

WATER SUPPLIES DEPARTMENT
STANDARD SPECIFICATION E-30-11
CABLE TRAYS AND ACCESSORIES

1. **CABLE TRAYS**

1.1 **Material**

Materials shall be new and free from imperfections and corresponding parts shall be interchangeable.

Cable trays and auxiliaries shall be made of stainless steel complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316). Stainless steel fixing bolts and nuts complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316) shall also be supplied.

1.2 **Construction**

Straight cable tray shall be supplied in standard lengths of not less than 2m and not exceeding 3m.

The tray perforation (bed slot) shall be 20mm x 7.5mm clearance holes for cable fixing. The sides of trays shall be 180° return flanged for rigidity and minimizing damage to cable sheath and injury to personnel while handling.

1.3 **Dimensions and Loading Capacity**

Cable tray dimensions and loading capacity shall be as follows:-

Nominal Tray Width (mm)	Minimum Tray Dimensions			Minimum loading kg/m to produce 6 mm deflection at 2000mm supports
	Thickness	Height of flange	Height of return flange	
100/150	1.5mm	50mm	25mm	30
225/300	1.5mm	50mm	25mm	50
450/600	2.0mm	50mm	25mm	90

1.4 **Cable Tray Auxiliaries**

Cable tray auxiliaries such as couplers/connectors, flat bends, tees, crossovers, reducers and internal/external bends/risers shall be of the same design, material and

manufacturer as the cable trays. These auxiliaries shall be from the standard range of products of the manufacturer.

Each length of cable tray shall be supplied with a set of joining pieces, bolts and nuts for fixing at one end with an adjacent length of cable tray.

When fitting bends, tees, crossovers, reducers or risers into cable trays, couplers/connectors shall be used.

1.5 Packing and Shipping

Cable trays and auxiliaries shall be packed in suitable containers. Trays of different width and tray auxiliaries (reducers, couplers/connectors, bends etc.) shall be separately packed. Apart from any climatic conditions which may be experienced in transit or at site, the method of protection and packing shall be suitable for withstanding rough handling and long periods of outdoor storage in a tropical climate.

Each packing shall be clearly stencilled with reference number and the full details and weight of content thereon. Each case shall be clearly marked so that it can be identified with the relevant material delivery advice note.

2. CABLE TRAY MOUNTING CHANNELS, SUPPORTS AND ACCESSORIES

2.1 Mounting Channels and Accessories

Channels for cable tray mounting shall be formed from stainless steel complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316). The minimum thickness of stainless steel mounting channels shall be 2.5mm. The nominal dimensions of mounting channels shall be 40mm x 40mm with a nominal distance of 20mm between lips and an axial loading safety factor of 2.5.

Stainless steel spring-loaded nuts, hexagonal headed bolts, springs and washers complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316) shall be supplied with the mounting channels such that slots in the heads of the nut shall engage with the lips of the channel.

Anchor bolts and sleeves for fixing the mounting channels shall be made of stainless steel complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316). Design, dimensions and loading calculations of the anchor bolts shall be submitted to the Engineer for approval before installation.

2.2 Cantilever Arms and Support Brackets

Cantilever arms shall be formed from stainless steel complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316). The minimum thickness of stainless steel shall be 2.5mm. It shall be suitable for being secured to channel sections by a single nut and bolt and provided with a tongue which protrudes and locates in the channel.

Cantilever arms shall comply with the following:-

Nominal Cable Tray Width (mm)	Nominal weight of Cantilever (kg)	Nominal Safe Uniformly Distributed Load, W_1 (kg)	Maximum Deflection due to W_1 (mm)
150	0.75	570	0.15
300	1.2	285	0.60
450	1.6	190	1.35
600	2.1	140	2.35
750	2.6	110	3.70

Channel angle support brackets shall be formed from stainless steel complying with BS EN 10088-2 Grade 1.4401 (ASTM Grade 316) and with M12 bolt holes. The nominal size shall preferably be 40mm x 55mm and with minimum thickness of 5mm.

3. TECHNICAL INFORMATION

The following technical information shall be submitted for assessment upon request by the Employer/Engineer:-

- a. Reports of works tests conducted by manufacturer as a means of quality assurance.
- b. Type tests reports on physical properties (including tensile strength, elongation, yield stress) and deflection on loading.
- c. Catalogues of cable trays showing the following design features:-
 - (i) Bed slot size and layout in relation to the ends and sides of tray.
 - (ii) Tray thickness, unit weight and loading capacity.
 - (iii) Characteristic curve of load (kg/m) versus deflection (mm).
 - (iv) Details of auxiliaries such as couplers/connectors, bends, tees, crossovers, reducers and risers.
 - (v) Recommended joining procedures of two sections of cable trays, support spacing and details of fixing bolts and nuts.
- d. Catalogues of cable tray mounting channels, cantilever arms, anchor bolts and accessories.