



**KRAKATAU
SUPPLY ENERGI
INDONESIA**

**TRAY
CATALOGUE**

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CABLE TRAY SYSTEM

CABLE TRAY U-TYPE

Straight Tray	1
Horizontal Elbow	2
Horizontal Tee	2
Horizontal Cross	2
Vertical Inside Riser	3
Vertical Outside Riser	3
Straight Reducer	3
Offset Reducer Left	4
Offset Reducer Right	4
Joint Set	4

CABLE TRAY C-TYPE

Straight Tray	5
Horizontal Elbow	6
Horizontal Tee	6
Horizontal Cross	6
Vertical Inside Riser	7
Vertical Outside Riser	7
Straight Reducer	7
Offset Reducer Left	8
Offset Reducer Right	8
Joint Set	8



CABLE DUCT U - TYPE

Straight Tray	9
Horizontal Elbow	10
Horizontal Tee	10
Horizontal Cross	10
Vertical Inside Riser	11
Vertical Outside Riser	11
Straight Reducer	11
Offset Reducer Left	12
Offset Reducer Right	12
Joint Set	12

CABLE DUCT C - TYPE

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Horizontal Tee	14
Horizontal Cross	14
Vertical Inside Riser	15
Vertical Outside Riser	15
Straight Reducer	15
Offset Reducer Left	16
Offset Reducer Right	16
Joint Set	16

CABLE LADDER U-TYPE

Straight Ladder 3000	17
Straight Ladder 2400	18
Horizontal Elbow	19
Horizontal Tee	19
Horizontal Cross	19
Vertical Inside Riser	20
Vertical Outside Riser	20
Straight Reducer	20
Offset Reducer Left	21
Offset Reducer Right	21
Joint Set	21

CABLE LADDER W-TYPE

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Horizontal Tee	24
Horizontal Cross	24
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Vertical Outside Riser	25
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Offset Reducer Left	25
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Cover	27
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End Plate	31
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Single Clamp Cover	34
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Separator	37

TECHNICAL DATA

A. Raw material

Standard materials consist of :

- a. Steel
- b. Aluminium
- c. Stainless steel
- d. Pre galvanized steel

a. Steel

The most common materials used in cable support system in the hot rolled mill steel, standard JIS / SPHC or its equivalent.

b. Aluminium

The material provides a long life service without excessive maintenance cost and its load carrying capacity are lower than the steel type due the greater application for the same load. The right strength to weight ratio aluminium cable trays can greatly reduce the overall cost of installation through ease of handling and field cutting. Aluminium has an excellent corrosion resistance due to its ability to forming the aluminium oxide film when scratched or cut, it will reform the original film. For out door applications aluminium has great resistance from weather conditions.

c. Stainless Steel

Stainless Steel could be used for several critical conditions which require low maintenance cost, high temperature and high strength as well as aesthetic resistance appearance. Stainless steel has great resistance from weather conditions.

d. Pre galvanized steel

Pre galvanized steel is the steel plate mainly used for indoor light load application of cable support system.

B. Finishing process.

Duta cable support system serves several kinds of finishing process :

- a. Hot dip galvanized
- b. Electroplate galvanized
- c. Special stoving paint
- d. Zinc phosphate powder coating

a. Hot dip galvanized

This kind of finishing process has an important advantage – coating thickness. The cable trays hotdip galvanized after fabrication have a minimum thickness of 1.50 ounces per square foot, related to coating thickness of 64,58 micron ib each side (for everage of the specimen tested and steel thickness around 2 mm). This finishing process provides a dual protections against the corrosion. First protection for a overall protect the coating. If this coating is scratched or gauged, zinc's secondary defense will protect the steel with the galvanic action. Hotdip galvanized after fabrication is recommended to prolonged out usage and other aggressive industrial areas.

b. Electroplate galvanized

Electroplate galvanized is the process where a zinc coating is deposited on the steel material by electrolysis in the zinc salt liquid. When exposed to air and moisture, zinc will form a tough, adherent, protective film. This film itself is the protective coating which slows up subsequent corrosive attack on the zinc. This coating is frequently recommended for indoor application in relatively dry conditions.

c. Special stoving paint

Dulux cable trays can be painted to fulfill the customer's requirements. Dulux has the paint material in several kinds and colors.

d. Zinc phosphate powder coating

The powder coating finishing is the final product process by using the paint which is sprayed to the product surface. The prepainted product will be put into the heat oven for the curing process with temperature and time adjusted.

1. DEFINITIONS SECTION 1

1.1 Ladder Cable Tray

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

1.2 Perforated type

A prefabricated metal structure greater than 4 inches in width consisting of a ventilated bottom within integral or separate longitudinal side rails. The cable tray bottom will have openings sufficient for the passage of air and utilize 60 percent or less of the plan area of the surface to support cables

1.3 Solid Bottom Cable Tray

A prefabricated metal structure consisting of a bottom with no openings within integral or separate longitudinal side rails.

1.4 Channel Cable Tray

A prefabricated metal structure consisting solid-bottom channel secin. not exceeding 152 mm (6") inches in width.

1.5 Cable Tray Fitting

Cable Tray Fitting are section which a joined to other cable tray section to change the direction or size of a cable tray system.

Cable Tray Fitting are :

Horizontal Elbow (Horizontal Bend)

A cable tray fitting which changes the direction at 90° intervals in the same plane.

Horizontal Tee

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

Horizontal Cross

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

Vertical Elbow (Vertical Bend)

A cable tray fitting which changes direction to a different plane.

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

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

Reducer (Straight, Right Hand, Left Hand)

A cable tray fitting which is suitable for joining cable trays of different widths in the same plane.

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

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

1.6 Cover

A device which offers protection to the cable against rain (water), dust and drop of solid also for the full strengthen.

1.7 Cable Tray Connector

A device which joins cable tray straight sections and fittings, or both.

The basic types of connectors (splice plates) are:

1. Rigid
2. Expansion
3. Adjustable
4. Reducer

1.8 Accessories

Devices which are used to supplement the function or plane of straight sections and fittings, and include such items as dropouts, covers, conduit adapters, hold-down devices and dividers.

1.9 Cable Tray Support

A device which provides adequate means for supporting cable tray sections and fittings. The basic types of cable tray supports are:

1. Cantilever bracket
2. Trapeze
3. Single rod suspension.

MANUFACTURING STANDARD SECTION 2

2.1 MATERIALS

Cable tray systems shall be made of either corrosion-resistant metal or metal with a corrosion-resistant finish.

2.2 FINISHES

Steel used for cable trays shall be protected against corrosion by being:

1. Continuous roller hot-dip mill galvanized in accordance with ASTM. “Specification for zinc coated (galvanized) iron or steel sheet, coils and cut length”.
2. Hot-dip galvanized after fabrication in accordance with ASTM Publication No. A386, “Specification for the zinc coating (hotdip) an assembled product.

2.3 DIMENSIONS

A. Ladder Trays

1. Lengths of Straight Sections 12' (3,660mm) $\pm \frac{3}{16}$ " (4.76mm) and 24' (7,320mm) $\pm \frac{5}{16}$ " (7.94mm), not including connectors if attached.
2. Widths - 6", 12", 18", 24", 30", and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm), $\pm \frac{1}{4}$ " (6.35mm) inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
3. Depths - Inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127.0mm, and 152mm), $\pm \frac{3}{8}$ " (9.53mm). Outside depths shall not exceed inside depths by more than $\frac{11}{4}$ " (31.7mm).
4. Rung Spacing on Straight Sections - 6", 9", 12", or 18" (152mm, 229mm, 305mm, or 457mm) on centers.
5. Radius - 12", 24", and 36" (305mm, 610mm, and 914mm).
6. Degree of Arc for Elbows - 30°, 45°, 60°, and 90°.

B. Trof (Perforated) Trays

1. Lengths of Straight Sections – NEMA - 12' (3660mm) $\pm \frac{3}{16}$ " (4.76mm) and 24' (7320mm) $\pm \frac{5}{16}$ " (7.94mm), not including connectors if attached.
2. Widths - 6", 12", 18", 24", 30", and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm), $\pm \frac{1}{4}$ " (6.35mm), inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
3. Depths - Inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127mm, and 152mm), $\pm \frac{3}{8}$ " (9.53mm). Outside depths shall not exceed inside depths by more than $\frac{11}{4}$ " (31.7mm).
4. Radius - 12", 24", and 36" (305mm, 610mm, and 914mm).
5. Degrees of Arc for Elbows - 30°, 45°, 60°, and 90°.
6. Transverse Elements - The maximum open spacing between transverse elements shall be 4" (102mm) measured in a direction parallel to the tray side rails.

C. Solid-Bottom Trays

1. Lengths of Straight Sections 12' (3660mm) $\pm \frac{3}{16}$ " (4.76mm) and 24' (7320mm) $\pm \frac{5}{16}$ " (7.94mm), not including connectors if attached.
2. Widths - 6, 12, 18, 24, 30, and 36" (152mm, 305mm, 457mm, 610mm, 762mm and 914mm) $\pm \frac{1}{4}$ " (6.35mm), inside dimension. Overall widths shall not exceed inside widths by more than 4" (102mm).
3. Depths - inside depths shall be 3", 4", 5", and 6" (76.2mm, 102mm, 127mm, and 152mm), $\pm \frac{3}{8}$ " (9.53mm). Outside depths shall not exceed inside depths by more than $\frac{1}{4}$ " (31.7mm).
4. Radius - 12", 24", and 36" (305mm, 610mm, and 914mm).
5. Degree of Arc for Elbows - 30°, 45°, 60°, and 90°.
6. Bottom - Bottom is solid.

D. Channel Trays

1. Lengths of Straight Sections - 12' (3660mm) $\pm \frac{3}{16}$ " (4.76mm) and 24' (7320mm) $\pm \frac{5}{16}$ " (7.94mm), not including connectors if attached.
2. Widths - 3", 4", and 6" (76.2mm, 102mm, and 152mm), $\pm \frac{1}{4}$ " (6.35mm), inside dimension.
3. Depths - $\frac{11}{4}$ " to $\frac{13}{4}$ " (31.7mm to 44.4mm) outside dimensions.
4. Radius - 12", 24", and 36" (305mm, 610mm, and 914mm).
5. Degree of Arc for Elbows - 30°, 45°, 60°, and 90°.

2.4 PROTECTION OF CABLE INSULATION

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

2.5 FITTINGS

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

2.6 MARKING OF TRAYS WHEN USED AS EQUIPMENT GROUNDING

CONDUCTORS

When steel or aluminum cable tray systems are used as equipment grounding conductors, cable tray sections and fittings shall be marked to show the minimum cross.

PERFORMANCE STANDARDS LOADS SECTION 3 3.1 WORKING (ALLOWABLE)

LOAD CAPACITY

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

3.2 LOAD/SPAN CLASS DESIGNATIONS

There shall be three working load categories of cable tray:

1. 50 lbs/linear ft. (74.4 kg/m) (Symbol A)
2. 75 lbs/linear ft. (111.6 kg/m) (Symbol B)
3. 100 lbs./linear ft. (148.8 kg/m) (Symbol C) and,
four support span categories of:
 1. 8' (2.44m),
 2. 12' (3.66m),
 3. 16' (4.87m),
 4. 20' (6.09m)

TEST STANDARD SECTION 4

4.1 DESTRUCTION LOAD TEST

4.1.1 Test Specimen

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

For ladder type cable trays rung spacing shall be 12" on center. Differences in gauge, height of side rails, rung or bottom to side rail connection, or the configuration of any part constitute a different design

4.1.2 Type and Length of Span

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

4.1.3 Orientation of Specimens

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

4.1.4 Supports

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

4.1.5 Loading Material

Loading material shall be steel strips, lead ingots, or other loading material. Steel strips shall have rounded or de-burred edges, a maximum thickness of $\frac{1}{8}$ " (3 mm), a width of 4" (100 mm), and a maximum length of 24' (7320 mm). Five lead ingots, each weighing approximately 5 pounds (2.3 kg), shall be interconnected across corners into a string of 5 ingots approximately 22" (550 mm) long. Individual ingots are normally hexagonal, approximately 3" (75 mm) in diameter, and $1\frac{1}{2}$ " (38 mm) deep. Other loading material shall have a maximum weight of 10 pounds (4.5 kg), a maximum width of 5" (125 mm), and a maximum length of 12" (300 mm).

4.1.6 Loading

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

Loading shall be uniformly distributed for the length and breadth of the specimen except that the loading material shall be not closer than $\frac{1}{2}$ " (13 mm) nor further than 1" (25 mm) from the innermost elements of the side rails. It shall be arranged across the tray with a minimum of $\frac{3}{8}$ " (10 mm)

between stacks so that the loading material does not bridge transversely. All loading material shall be placed between the supports without overhanging.

For loading weight in a ladder-type tray, it shall be permissible to cover the bottom of the tray between supports with a flat sheet of No. 9 gauge (3.8 mm) flattened expanded material not more than 3' (900 mm) long and with a wire hole size of $\frac{3}{4}$ " (19 mm), or a flat sheet of No. 16 gauge (1.5 mm) sheet steel not more than 3' (900 mm) long. The expanded

metal or sheet steel shall not be fastened to the tray and shall be no closer than $\frac{1}{2}$ " (13 mm) to the side rails. The 3' (900 mm) lengths shall not overlap by more than 2" (50 mm). The weight of the expanded metal or sheet steel shall be added to the total weight of the loading material.

4.1.7 Destruction Load Capacity

The total weight of the loading material on the cable tray at the time it is destroyed less the last incremental weight added shall be considered to be the destruction load capacity of the cable tray.

4.1.8 Interpolation & Extrapolation of Test Data

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

4.2 DEFLECTION TEST

the vertical deflection of the tray at two (2) points along the line midway between the supports and at right angles to the longitudinal axis of the tray. The two points of measurement shall be at considered to be the vertical direction of the tray. For application information on deflection see 601.

4.3 ELECTRICAL CONTINUITY OF CONNECTIONS

4.3.1 Test Specimen

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

4.3.2 Resistance Test Procedure

Each specimen should be joined together, using the mechanical connector, and following the instructions provided by the manufacturer. A current of 30 amperes DC shall be passed through the specimen and the resistance measured between two points $\frac{1}{16}$ " (1.6 mm) from each side of the splice. The net resistance of the joint shall be not more than 0.00033 ohm as computed from the measured voltage drop and the current passing through the specimen.

SPECIFICATION AND DRAWINGS SECTION 5

5.1 DATA TO APPEAR IN SPECIFICATIONS

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

1. Cable tray shall be manufactured and installed in
2. accordance with NEMA Standard VE 1-2002
3. Load / Support Span Class Designation (see Table 1)
4. Type (see Section 1.2 Definitions)
5. Material (see Section 2.1)
6. Finish (see Section 2.2)
7. Tray Length (see Section 2.3)
8. Width (see Section 2.3)
9. Inside Depth (see Section 2.3)
10. Rung Spacing (see Section 2.3)
11. Fitting Radius (see Section 2.3).

5.2 DATA TO APPEAR ON DRAWINGS

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

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

APPLICATION INFORMATION SECTION 6

6.1 DEFLECTION

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

6.2 CONCENTRATED STATIC LOAD *(If Required by User)*

A concentrated static load is not included in the Load/Span Designations NEMA VE-1, Table 1. Some user applications may require that a given concentrated static load be imposed over and above the working load. Such a concentrated static load represents a static weight applied between the side rails at midspan. When so specified, the concentrated static load may be converted to an equivalent, uniform load (W_e) in pounds per linear foot (kilograms per meter) using the formula:

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

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

6.3 WARNING! WALKWAYS

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

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

6.4 FITTINGS

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

6.5 SUPPORTS

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

1. Horizontal and vertical tray supports should provide an adequate bearing surface for the tray and should have provisions for hold down clamps or fasteners.
2. In addition, vertical tray supports should provide secured means for fastening cable trays to supports.

6.6 SUPPORT LOCATIONS

6.6.1 Horizontal Cable Tray Straight Sections

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

6.6.2 Horizontal Cable Tray Fittings

1. Horizontal Elbow Supports for horizontal tray fittings should be placed within 2' (600 mm) of each fitting extremity, and as follows:
 - (a) 90° supports at the 45° point of arc.
 - (b) 60° supports at the 30° point of arc.
 - (c) 45° supports at the $22\frac{1}{2}^\circ$ point of arc (except for the 12" (300 mm) radii).
 - (d) 30° supports at the 15° point of arc (except for the 12" (300 mm) radii).
2. Horizontal Tee Supports shall be placed within 2' (600 mm) of each of the three openings connected to other cable tray items for 12" (300 mm) radius fittings. On all other radii, at least one support should be placed under each side rail of the horizontal tee.
3. Horizontal Cross Supports shall be placed within 2' (600 mm) of each of the four openings connected to other cable tray items for 12" (300 mm) radius fittings. On all other radii, at least one support should be placed under each side rail of the horizontal cross.
4. Horizontal Wye Supports shall be placed within 2' of each of the three openings connected to other cable tray items, and at $22\frac{1}{2}^\circ$ point of the arc adjacent to the branch.
5. Reducer Supports shall be placed within 2' (600 mm) of each fitting extremity.
6. Vertical Cable Tray Elbows should be supported at the top of runs at each end of the fitting. Vertical cable tray elbows at the bottom of runs should be supported at the top of the elbow and within 2' (600 mm) of the lower extremity of the elbow.
7. Vertical Cable Tray Tees should be supported within 2' (600 mm) of each fitting extremity.

6.6.3 Vertical Straight Sections

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

6.6.4 Sloping Trays

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

6.6.5 Fittings as End of Run

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

6.7 PROTECTION OF CABLE INSULATION

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

6.8 THERMAL CONTRACTION AND EXPANSION

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

The cable tray should be securely fixed at the support nearest to its midpoint between the expansion connectors and secured by expansion guides at all other support locations.

The cable tray should be permitted longitudinal movement in both directions from that fixed point towards the expansion connectors.

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

Step 1 - Plot the highest expected cable tray metal temperature

Step 2 - Draw a line between these maximum and minimum temperature points.

Step 3 - To determine the gap setting: Plot the metal temperature at the time of installation

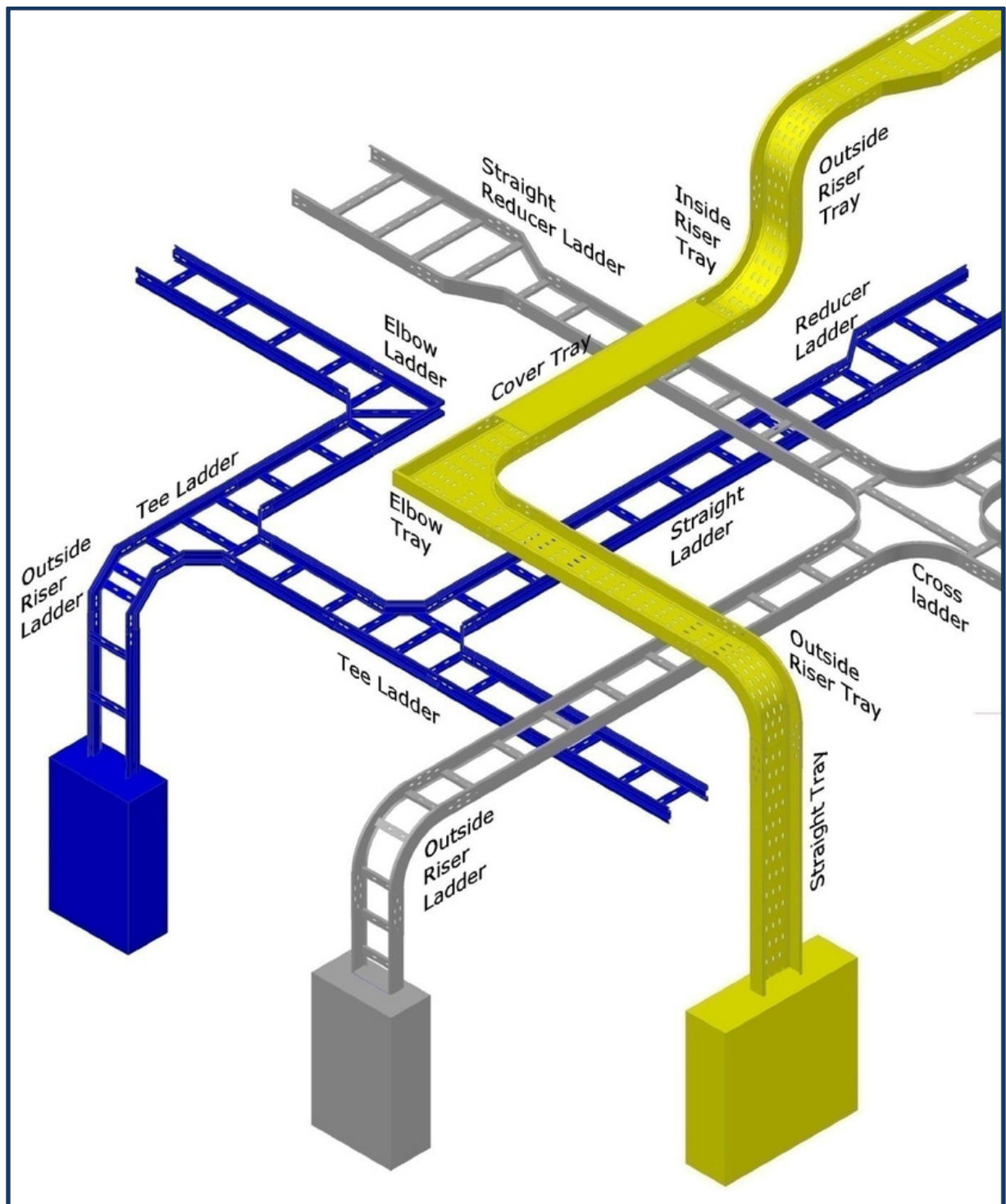
6.9 CABLE INSTALLATION

When installing cable in cable tray, it is important that care and planning be exercised so that the cable or the cable tray is not damaged or destroyed. The cable

manufacturer

should be contacted for maximum pulling tensions and minimum bending radii, and advice on prevention of “egging” or deformation of cable jacketing or shielding.

CABLE SUPPORT SYSTEM

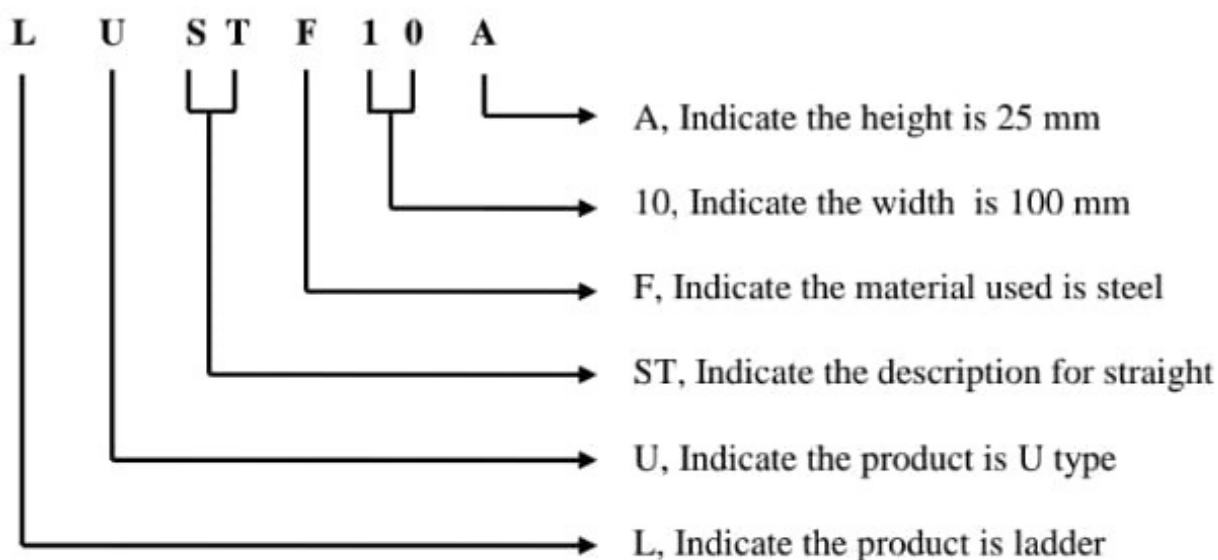


GUIDANCE MANUAL FOR THE PART NUMBER CODE

Product	Type	Description	Material	Width	Height	Radius
L (ladder)	C (C Type)	ST (Straight)	F (Steel)	50 = 05	25=A	300=30
	W (W type)	EL (Elbow)	S (SUS)	100 = 10	50=B	450=45
		TE (Tee)	A (Aluminium)	150 = 15	60=C	600=60
		XR (Cross)		200 = 20	100=D	900=90
		OR (Outside Riser)		250 = 25	127=E	
		IR (Inside Riser)		300 = 30	152=F	
		SR (Straight Reducer)		400 = 45	200=G	
		OR LH (Offset Reducer)		500 = 50	23=H	
		OR RH (Offset Reducer)		600 = 60	41=J	
		SC (Straight Cover)		800 = 80		
		JS (Jointing)				
T (Tray)	C (C Type)					
	U (U type)					
	D (Trungking)					
	U type					
	T (Trungking)					
	C type					

HOW TO READ PART NUMBER

For Ladder and Cable Tray, Example: LUSTF10A



DESCRIPTION

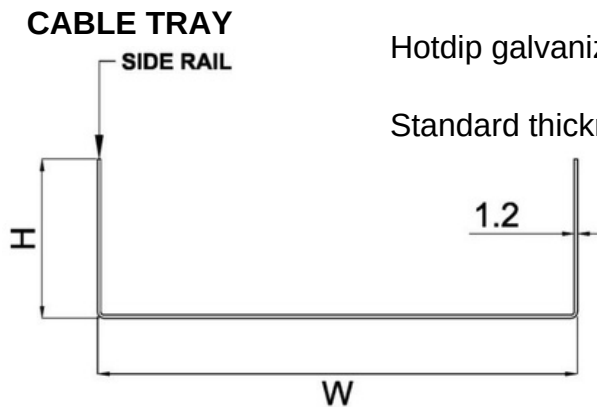
MATERIAL : SURFACE TREATMENT

Mill steel sheet Natural finishing

Stainless steel sheet Hotdip galvanized finishing

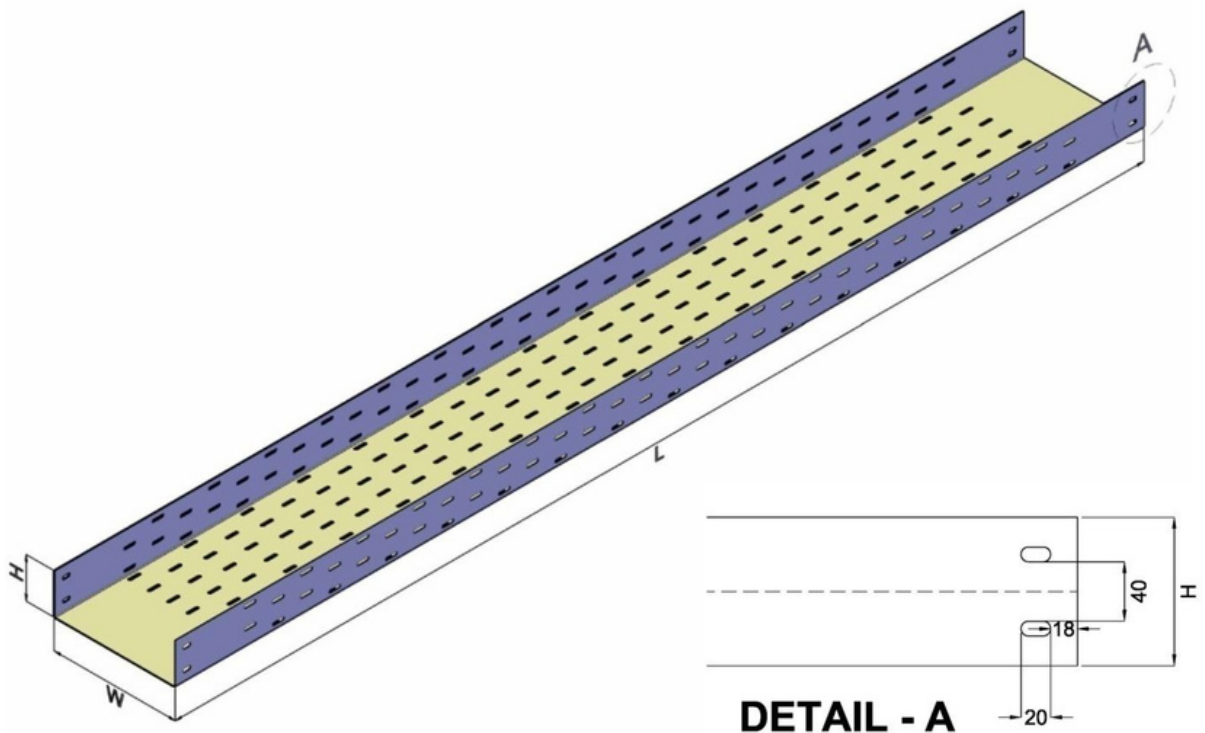
Aluminium sheet Zinc phosphate powder coating

All bolts, nuts, and washers can use stainless steel,



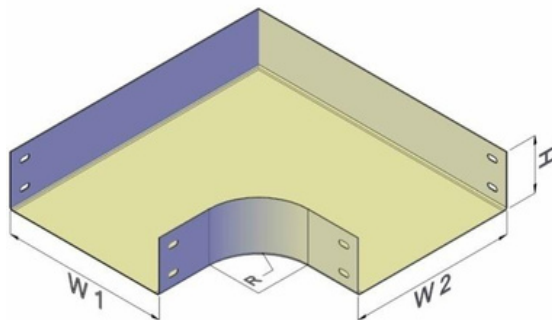
Hotdip galvanized finishing or elektro galvanized finishing

PART NO	W	H	L
ST 5	50	50	2400/3000
ST 10	100	50/100	2400/3000
ST 15	150	50/100	2400/3000
ST 20	200	50/100	2400/3000
ST 30	300	50/100	2400/3000
ST 40	400	50/100	2400/3000
ST 50	500	50/100	2400/3000
ST 60	600	50/100	2400/3000
ST 70	700	50/100	2400/3000
ST 80	800	50/100	2400/3000



Other dimensions, thickness are available upon special requirements

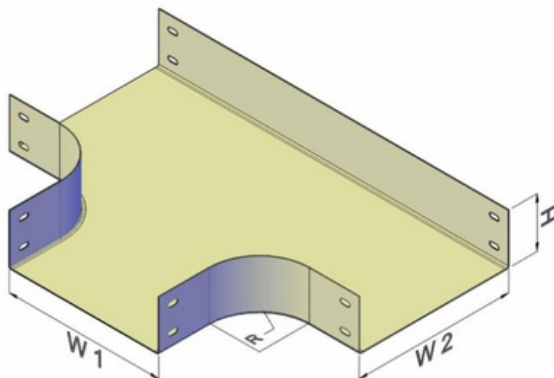
HORIZONTAL ELBOW



PART NO	W1	W2	H	R
EL5/5ST	50	50	50	300 450 600
EL10/10ST	100	100	50/100	
EL15/15ST	150	150	50/100	
EL20/20ST	200	200	50/100	
EL30/30ST	300	300	50/100	
EL40/40ST	400	400	50/100	
EL50/50ST	500	500	50/100	
EL60/60ST	600	600	50/100	
EL70/70ST	700	700	50/100	
EL80/80ST	800	800	50/100	

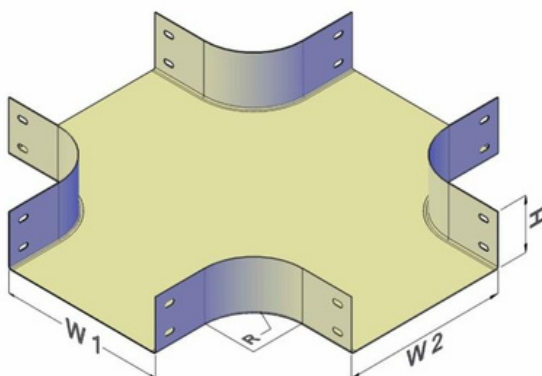
U - TYPE

HORIZONTAL TEE



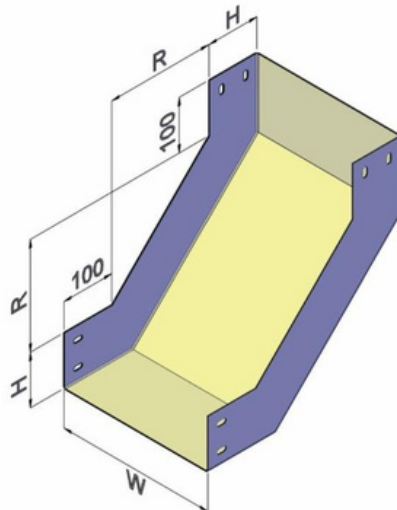
PART NO	W1	W2	H	R
T5/5ST	50	50	50	300 450 600
T10/10ST	100	100	50/100	
T15/15ST	150	150	50/100	
T20/20ST	200	200	50/100	
T30/30ST	300	300	50/100	
T40/40ST	400	400	50/100	
T50/50ST	500	500	50/100	
T60/60ST	600	600	50/100	
T70/70ST	700	700	50/100	
T80/80ST	800	800	50/100	

HORIZONTAL CROSS

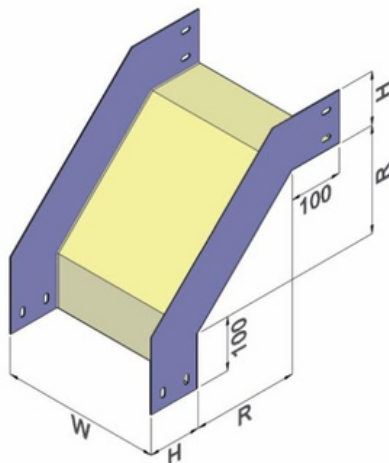


PART NO	W1	W2	H	R
CR5/5ST	50	50	50	300 450 600
CR10/10ST	100	100	50/100	
CR15/15ST	150	150	50/100	
CR20/20ST	200	200	50/100	
CR30/30ST	300	300	50/100	
CR40/40ST	400	400	50/100	
CR50/50ST	500	500	50/100	
CR60/60ST	600	600	50/100	
CR70/70ST	700	700	50/100	
CR80/80ST	800	800	50/100	

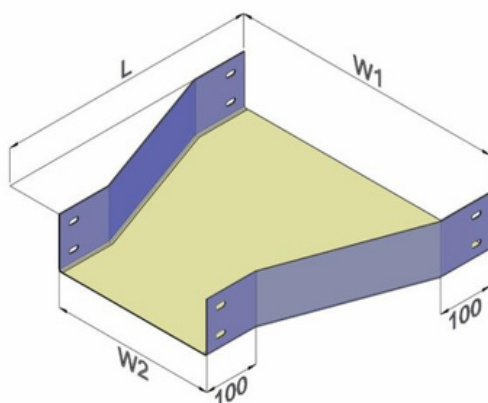
Other dimensions, thickness are available upon special requirements

INSIDE RISER


PART NO	W	H	R
IR5/5ST	50	50	300 450 600
IR10/10ST	100	50/100	
IR15/15ST	150	50/100	
IR20/20ST	200	50/100	
IR30/30ST	300	50/100	
IR40/40ST	400	50/100	
IR50/50ST	500	50/100	
IR60/60ST	600	50/100	
IR70/70ST	700	50/100	
IR80/80ST	800	50/100	

OUTSIDE RISER


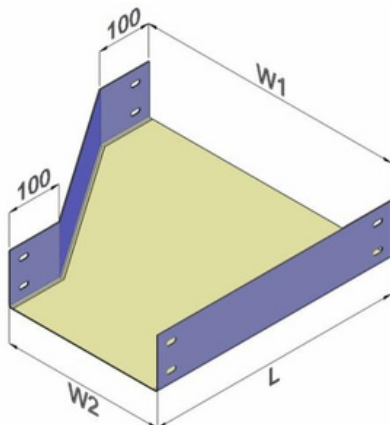
PART NO	W	H	R
OR5/5ST	50	50	300 450 600
OR10/10ST	100	50/100	
OR15/15ST	150	50/100	
OR20/20ST	200	50/100	
OR30/30ST	300	50/100	
OR40/40ST	400	50/100	
OR50/50ST	500	50/100	
OR60/60ST	600	50/100	
OR70/70ST	700	50/100	
OR80/80ST	800	50/100	

STRAIGHT REDUCER


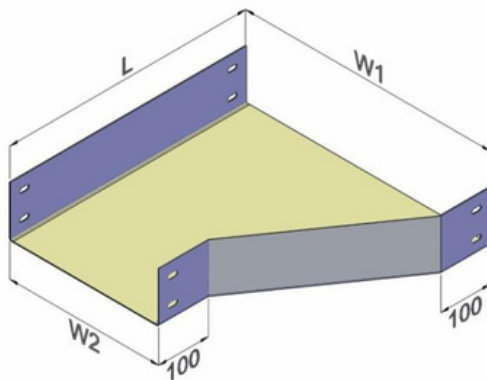
PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10ST	400	100	50/100	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30S	400	300	50/100	600
RD 50/30S	500	300	50/100	600
RD 50/40S	500	400	50/100	600
RD 60/40S	600	400	50/100	600
RD 70/40S	700	400	50/100	600
RD 80/40S	800	400	50/100	600

Other dimensions, thickness are available upon special requirements

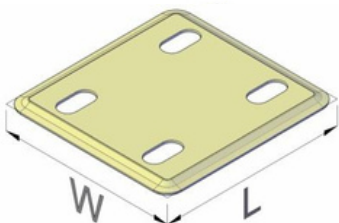
OFFSET REDUCER LEFT



OFFSET REDUCER RIGHT



JOINT FOR CABLE TRAY



PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10S	400	100	50/100	600
T	400	150	50/100	600
RD40/15S	400	200	50/100	600
T	400	300	50/100	600
RD40/20S	500	300	50/100	600
T RD	500	400	50/100	600
40/30ST	600	400	50/100	600
RD	700	400	50/100	600
50/30ST	800	400	50/100	600

RD

50/40ST

RD

60/40ST

RD

PART NO	W1	W2	H	L
RD 40/5ST	400	50	50	600
RD 40/10ST	400	100	50/100	600
RD 40/15ST	400	150	50/100	600
RD 40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

PART NO FOR	W	L
93	100	

ST

Other dimensions, thickness are available upon special requirements

DESCRIPTION

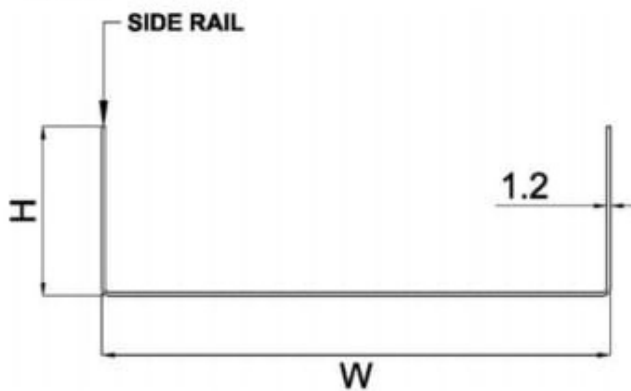
MATERIAL :

- Mill steel sheet
- Stainless steel sheet
- Aluminium sheet

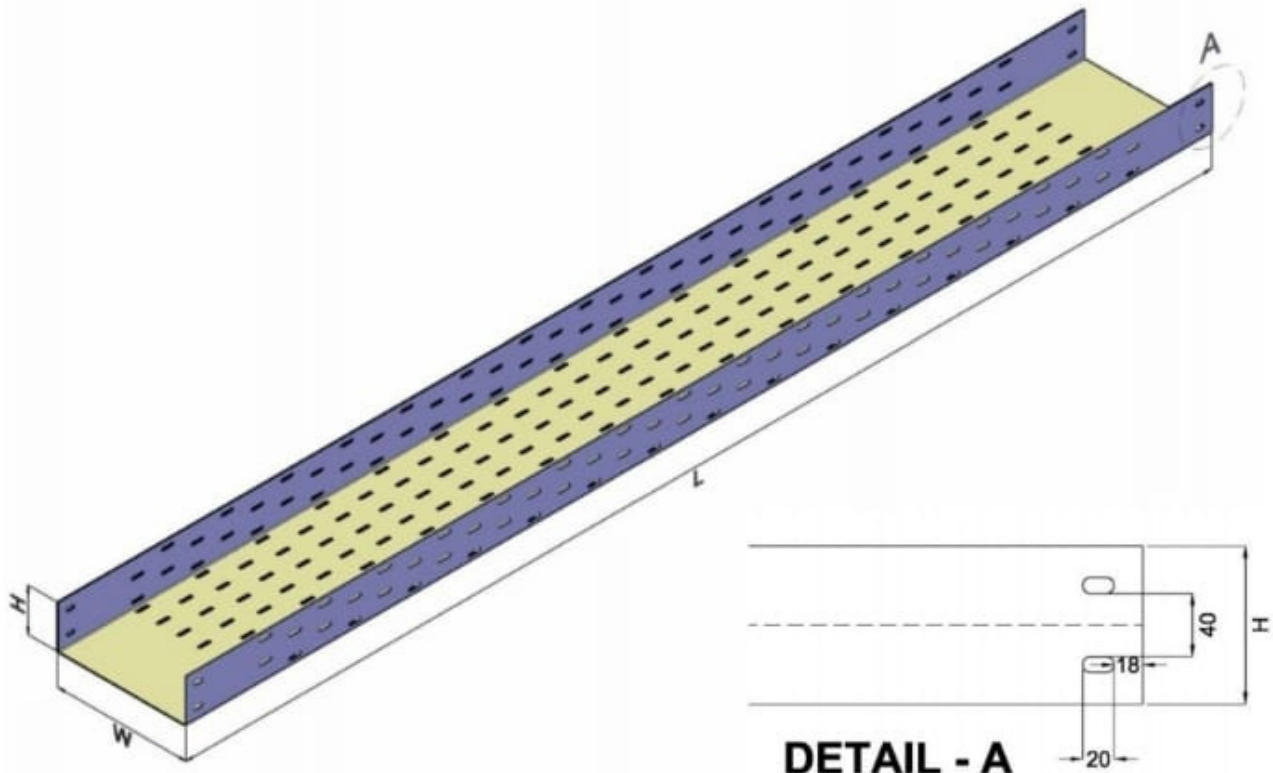
SURFACE TREATMENT

- Natural finishing
- Hotdip galvanized finishing
- Zinc phosphate powder coating
- All bolts, nuts, and washers can use stainless steel,
- Hotdip galvanized finishing or elektro galvanized finishing
- Standard thickness 1.2 mm

CABLE TRAY

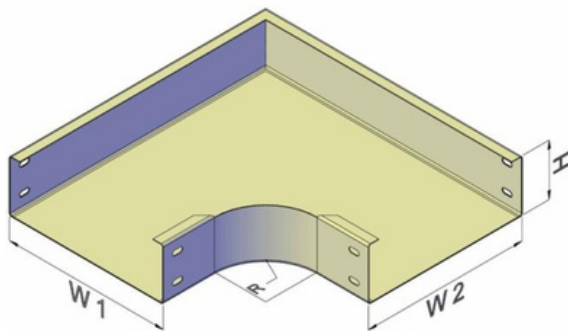


PART NO	W	H	L
ST 5	50	50	2400/3000
ST 10	100	50/100	2400/3000
ST 15	150	50/100	2400/3000
ST 20	200	50/100	2400/3000
ST 30	300	50/100	2400/3000
ST 40	400	50/100	2400/3000
ST 50	500	50/100	2400/3000
ST 60	600	50/100	2400/3000
ST 70	700	50/100	2400/3000
ST 80	800	50/100	2400/3000



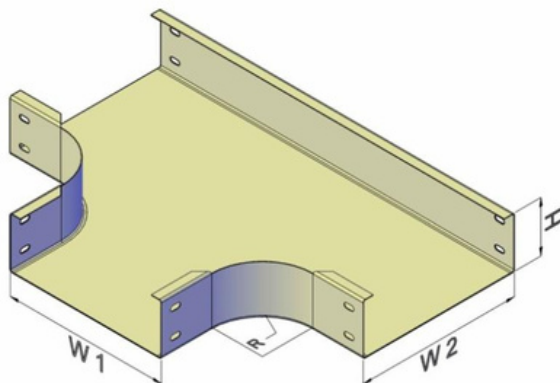
Other dimensions, thickness are available upon special requirements

HORIZONTAL ELBOW



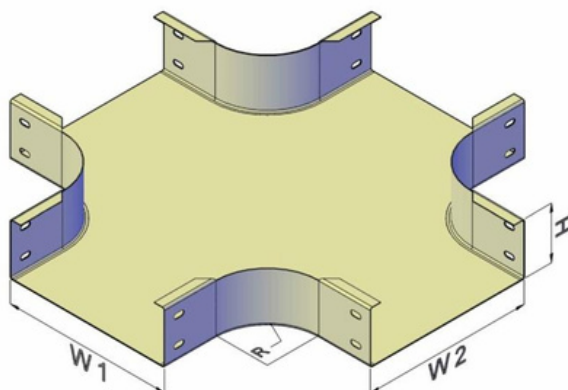
PART NO	W1	W2	H	R
EL10/10ST	100	100	50	300 450 600
EL15/15ST	150	150	50/100	
EL20/20ST	200	200	50/100	
EL30/30ST	300	300	50/100	
EL40/40ST	400	400	50/100	
EL50/50ST	500	500	50/100	
EL60/60ST	600	600	50/100	
EL70/70ST	700	700	50/100	
EL80/80ST	800	800	50/100	

HORIZONTAL TEE



PART NO	W1	W2	H	R
T10/10S	100	100	50	300 450 600
T15/15S	150	150	50/100	
T20/20S	200	200	50/100	
T30/30S	300	300	50/100	
T40/40S	400	400	50/100	
T50/50S	500	500	50/100	
T60/60S	600	600	50/100	
T70/70S	700	700	50/100	
T80/80S	800	800	50/100	

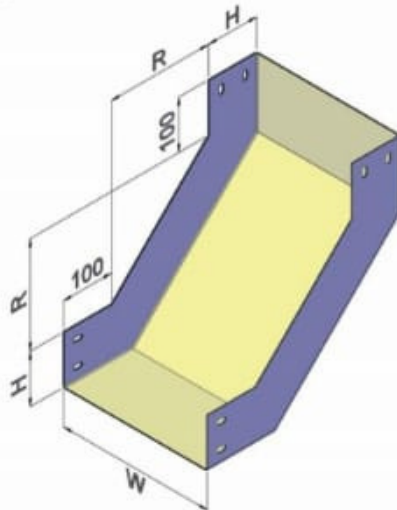
HORIZONTAL CROSS



PART NO	W1	W2	H	R
CR10/10ST	100	100	50	300 450 600
CR15/15ST	150	150	50/100	
CR20/20ST	200	200	50/100	
CR30/30ST	300	300	50/100	
CR40/40ST	400	400	50/100	
CR50/50ST	500	500	50/100	
CR60/60ST	600	600	50/100	
CR70/70ST	700	700	50/100	
CR80/80ST	800	800	50/100	

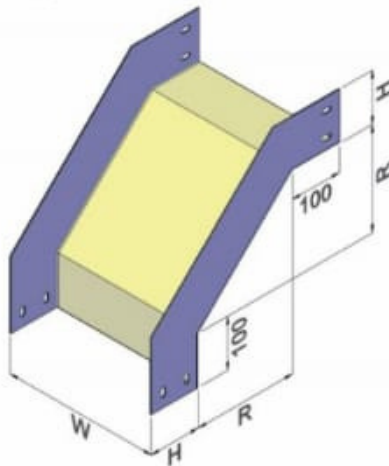
Other dimensions, thickness are available upon special requirements

INSIDE RISER



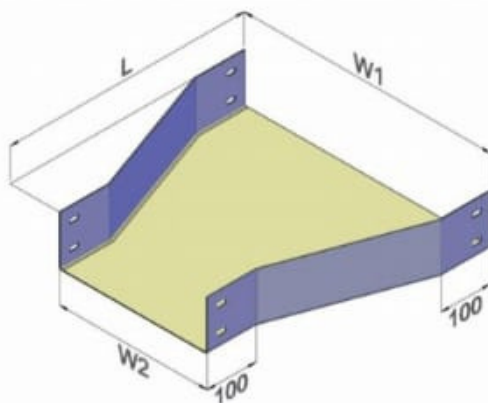
PART NO	W	H	R
IR5/5ST	50	50	300 450 600
IR10/10ST	100	50/100	
IR15/15ST	150	50/100	
IR20/20ST	200	50/100	
IR30/30ST	300	50/100	
IR40/40ST	400	50/100	
IR50/50ST	500	50/100	
IR60/60ST	600	50/100	
IR70/70ST	700	50/100	
IR80/80ST	800	50/100	

OUTSIDE RISER



PART NO	W	H	R
OR5/5ST	50	50	300 450 600
OR10/10ST	100	50/100	
OR15/15ST	150	50/100	
OR20/20ST	200	50/100	
OR30/30ST	300	50/100	
OR40/40ST	400	50/100	
OR50/50ST	500	50/100	
OR60/60ST	600	50/100	
OR70/70ST	700	50/100	
OR80/80ST	800	50/100	

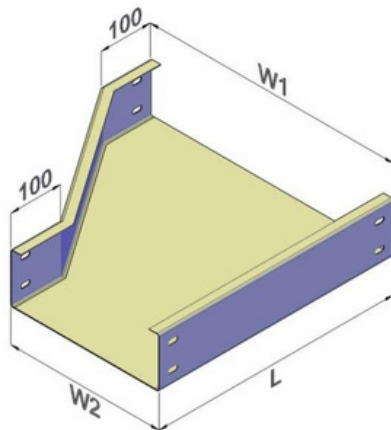
STRAIGHT REDUCER



PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10ST	400	100	50/100	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

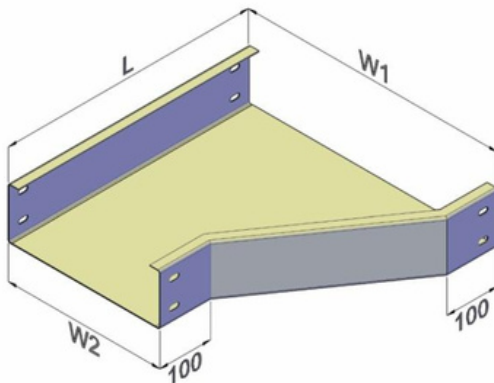
Other dimensions, thickness are available upon special requirements

OFFSET REDUCER LEFT



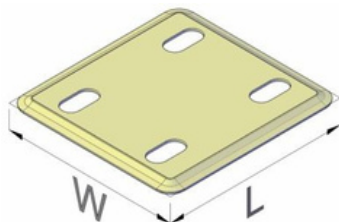
PART NO	W1	W2	H	L
RD40/10ST	400	100	50	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

OFFSET REDUCER RIGHT



PART NO	W1	W2	H	L
RD40/10ST	400	100	50	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

JOINT FOR CABLE TRAY



PART NO	H	L
FOR ST	93	100

Other dimensions, thickness are available upon special requirements

DESCRIPTION

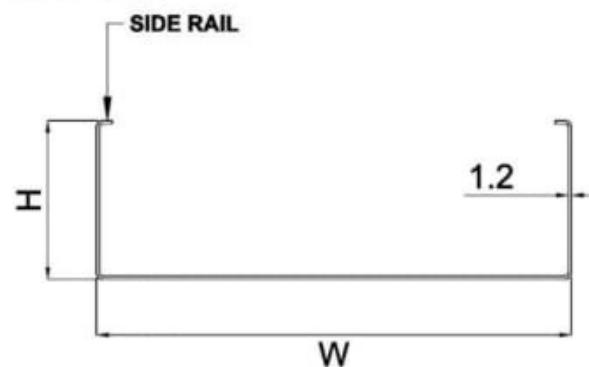
MATERIAL :

- Mill steel sheet
- Stainless steel sheet
- Aluminium sheet

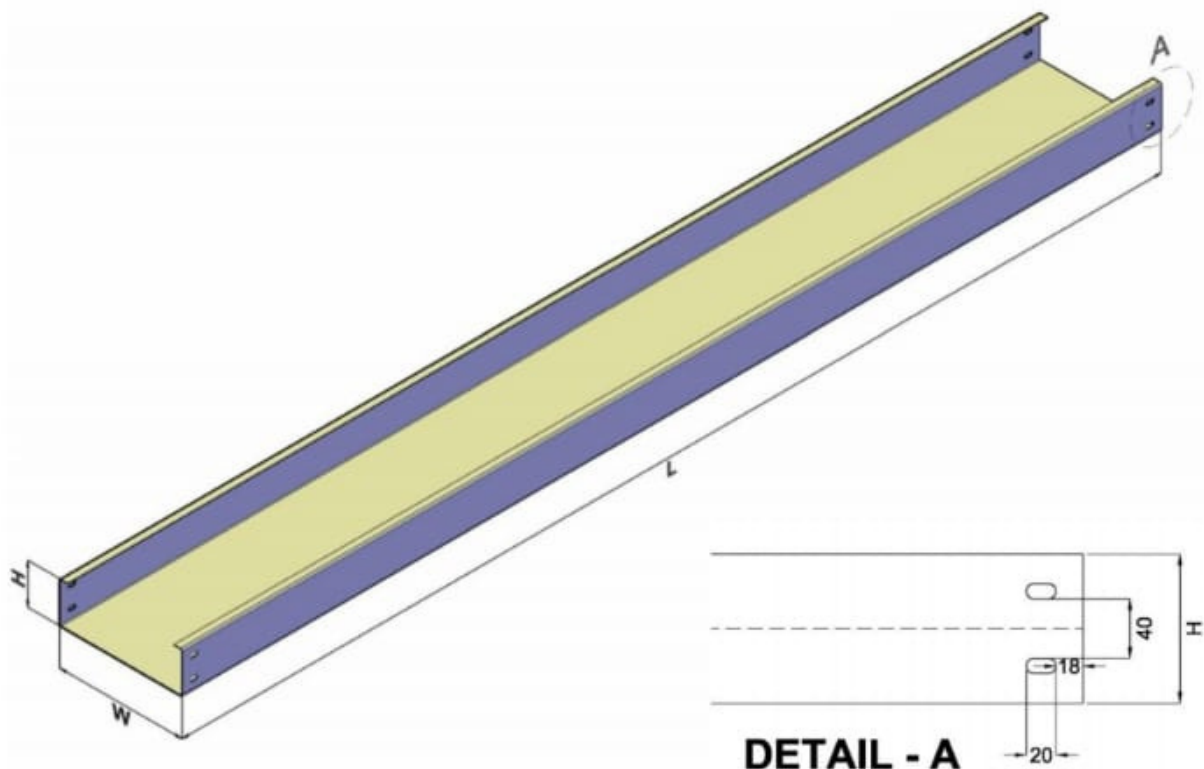
SURFACE TREATMENT

- Natural finishing
- Hotdip galvanized finishing
- Zinc phosphate powder coating
- All bolts, nuts, and washers can use stainless steel,
- Hotdip galvanized finishing or elektro galvanized finishing
- Standard thickness 1.2 mm

CABLE TRAY



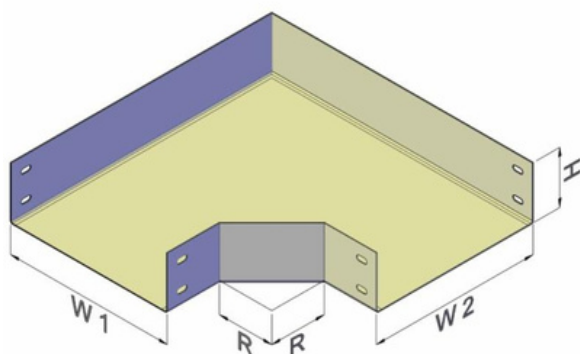
PART NO	W	H	L
ST 10	100	50	2400/3000
ST 15	150	50/100	2400/3000
ST 20	200	50/100	2400/3000
ST 30	300	50/100	2400/3000
ST 40	400	50/100	2400/3000
ST 50	500	50/100	2400/3000
ST 60	600	50/100	2400/3000
ST 70	700	50/100	2400/3000
ST 80	800	50/100	2400/3000



C - TYPE

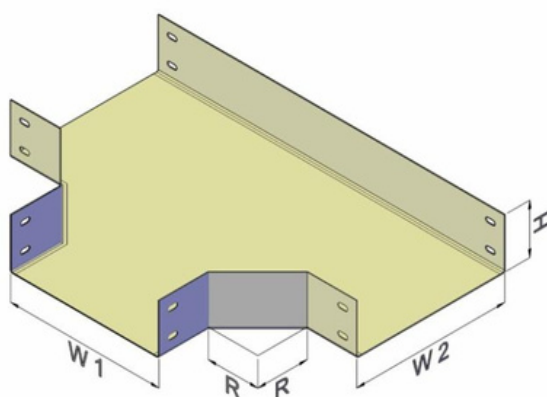
Other dimensions, thickness are available upon special requirements

HORIZONTAL ELBOW



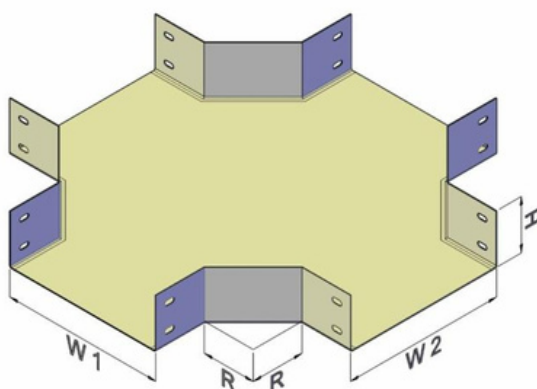
PART NO	W1	W2	H	R
EL5/5ST	50	50	50	300 450 600
EL10/10ST	100	100	50/100	
EL15/15ST	150	150	50/100	
EL20/20ST	200	200	50/100	
EL30/30ST	300	300	50/100	
EL40/40ST	400	400	50/100	
EL50/50ST	500	500	50/100	
EL60/60ST	600	600	50/100	
EL70/70ST	700	700	50/100	
EL80/80ST	800	800	50/100	

HORIZONTAL TEE



PART NO	W1	W2	H	R
T5/5ST	50	50	50	300 450 600
T10/10ST	100	100	50/100	
T15/15ST	150	150	50/100	
T20/20ST	200	200	50/100	
T30/30ST	300	300	50/100	
T40/40ST	400	400	50/100	
T50/50ST	500	500	50/100	
T60/60ST	600	600	50/100	
T70/70ST	700	700	50/100	
T80/80ST	800	800	50/100	

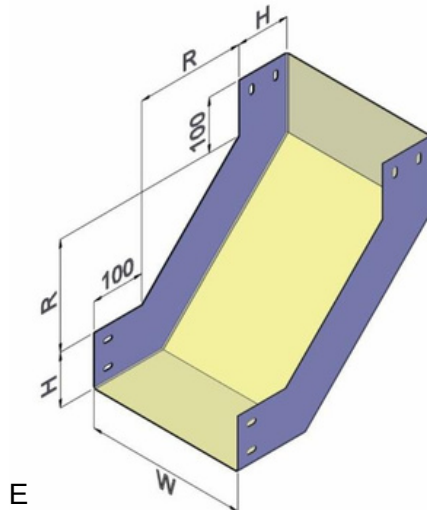
HORIZONTAL CROSS



PART NO	W1	W2	H	R
CR5/5ST	50	50	50	300 450 600
CR10/10ST	100	100	50/100	
CR15/15ST	150	150	50/100	
CR20/20ST	200	200	50/100	
CR30/30ST	300	300	50/100	
CR40/40ST	400	400	50/100	
CR50/50ST	500	500	50/100	
CR60/60ST	600	600	50/100	
CR70/70ST	700	700	50/100	
CR80/80ST	800	800	50/100	

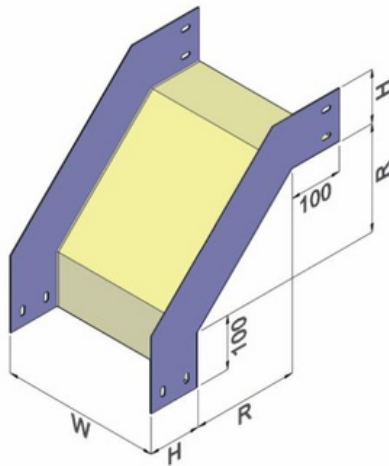
Other dimensions, thickness are available upon special requirements

INSIDE RISER



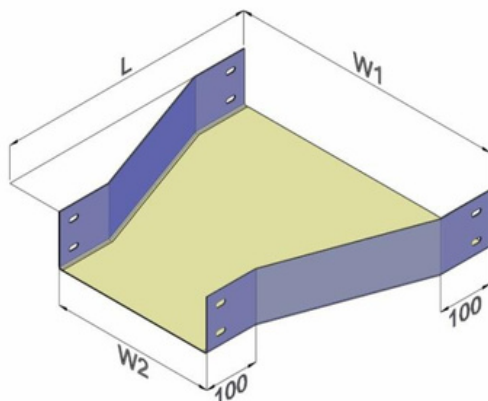
PART NO	W	H	R
IR5/5ST	50	50	300 450 600
IR10/10ST	100	50/100	
IR15/15ST	150	50/100	
IR20/20ST	200	50/100	
IR30/30ST	300	50/100	
IR40/40ST	400	50/100	
IR50/50ST	500	50/100	
IR60/60ST	600	50/100	
IR70/70ST	700	50/100	
IR80/80ST	800	50/100	

OUTSIDE RISER



PART NO	W	H	R
OR5/5ST	50	50	300 450 600
OR10/10ST	100	50/100	
OR15/15ST	150	50/100	
OR20/20ST	200	50/100	
OR30/30ST	300	50/100	
OR40/40ST	400	50/100	
OR50/50ST	500	50/100	
OR60/60ST	600	50/100	
OR70/70ST	700	50/100	
OR80/80ST	800	50/100	

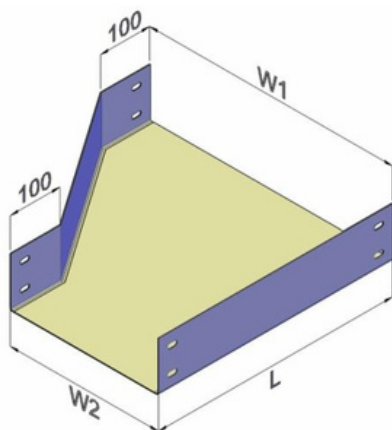
STRAIGHT REDUCER



PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10ST	400	100	50/100	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

Other dimensions, thickness are available upon special requirements

OFFSET REDUCER LEFT



PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10S	400	100	50/100	600
T	400	150	50/100	600
RD40/15S	400	200	50/100	600
T	400	300	50/100	600
RD40/20S	500	300	50/100	600
T RD	500	400	50/100	600
40/30ST	600	400	50/100	600
RD	700	400	50/100	600
50/30ST	800	400	50/100	600

RD

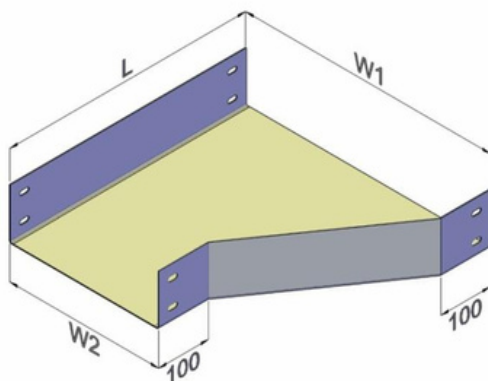
50/40ST

RD

60/40ST

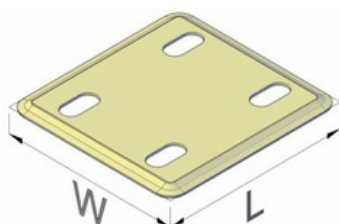
RD

OFFSET REDUCER RIGHT



PART NO	W1	W2	H	L
RD40/5ST	400	50	50	600
RD40/10ST	400	100	50/100	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

JOINT FOR CABLE TRAY



PART NO	W	L
FOR ST	93	100

Other dimensions, thickness are available upon special requirements

DESCRIPTION

MATERIAL : SURFACE TREATMENT

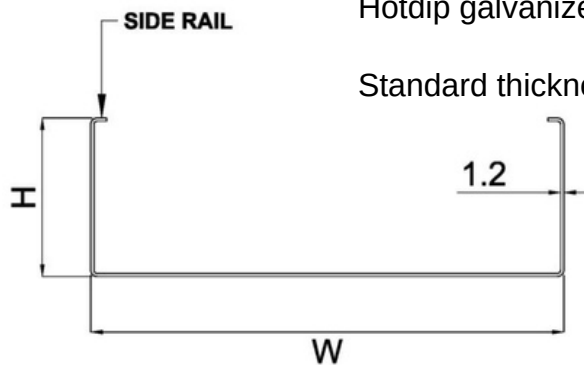
Mill steel sheet Natural finishing

Stainless steel sheet Hotdip galvanized finishing

Aluminium sheet Zinc phosphate powder coating

All bolts, nuts, and washers can use stainless steel,

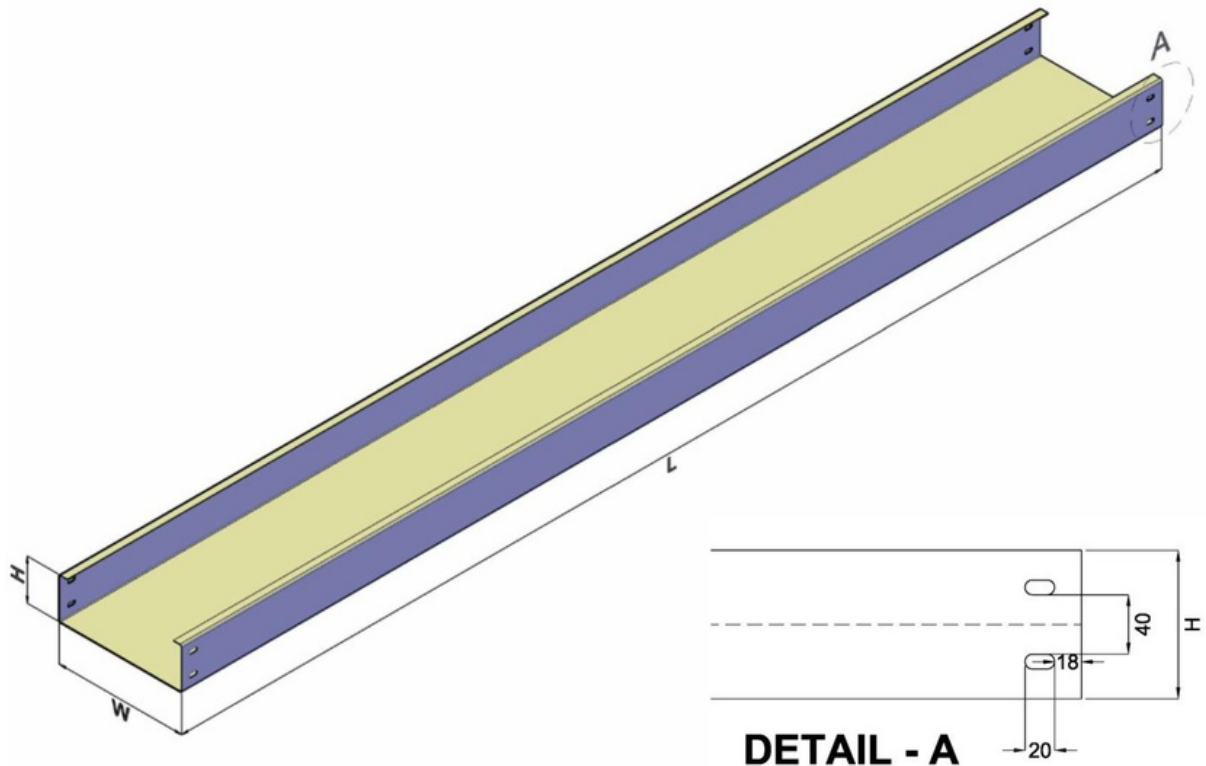
CABLE TRAY



Hotdip galvanized finishing or elektro galvanized finishing

Standard thickness 1.2 mm

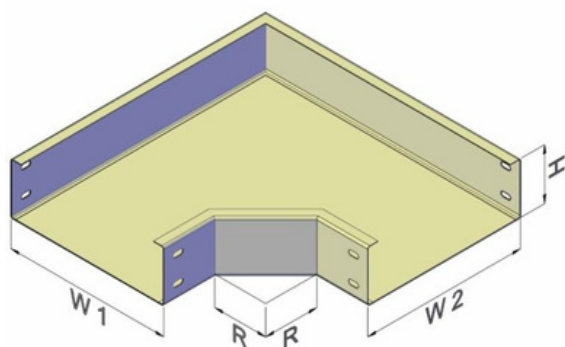
PART NO	W	H	L
ST 10	100	50	2400/3000
ST 15	150	50/100	2400/3000
ST 20	200	50/100	2400/3000
ST 30	300	50/100	2400/3000
ST 40	400	50/100	2400/3000
ST 50	500	50/100	2400/3000
ST 60	600	50/100	2400/3000
ST 70	700	50/100	2400/3000
ST 80	800	50/100	2400/3000



C - TYPE

Other dimensions, thickness are available upon special requirements

HORIZONTAL ELBOW

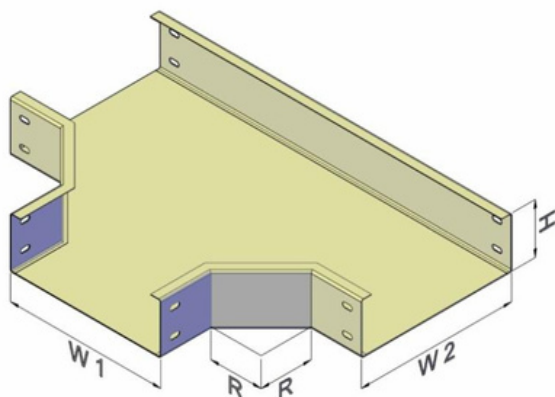


PART NO	W1	W2	H	R
EL10/10S	100	100	50	300 450 600
T	150	150	50/100	
EL15/15S	200	200	50/100	
T	300	300	50/100	
EL20/20S	400	400	50/100	
T	500	500	50/100	
EL30/30S	600	600	50/100	
T	700	700	50/100	
EL40/40S	800	800	50/100	

T
EL50/50S

T
EL60/60S

HORIZONTAL TEE



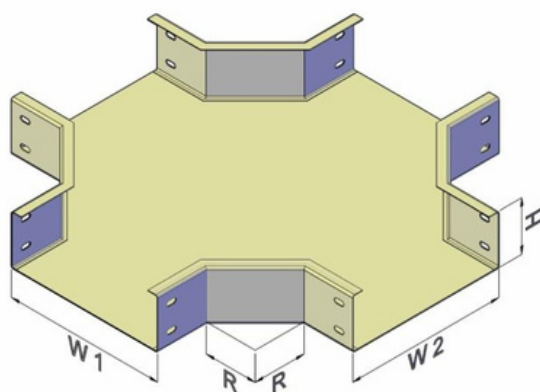
PART NO	W1	W2	H	R
EL70/70S	100	100	50	300 450 600
T10/10S	150	150	50/100	
EL80/80S	200	200	50/100	
T15/15S	300	300	50/100	
T	400	400	50/100	
T20/20S	500	500	50/100	
T	600	600	50/100	
T30/30S	700	700	50/100	
T	800	800	50/100	

T40/40S

T
T50/50S

T
T60/60S

HORIZONTAL CROSS



PART NO	W1	W2	H	R
CR10/10S	100	100	50	300 450 600
T70/70S	150	150	50/100	
CR15/15S	200	200	50/100	
T80/80S	300	300	50/100	
CR20/20S	400	400	50/100	
T	500	500	50/100	
CR30/30S	600	600	50/100	
T	700	700	50/100	
CR40/40S	800	800	50/100	

T
CR50/50S

T
CR60/60S

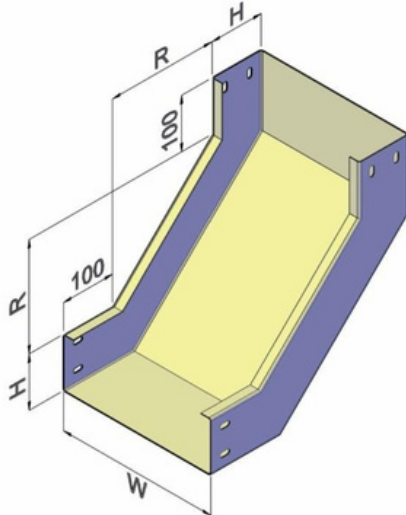
T
CR80/80S

Other dimensions, thickness are available upon special requirements

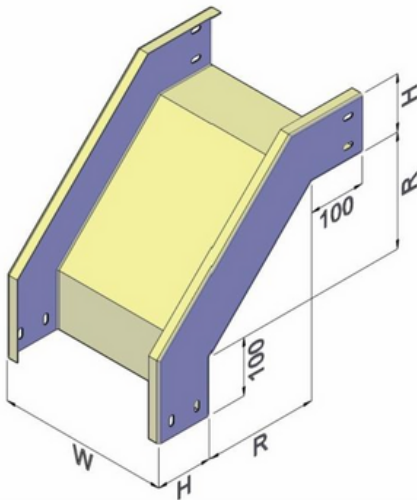
T
CR80/80S

T

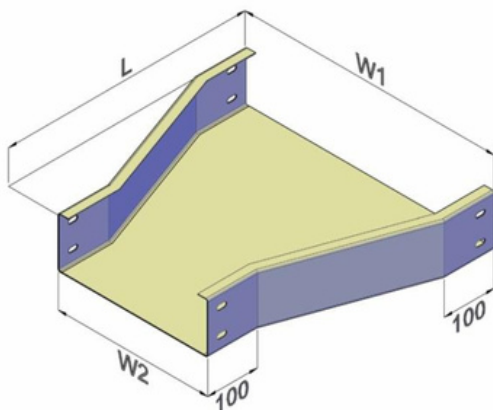
INSIDE RISER



OUTSIDE RISER



STRAIGHT REDUCER



PART NO	W	H	R
IR10/10S	100	50	300 450 600
T	150	50/100	
IR15/15S	200	50/100	
T	300	50/100	
IR20/20S	400	50/100	
T	500	50/100	
IR30/30S	600	50/100	
T	700	50/100	
IR40/40S	800	50/100	

IR40/40S

T

IR50/50S

T

PART NO	W	H	R
OR10/10S	100	50	300 450 600
T	150	50/100	
OR15/15S	200	50/100	
T	300	50/100	
OR20/20S	400	50/100	
T	500	50/100	
OR30/30S	600	50/100	
T	700	50/100	
OR40/40S	800	50/100	

T

OR50/50S

T

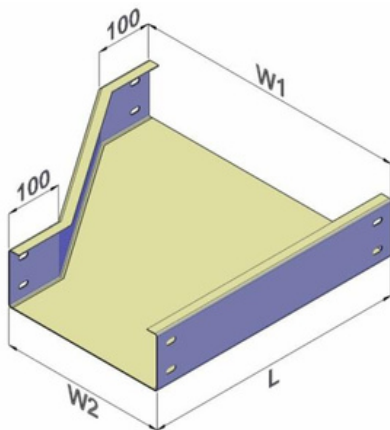
OR60/60S

T

PART NO	W1	W2	H	L
RD40/10ST	400	100	50	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD40/30ST	400	300	50/100	600
RD50/30ST	500	300	50/100	600
RD50/40ST	500	400	50/100	600
RD60/40ST	600	400	50/100	600
RD70/40ST	700	400	50/100	600
RD80/40ST	800	400	50/100	600

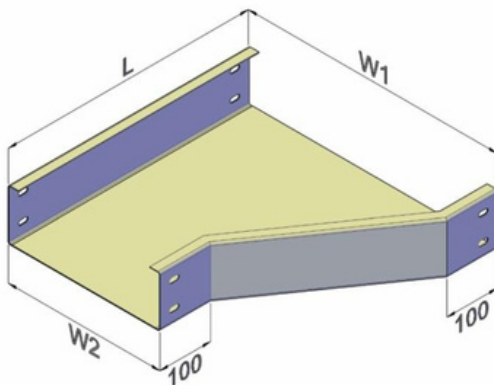
Other dimensions, thickness are available upon special requirements

OFFSET REDUCER LEFT



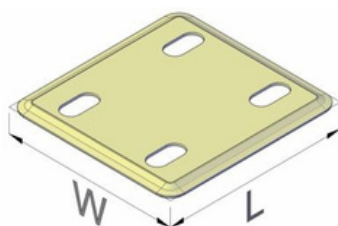
PART NO	W1	W2	H	L
RD40/10ST	400	100	50	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

OFFSET REDUCER RIGHT



PART NO	W1	W2	H	L
RD40/10ST	400	100	50	600
RD40/15ST	400	150	50/100	600
RD40/20ST	400	200	50/100	600
RD 40/30ST	400	300	50/100	600
RD 50/30ST	500	300	50/100	600
RD 50/40ST	500	400	50/100	600
RD 60/40ST	600	400	50/100	600
RD 70/40ST	700	400	50/100	600
RD 80/40ST	800	400	50/100	600

JOINT FOR CABLE TRAY



PART NO	W	L
FOR ST	93	100

Other dimensions, thickness are available upon special requirements

DESCRIPTION

MATERIAL : SURFACE TREATMENT

Mill steel sheet Natural finishing

Stainless steel sheet Hotdip galvanized finishing

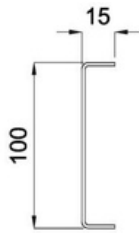
Aluminium sheet Zinc phosphate powder coating

All bolts, nuts, and washers can use stainless steel,

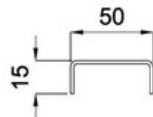
STRAIGHT LADDER

Hotdip galvanized finishing or elektro galvanized finishing

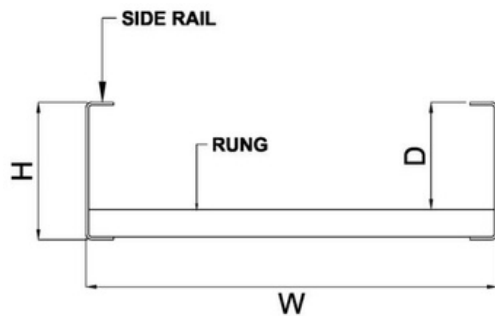
Standard thickness 2.0 mm



SIDE RAIL



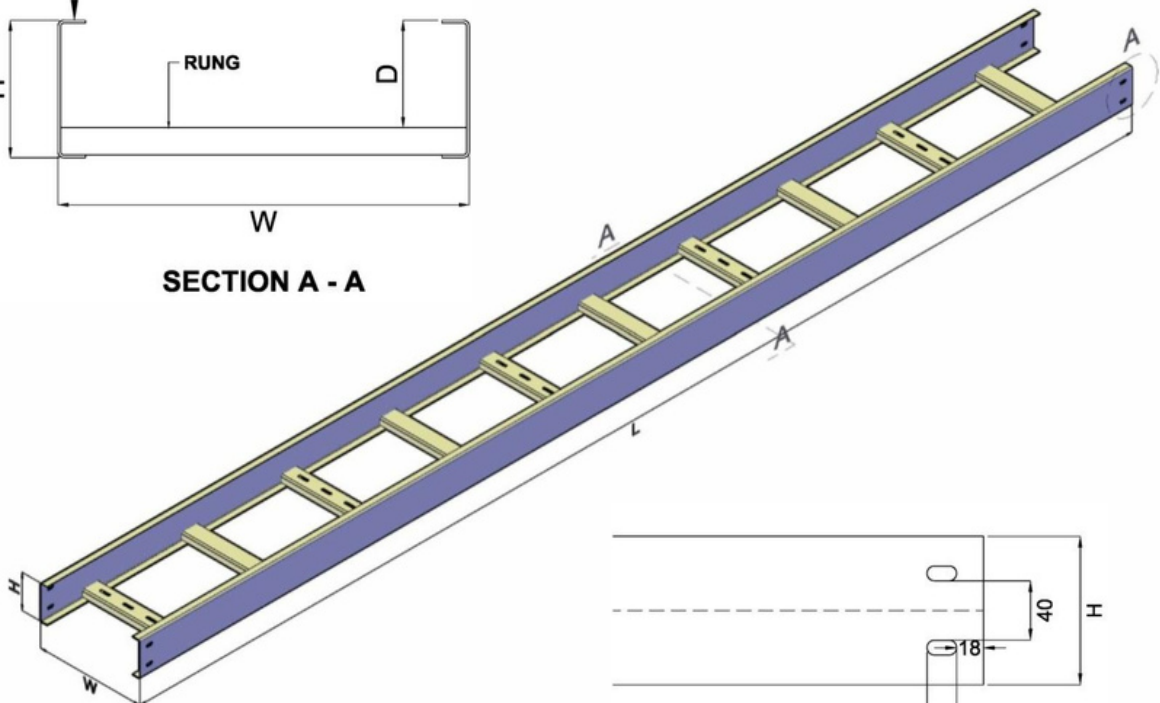
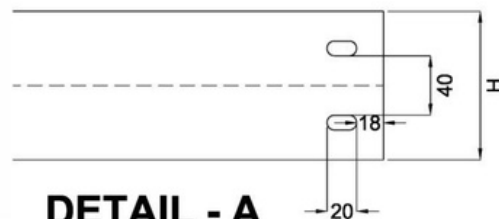
RUNG



SECTION A - A

PART NO	W	H	L
SL 15 U	200	50/70/100	3000
SL 20 U	300	50/70/100	3000
SL 30 U	400	50/70/100	3000
SL 40 U	500	50/70/100	3000
SL 50 U	600	50/70/100	3000
SL 60 U	700	50/70/100	3000
SL 70 U	800	50/70/100	3000
SL 80 U	900	50/70/100	3000
SL 90 U	1000	50/70/100	3000

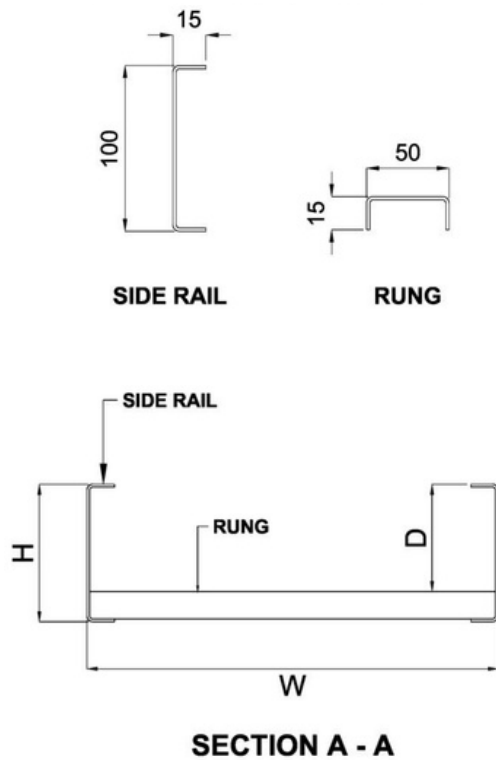
SL 100 U



DETAIL - A

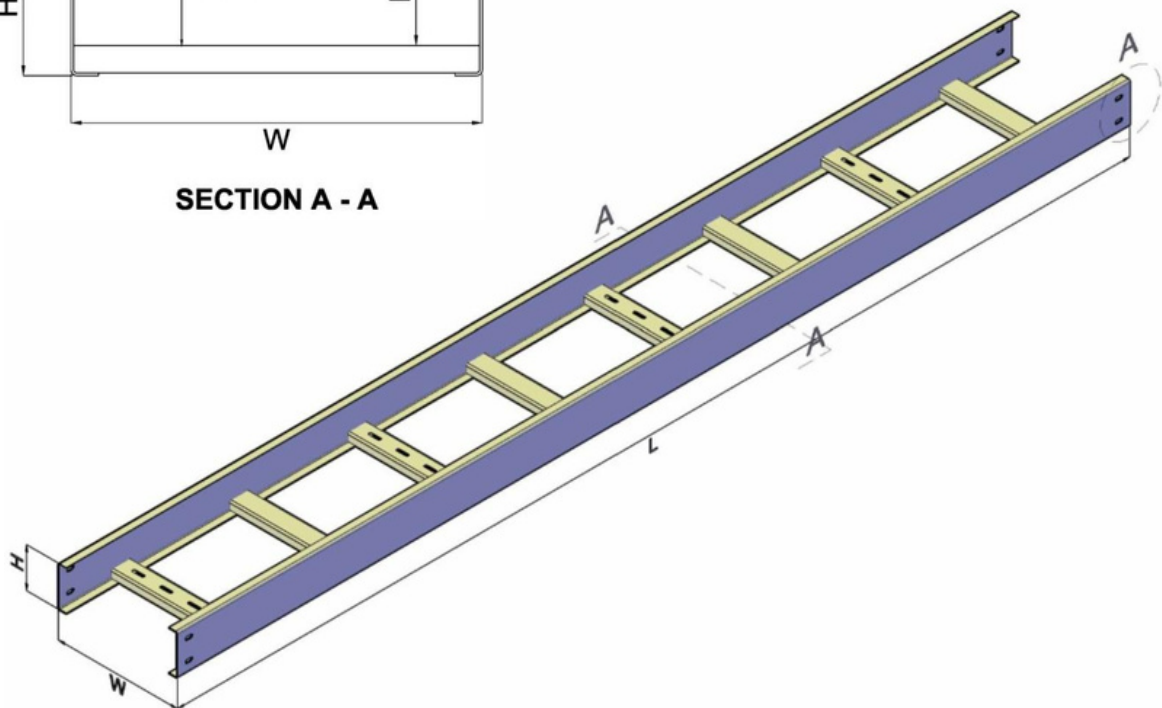
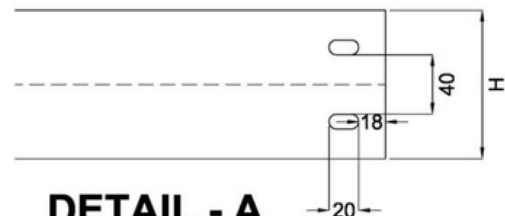
Other dimensions, thickness are available upon special requirements

STRAIGHT LADDER



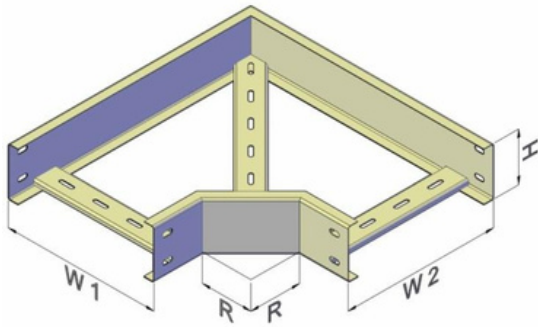
PART	W	H	L
NO	150	50/70/100	2400
SL 15 U	200	50/70/100	2400
SL 20 U	300	50/70/100	2400
SL 30 U	400	50/70/100	2400
SL 40 U	500	50/70/100	2400
SL 50 U	600	50/70/100	2400
SL 60 U	700	50/70/100	2400
SL 70 U	800	50/70/100	2400
SL 80 U	900	50/70/100	2400
SL 90 U	1000	50/70/100	2400

SL 100 U

**DETAIL - A**

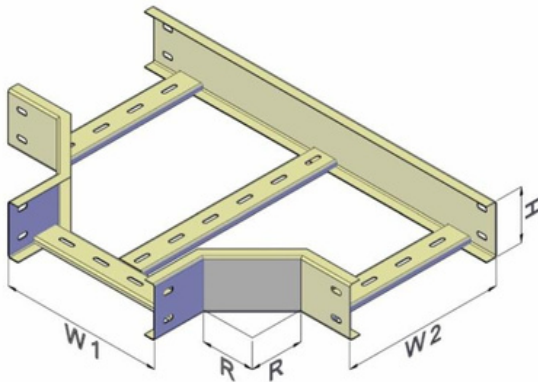
Other dimensions, thickness are available upon special requirements

HORIZONTAL ELBOW



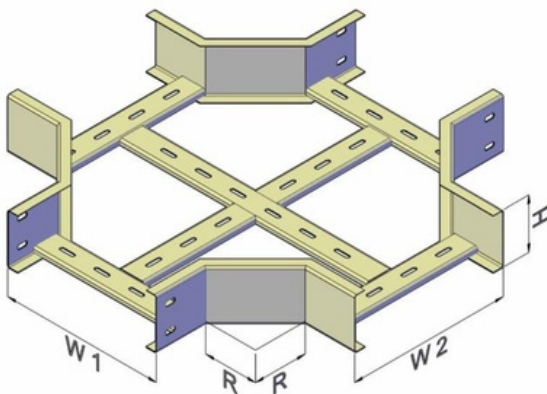
PART NO	W1	W2	H	R
EL 15/15SL U	150 EL	150	50/70/100	300 450 600
20/20SL U	200 EL	200	50/70/100	
30/30SL U	300 EL	300	50/70/100	
40/40SL U	400 EL	400	50/70/100	
50/50SL U	500 EL	500	50/70/100	
60/60SL U	600 EL	600	50/70/100	
70/70SL U	700 EL	700	50/70/100	
80/80SL U	800 EL	800	50/70/100	
90/90SL U	900 EL	900	50/70/100	
100/100SL U	1000	1000	50/70/100	

HORIZONTAL TEE



PART NO	W1	W2	H	R
T 15/15SL U	150	150	50/70/100	300 450 600
T 20/20SL U	200	200	50/70/100	
T 30/30SL U	300	300	50/70/100	
T 40/40SL U	400	400	50/70/100	
T 50/50SL U	500	500	50/70/100	
T 60/60SL U	600	600	50/70/100	
T 70/70SL U	700	700	50/70/100	
T 80/80SL U	800	800	50/70/100	
T 90/90SL U	900	900	50/70/100	
T 100/100SL U	1000	1000	50/70/100	

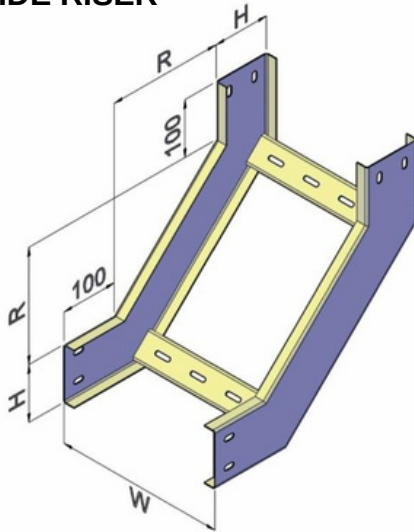
HORIZONTAL CROSS



PART NO	W1	W2	H	R
CR 15/15SL U	150 CR	150	50/70/100	300 450 600
20/20SL U	200 CR	200	50/70/100	
30/30SL U	300 CR	300	50/70/100	
40/40SL U	400 CR	400	50/70/100	
50/50SL U	500 CR	500	50/70/100	
60/60SL U	600 CR	600	50/70/100	
70/70SL U	700 CR	700	50/70/100	
80/80SL U	800 CR	800	50/70/100	
90/90SL U	900 CR	900	50/70/100	
100/100SL U	1000	1000	50/70/100	

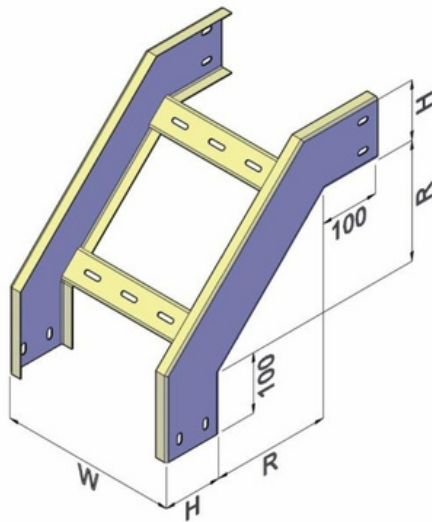
Other dimensions, thickness are available upon special requirements

INSIDE RISER



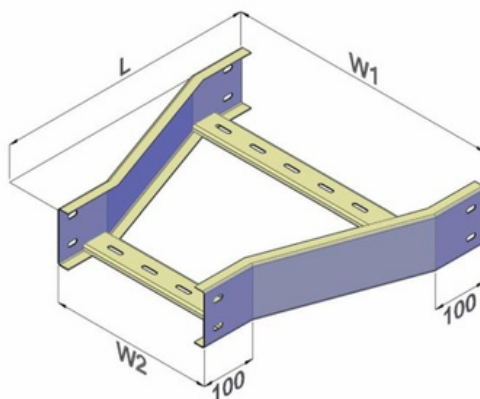
PART NO	W	H	R
IR 15/15SL U	150	50/70/100	300 450 600
IR 20/20SL U	200	50/70/100	
IR 30/30SL U	300	50/70/100	
IR 40/40SL U	400	50/70/100	
IR 50/50SL U	500	50/70/100	
IR 60/60SL U	600	50/70/100	
IR 70/70SL U	700	50/70/100	
IR 80/80SL U	800	50/70/100	
IR 90/90SL U	900	50/70/100	
IR 100/100SL U	1000	50/70/100	

OUTSIDE RISER



PART NO	W	H	R
OR 15/15SL U	150	50/70/100	300 450 600
OR 20/20SL U	200	50/70/100	
OR 30/30SL U	300	50/70/100	
OR 40/40SL U	400	50/70/100	
OR 50/50SL U	500	50/70/100	
OR 60/60SL U	600	50/70/100	
OR 70/70SL U	700	50/70/100	
OR 80/80SL U	800	50/70/100	
OR 90/90SL U	900	50/70/100	
OR 100/100SL U	1000	50/70/100	

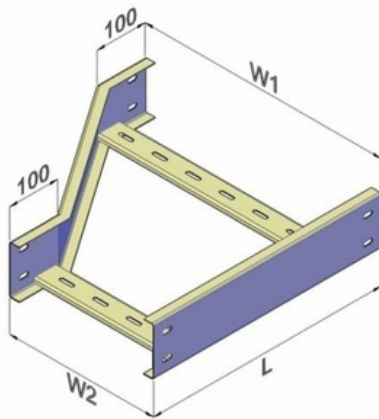
STRAIGHT REDUCER



PART NO	W1	W2	H	L
RD 30/15SL U	300	150	50/70/100	600
RD 30/20SL U	300	200	50/70/100	600
RD 40/30SL U	400	300	50/70/100	600
RD 50/30SL U	500	300	50/70/100	600
RD 50/40SL U	500	400	50/70/100	600
RD 60/40SL U	600	400	50/70/100	600
RD 70/40SL U	700	400	50/70/100	600
RD 80/50SL U	800	500	50/70/100	600
RD 90/50SL U	900	500	50/70/100	600
RD 100/50SL U	1000	500	50/70/100	600

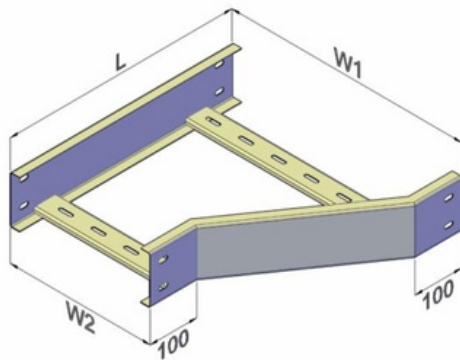
Other dimensions, thickness are available upon special requirements

OFFSET REDUCER LEFT



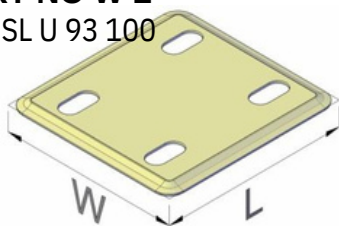
PART NO	W1	W2	H	L
RD 30/15SL U	300	150	50/70/100	600
RD 30/20SL U	300	200	50/70/100	600
RD 40/30SL U	400	300	50/70/100	600
RD 50/30SL U	500	300	50/70/100	600
RD 50/40SL U	500	400	50/70/100	600
RD 60/40SL U	600	400	50/70/100	600
RD 70/40SL U	700	400	50/70/100	600
RD 80/50SL U	800	500	50/70/100	600
RD 90/50SL U	900	500	50/70/100	600
RD 100/50SL U	1000	500	50/70/100	600

OFFSET REDUCER RIGHT



PART NO	W1	W2	H	L
RD 30/15SL U	300	150	50/70/100	600
RD 30/20SL U	300	200	50/70/100	600
RD 40/30SL U	400	300	50/70/100	600
RD 50/30SL U	500	300	50/70/100	600
RD 50/40SL U	500	400	50/70/100	600
RD 60/40SL U	600	400	50/70/100	600
RD 70/40SL U	700	400	50/70/100	600
RD 80/50SL U	800	500	50/70/100	600
RD 90/50SL U	900	500	50/70/100	600
RD 100/50SL U	1000	500	50/70/100	600

JOINT FOR LADDER
PART NO W L
FOR SL U 93 100



Other dimensions, thickness are available upon special requirements

DESCRIPTION

MATERIAL : SURFACE TREATMENT

Mill steel sheet Natural finishing

Stainless steel sheet Hotdip galvanized finishing

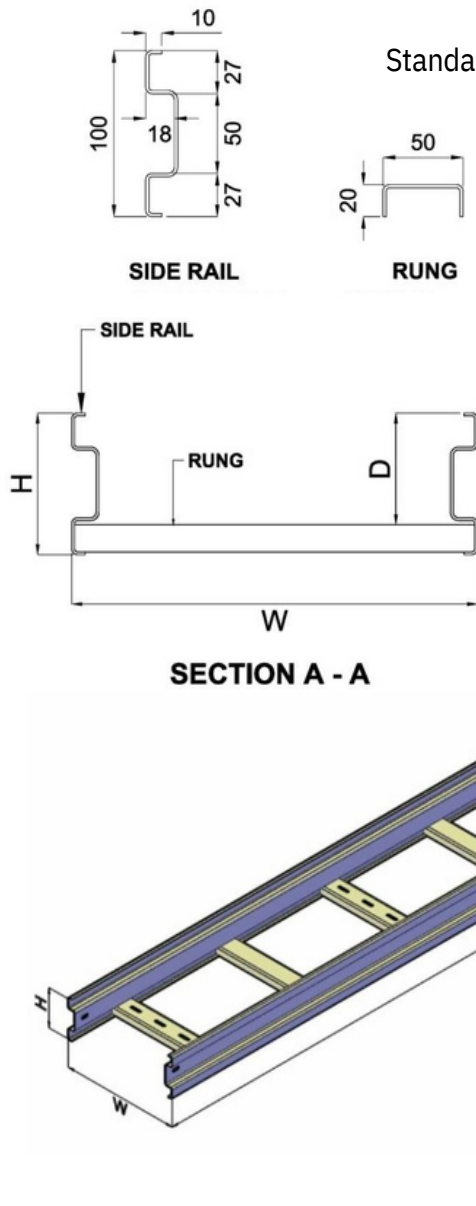
Aluminium sheet Zinc phosphate powder coating

All bolts, nuts, and washers can use stainless steel,

STRAIGHT LADDER

Hotdip galvanized finishing or elektro galvanized finishing

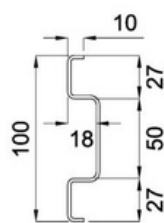
Standard thickness 2.0 mm



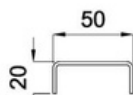
PART NO	W	H	L
SL 20 W	300	100	3000
SL 30 W	400	100	3000
SL 40 W	500	100	3000
SL 50 W	600	100	3000
SL 60 W	700	100	3000
SL 70 W	800	100	3000
SL 80 W	900	100	3000
SL 90 W	1000	100	3000
SL 100 W			

Other dimensions, thickness are available upon special requirement

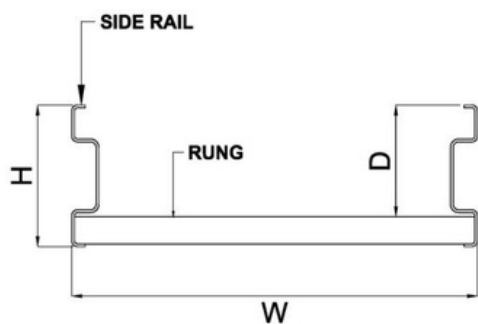
STRAIGHT LADDER



SIDE RAIL



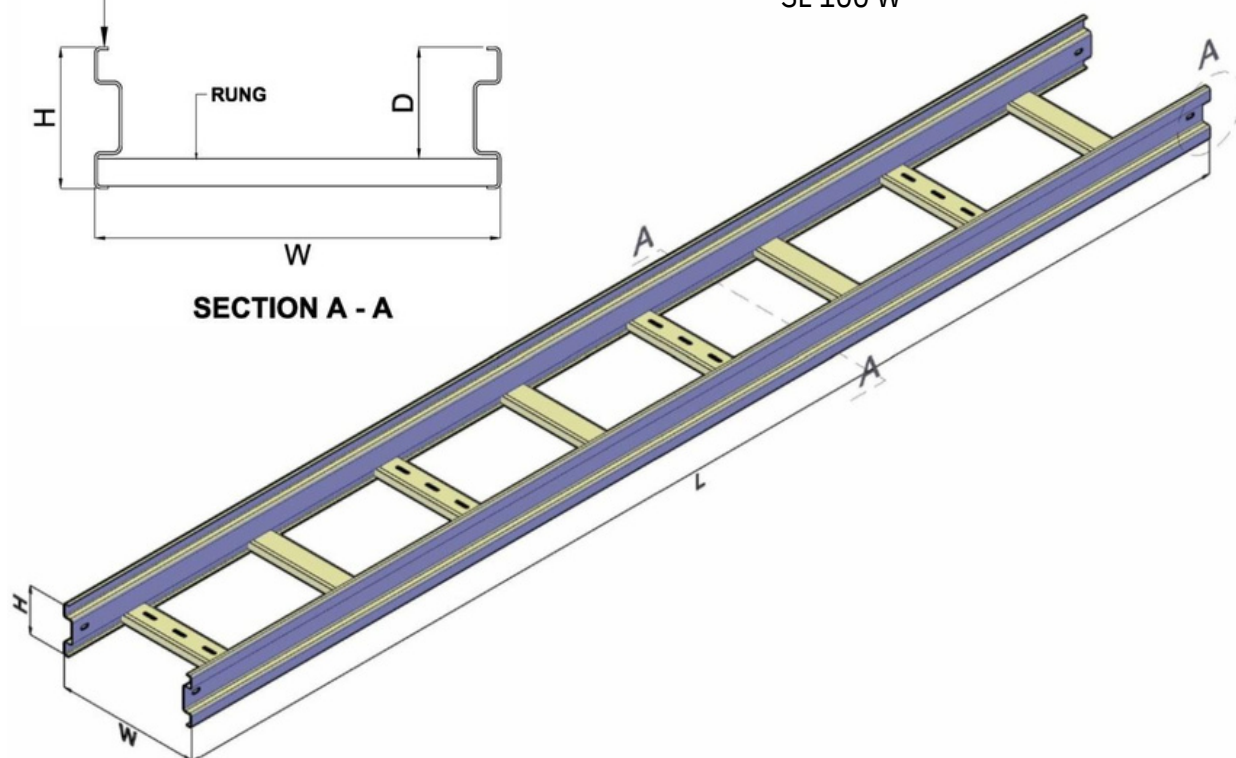
RUNG



SECTION A - A

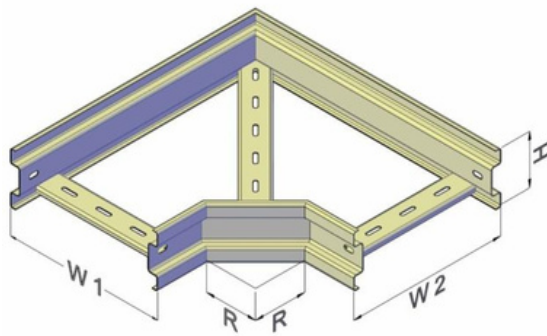
PART	W	H	L
NO	200	100	2400
SL 20 W	300	100	2400
SL 30 W	400	100	2400
SL 40 W	500	100	2400
SL 50 W	600	100	2400
SL 60 W	700	100	2400
SL 70 W	800	100	2400
SL 80 W	900	100	2400
SL 90 W	1000	100	2400

SL 100 W

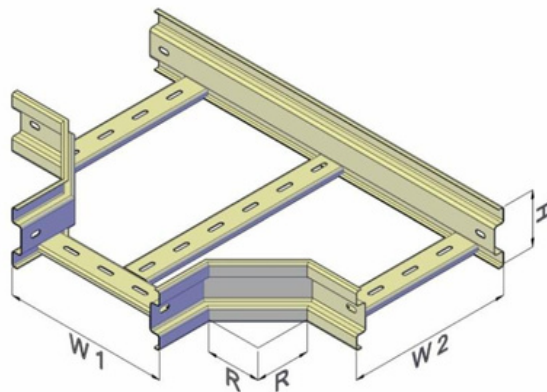


DETAIL - A

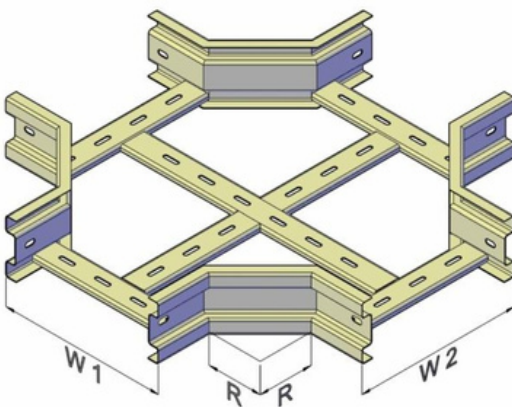
Other dimensions, thickness are available upon special requirements

HORIZONTAL ELBOW


PART NO	W1	W2	H	R
EL20/SL30W	200	200	100	300 450 600
EL30/SL30 W	300	300	100	
EL40/SL40 W	400	400	100	
EL 50/SL50 W	500	500	100	
EL60/SL60 W	600	600	100	
EL70/SL70 W	700	700	100	
EL80/SL80 W	800	800	100	
EL90/SL90 W	900	900	100	
EL100/SL100 W	1000	1000	100	

HORIZONTAL TEE


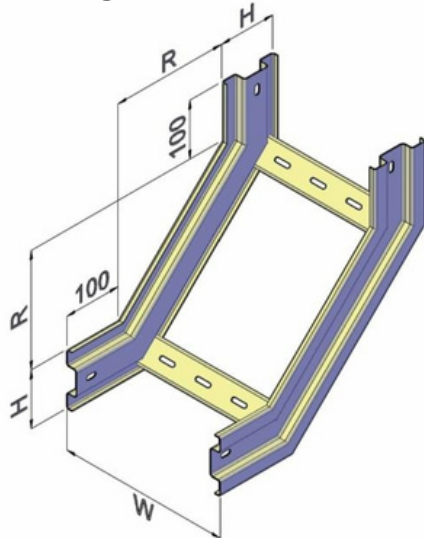
PART NO	W1	W2	H	R
T20/SL30 W	200	200	100	300 450 600
T30/SL30 W	300	300	100	
T40/SL40 W	400	400	100	
T50/SL50 W	500	500	100	
T60/SL60 W	600	600	100	
T70/SL70 W	700	700	100	
T80/SL80 W	800	800	100	
T90/SL90 W	900	900	100	
T100/SL100 W	1000	1000	100	

HORIZONTAL CROSS


PART NO	W1	W2	H	R
CR20/SL30W	200	300	100	300 450 600
CR30/SL30 W	300	300	100	
CR40/SL40 W	400	400	100	
CR50/SL50 W	500	500	100	
CR60/SL60 W	600	600	100	
CR70/SL70 W	700	700	100	
CR80/SL80 W	800	800	100	
CR90/SL90 W	900	900	100	
CR100/SL100 W	1000	1000	100	

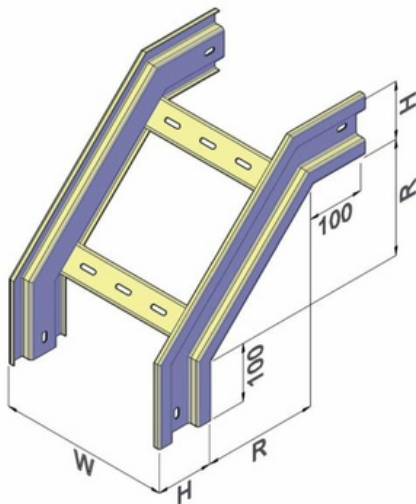
Other dimensions, thickness are available upon special requirements

INSIDE RISER



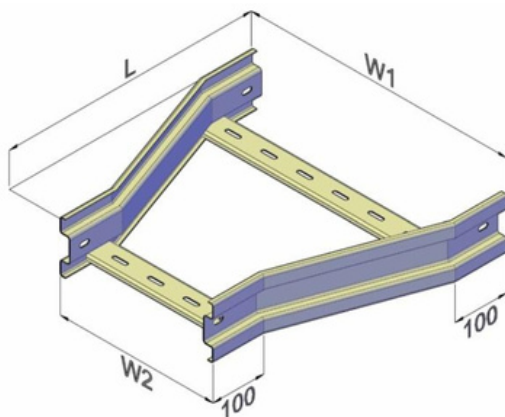
PART NO	W	H	R
IR20/SL20 W	200	100	300 450 600
IR30/SL30 W	300	100	
IR40/SL40 W	400	100	
IR50/SL50 W	500	100	
IR60/SL60 W	600	100	
IR70/SL70 W	700	100	
IR80/SL80 W	800	100	
IR90/SL90 W	900	100	
IR100/SL100 W	1000	100	

OUTSIDE RISER



PART NO	W	H	R
OR20/SL20 W	200	100	300 450 600
OR30/SL30 W	300	100	
OR40/SL40 W	400	100	
OR50/SL50 W	500	100	
OR60/SL60 W	600	100	
OR70/SL70 W	700	100	
OR80/SL80 W	800	100	
OR90/SL90 W	900	100	
OR100/SL100 W	1000	100	

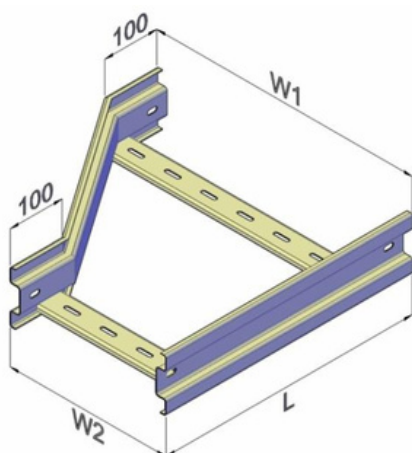
STRAIGHT REDUCER



PART NO	W1	W2	H	L
RD 40/30SL U	400	300	100	600
RD 50/30SL U	500	300	100	600
RD 50/40SL U	500	400	100	600
RD 60/40SL U	600	400	100	600
RD 70/40SL U	700	400	100	600
RD 80/50SL U	800	500	100	600
RD 90/50SL U	900	500	100	600
RD 100/50SL U	1000	500	100	600

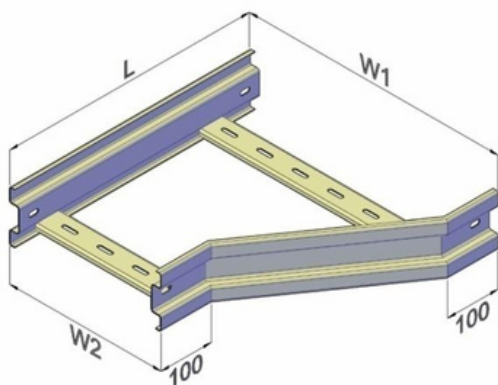
Other dimensions, thickness are available upon special requirements

OFFSET REDUCER LEFT



PART NO	W1	W2	H	L
RD 40/30SL U	400	300	100	600
RD 50/30SL U	500	300	100	600
RD 50/40SL U	500	400	100	600
RD 60/40SL U	600	400	100	600
RD 70/40SL U	700	400	100	600
RD 80/50SL U	800	500	100	600
RD 90/50SL U	900	500	100	600
RD 100/50SL U	1000	500	100	600

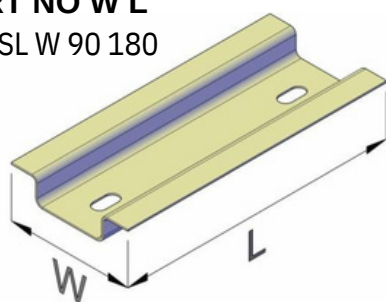
OFFSET REDUCER RIGHT



PART NO	W1	W2	H	L
RD 40/30SL U	400	300	100	600
RD 50/30SL U	500	300	100	600
RD 50/40SL U	500	400	100	600
RD 60/40SL U	600	400	100	600
RD 70/40SL U	700	400	100	600
RD 80/50SL U	800	500	100	600
RD 90/50SL U	900	500	100	600
RD 100/50SL U	1000	500	100	600

JOINT FOR LADDER

PART NO W L
FOR SL W 90 180

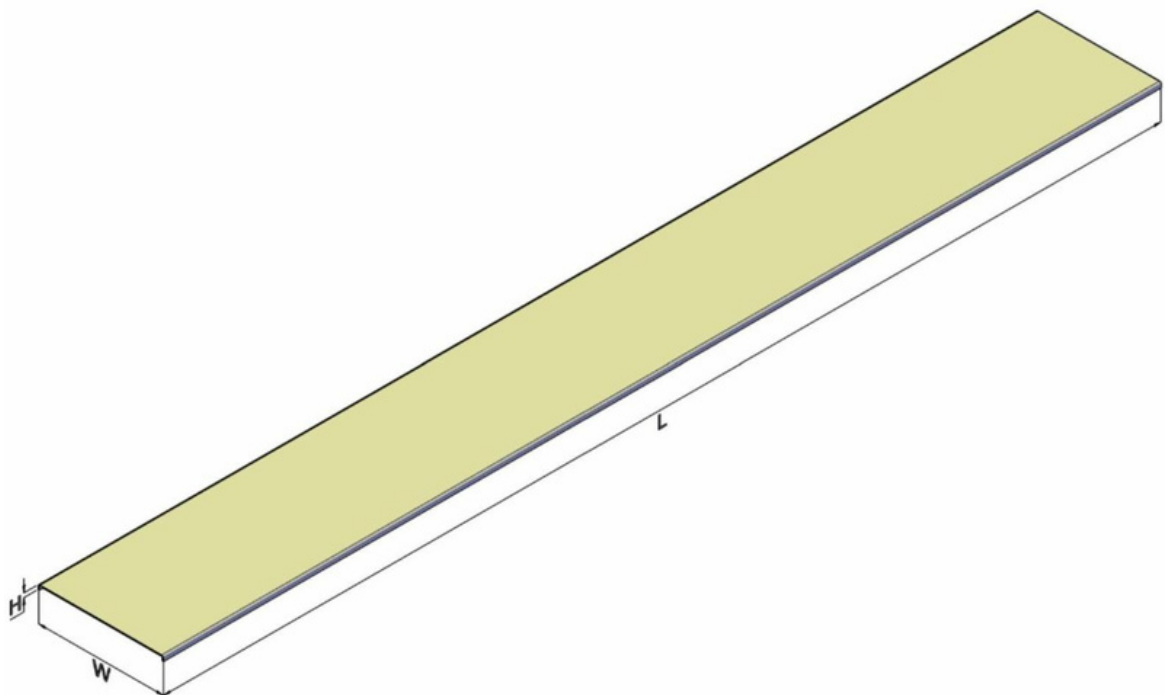


Other dimensions, thickness are available upon special requirements

ACCESSORIES

COVER

PART NO	W	H	L
FOR SL/ST 15	150	10	2400/3000
FOR SL/ST 20	200	10	2400/3000
FOR SL/ST 30	300	10	2400/3000
FOR SL/ST 40	400	10	2400/3000
FOR SL/ST 50	500	10	2400/3000
FOR SL/ST 60	600	10	2400/3000
FOR SL/ST 70	700	10	2400/3000
FOR SL/ST 80	800	10	2400/3000
FOR SL/ST 90	900	10	2400/3000
FOR SL/ST 100	1000	10	2400/3000



Other dimensions, thickness are available upon special requirements

JOGGLED JOINT

DESCRIPTION

MATERIAL :

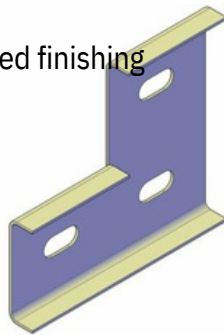
Mild steel sheet

Stainless steel sheet

SURFACE TREATMENT

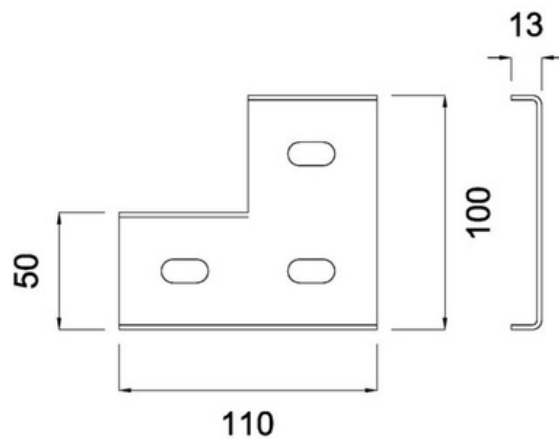
Electroplating finishing

Hotdip galvanized finishing



PART NO

JT100/50



Other dimensions, thickness are available upon special requirements

HORIZONTAL FISHPLATE

DESCRIPTION

MATERIAL :

Mild steel sheet

Stainless steel sheet

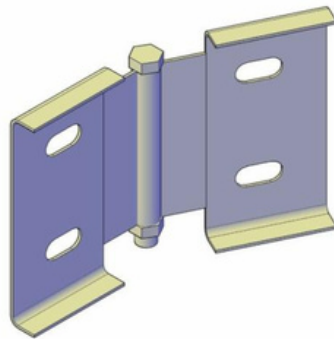
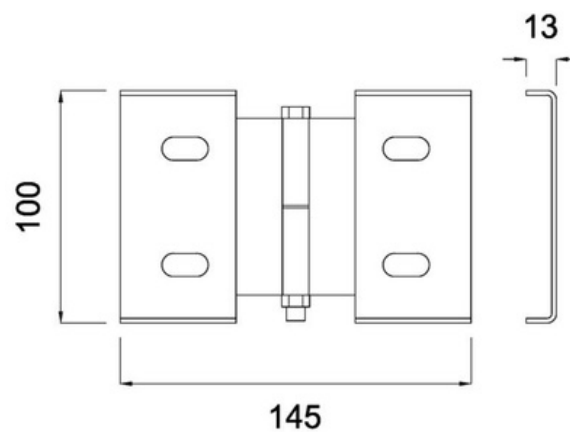
SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing

PART NO

HF100/50



Other dimensions, thickness are available upon special requirements

VERTICAL FISHPLATE

DESCRIPTION

MATERIAL :

Mild steel sheet

Stainless steel sheet

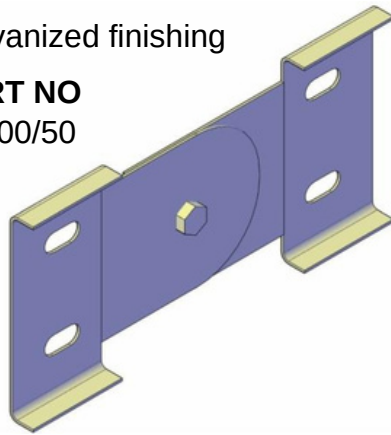
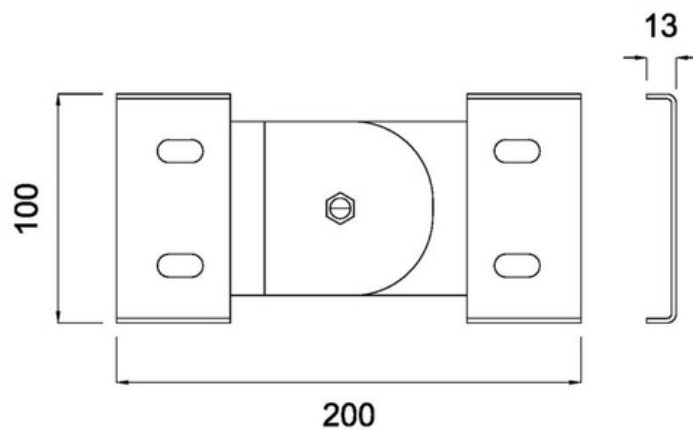
SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing

PART NO

VF100/50



Other dimensions, thickness are available upon special requirements

END PLATE

DESCRIPTION

MATERIAL :

Mild steel sheet

Stainless steel sheet

SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing

EP 15 100/50 150

EP 20 100/50 200

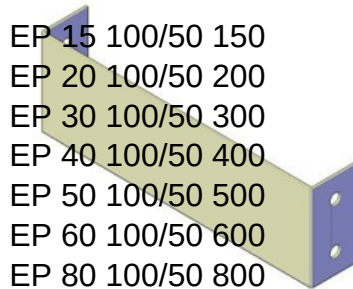
EP 30 100/50 300

EP 40 100/50 400

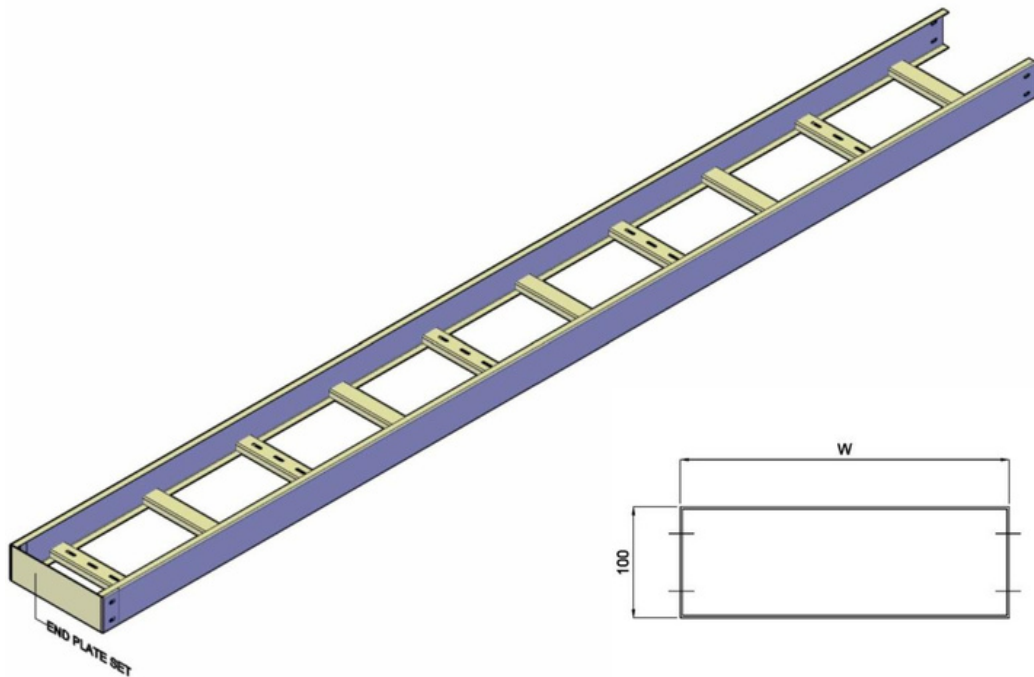
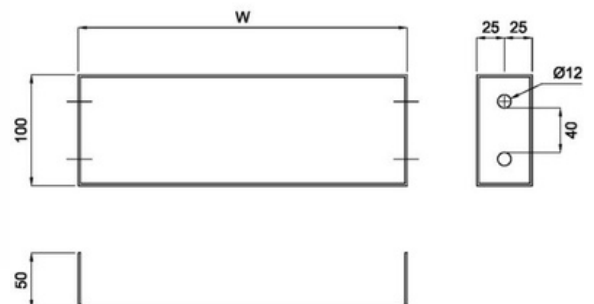
EP 50 100/50 500

EP 60 100/50 600

EP 80 100/50 800



PART NO	HEIGHT	WIDTH



Other dimensions, thickness are available upon special requirements

BRACKET SUPPORT

DESCRIPTION

MATERIAL :

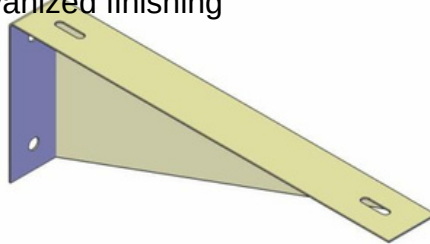
Mild steel sheet

Stainless steel sheet

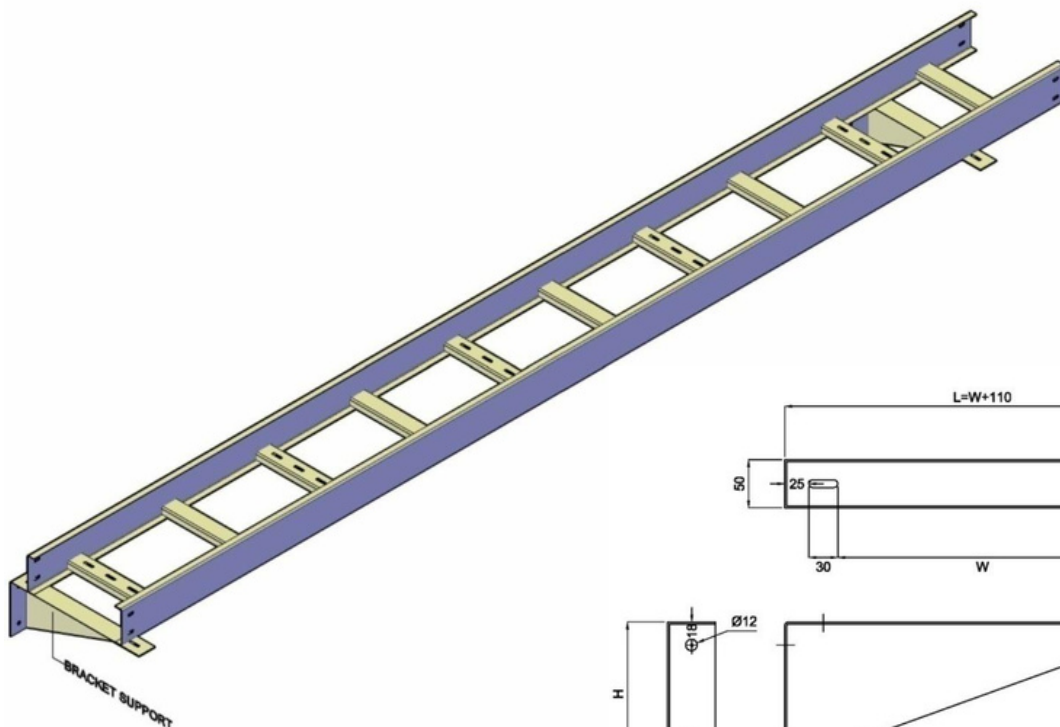
SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing



PART NO	W	H
BS 20	200	150
BS 30	300	150
BS 40	400	150
BS 50	500	150
BS 60	600	150
BS 70	700	150
BS 80	800	150
BS 90	900	150
BS 100	1000	150



Other dimensions, thickness are available upon special requirements

HANGER BEAM

DESCRIPTION

MATERIAL :

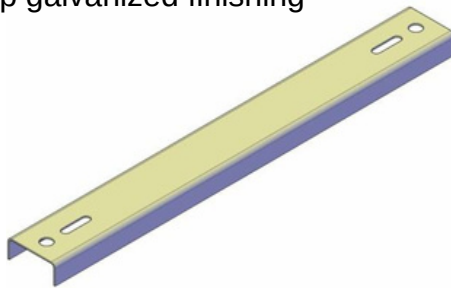
Mild steel sheet

Stainless steel sheet

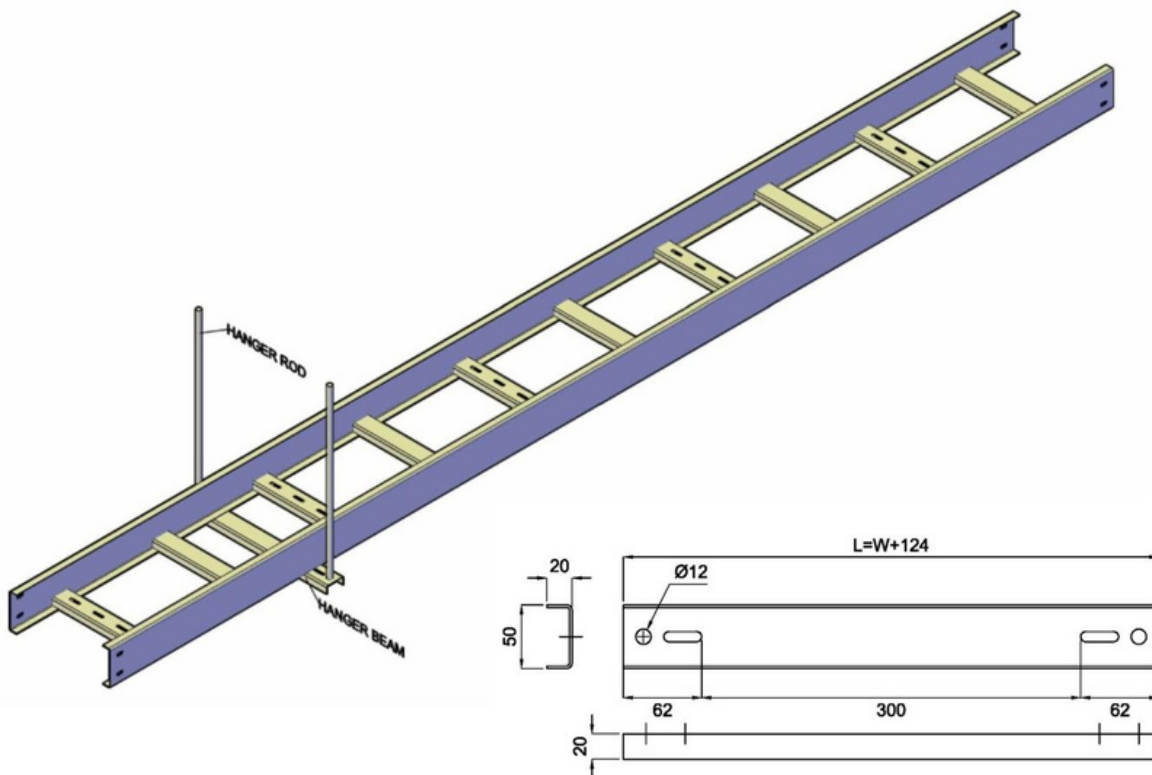
SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing



PART NO	W
HB 20	200
HB 30	300
HB 40	400
HB 50	500
HB 60	600
HB 70	700
HB 80	800
HB 90	900
HB 100	1000



Other dimensions, thickness are available upon special requirements

SINGLE CLAMP COVER

DESCRIPTION

MATERIAL :

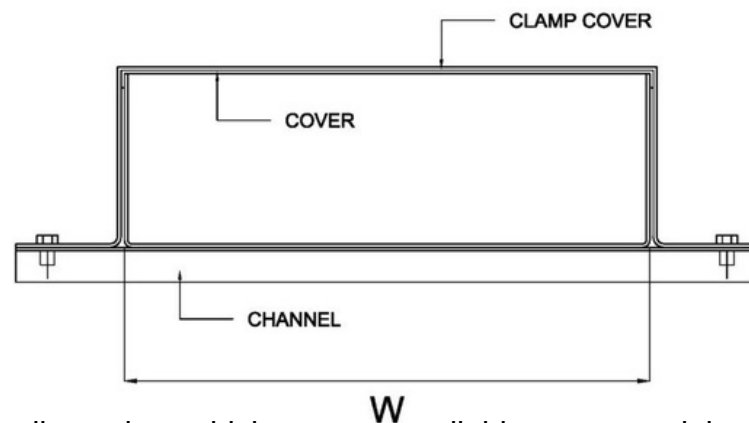
Mild steel sheet

Stainless steel sheet

SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing



Other dimensions, thickness are available upon special requirements

DOUBLE CLAMP COVER

DESCRIPTION

MATERIAL :

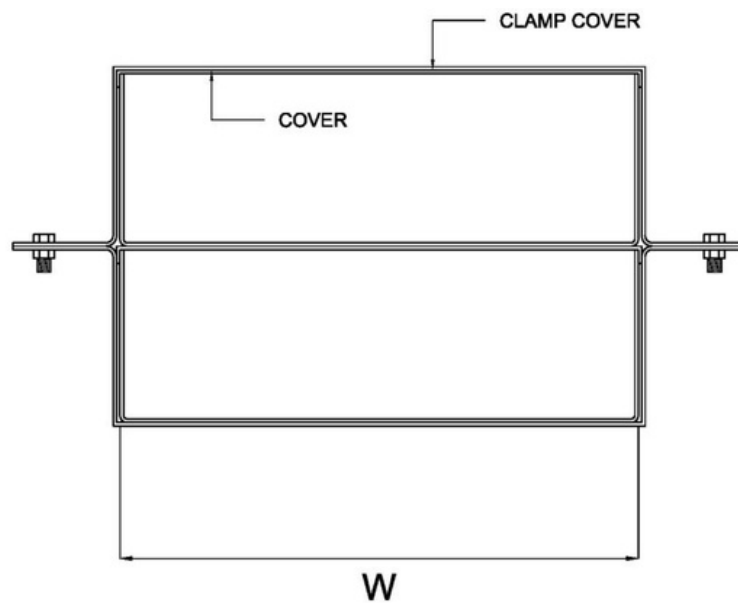
Mild steel sheet

Stainless steel sheet

SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing



Other dimensions, thickness are available upon special requirements

CLIP COVER

DESCRIPTION

MATERIAL :

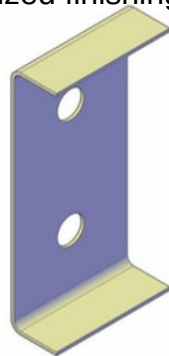
Mild steel sheet

Stainless steel sheet

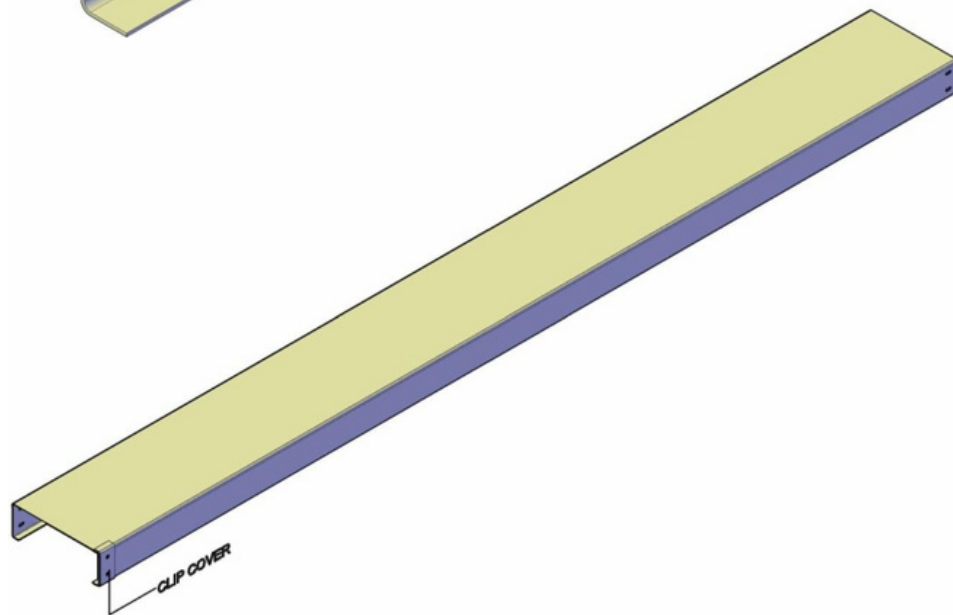
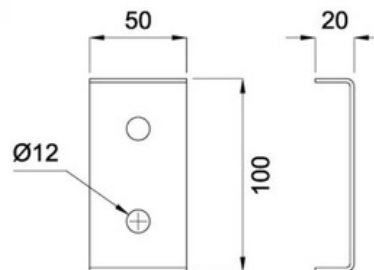
SURFACE TREATMENT

Electroplating finishing

Hotdip galvanized finishing



PART NO
CC 50/100



Other dimensions, thickness are available upon special requirements

SEPARATOR

DESCRIPTION

MATERIAL :

Mild steel sheet

Stainless steel sheet

SURFACE TREATMENT

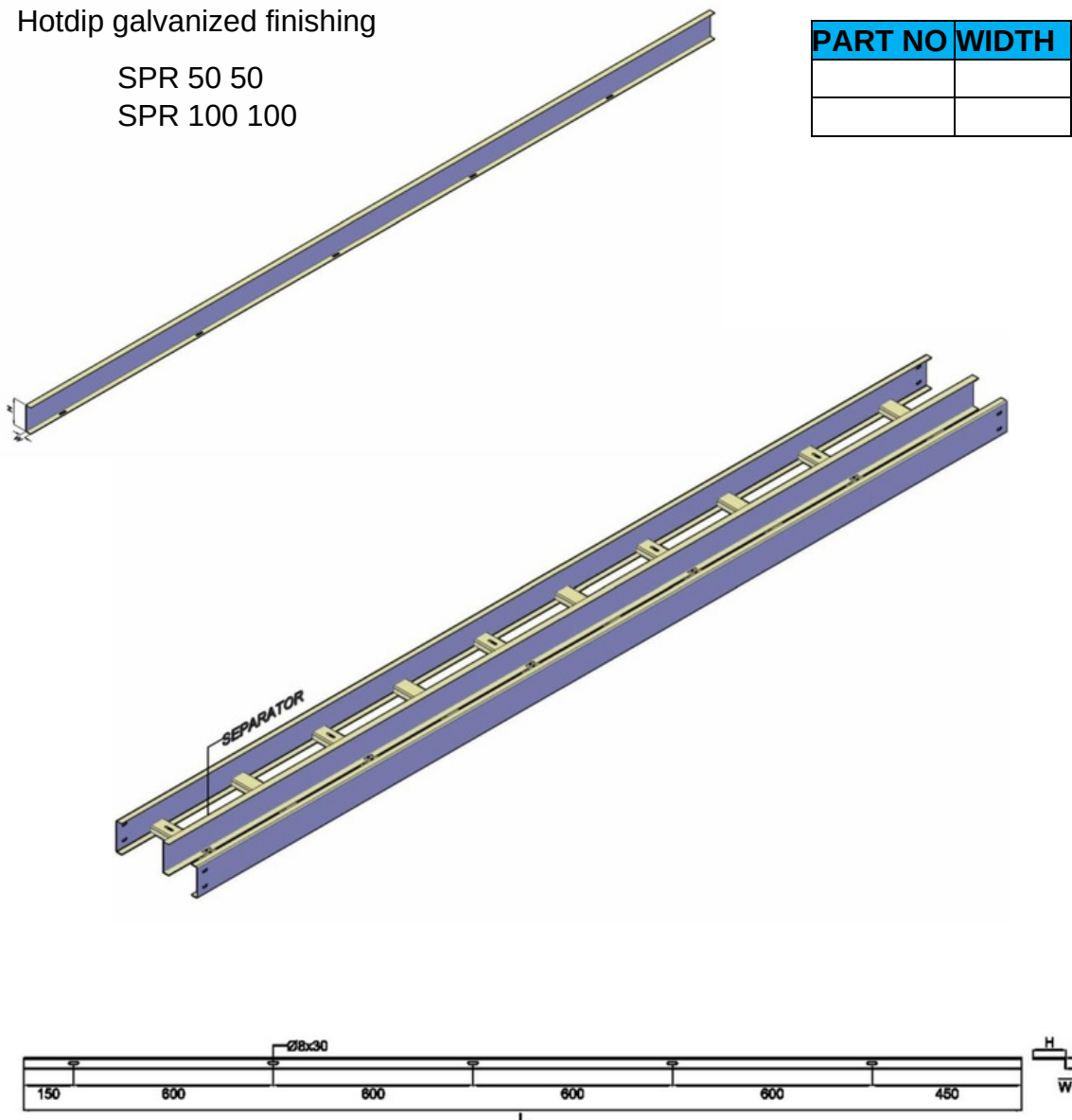
Electroplating finishing

Hotdip galvanized finishing

SPR 50 50

SPR 100 100

PART NO	WIDTH



Other dimensions, thickness are available upon special requirements

CONTACT INFORMATION



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