

Cable Ladder



المير للصناعات ALMEER INDUSTRIES

www.almeer.com.kw



شركة المير للخدمات الفنية ذ.م.م.

Subsidiary of ALMEER TECHNICAL SERVICES CO. W.L.L.



A night photograph of the Kuwait Towers, illuminated and reflected in the water. A large, semi-transparent gear graphic is overlaid on the image, partially covering the towers and extending into the blue banner below.

INTRODUCTION

Almeer Industries established in the year 1997, has been in the business offering a wide range of services in manufacture of Panels for various applications, Street Lighting Poles, Junction Boxes, Cable Trays & Accessories, Unistrut Channels, Wire mesh, Expanded metal, Profiled Sheets etc., for Oil & Gas, Petrochemical, Power and other major industries in Kuwait. It is an ISO 9001: 2008, ISO 14001: 2004 & ISO 18001: 2007 Certified Company with standardization worked into all facets of its work.

Almeer manufacturing facility is located in Amghara Industrial Area with modern machineries and equipments. The workshop is located on 10,000 Sq.mtrs of area which consists of Overhead Office, Stores and well laid down area for fabrication, machine shop, CNC Operation, Lighting Pole Machinery, Industrial blasting, Power coating plant, Hot-dip galvanization plant and computerized, manual & chemically etched engraving facilities. The workshop is equipped with overhead crane for material handling and other maintenance services.

We stride to provide reliable, highest quality and economic solutions to our customers. As we continue to build and strengthen our partnership, we are committed to achieve 100% customer satisfaction and earn your trust and loyalty.

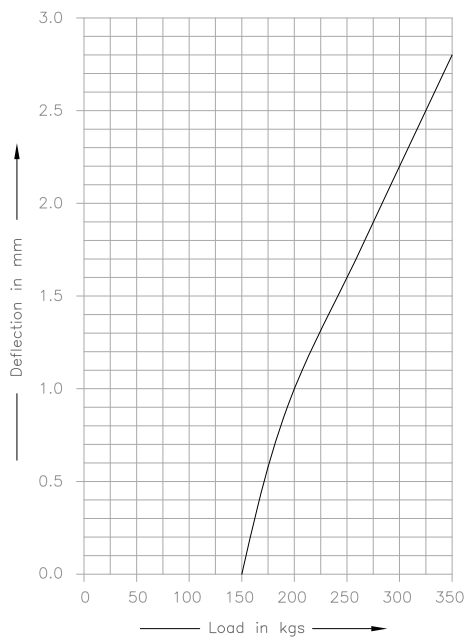
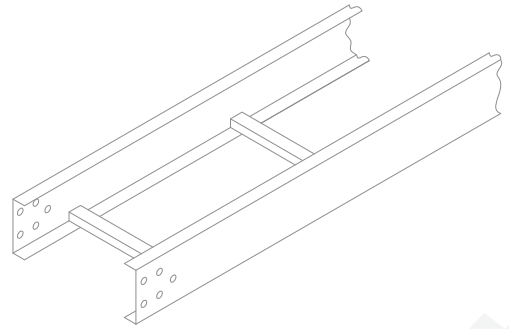
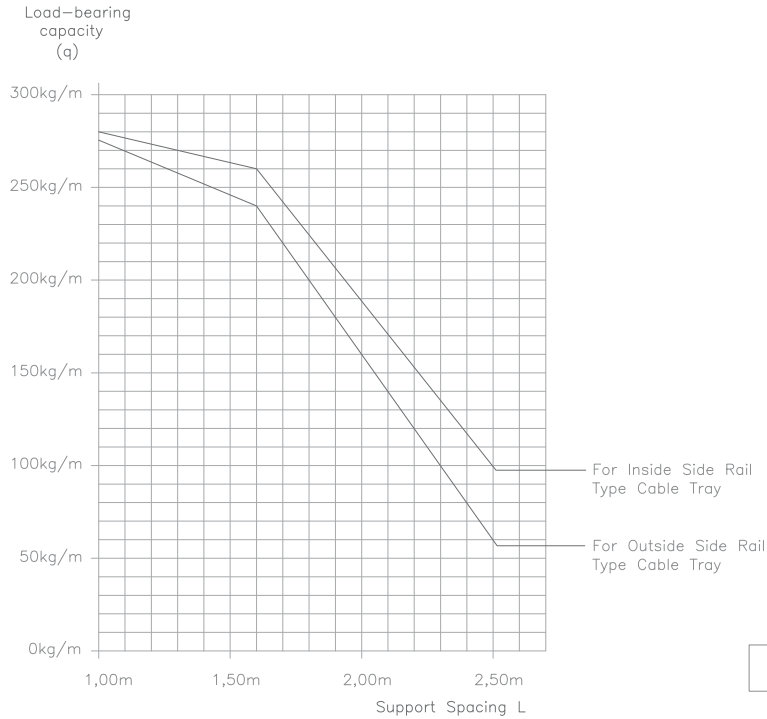
CABLE TRAY - LADDER TYPE (ORDERING INFORMATION)

CODE	TYPE OF TRAY	
L	LADDER TYPE	
	CODE	TYPE OF SIDE RAIL
	1A	INSIDE FLANGE- TYPE A
	2A	INSIDE FLANGE- TYPE B
	1B	OUTSIDE FLANGE- TYPE A
	2B	OUTSIDE FLANGE- TYPE B
	CODE	HEIGHT OF SIDE RAIL
	P	70 MM
	Q	100 MM
	R	120 MM
	S	150 MM
	CODE	TYPE OF RUNG
	J	TYPE-J
	K	TYPE-K
	M	TYPE-M
	N	TYPE-N
	CODE	RUNG SPACING
	A	200 MM
	B	225 MM
	C	250 MM
	D	300 MM
	CODE	LADDER WIDTH
	****	100MM TO 1000MM
	CODE	RAIL THICKNESS
	W	2.0 MM
	X	2.3 MM
	Y	2.5 MM
	Z	3.0 MM
	CODE	TRAY LENGTH
	A	2440 MM
	B	3000 MM
	CODE	FINISH
	1	HDT DIP GALVANIZED
	2	PRE-GALVANIZED
	3	PAINTED/POWDER COATED
	4	STAINLESS STEEL

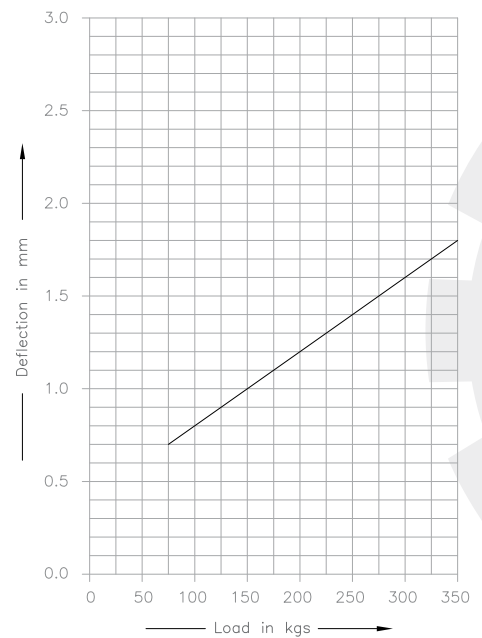
L 1B Q J D 600 W B 1

CABLE TRAY - LADDER TYPE

LOAD AND DEFLECTION GRAPH



Tray Width 450mm
Support Spacing L=1.50m
For Inside & Outside Ladder Cable Trays



Tray Width 600mm
Support Spacing L=1.50m
For Inside & Outside Ladder Cable Trays

Fittings and Hinged Connectors: Must be additionally reinforced and supported at the immediate joint for the load-bearing capacity indices.

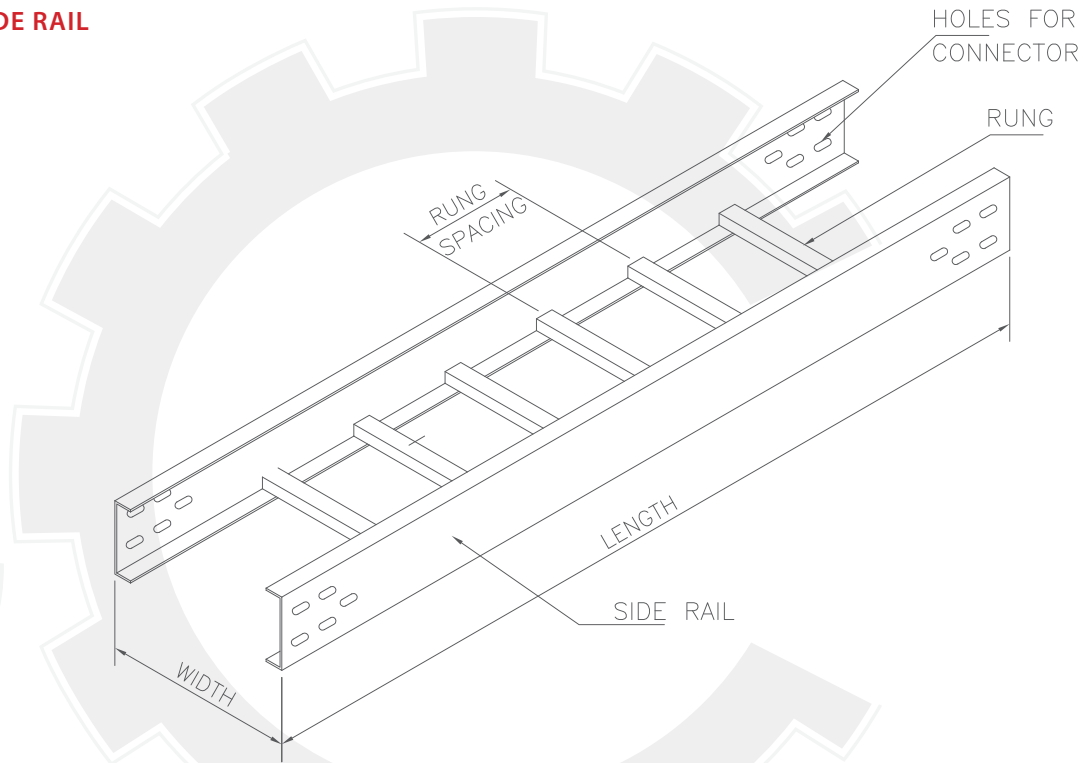
Cover Panels: The permissible load-bearing capacity is reduced when using Cover Panels by their «meter weight»

Foot Traffic: Cable Ladders may not be walked upon, and avoid lateral loads as leaning ladders.

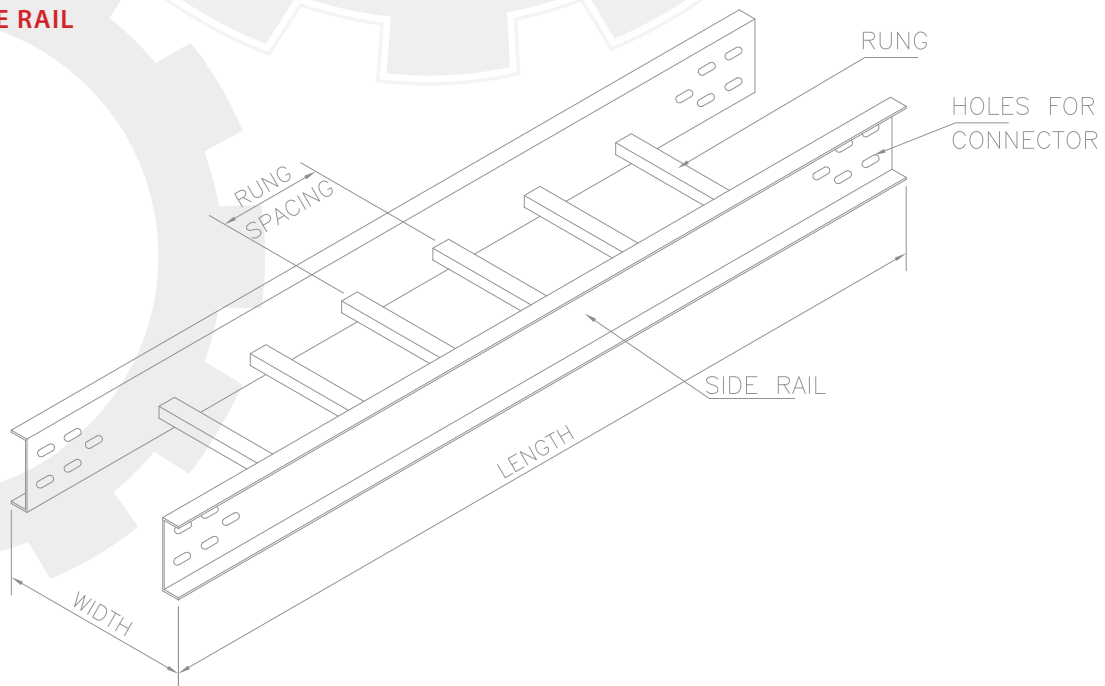
CABLE TRAY - LADDER TYPE

INSIDE & OUTSIDE RAIL

INSIDE RAIL



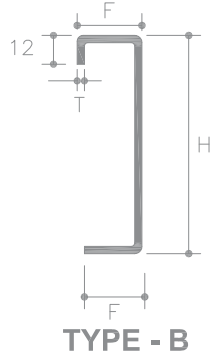
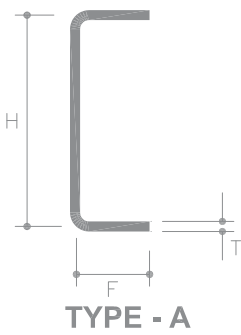
OUTSIDE RAIL



CABLE TRAY - LADDER TYPE

TYPES OF SIDE RAIL, RUNG AND CONNECTION HOLE DETAIL

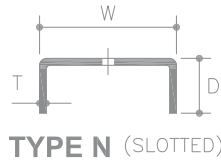
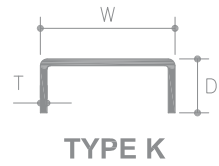
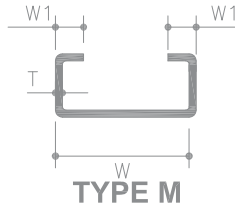
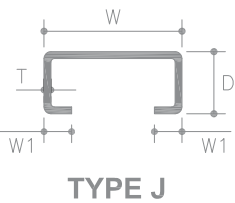
TYPE OF SIDE RAIL



SELECTION TABLE

TYPE	H	F	T
SR10	70	20	2
SR11	100	20	2
SR12	120	20	2.3
SR13	150	20	2.5

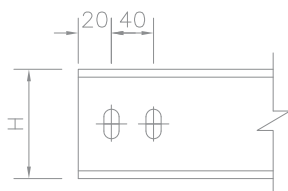
TYPE OF RUNG



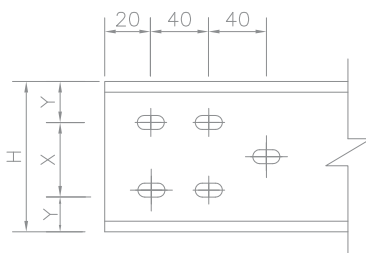
SELECTION TABLE

TYPE	W	W1	D	T
J	28	8	16	2
K	28		16	2
M	28	8	16	2
N	40		20	2

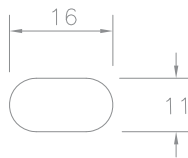
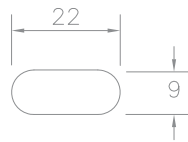
SIDE RAIL CONNECTION HOLE DETAIL



FOR 70mm & BELOW
HEIGHT SIDE RAIL

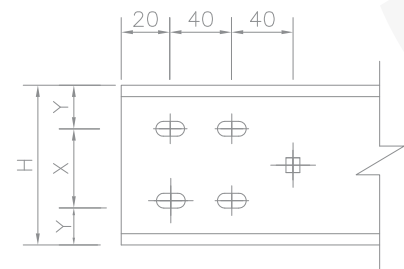


FOR 100mm AND 120mm
HEIGHT SIDE RAIL



SELECTION TABLE

H	X	Y	SLOT
70			9x22
100	50	25	9x22
120	50	25	9x22
150	90	30	11x16

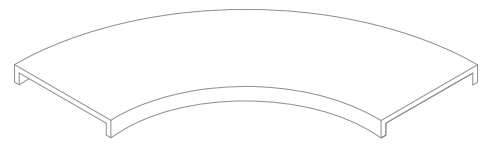
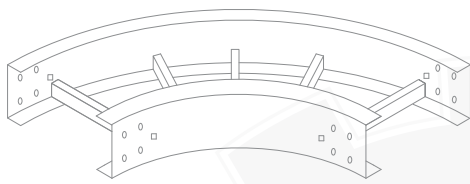


FOR 150mm
HEIGHT SIDE RAIL

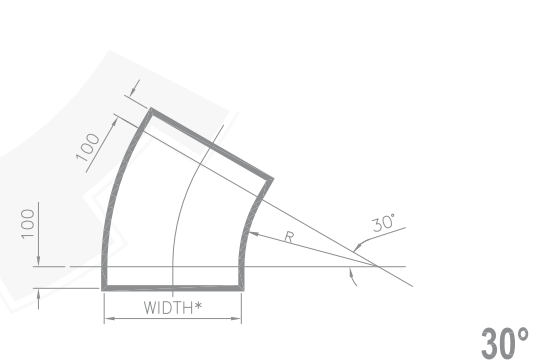
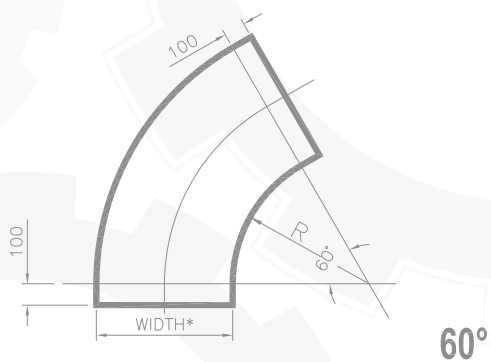
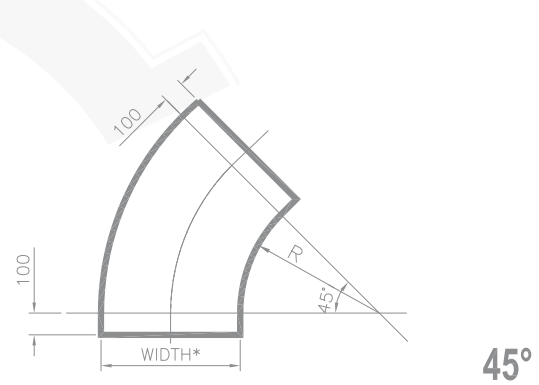
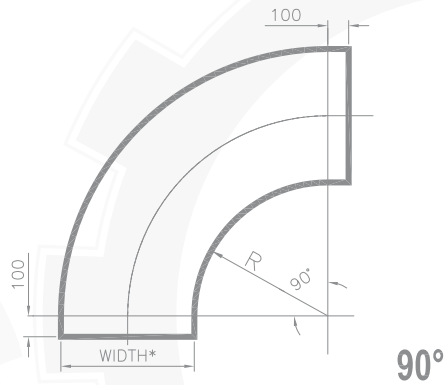
All Dimensions are in mm

CABLE TRAY - LADDER TYPE

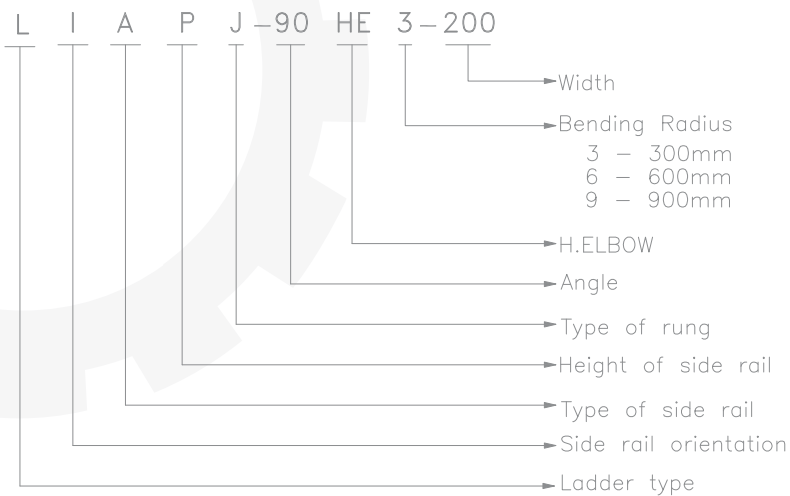
HORIZONTAL ELBOW



COVER



SIDE RAIL, RUNGS & CONNECTION HOLES MATCHING TO THE CORRESPONDING STRAIGHT SECTION



(Unit : mm)

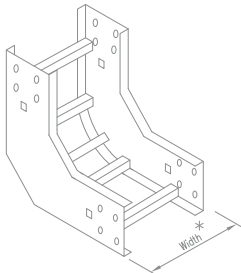
Cat.No.	Tray Width	Cover Width
LIAPJ-90HE3-150	150	160
LIAPJ-90HE3-200	200	210
LIAPJ-90HE3-250	250	260
LIAPJ-90HE3-300	300	310
LIAPJ-90HE3-350	350	360
LIAPJ-90HE3-400	400	410
LIAPJ-90HE3-450	450	460
LIAPJ-90HE3-500	500	510
LIAPJ-90HE3-600	600	610
LIAPJ-90HE3-750	750	760
LIAPJ-90HE3-900	900	910
LIAPJ-90HE3-1000	1000	1010

For inside rail ladder trays, the cover width is 10 mm more than the width of the ladder tray.

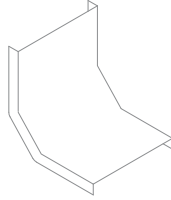
For outside rail ladder trays, the cover width is 10 mm more than the width of outer edges of side rails.

CABLE TRAY - LADDER TYPE

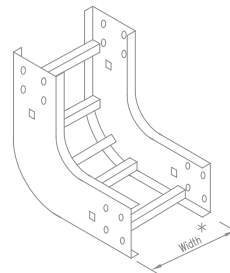
VERTICAL ELBOW - INSIDE



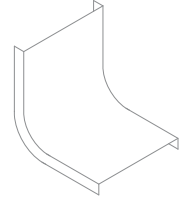
TYPE - A



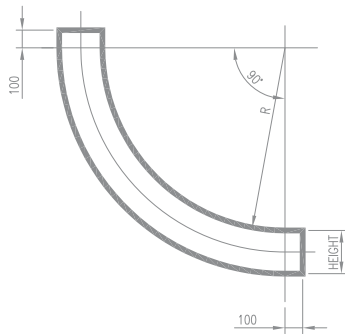
COVER



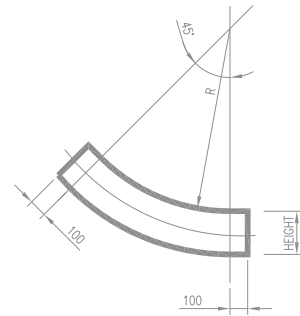
TYPE - B



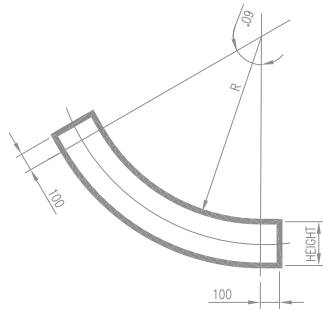
COVER



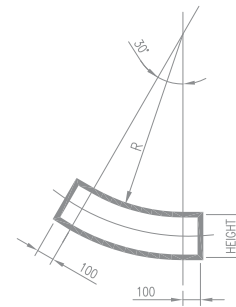
90°



45°

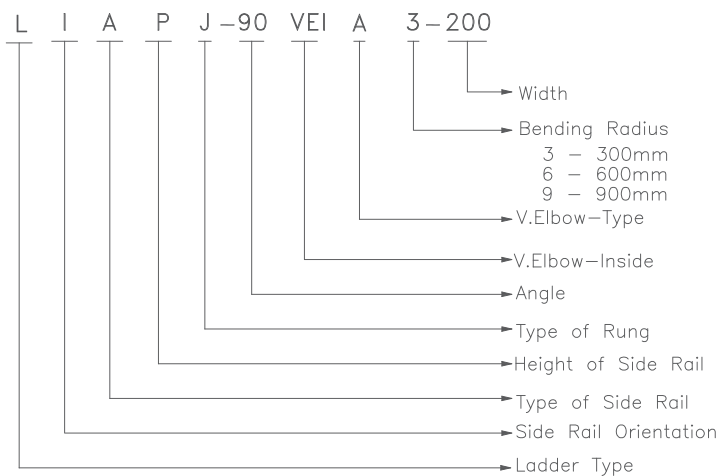


60°



30°

SIDE RAILS, RUNGS & CONNECTION HOLES MATCHING TO THE CORRESPONDING STRAIGHT SECTION



(Unit : mm)

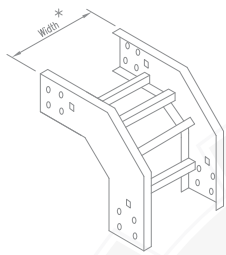
Cat.No.	Tray Width	Cover Width
LIAPJ-90VEIA3- 150	150	160
LIAPJ-90VEIA3- 200	200	210
LIAPJ-90VEIA3- 250	250	260
LIAPJ-90VEIA3- 300	300	310
LIAPJ-90VEIA3- 350	350	360
LIAPJ-90VEIA3- 400	400	410
LIAPJ-90VEIA3- 450	450	460
LIAPJ-90VEIA3- 500	500	510
LIAPJ-90VEIA3- 600	600	610
LIAPJ-90VEIA3- 750	750	760
LIAPJ-90VEIA3- 900	900	910
LIAPJ-90VEIA3- 1000	1000	1010

For inside rail ladder trays, the cover width is 10 mm more than the width of the ladder tray.

For outside rail ladder trays, the cover width is 10 mm more than the width of outer edges of side rails.

CABLE TRAY - LADDER TYPE

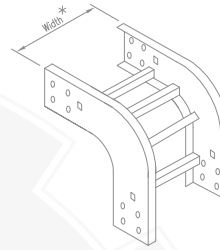
VERTICAL ELBOW - OUTSIDE



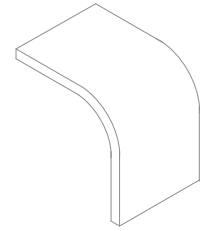
TYPE - A



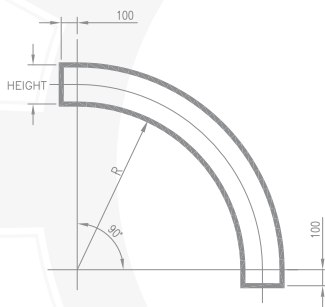
COVER



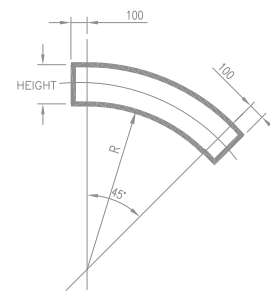
TYPE - B



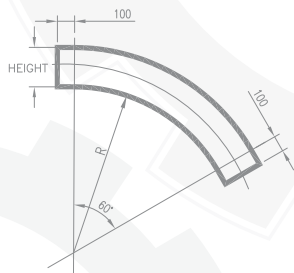
COVER



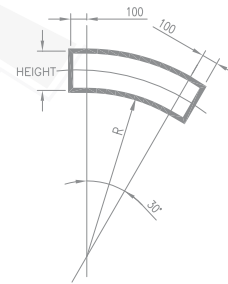
90°



45°

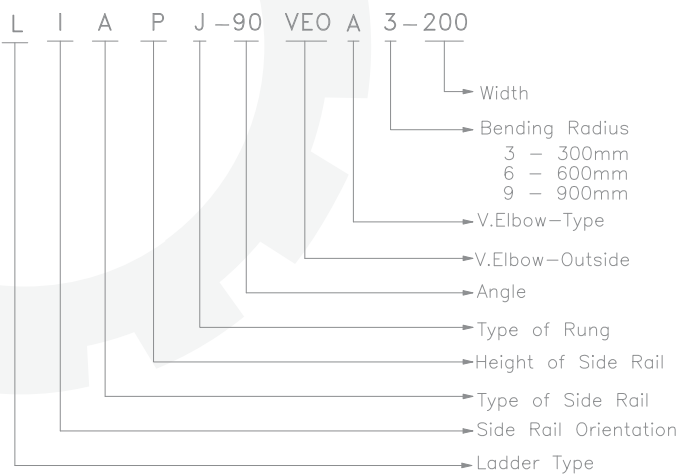


60°



30°

SIDE RAIL, RUNGS & CONNECTION HOLES MATCHING TO THE CORRESPONDING STRAIGHT SECTION



(Unit : mm)

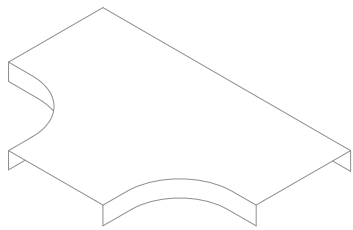
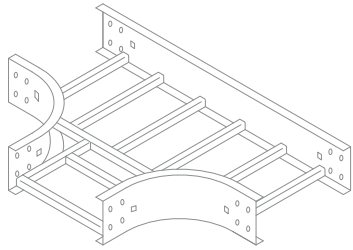
Cat.No.	Tray Width	Cover Width
LIAPJ-90VEOA3- 150	150	160
LIAPJ-90VEOA3- 200	200	210
LIAPJ-90VEOA3- 250	250	260
LIAPJ-90VEOA3- 300	300	310
LIAPJ-90VEOA3- 350	350	360
LIAPJ-90VEOA3- 400	400	410
LIAPJ-90VEOA3- 450	450	460
LIAPJ-90VEOA3- 500	500	510
LIAPJ-90VEOA3- 600	600	610
LIAPJ-90VEOA3- 750	750	760
LIAPJ-90VEOA3- 900	900	910
LIAPJ-90VEOA3- 1000	1000	1010

For inside rail ladder trays, the cover width is 10 mm more than the width of the ladder tray.

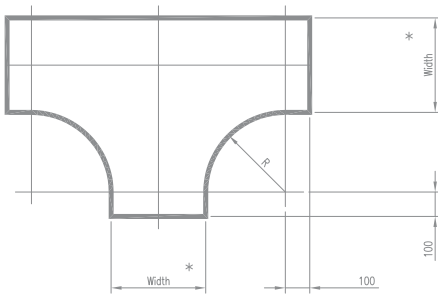
For outside rail ladder trays, the cover width is 10 mm more than the width of outer edges of side rails.

CABLE TRAY - LADDER TYPE

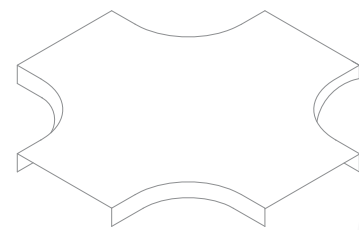
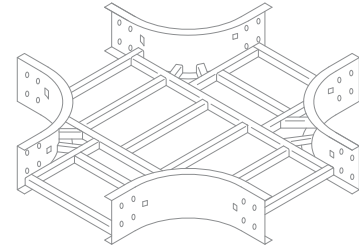
HORIZONTAL TEE



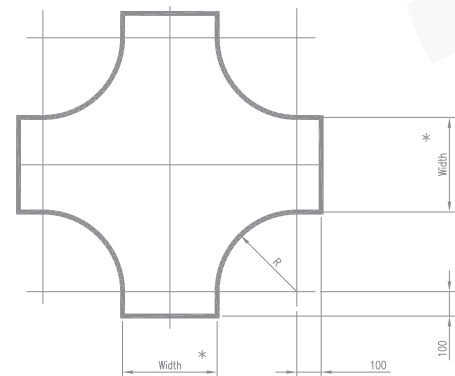
COVER



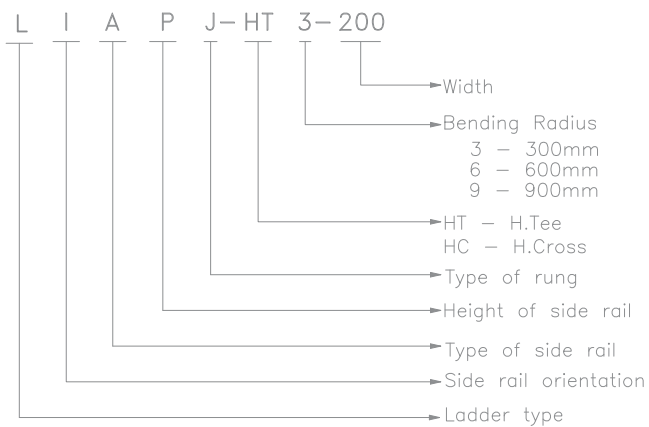
HORIZONTAL CROSS



COVER



SIDE RAIL, RUNGS & CONNECTION HOLES MATCHING TO CORRESPONDING STRAIGHT SECTION



(Unit : mm)

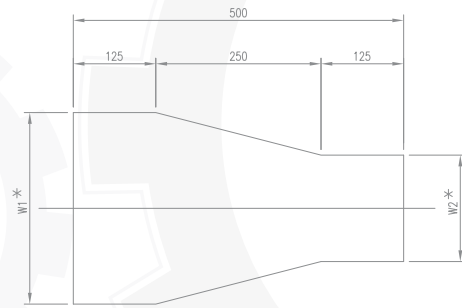
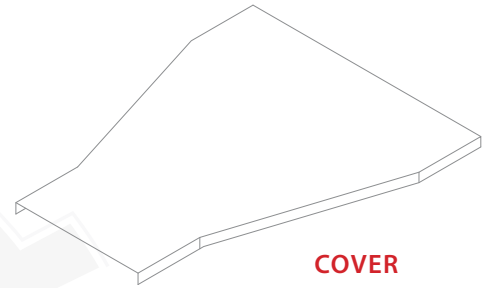
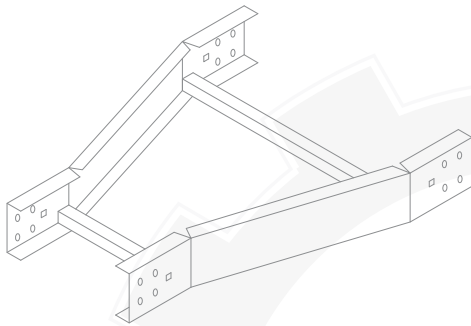
Cat.No.	Tray Width	Cover Width
LIAPJ-HT3- 150	150	160
LIAPJ-HT3- 200	200	210
LIAPJ-HT3- 250	250	260
LIAPJ-HT3- 300	300	310
LIAPJ-HT3- 350	350	360
LIAPJ-HT3- 400	400	410
LIAPJ-HT3- 450	450	460
LIAPJ-HT3- 500	500	510
LIAPJ-HT3- 600	600	610
LIAPJ-HT3- 750	750	760
LIAPJ-HT3- 900	900	910
LIAPJ-HT3- 1000	1000	1010

For inside rail ladder trays, the cover width is 10 mm more than the width of the ladder tray.

For outside rail ladder trays, the cover width is 10 mm more than the width of outer edges of side rails.

CABLE TRAY - LADDER TYPE

REDUCER



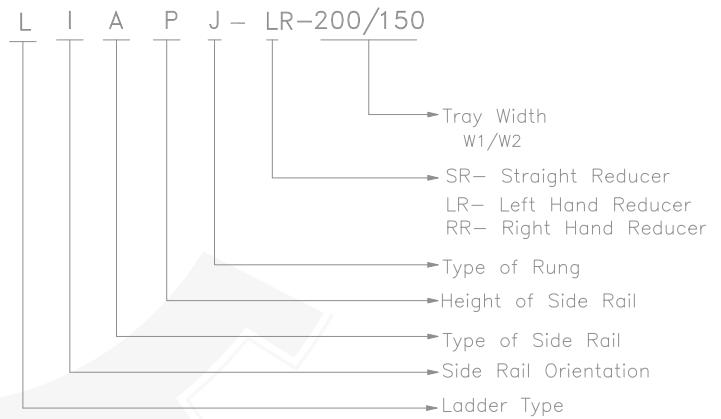
STRAIGHT REDUCER (SR)



LEFT HAND REDUCER (LR)



RIGHT HAND REDUCER (HR)



SIDE RAIL, RUNGS & CONNECTION HOLES MATCHING TO THE CORRESPONDING STRAIGHT SECTION

(Unit : mm)

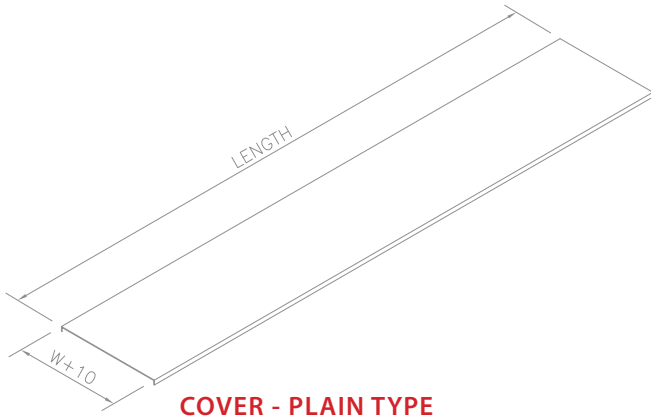
Cat.No.	Tray Width		Cover Width	
	W1	W2	WC1	WC2
LIAPJ-LR-1000/750	1000	750	1010	760
LIAPJ-LR-1000/450	1000	450	1010	460
LIAPJ-LR-900/600	900	600	910	610
LIAPJ-LR-900/350	900	350	910	360
LIAPJ-LR-750/500	750	500	760	510
LIAPJ-LR-750/300	750	300	760	310
LIAPJ-LR-600/450	600	450	610	460
LIAPJ-LR-600/300	600	300	610	310
LIAPJ-LR-450/350	450	350	460	360
LIAPJ-LR-450/200	450	200	460	210
LIAPJ-LR-300/200	300	200	310	210
LIAPJ-LR-300/150	300	150	310	160

For inside rail ladder trays, the cover width is 10 mm more than the width of the ladder tray.

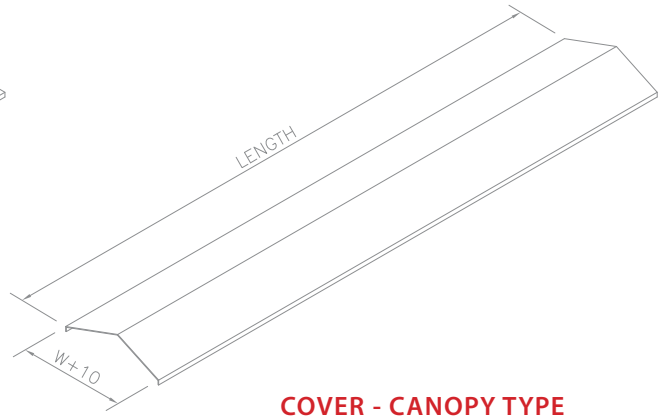
For outside rail ladder trays, the cover width is 10 mm more than the width of outer edges of side rails.

CABLE TRAY - LADDER TYPE

STRAIGHT COVER AND CLAMP



COVER - PLAIN TYPE



COVER - CANOPY TYPE

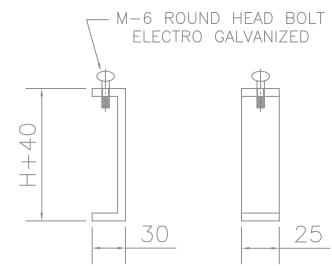
For inside side rail ladder trays, Cover width is $W+10\text{mm}$

For outside side rail ladder trays, the cover width is 10mm more than the width of outer edges of side rails.

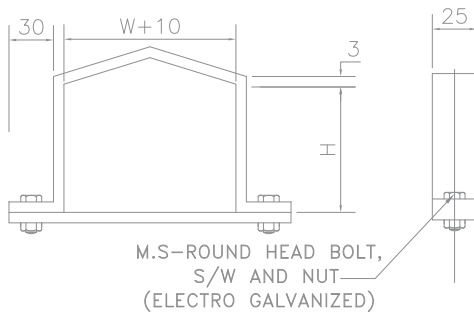
MATERIAL : MILD STEEL/STAINLESS STEEL/ALUMINIUM

FINISH : HOT DIP GALVANIZED/PAINTED/POWDERCOATED

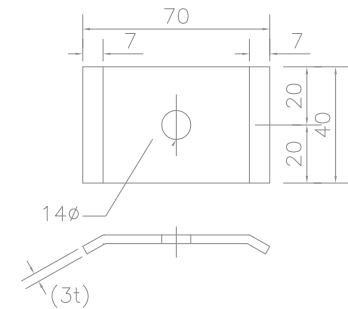
COVER CLAMP - TYPE C



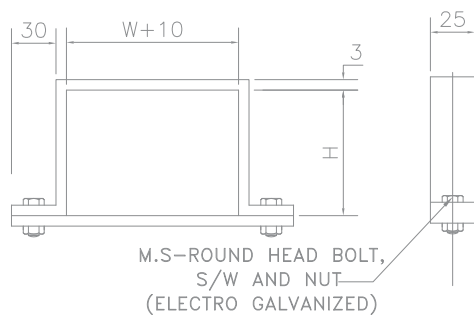
COVER CLAMP - TYPE A



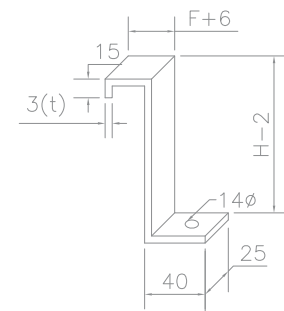
HOLD DOWN CLAM (TYPE - A)



COVER CLAMP - TYPE B

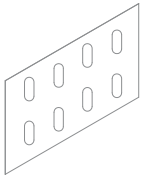


HOLD DOWN CLAM (TYPE - B)

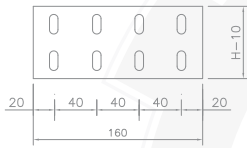


CABLE TRAY - LADDER TYPE

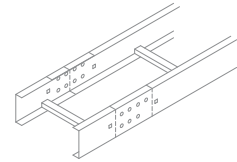
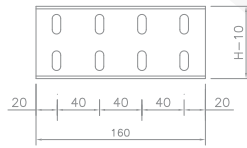
JOINT CONNECTOR



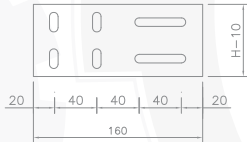
STRAIGHT CONNECTOR (JCL)



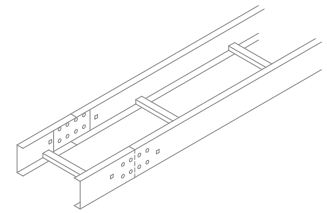
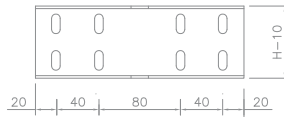
STRAIGHT CONNECTOR (JBCL)



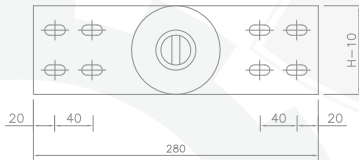
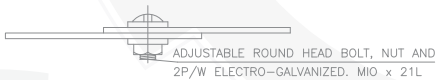
EXPANSION CONNECTOR (ESPL)



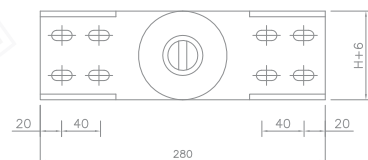
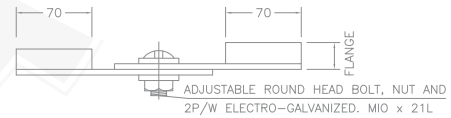
BENDABLE CONNECTOR (HBCL)



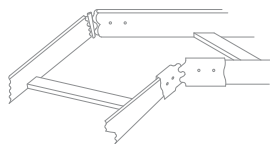
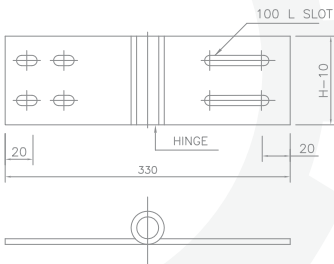
RISER CONNECTOR (RCL)



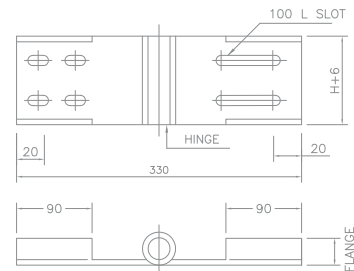
RISER CONNECTOR (RCFL)



BENDING CONNECTOR (BECL)



BENDING CONNECTOR (BEFL)



FASTENERS



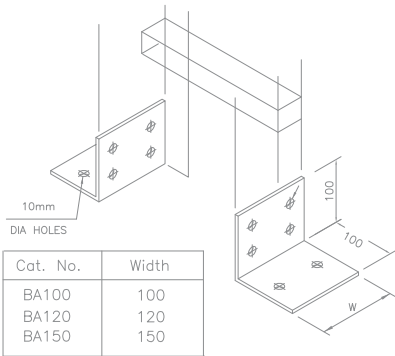
JOINT CONNECTOR SLOTS CORRESPONDING TO SIDE RAIL CONNECTION HOLES
H - HEIGHT OF SIDE RAIL

All Dimensions are in mm

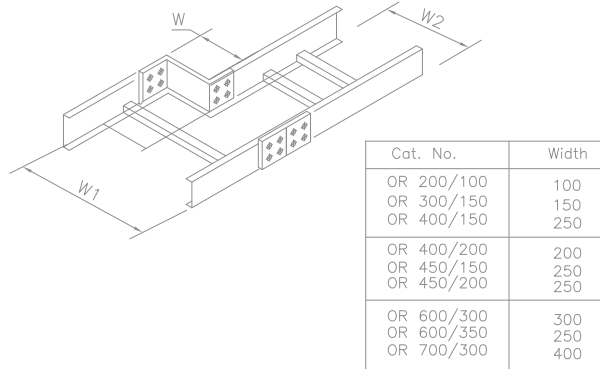
CABLE TRAY - LADDER TYPE

ACCESSORIES

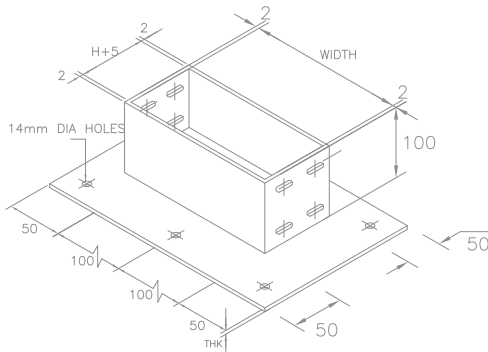
BOX ANGLE CONNECTOR



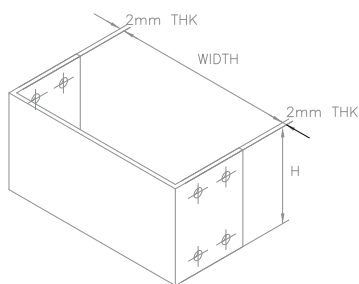
OFFSET REDUCER CONNECTOR



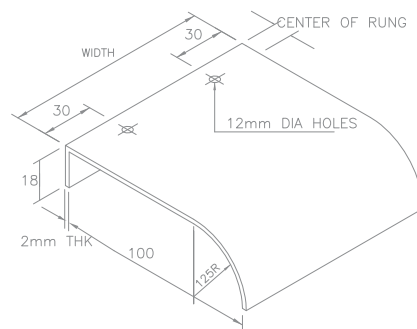
BOX CONNECTOR



BLIND END



DROP OUT



Joint connector slots corresponding to side rail connection holes

H: Height of side rail

MANUFACTURING STANDARDS OF CABLE LADDERS

1.1 Materials

Cable Ladders shall be made of either Hot Rolled or Cold Rolled Mild Steel sheets (ASTM A36) or Pre-galvanized Steel sheets (ASTM A653) or Stainless Steel sheet.

1.2 Welding

The welding procedures used in the fabrication of all ALMEER Cable Ladders and Accessories are in accordance with the latest American Welding Society Standard AWS D.1.3. The welders performing the job are qualified as per relevant AWS Code. ALMEER Steel Cable Ladders are welded by SMAW (Shield Metal Arc Welding), MIG (Metal Inert Gas) or TIG (Tungsten Inert Gas) welding process for producing smooth, clean, slag-free weldments.

1.3 Finishes

ALMEER supplies Cable Ladders in five different finishes .

1. **Pre-Galvanized Finish:** As per ASTM A653, usually Pre-galvanized sheets are used for manufacturer of Cable Ladders.
2. **Hot-Dip Galvanized Finish:** Cable Ladders fabricated from black steel sheet are Hot-Dip galvanized after fabrication in accordance with BS EN ISO 1461 or ASTM A123 "Specification for Zinc Coating (Hot dip) assembled Steel products."
3. **Painted Finish:** Cable Ladders fabricated from black steel sheet are sand-blasted and painted after fabrication as per clients specification.
4. **Powder Coated Finish:** Cable Ladders fabricated from black steel sheet are powder coated after fabrication.
5. **Stainless Steel Finish:** Cable Ladders are fabricated from stainless steel sheets grade 304, 316 or 316L, usually supplied in Stainless Steel '2B' finish.

2. Dimensions

1. Lengths of Straight Sections is usually in 3.0 mtr or 2.44 mtr with a tolerance of +/- 3 mm not including connectors if attached.
2. Widths - 100, 150, 200, 300, 450, 600, 750 and 900 mm +/- 6 mm inside Dimension.
3. Depths - Outside depths shall be 70, 100, 120 and 150 mm +/- 3 mm
4. Rung Spacing on Straight Section 200, 225, 250 and 300 mm on centers.
5. Radius - 300, 450, 600 and 900 mm.
6. Degree of Arc for Bends - 30, 45, 60 and 90 degrees.

3. Protection for Cables

The inside of Cable Ladder systems have smooth surface without any sharp edges, burrs or projections which may cause damage to cables during installation.

4. Fittings

The design and construction for all types of Cable Ladder Fittings is based on supporting to cable trays as recommended in Cable Ladder Standard NEMA VE -1

5. Applicable Codes and Standards

All equipment, material and workmanship shall comply with the requirements and latest revisions of the following standards and codes whichever is applicable,
 BSI British Standards Institute
 NEMA National Electrical Manufacturers Association
 NEC National Electrical Code of USA
 ASTM American Society for Testing and Materials
 AWS American Welding Society
 JIS Japanese Industrial Standards
 KS Korean Standards

6. Tests

Applicable tests are carried out on the fabricated samples.

The tests usually carried out are:-

- Load Test.
- Deflection Test.
- Electrical Continuity Tests.
- Relevant Tests on Coatings.
- UV - Protection Test.



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