrial) environmental corrosion.
- Areas with almost permanent condensation, large quantities of airborn pollution, high levels of humidity and aggressive atmospheres
- SS2333 RF/AISI 304

W5-M Stainless steel, AISI 316L

Indoor- and outdoor environments: Heavy industries, coastal and offshore areas, purifying plants etc.

- Very high (marine) environmental corrosion.
- Areas with almost permanent condensation and large quantities of airborn pollution. Atmospheres with high salt content.
- SS2348 SF/AISI 316L

Corrosion classes

The life expectancy of a cable support system is dependent on the environment in which it is placed. Therefore, it is important to establish the corrosive properties of an environment to ensure that the right treatment and the right material are chosen.
The table below shows various corrosion classes. As a guide, we have included the surface treatment recommended by Watan Electric for the different classes.

On the next page, we briefly outline the various surface treatments and materials.
As regards environmental corrosion, a steel design component can usually be assigned to one of the corrosion classes (W1 to W5-M) as shown in table A. Reference values for the average level of corrosion in steel and zinc are given in table B.
The corrosion classes comply with those stipulated in SS-EN ISO 2-12944.

Table A
Corrosion classes as stipulated by SS-EN ISO 2-12944 with atmospheric corrosion levels and examples of the environment in which they are most suitable for use.

Corrosion class	Environmental corrosion	Examples of typical environments in temperate climates (informative)			
		Outdoors	Indoors		
W1	Very low	–	Heated areas with arid atmosphere and insignificant quantities of pollutant, e.g. offices, shops, schools and hotels.	**Electro-galvanized** DIN 50961/ISO 2081	
W2	Low	Atmospheres with low levels of airborne pollution. Rural areas.	Non-heated areas with fluctuating levels of temperature and humidity. Few instances of condensation and low levels of airborne pollution, e.g. sports halls and warehouses.	**Pre-galvanized** Z 275 in accordance with SS-EN 10327:2004	
W3	Average	Atmospheres containing some salt or average levels of airborne pollution. Urban and light industrial areas. Areas affected by coastal conditions.	Areas with average levels of humidity and some airborne pollution resulting from production processes, e.g. breweries, dairies, laundries.	**Hot-dip galvanized** after manufacture in accordance with EN-ISO 1461:2009	Zinc+ coating
W4	High	Atmospheres with average salt content or discernible levels of airborne pollution. Industrial and coastal areas.	Areas of high humidity and considerable airborne pollution as the result of production processes, e.g. chemical plants, swimming pools and dockyards.		
W5-I	Very high (industrial)	Industrial areas with high levels of humidity and aggressive atmospheres.	Areas with almost permanent condensation and large quantities of airborne pollution.	**Zinkpox®** HDG+powder coating **Stainless steel** SS2333 AISI 304	Thermoplastic coating*
W5-M	Very high (marine)	Coastal and offshore areas with high salt content.	Areas with almost permanent condensation and large quantities of airborne pollution.	**Stainless steel** SS2348 AISI 316L	

* Only for Wibe Cable ladders

Table B
Mass losses for steel and zinc in various corrosion classes

Corrosion class	Mass loss per surface unit and thickness reduction (1 year of exposure)			
	Steel		Zinc	
	Mass loss (g/m¹)	Thickness reduction (µm)	Mass loss (g/m²)	Thickness reduction (µm)
W1	≤ 10	≤ 1.3	≤ 0.7	≤ 0.1
W2	> 10 to 200	> 1.3 to 25	> 0.7 to 5	> 0.1 to 0.7
W3	> 200 to 400	> 25 to 50	> 5 to 15	> 0.7 to 2.1
W4	> 400 to 650	> 50 to 80	> 15 to 30	> 2.1 to 4.2
W5-I	> 650 to 1500	> 80 to 200	> 30 to 60	> 4.2 to 8.4
W5-M	> 650 to 1500	> 80 to 200	> 30 to 60	> 4.2 to 8.4

¹ Corrosion speed is generally higher when the material is first exposed

Surface treatments

Wibe Cable Trays – Technical and material data

Specification:	Cold formed steels: DX5xD acc. to EN 10346, DC0x acc. to EN 10130, DD1x acc. to EN10111
	Structural steels: S235 and S355 acc. to EN 2-10025 AISI 316L acc. to EN ISO2-10088
Density:	7.85-7.7 kg/m³
Surface treatment:	• Pre-galvanized (>20 µm): EN 10346
	• Pre-galvanized (>20 µm), powder coated white NCS S 0500-N
	• Hot-dip galvanized (55-70 µm): EN ISO 1461
	• Zinkpox, hot-dip galvanized (55-70 µm) + polyester coating, white RAL 9010
	• Passivated (Stainless steel)
Resistance to impact	20 J (IEC 61537)
Temperature range	From –40°C to +120°C

Electro-galvanized
Products are manufactured in accordance with DIN 50961/ISO 2081. Such products are intended for use only in warm, dry areas with negligible pollutant levels.

Pre-galvanized
Products are manufactured from Z 275 pre-galvanized sheet steel in accordance with SS-EN 10327:2004. Under normal conditions, surface sections created during cutting and drilling will repair themselves, providing superb anti-corrosion protection.

Hot-dip galvanized
Watan Electric has one of the most modern hot-dip galvanization plants in the Nordic countries. The hot-dip process is continuous, guaranteeing a high and even quality. The manufactured products are hot-dip galvanized in accordance with EN-ISO 1461:2009 whilst nuts and bolts are hot-dip galvanized in accordance with SS-EN ISO 10684:2004. This form of galvanization affords very good value-for-money anti-corrosion protection in atmospheres with a pH value of between 6 and 13. However, in acidic environments where pH levels fall below 6 and in alkaline environments where the pH value exceeds 13, the protective zinc layer breaks down relatively quickly.

Zinc+
Zinc+ surface treatment for some accessories (EN 10346) with a metallic Zinc-based alloy coating containing Aluminium and Magnesium that offers ultimate corrosion resistance in aggressive environments (e.g. chloride & highly alkaline). In many cases a good alternative to hot-dip galvanization. Excellent surface finish with self-repairing protection of cut edges (galvanic protection).

Zinkpox ®
The Zinkpox® method involves applying a homogenous polyester coating to the zinc layer. Besides resisting light-initiated degeneration and weathering, this powder coating has excellent mechanical properties as regards impact resistance and adhesion. It is also resistant to most chemicals. Compared to hot-dip galvanizing, applying a polyester coating to the zinc layer more than doubles the service life of treated components. The zinc layer prevents the development of filiform corrosion. This might otherwise degrade the coating. Consequently, the polyester coating is subject only to atmospheric attack and thus protects the zinc layer. The certified coating plant that treats our components uses a modern and environment-friendly process. Before powder coating, the galvanized components undergo meticulous pre-treatment. This ensures superb adhesion. In addition to extremely good corrosion protection, the Zinkpox® method also offers a choice of colours. Powder coating is a very environment-friendly way of achieving a coloured surface. Because the coating contains no solvents, it has largely replaced solventbased liquid coatings. Where installations are visible, cable trays and fittings can be finished in a coating that matches the surrounding décor.

Thermoplastic coating
An option for corrosive environments. Thermoplastic coating is a thermal process in which a plastic powder is melted to give the component (most usually metal) a special coat. Thermoplastics are predominantly employed in aggressive environments up to and including corrosion class W5-M (ISO 6-12944), where they provide hardwearing, long-lasting and environment-friendly protection against, among other things, corrosion. Because the coating process is thermal with no solvents, it has minimal impact on the environment. Thermoplastic coatings meet the requirements of the most aggressive environments, e.g. wet, humid environments and those with large temperature variations and concentrations of chemicals. Besides durability, the coatings also have high impact resistance. As the coating provides complete cover, is pore-free and strong, it is also hygienic and dirt repellent. V0 fire rating (UL94), UV resistant.

Stainless steel
Products manufactured in accordance with SS 2333/AISI 304 or SS 2348/AISI 316L are designed for use in highly aggressive environments, either indoors or outdoors, on industrial sites where there are high levels of potent airborne pollution such as in certain chemical industries, cellulose-related industries, refineries or artificial fertilizer factories, high humidity tunnels, etc. Stainless steel products are also ideal for use in environments where special hygiene requirements are in force, such as dairies, abattoirs, other food industries and pharmaceutical factories.

Stainless steel AISI 304 or AISI 316L
The deciding factor in choosing between stainless steel AISI 304 or AISI 316L is the aggressiveness of the environment in which it is to be used, and for this atmospheric chlorine content plays a significant role. Environments with a high chlorine content, coastal areas being a prime example, are aggressive and usually require the use of AISI 316L materials. When assessing the needs of factories, consideration should be given to the materials previously used to suspend equipment such as pipe tubing, and from this determine whether stainless steel AISI 304 or AISI 316L material is required.

To consider when installing Stainless Steel Cable Trays
1. Transport/handling: Make sure that no iron objects come into contact with the stainless steel products.
2. Storing: Never store stainless steel products close to where iron products are machined, for example close to cutting and grinding operations
3. Welding: Welding during installation should be avoided where possible. If welding must be performed, make sure that only methods suitable for stainless steel are used.
4. Tools: When cutting or grinding, always use cutting wheels and grinding tools which are free from iron. Do not use tools that have been previously used for cutting or grinding products containing iron. When drilling, use an HSS-drill. To maximize the useful life of the drill, employ a cooling fluid during drilling. When installing, conventional assembly tools can be used. However, when using a nut tightener, ensure that the thread is first lubricated to prevent jamming.

Never mix untreated or galvanized products with stainless steel.

5. Measures: If a blue annealing appears when cutting, grinding or drilling, re-move it with pickling paste, making sure that the paste is then carefully washed away with water. If selective corrosion appears it can be removed by:

a) Washing away with water (high-pressure if possible).

b) Polishing with a cleaning cloth or a fine emery paper (wet or dry) and washing with water.

c) Grinding with a fine-grained wheel and washing with water.

d) Pickling with pickling paste, making sure that the pickling paste is then carefully washed away with water.

6. When using pickling paste or similar products, always study the safety code for the product prior to use.

Potential balancing

Electrical continuity and earthing
The standard EN 61537 establishes that for cable trays with electrical continuity characteristics (metal), this continuity should be guaranteed by means of an equipotential connection and one or several connections to earth in accordance with the use of the tray system.

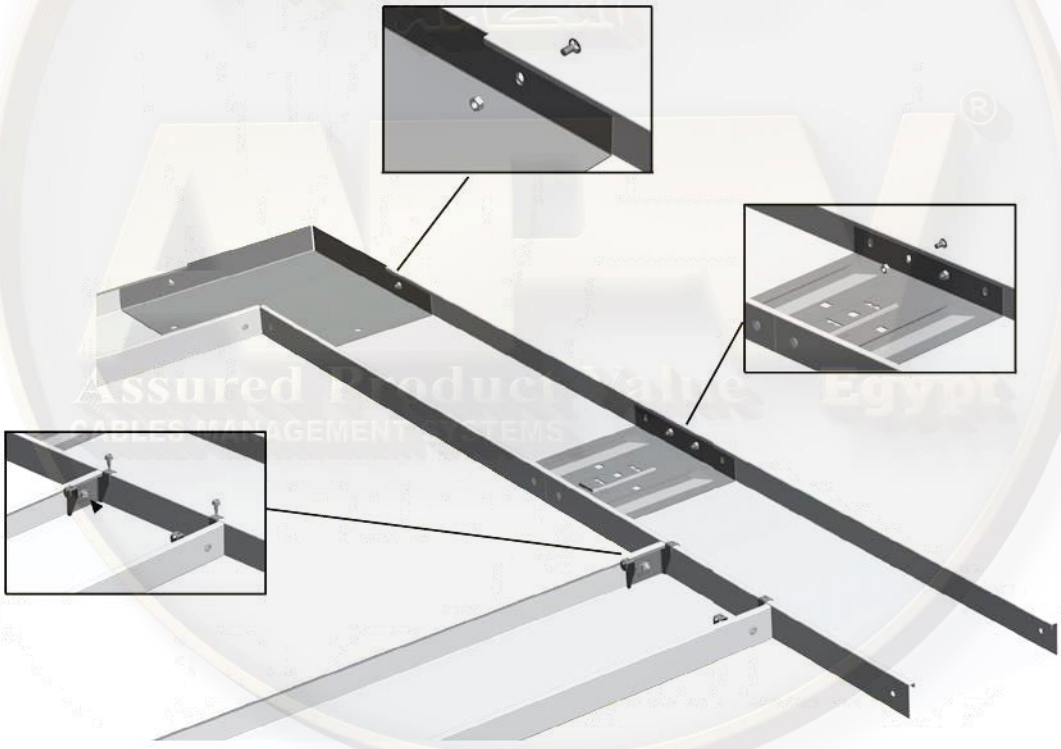
The impedance must not exceed:
- 50 mΩ through the joint.
- 5 mΩ x metre of cable trays.(*)

(*) Currently this valour is studied through document IEC/SC23A/WG12, CLC/TC213/WG-5 – 765. It will be changed to 50 mΩ x metre.

The metre length and joining systems for the different sections that Watan Electric has, as well as the joints of the different accessories supplied, comply with the electrical continuity test established in the aforementioned standard, guaranteeing the impedance established. To guarantee these impedance values tightening torque values of no less than 5 Nm are recommended, always using the joins recommended for each tray type, and taking sizes into account.

To guarantee a safe installation, Watan Electric recommends a proper earthing of all the elements that make up the system (sections and accessories), using the accessories designed specifically for this purpose.

WATAN ELECTRIC RECOMMENDS NOT TO USE THE TRAY AS EARTH OR NEUTRAL CONDUCTORS. WATAN ELECTRIC IS NOT RES - PONSIBLE OF ANY DAMAGE IF YOU USE ACCESSORIES FROM OTHER MANUFACTURERS.



Electro-magnetic compatibility EMC

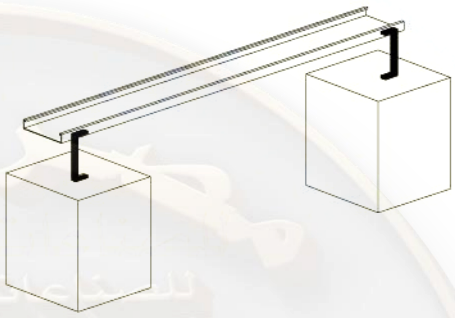
Electromagnetic Compatibility

Watan Electric has performed measurements at EMC Services in Gothenburg regarding EMC requirements, report RE-17181-10273.
The results show that the shielding performance of both incoming and emitted fields is good concerning Wibe cable trays.

When correctly installed Wibe cable trays products work as a protective earth structure.
This means that WATAN Electric products can be used to achieve good engineering practice in accordance with the EMC directive 108/2004/EG.

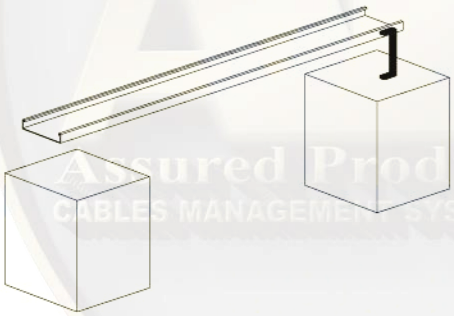
Recommended installation examples

Metal against metal connection
- the ultimate installation



Short double connection
- realistic installation

Not recommended installation examples



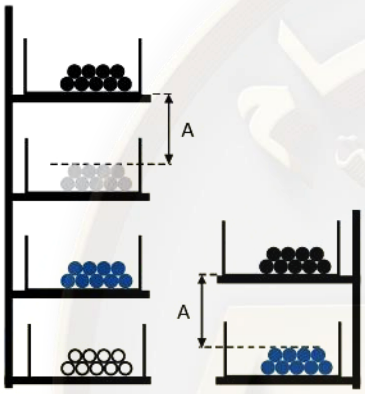
Single connection
- poor installation

Long double connection
- in best case EMC neutral

Installation regulations

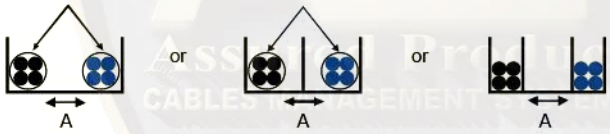
Minimum separation distance (mm), figure A

Recommended cable management



Not recommended

Recommended cable management on common cable tray



The cables should be fixed to the tray or bundled

No fixing or bunlding needed.

- Power cables
- Data cables
- Control cables
- Sensitive cables like instrumentation cables

A Separation distance

Installation of cable tray

Full design data is given according to EN 61537 in the Range part in this catalogue showing all maximum and recommended loadings. Graphs are given in this catalogue to show the deflection against loading for various support distances. Any support system which is supported at intervals and loaded will deflect between the support intervals. Test model type 1 is used for all cable tray ranges.

Installation recommendations for cable trays

The cable trays should be installed in such a way that, as often as possible, the cables can be laid directly in place rather than being pulled through. Trays for current carrying cables along the ceiling should be installed in such a way that the distance from the top of the tray to the ceiling is not less than 300 mm. The free vertical distance between parallel trays shall be at least 200 mm. Trays near walls should be installed with a minimum free distance of 50 mm to the wall, so that cables can pass between the trays and the wall. Trays along partition walls should be installed with a minimum free distance of 100 mm to the wall. Sharp edges and screw ends on trays should be removed before the cables can be installed. Expansion bolts for the installation of brackets/fixings should be installed with such a distance between them, that the designated load for trays will not be exceeded. When selecting the distance between cantilever arms or brackets/fixings, the bearing strength and designated load of the trays must be taken into consideration.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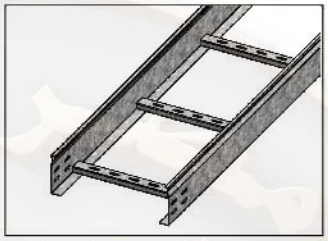
PRODUCTS RANGE

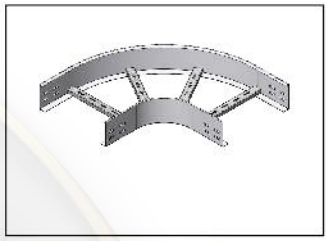
The different types of tray designs are described below:

Ladder (Cable Ladder)

Swaged rounded tubular (Aluminum or Steel) or welded c-channel (steel)A prefabricated metal structure consisting of two side rails connected by individual transverse embers or rungs. Cable Ladder Trays are the most common and the most economical types of trays.
They also provide maximum ventilation for cabling.



Swaged Rounded Tubular



Welded C-Channel

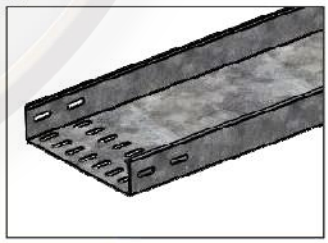
Perforated Cable Tray (Cable Trays)

A prefabricated metal structure consisting of a bottom with openings within the cable bearing surface.
Solid bottom Cable Trays completely eliminate cable sagging and offer maximum protection for the cables.

Perforated Cable Tray

Solid (Cable Trunking)

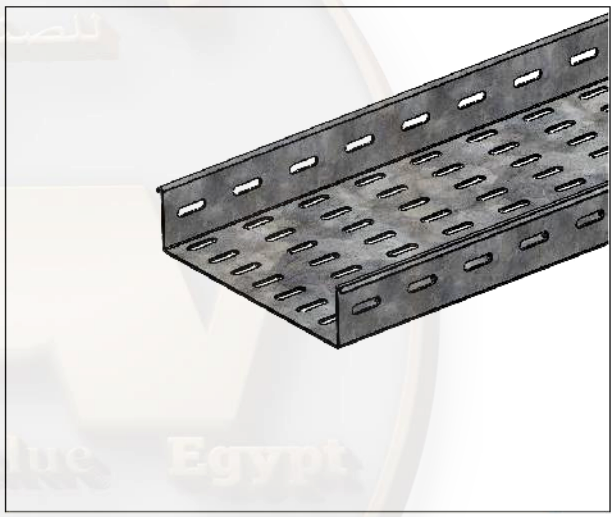
A prefabricated metal structure consisting of a one-piece solid bottom channel section not exceeding 6"(150mm) in width .



Cable Trunking

Trays

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



Straight Element

Steel - Stainless Steel - Aluminum

-Snap on tray is standard cable tray produced in Metal Tech.

-Standard lenth 2000 - 2500 - 3000 mm

Trays

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Straight Element

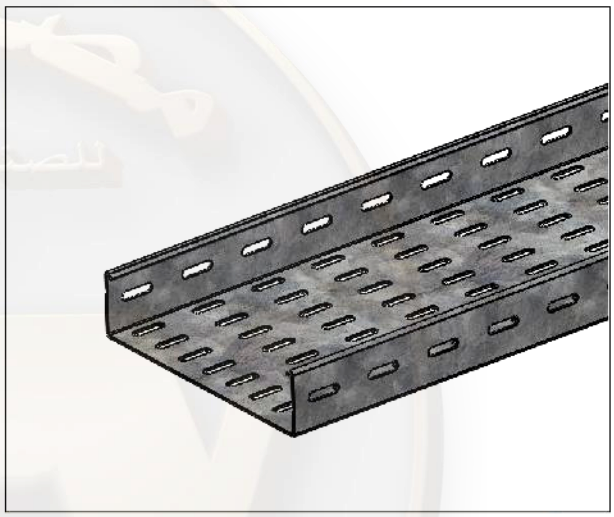
Steel - Stainless Steel - Aluminum

-Snap on tray is standard cable tray produced in Metal Tech.

-Standard lenth 2000 - 2500 - 3000 mm

Trays

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



Straight Element

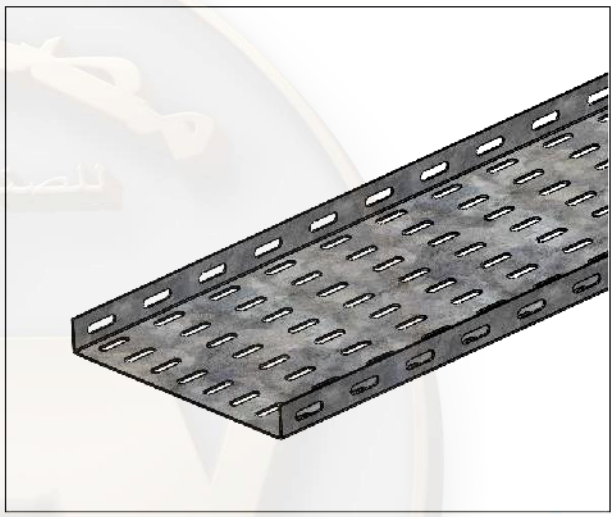
Steel - Stainless Steel - Aluminum

-Snap on tray is standard cable tray produced in Metal Tech.

-Standard lenth 2000 - 2500 - 3000 mm

Trays

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



Straight Element

Steel - Stainless Steel - Aluminum

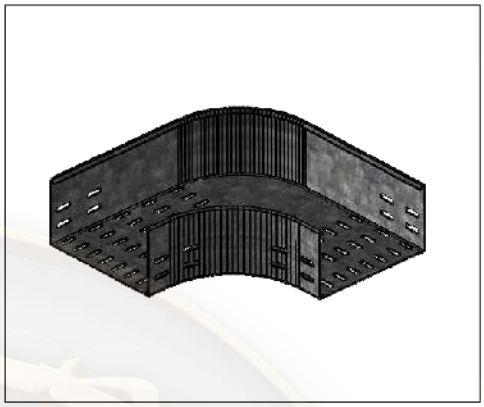
-Snap on tray is standard cable tray produced in Metal Tech.

-Standard lenth 2000 - 2500 - 3000 mm

Trays

Horizontal Elbow 90°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

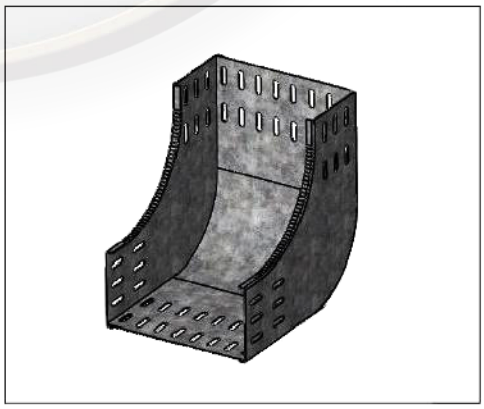


Horizontal Elbow 45°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Vertical Inside Elbow 90°

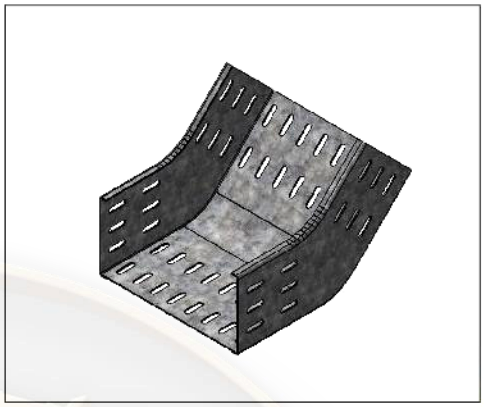
Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



Trays

Vertical Inside Elbow 45°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

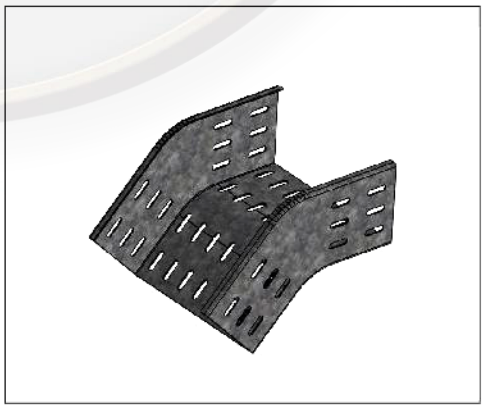


Vertical Outside Elbow 90°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Vertical Outside Elbow 45°

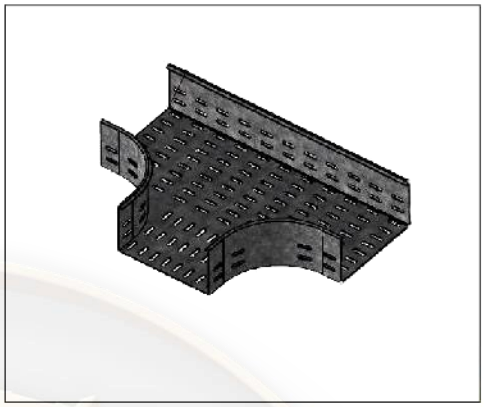
Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



Trays

Horizontal Tee

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

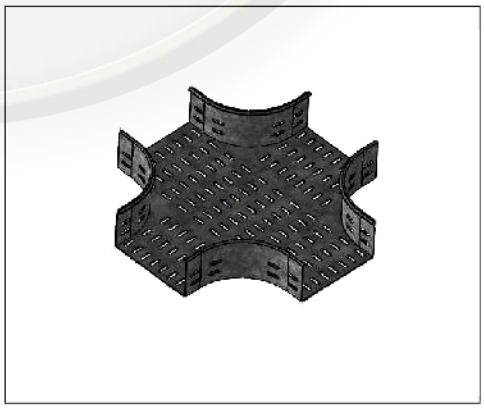


Vertical Tee

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Horizontal Cross

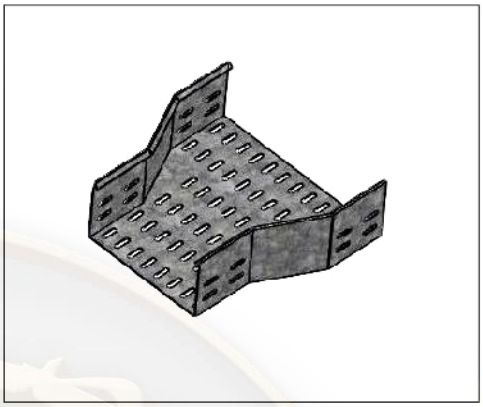
Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		



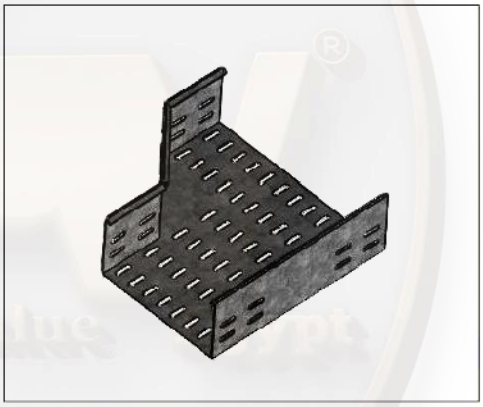
Trays

Horizontal Reducer

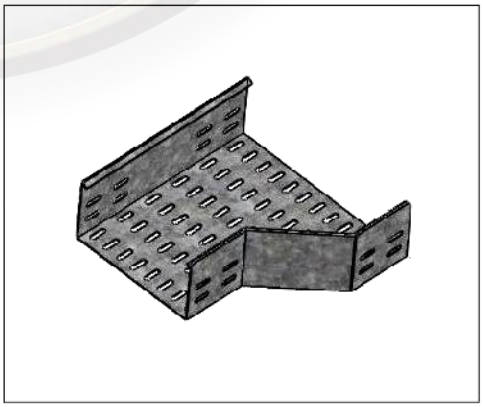
Center Reducer



Right Hand Reducer

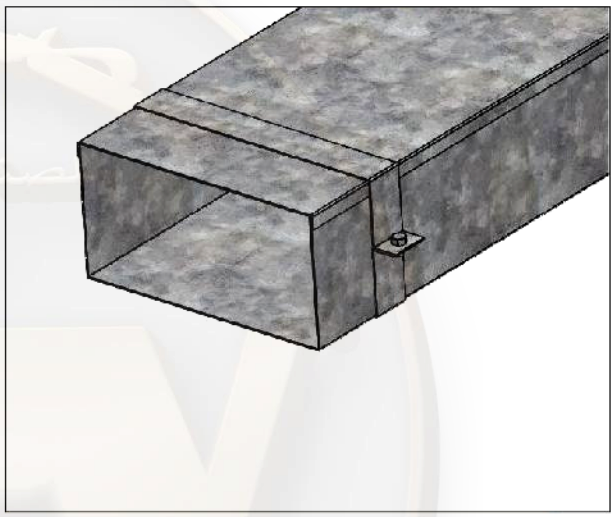


Left Hand Reducer



Tray Covers

Describtion	Width (W)	Thickness (T)
Cover 50	50	
Cover 100	100	
Cover 200	200	1
Cover 300	300	
Cover 400	400	1.25
Cover 500	500	
Cover 600	600	1.5
Cover 700	700	
Cover 800	800	2
Cover 900	900	
Cover 1000	1000	



Straight Element Cover

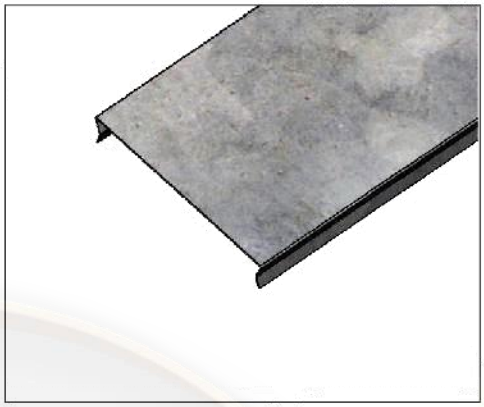
Steel - Stainless Steel - Aluminum

-All properties of cover are the same properties of its tray.

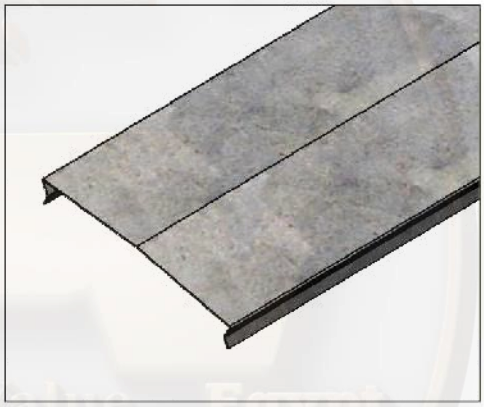
-Standard lenth 2000 - 2500 - 3000 mm

Tray Covers

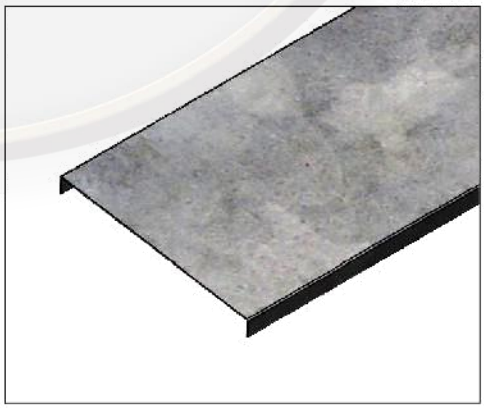
Snap on cover (CTC)
(standard)



Pyramid shape cover
(CTPC)



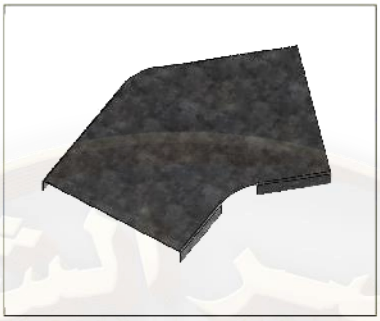
U shape cover
(CTUC)



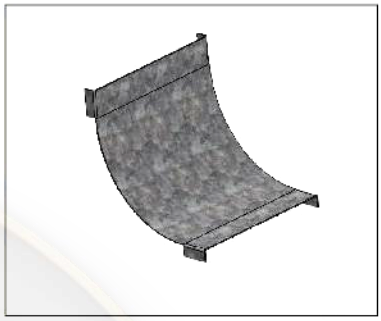
Tray Covers

Fitting Covers

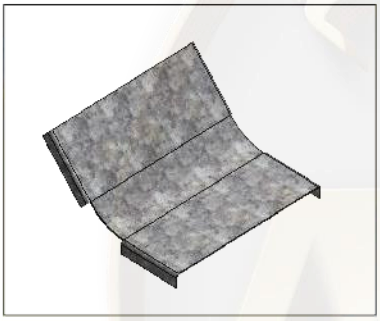
Horizontal elbow 90° cover
(HE90CTC)



Horizontal elbow 45° cover
(HE45CTC)



Vertical inside elbow 90° cover
(VIE90CTC)



Vertical inside elbow 45° cover
(VIE45CTC)

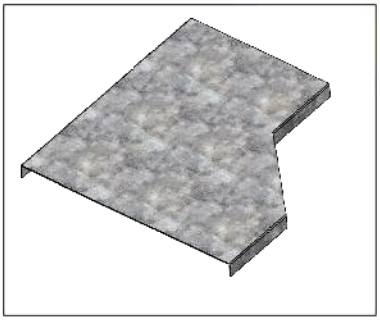
Vertical outside elbow 90° cover
(VOE90CTC)

Vertical outside elbow 45° cover
(VOE45CTC)

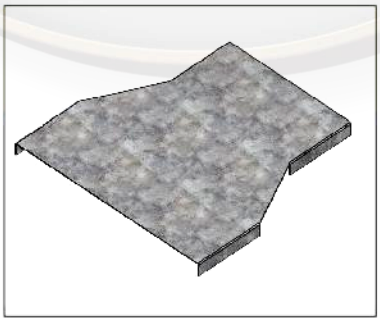
Horizontal tee cover
(HTCTC)

Straight cover

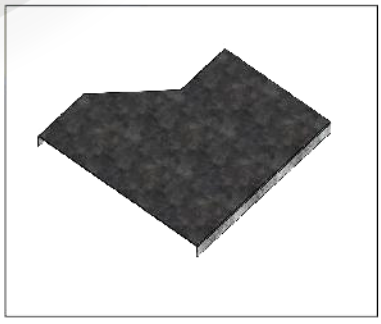
Horizontal cross cover
(HCCTC)



Horizontal left reduce cover
(HLRCTC)



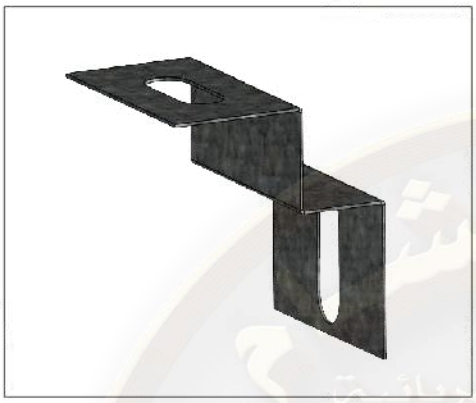
Horizontal center reduce cover
(HCRCTC)



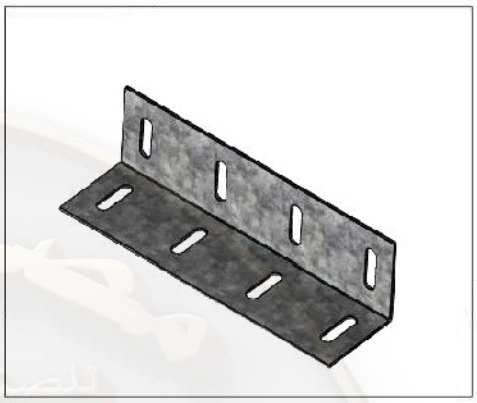
Horizontal Right reduce cover
(HRRCTC)

Trays Accessories

Accessories



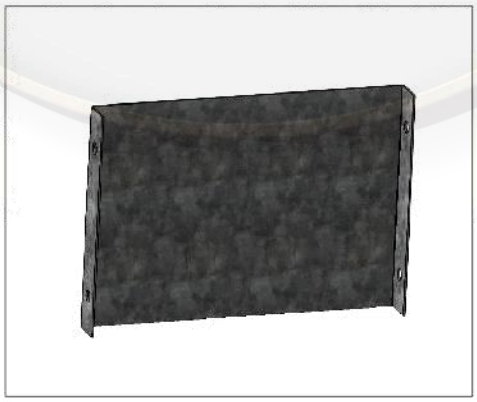
CENTER REDUING SPLICE PLATE



SPLICE PLATE

STRIGHT ELEMENT SEPARATOR

HORIZONTAL ELBOW SEPARATOR



BLIND END

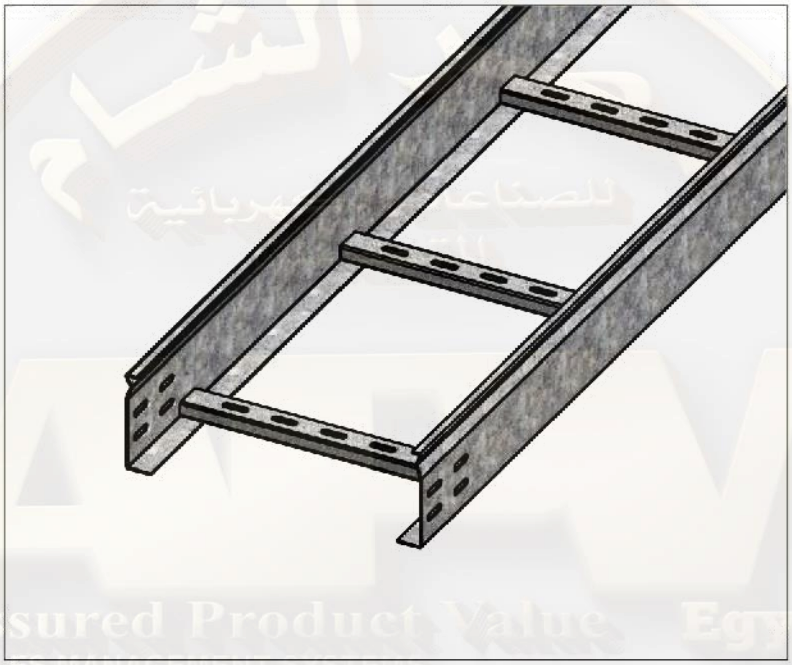
Cable Ladder

Steel

HD Hot dip galvanized after fabrication according to ASTM A 123.
PG Pre galvanized before fabrication according to ASTMA 653SS.
Ep Electro plated after fabrication ASTM B 633.
ES Electro static painted.

Stainless steel

SS316 Stain less steel 316.
SS316L Stain less steel 316L.
SS304 Stain less steel 304.
SS304L Stain less steel 304L ASTM A240.

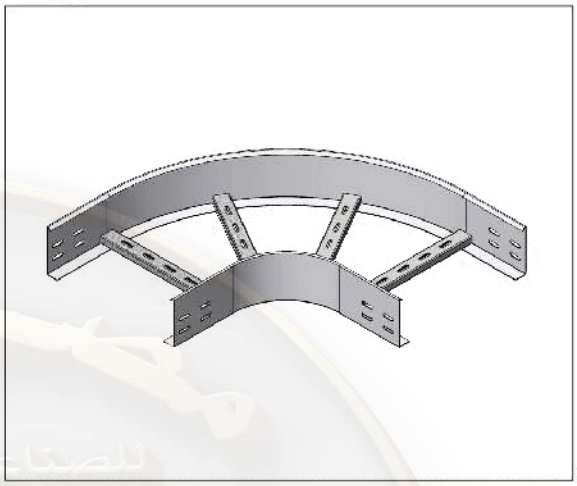


Type	Thickness (mm)	Width, W (mm)	Height, H (mm)	Length (mm)
	1.5 2	100	50 To 150	1000 To 3000
		200		
		300		
		400		
		500		
		600		

Cabble Ladder

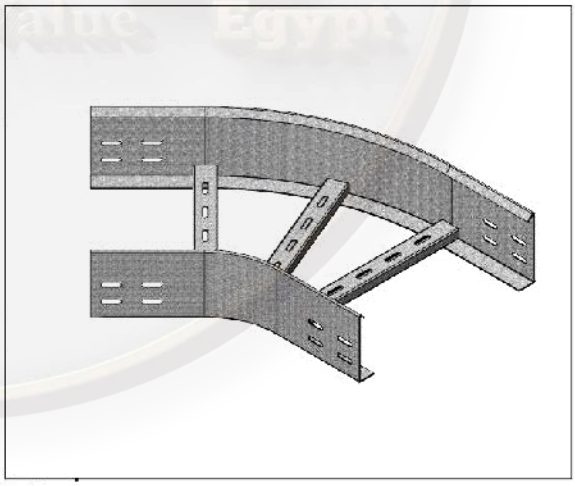
Horizontal Elbow 90°

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100	50 To 150	365	365	
	200		465	465	
	300		565	565	
	400		665	665	
	500		765	765	
	600		865	865	



Horizontal Elbow 45°

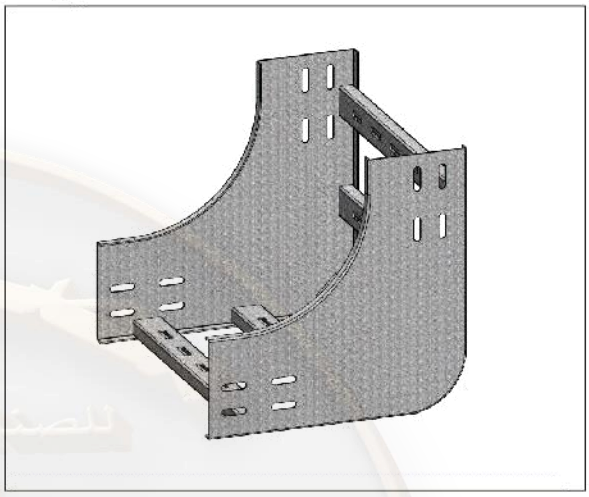
Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100	50 To 150	399	235	125
	200		469	335	
	300		540	435	
	400		611	535	
	500		681	635	
	600		752	735	



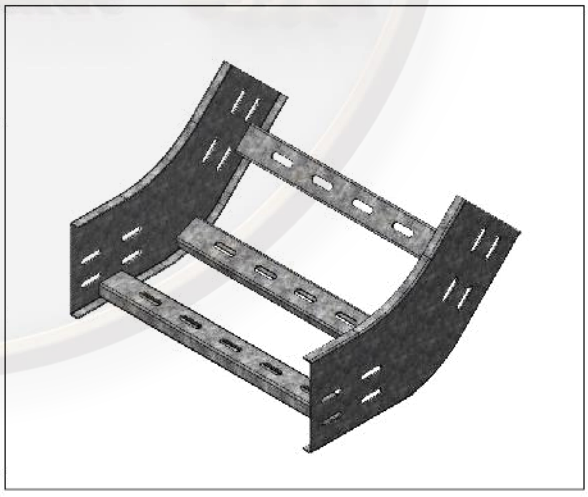
Cabble Ladder

Vertical Inside Elbow 90°

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100 To 600	50	209	209	125
		75	234	234	
		100	259	259	
		125	284	284	
		150	309	309	



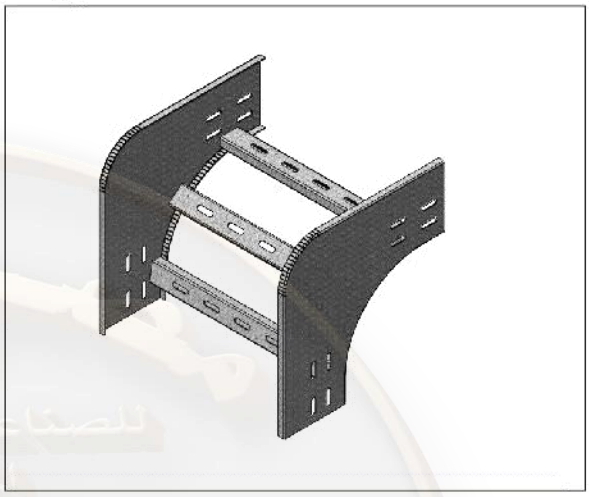
Vertical Inside Elbow 45°



Cabble Ladder

Vertical Outside Elbow 90°

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100 To 600	50	209	209	125
		75	234	234	
		100	259	259	
		125	284	284	
		150	309	309	



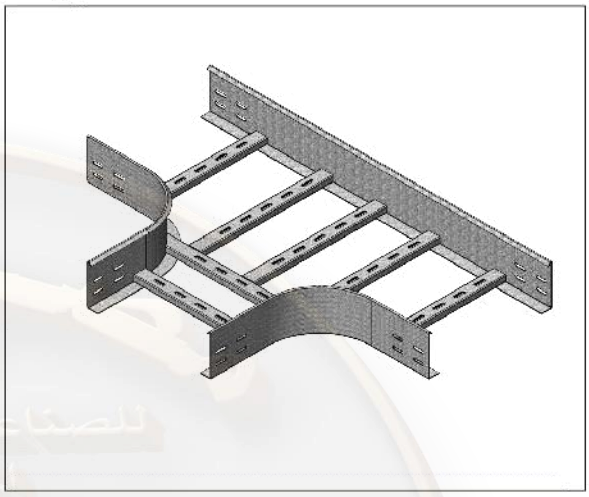
Vertical Outside Elbow 45°

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100 To 600	50	226	128	125
		75	243	153	
		100	261	178	
		125	279	203	
		150	296	228	

Cabble Ladder

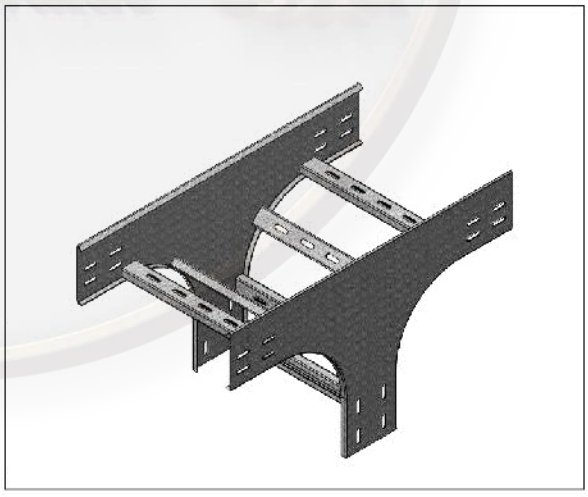
Horizontal Tee

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100	50 To 150	630	365	125
	200		730	465	
	300		830	565	
	400		930	665	
	500		1030	765	
	600		1130	865	



Vertical Tee

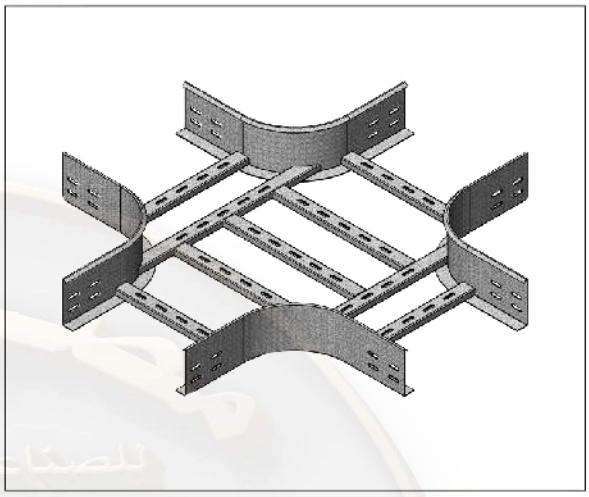
Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100 To 600	50	499	274	125
		75	524	299	
		100	549	324	
		125	574	349	
		150	599	374	

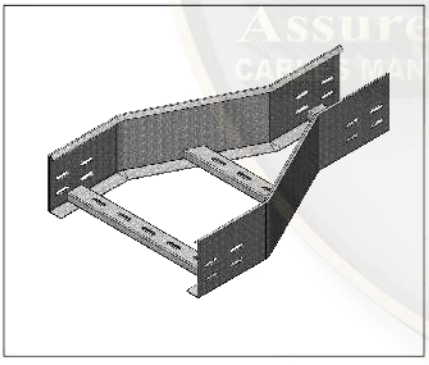


Cabble Ladder

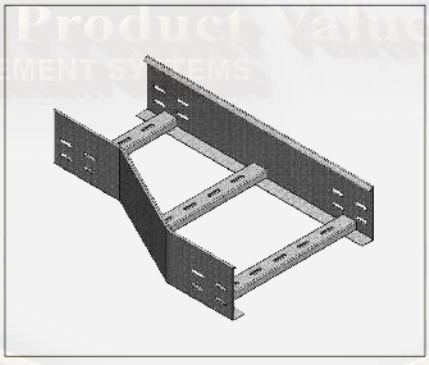
Horizontal Cross

Thickness (mm)	Width, W (mm)	Height, H (mm)	X (mm)	Y (mm)	R (mm)
1.5 2	100	50 To 150	630	630	125
	200		730	730	
	300		830	830	
	400		930	930	
	500		1030	1030	
	600		1130	1130	

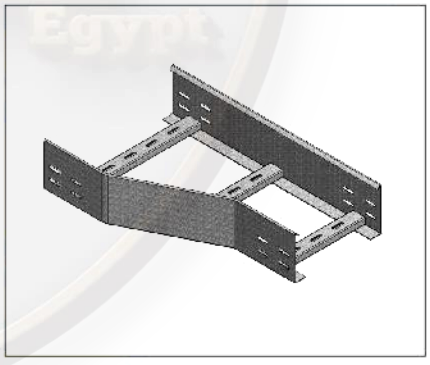




Horizontal Center Reducer



Horizontal Right Reducer



Horizontal Left Reducer

Cable Trunk

Steel 37
HD Hot dip galvanized after fabrication.
PG Pre galvanized.
Ep Electro plated.
ES Electro static painted.

Aluminum
AL Aluminum alloy 6063.

Stainless steel
SS316 Stain less steel 316.
SS316L Stain less steel 316L.
SS304 Stain less steel 304.
SS304L Stain less steel 304L.

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Cable Trunk

Steel 37
HD Hot dip galvanized after fabrication.
PG Pre galvanized.
Ep Electro plated.
ES Electro static painted.

Stainless steel
SS316 Stain less steel 316.
SS316L Stain less steel 316L.
SS304 Stain less steel 304.
SS304L Stain less steel 304L.

Aluminum
AL Aluminum alloy 6063.

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Cable Trunk

Steel 37
HD Hot dip galvanized after fabrication.
PG Pre galvanized.
Ep Electro plated.
ES Electro static painted.

Aluminum
AL Aluminum alloy 6063.

Stainless steel
SS316 Stain less steel 316.
SS316L Stain less steel 316L.
SS304 Stain less steel 304.
SS304L Stain less steel 304L.

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Cable Trunk

Steel 37
HD Hot dip galvanized after fabrication.
PG Pre galvanized.
Ep Electro plated.
ES Electro static painted.

Aluminum
AL Aluminum alloy 6063.

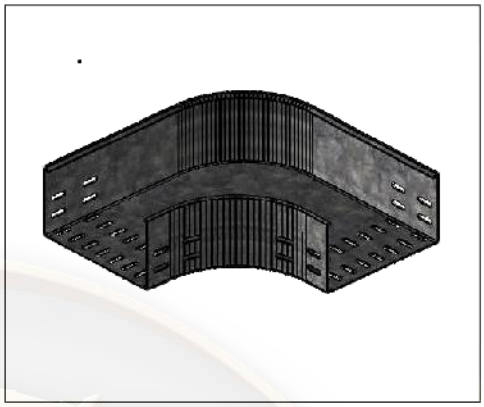
Stainless steel
SS316 Stain less steel 316.
SS316L Stain less steel 316L.
SS304 Stain less steel 304.
SS304L Stain less steel 304L.

Width (W)	Height (H)	Thickness (T)
50		
100		
200		1
300	50	
400		1.25
500	To	
600		1.5
700	150	
800		2
900		
1000		

Cable Trunk

Horizontal Elbow 90°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

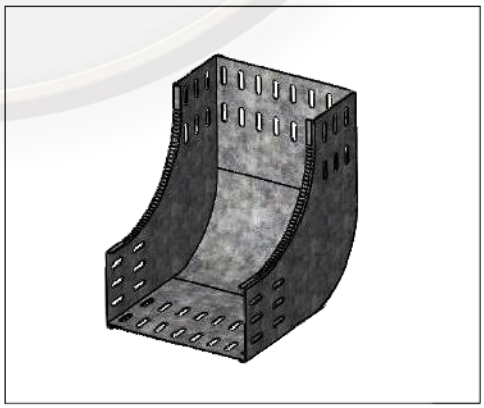


Horizontal Elbow 45°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

Vertical Inside Elbow 90°

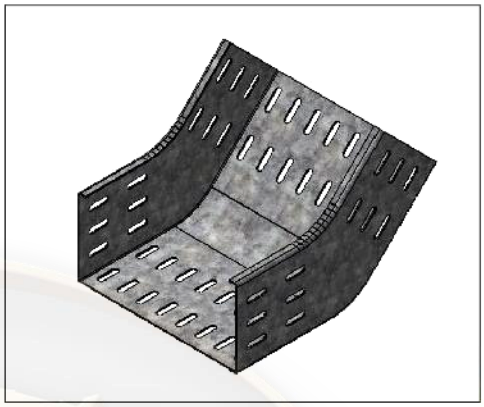
Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		



Cable Trunk

Vertical Inside Elbow 45°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

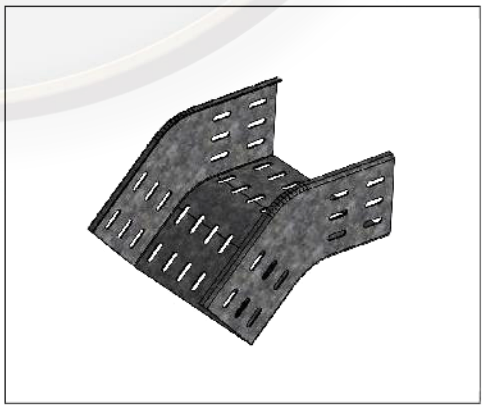


Vertical Outside Elbow 90°

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

Vertical Outside Elbow 45°

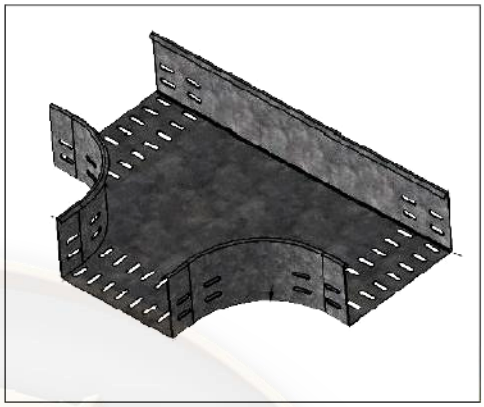
Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		



Cable Trunk

Horizontal Tee

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

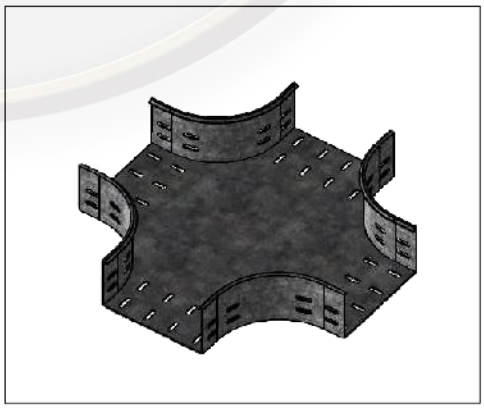


Vertical Tee

Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		

Horizontal Cross

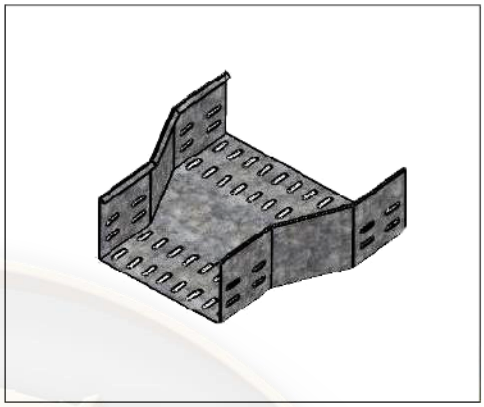
Width (W)	Height (H)	Thickness (T)
50		
100		
200		
300		
400	50	300
500		
600	To	600
700		
800	150	900
900		
1000		



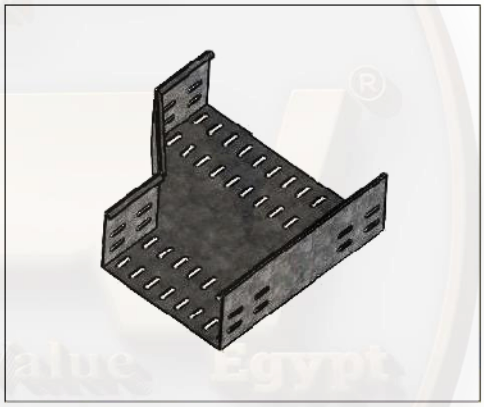
Cable Trunk

Horizontal Reducer

Center Reducer



Right Hand Reducer



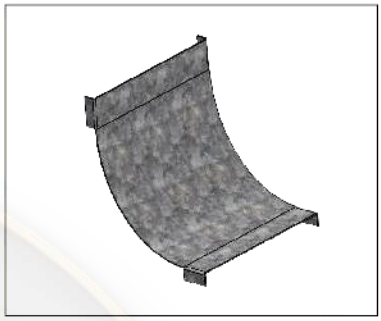
Left Hand Reducer

Cable Trunk

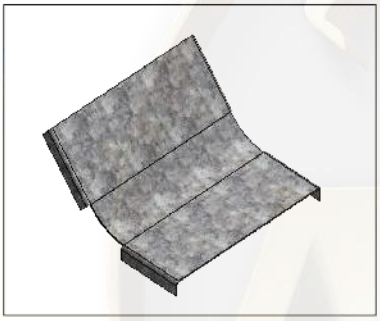
Fitting Covers

Horizontal elbow 90° cover
(HE90CTC)

Horizontal elbow 45° cover
(HE45CTC)



Vertical inside elbow 90° cover
(VIE90CTC)



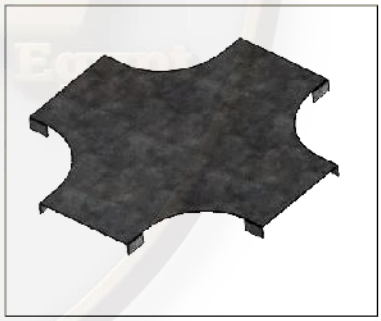
Vertical inside elbow 45° cover
(VIE45CTC)

Vertical outside elbow 90° cover
(VOE90CTC)

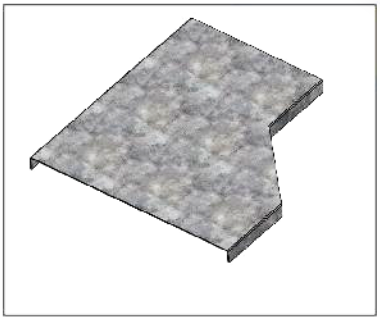
Vertical outside elbow 45° cover
(VOE45CTC)

Horizontal tee cover
(HTCTC)

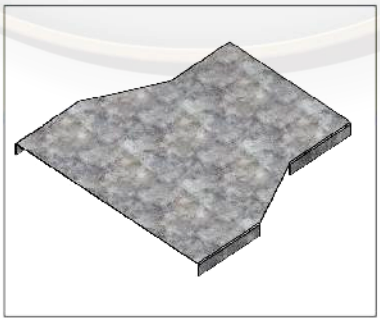
Straight cover



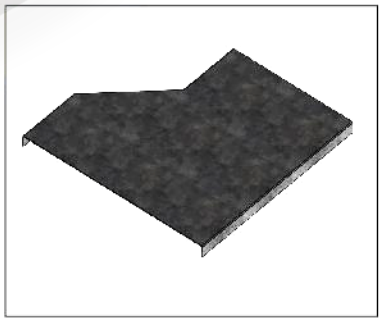
Horizontal cross cover
(HCCTC)



Horizontal left reduce cover
(HLRCTC)



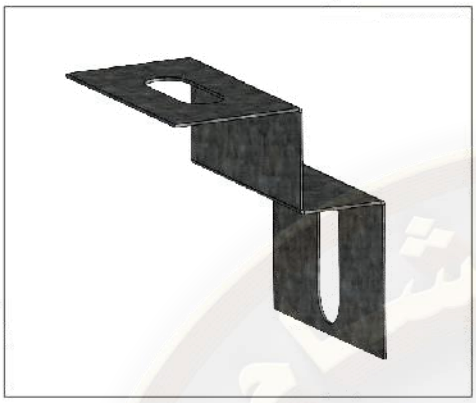
Horizontal center reduce cover
(HCRCTC)



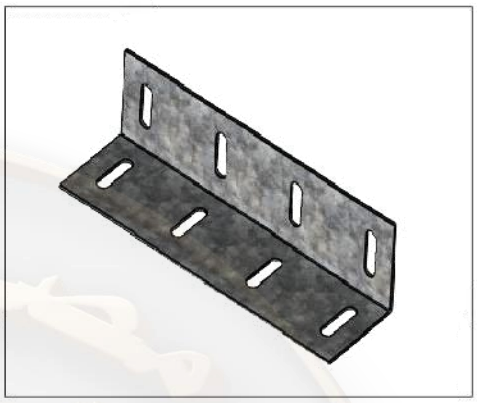
Horizontal Right reduce cover
(HRRCTC)

Cable Trunk Accessories

Accessories

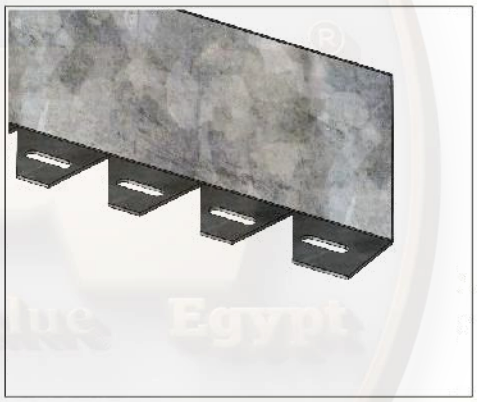


CENTER REDUING SPLICE PLATE

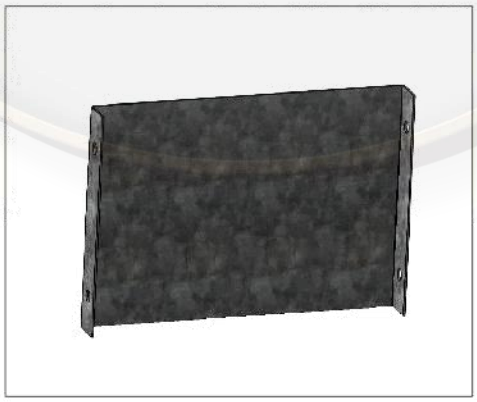


SPLICE PLATE

STRIGHT ELEMENT SEPARATOR



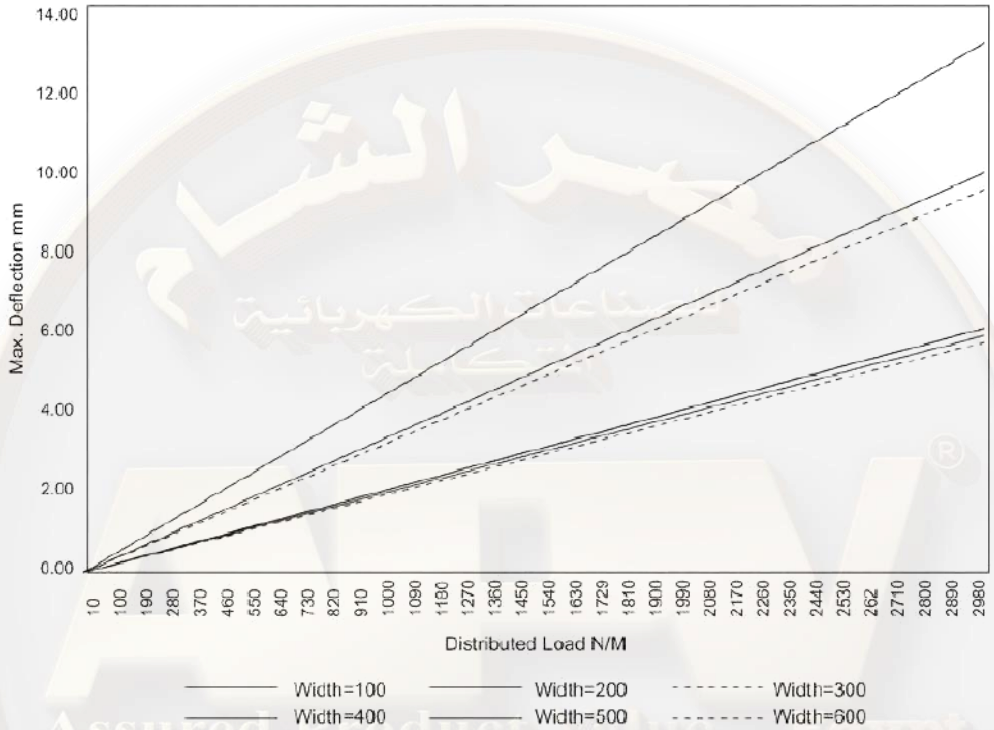
HORIZONTAL ELBOW SEPARATOR



BLIND END

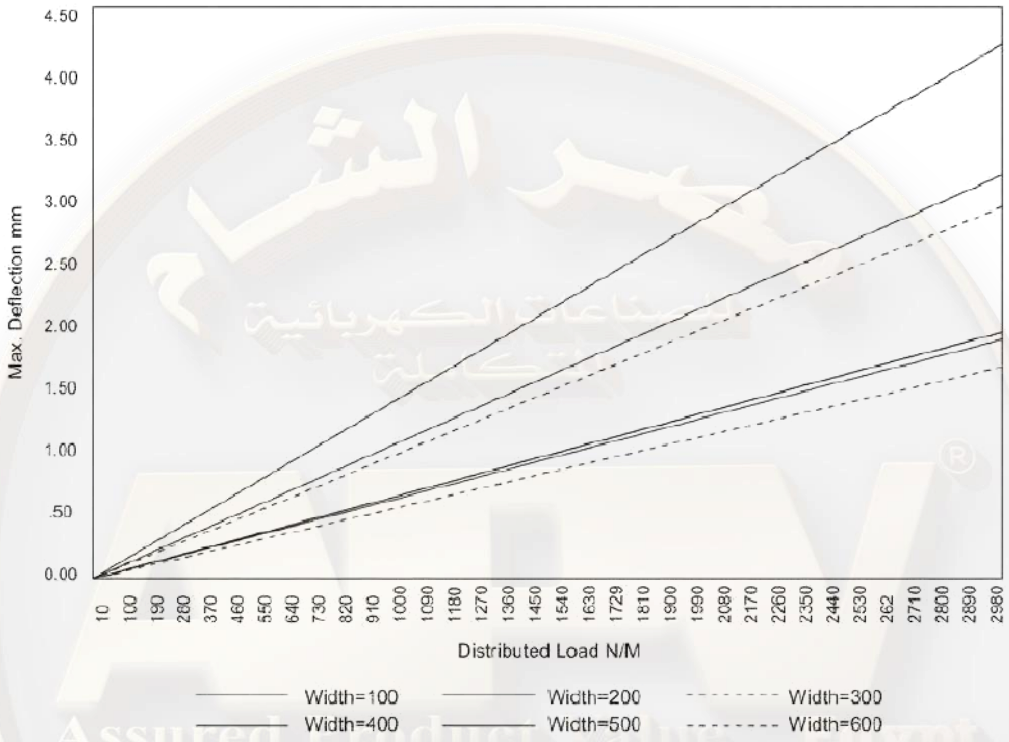
Technical Data

Cable tray height 50 mm



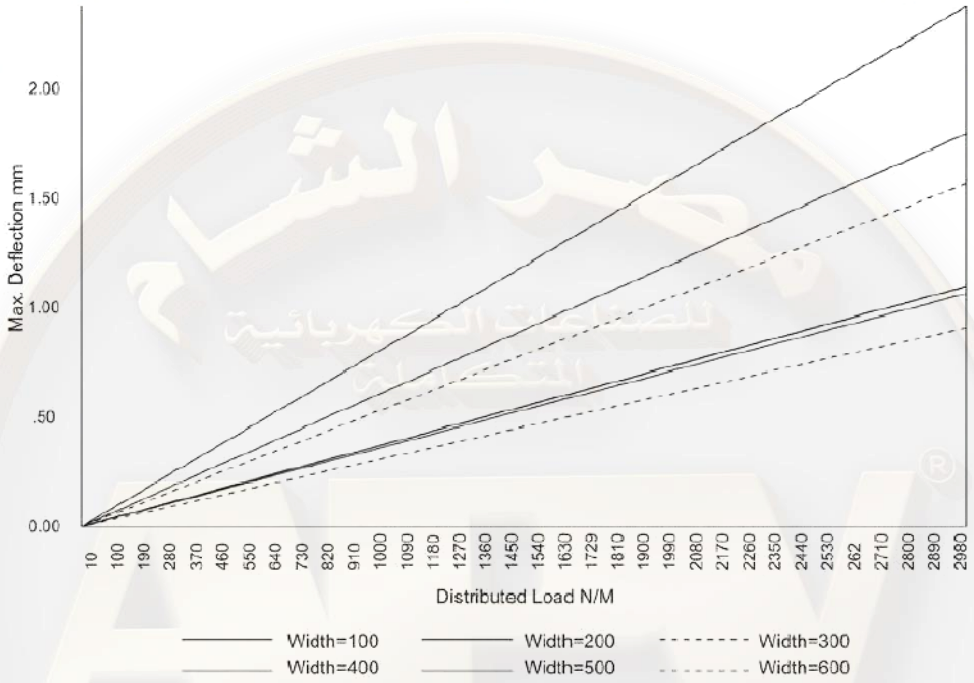
Technical Data

Cable tray height 75 mm



Technical Data

Cable tray height 100mm



A. How to choose Tray, Trunk or Ledder?

Tray is suitable for most abblications, provide easy Cable laying and optimal protection of the cable.

Trunk is suitable for cables with very low heat generation. areas with dirt occurrence.

Ladder is suitable for power cables for a higher degree of heat generation, and suitable for all types of cables outdoors or in

B. How to choose Tray, Trunk or Ladder height? Depend on the cable size and cable type. How to detect Support spacing?

Its recommended to use standard support point spacing 1.5 m.

C. How to choose surface treatment? According to the applications that the Tray, Trunk or Ladder is used for.

How to choose the tray according to the cables diameter

			Heights= 50mm		Heights= 75mm		Heights H= 100mm	
Nominalcross sectional area 4*....mm²	Approx Overall Diameter mm²	Approx Weight KG/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m

Cable tray width = 50mm

6	16	0.43	3	0.01				
10	18.5	0.65	1	0.01				
16	20.9	0.91	1	0.01				

Cable tray width= 100mm

6	16	0.43	9	0.4	10	0.43	10	0.4
10	18	0.65	7	0.5	6	0.39	6	0.4
16	20.9	0.91	5	0.5	6	0.55	6	0.5
35	25.1	1.65	3	0.5	5	0.83	6	0.10
50	29.3	2.23	2	0.4	3	0.67	3	0.7
70	32.9	3.07	2	0.6	3	0.92	3	0.9
95	37.8	4.18	1	0.8	3	1.25	3	0.13
120	41.2	5.21		0.5	1	0.52	1	0.5
150	45.9	6.40			1		1	0.6
185	50.7	7.96			1		1	0.8
240	57.5	10.33			1		1	0.10

Cable tray width = 150mm

6	18	0.43	18	0.8	22	0.9	45	0.19
10	20.9	0.65	11	0.7	18	0.12	30	0.20
16	25.1	0.91	9	0.8	12	0.11	26	0.25
35	29.3	1.65	4	0.7	7	0.12	15	
50	32.9	2.23	4	0.9	7	0.16	12	
70	37.8	3.07	3	0.9	5	0.15	12	
95	18	4.18	3	0.13	5	0.21	7	
120	41.2	5.21	2	0.10	3	0.16	7	
150	45.9	6.40			2	0.13	5	
185	50.7	7.96			2	0.16	3	
240	57.5	10.33			2	0.21	2	

			Heights= 50mm		Heights= 75mm		Heights H= 100mm	
Nominalcross sectional area 4*....mm²	Approx Overall Diameter mm²	Approx Weight KG/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m
Cable width tray = 200mm								
6	18	0.43	27	0.11	34	0.14	45	0.19
10	20.9	0.65	17	0.11	30	0.20	30	0.20
16	25.1	0.91		0.14	21	0.19	26	025
35	29.3	1.65	15	0.10	11	0.18	15	
50	32.9	2.23	6	0.11	9	0.20	12	
70	37.8	3.07	5	0.15	9	0.28	12	
95	18	4.18	5	0.17	7	0.29	7	
120	41.2	5.21	4	0.21	7	0.36	7	
150	45.9	6.40	4		3	0.19	5	
185	50.7	7.96			3	0.24	3	
240	57.5	10.33			2	0.21	2	
Cable width tray = 250mm								
6	18	0.43	36	0.15	46	0.20	63	
10	20.9	0.65	21	0.14	38	0.25	40	
19	25.1	0.91	19	0.17	27	0.25	34	
35	29.3	1.65	8	0.13	15	0.25	21	
50	32.9	2.23	7	0.16	13	0.29	18	
70	37.8	3.07	6	0.18	11	0.34	15	
95	18	4.18	6	0.25	11	0.46	11	
120	41.2	5.21	5	0.26	9	0.47	9	
150	45.9	6.40			4	0.26	7	
185	50.7	7.96			4	0.32	4	
240	57.5	10.33			3	0.31	3	
Cable width tray = 300mm								
6	16	0.43	45	0.19	58	0.25	81	0.34
10	18.5	0.65	27	0.18	50	0.33	60	0.39
16	20.9	0.91	25	0.23	36	0.33	43	0.39
35	25.1	1.65	10	0.17	19	0.31	27	0.45
50	29.3	2.23	9	0.20	17	0.38	24	0.53
70	32.9	3.07	8	0.25	15	0.46	21	0.64
95	37.8	4.18	7	0.29	13	0.54	13	0.54
120	41.2	5.21	6	0.31	11	0.57	11	0.57
150	45.9	6.40			5	0.32	9	0.58
185	50.7	7.96			5	0.40	5	0.40
240	57.5	10.33			4	0.41	4	0.41

			Heights= 50mm		Heights= 75mm		Heights H= 100mm	
Nominalcross sectional area 4*....mm²	Approx Overall Diameter mm²	Approx Weight KG/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m	Approx no.of cables mm	Full load Approx Kn/m
Cable width tray = 400mm								
6	16	0.43	66	0.28	82	0.35	117	0.50
10	18.5	0.65	39	0.25	74	0.48	85	0.55
16	20.9	0.91	33	0.30	48	0.44	62	0.56
35	25.1	1.65	14	0.23	27	0.45	39	0.64
50	29.3	2.23	12	0.27	23	0.51	33	0.73
70	32.9	3.07	11	0.34	21	0.64	30	0.92
95	37.8	4.18	9	0.36	17	0.71	17	0.71
120	41.2	5.21	8	0.42	15	0.78	15	0.78
150	45.9	6.40			8	0.51	15	0.96
185	50.7	7.96			7	0.56	7	0.56
240	57.5	10.33			6	0.62	6	0.62
Cable width tray = 500mm								
6	16	0.43	84	0.36	110	0.47	159	0.68
10	18.5	0.65	49	0.32	94	0.61	115	0.75
16	20.9	0.91	43	0.39	63	0.57	82	0.75
35	25.1	1.65	18	0.30	35	0.58	51	0.84
50	29.3	2.23	16	0.36	31	0.69	45	1.00
70	32.9	3.07	14	0.43	27	0.83	39	1.20
95	37.8	4.18	12	0.50	23	0.96	23	0.96
120	41.2	5.21	11	0.57	2	1.09	21	1.09
150	45.9	6.40			10	0.64	19	1.22
185	50.7	7.96			9	0.72	9	0.72
240	57.5	10.33			8	0.83	8	0.83
Cable width tray = 600mm								
6	16	0.43	102	0.43	134	0.57	195	0.83
10	18.5	0.65	49	0.32	114	0.74	140	0.91
16	20.9	0.91	43	0.39	78	0.71	102	0.93
35	25.1	1.65	18	0.30	43	0.71	63	1.04
50	29.3	2.23	16	0.36	37	0.82	54	1.20
70	32.9	3.07	14	0.43	33	1.01	48	1.47
95	37.8	4.18	12	0.50	29	1.21	29	1.21
120	41.2	5.21	11	0.57	25	1.30	25	1.30
150	45.9	6.40			12	0.77	23	1.47
185	50.7	7.96			11	0.88	11	0.88
240	57.5	10.33			9	0.93	9	0.93