

## PREFABRICATED OVERPASS NON-PASSABLE OVERPASS

LADDERS WITH COVERS

LADDER FIXING

SUPPORT COLUMNS



### SCOPE OF APPLICATION OF PREFABRICATED CABLE TRESTLES:

- Power transmission lines run from the step-down transformer to the consumers' locations in mines, processing plants, and metallurgical plants with voltages between 0 and 220 kV.
- Inter-shop power and signal communications of industrial and warehouse facilities.
- Electricity distribution on the territory of oil depots, drilling sites, pumping and compressor stations.
- Power lines in DEPO.
- Electricity distribution in the territory of sewage treatment plants.

### ADVANTAGES OF UTECH SOLUTIONS FOR PREFABRICATED CABLE TRESTLES::

- No purlins and collar beams due to increased distance between supports up to 6 m with load per tier up to 390 kg/m.
- Reduction of metal intensity up to 50 %.
- Possibility of installation by one contractor.
- Complete absence of welding works when connecting UTECH elements, as they are bolted together, which reduces the cost of work by up to 40%.
- The speed of construction is up to 3 times faster compared to the traditional solution.



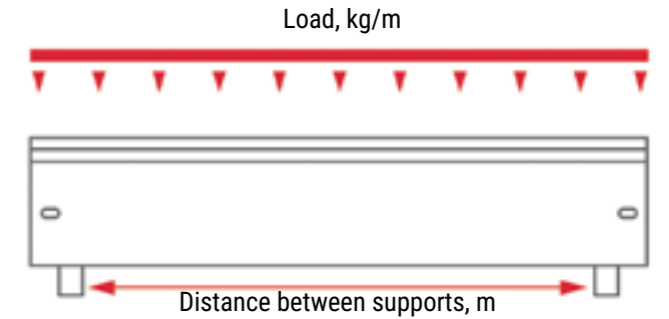
MAIN ELEMENTS USED

<p><b>OE CABLE LADDERS</b></p> <p>Height 100; 125; 150 Width 150; 300; 450; 600; 750; 900</p>  <p>See section «OE»</p>	<p><b>ACCESSORIES FOR OE LADDERS</b></p> <p>Height 100; 125; 150 Width 150; 300; 450; 600; 750; 900</p>  <p>See section «OE»</p>	<p><b>COVERS FOR OE LADDERS</b></p> <p>Thickness 2 mm Width 150; 300; 450; 600; 750; 900</p>  <p>See section «OE»</p>
<p><b>HI-HO/HI-VE HINGES</b></p> <p>Simple and convenient solution for non-standard radii</p>  <p>See section «OE»</p>	<p><b>TAPE CLAMP</b></p> <p>Provides short-circuit protection up to 135 kA</p>  <p>See section «Clamps»</p>	<p><b>RACKS WITH STARTER</b></p> <p>Closed profile racks</p>  <p>Contact a UTECH engineer</p>
<p><b>BRACKETS OF HIGH LOADS CA-40</b></p> <p>Load-bearing capacity up to 640 kg Length 140 to 940 mm</p>  <p>See section «CMS support elements»</p>	<p><b>CLOSED PROFILE CH-100</b></p> <p>Steel thickness 5 mm</p>  <p>See section «Installation systems»</p>	<p><b>CH60 PROFILES</b></p> <p>Thickness 3 и 4 mm</p>  <p>See section «CMS support elements»</p>

CALCULATION AND DESIGN FEATURES

For the correct design of prefabricated cable trestles, it is important to consider:

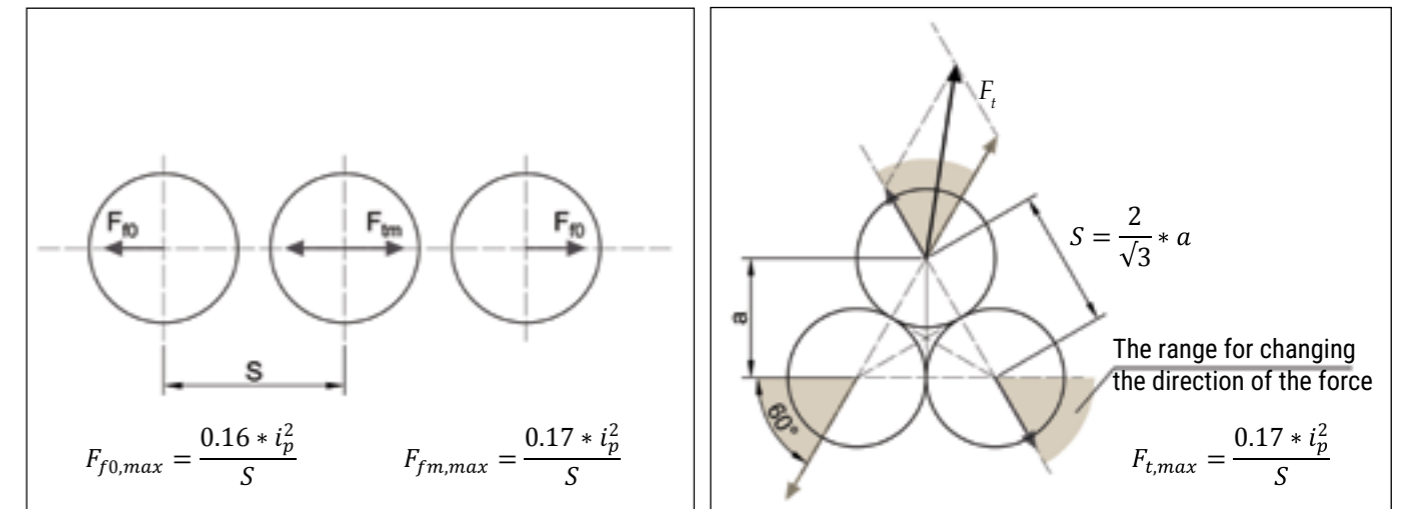
- the height of the mark of each support and post;
- wind load;
- snow load (the upper tier bears 90% of the snow load);
- icing load;
- the type and weight of each cable on the shelf;
- the load that may occur during the operation of the structure:
  - a. Maintenance.
  - b. Additional cables.
  - c. Light fittings, etc.
- the forces generated on the support by the short-circuit current in the line;
- required minimum parameters of a cable trestle, including the distance between cables and shelves, according to Requirements for Electrical Installations and CoP 76.13330-2016;
- individual needs of the customer, representatives of installation organisations, and operations.



SHORT CIRCUIT

Short-circuit is any accidental or intentional, not provided for by the normal operating mode, electrical connection of different points (phases) of the electrical installation between themselves or with the ground, at which currents in the branches of the electrical installation adjacent to the place of its occurrence, sharply increase, exceeding the highest permissible current of continuous mode. (GOST R 52735-2007 p. 3.1).

**In case of a short circuit, there are significant shock loads on the structure. Short-circuit forces on the support are determined according to GOST R MEC 61914-2015.**



HORIZONTAL ARRANGEMENT OF CABLES

ARRANGEMENT OF CABLES BY TRIANGLE WHERE

Where

- $F_{f0}$  - maximum force on external conductors in a flat arrangement in a three-phase short circuit, N/m;
- $F_{fm}$  - maximum force on the centre conductor in a flat arrangement for a three-phase short-circuit, N/m;
- $F_{ft}$  - is the maximum force on the conductor when arranged in a triangle arrangement for a three-phase short circuit, N/m;
- $i_p$  - short-circuit shock current, kA;
- $d$  - outer diameter of the conductor, m;
- $S$  - distance between the centres of two neighbouring conductors, m.

**LIST OF FREQUENTLY USED ITEMS**

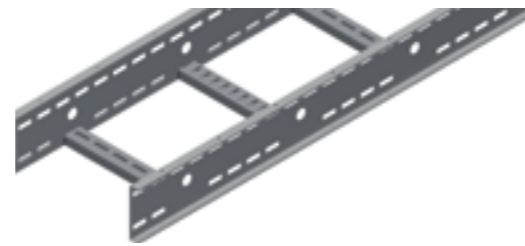
LADDERS OE100 6,000 MM, 1,5 MM

Item No.	Name	Weight, kg/m
3858804	Ladder OS OE100 CL-150-6000 HDG	4,25
3858805	Ladder OS OE100 CL-300-6000 HDG	4,82
3858806	Ladder OS OE100 CL-450-6000 HDG	5,4
3858807	Ladder OS OE100 CL-600-6000 HDG	5,98
3858808	Ladder OS OE100 CL-750-6000 HDG	7,36
3858809	Ladder OS OE100 CL-900-6000 HDG	8,08



LADDERS OE125 6,000 MM, 2 MM

Item No.	Name	Weight, kg/m
3858822	Ladder OS OE125ARQ CL-150-6000 HDG	6,88
3862722	Ladder OS OE125ARQ CL-300-6000 HDG	6,97
3858823	Ladder OS OE125ARQ CL-450-6000 HDG	8,04
3858824	Ladder OS OE125ARQ CL-600-6000 HDG	9,42



LADDERS OE150 6000 MM, 2 MM

Item No.	Name	Weight, kg/m
3858831	Ladder OS OE150ARQ CL-150-6000 HDG	7,15
3858832	Ladder OS OE150ARQ CL-300-6000 HDG	7,72
3858833	Ladder OS OE150ARQ CL-450-6000 HDG	8,3
3858834	Ladder OS OE150ARQ CL-600-6000 HDG	8,88
3858835	Ladder OS OE150ARR CL-750-6000 HDG	10,26
3858836	Ladder OS OE150ARR CL-900-6000 HDG	10,98



OE LADDER COVERS

Item No.	Name	Weight, kg/m
3858837	Cover OS OE CO-CL-150-3000-2.0 HDG	3,50
3858838	Cover OS OE CO-CL-300-3000-2.0 HDG	5,87
3858839	Cover OS OE CO-CL-450-3000-2.0 HDG	8,00
3823744	Cover OS OE CO-CL-600-3000-1.5 HDG	10,52
3861721	Cover OS OE CO-CL-900-3000-1.5 HDG	12
3858840	Зажим для крышки OS OE-CC HDG	0,08



ELEMENTS FOR SECURING TRACK BENDS

Item No.	Name	Weight, kg/m
3859529	Hinge OS OE100 HI-HO PT HDG	0,73
3859527	Hinge OS OE100 HI-VE PT HDG	0,75
3859530	Hinge OS OE125 HI-VE PT HDG	0,90
3859531	Hinge OS OE125 HI-HO PT HDG	0,83
3859534	Hinge OS OE150 HI-VE PT HDG	1,20
3859535	Hinge OS OE150 HI-HO PT HDG	1,08



HIGH LOAD BRACKETS CA-40

Item No.	Name	Weight, kg/m
3860113	Bracket OS CA-40-240 HDG	0,63
3860114	Bracket OS CA-40-340 HDG	0,76
3860115	Bracket OS CA-40-440 HDG	1,56
3860116	Bracket OS CA-40-540 HDG	1,98
3860117	Bracket OS CA-40-640 HDG	2,00
3846746	Bracket OS CA-40-840 HDG	2,98



CLAMP FOR FIXING LADDERS TO INSTALLATION ELEMENTS

Item No.	Name	Weight, kg/m
3858846	Clamp OS AB-55x55x4-M10/6 PT HDG	0,12



CH60 MOUNTING PROFILE

Item No.	Name	Weight, kg/m
3804645	Channel profile S-M CH60-U-3-P3 HDG	2,95
3806061	Channel profile S-M CH60-U-4-P3 HDG	3,92

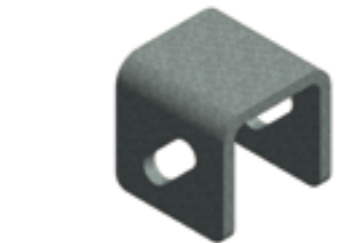


WELDING SUPPORT FOR INSTALLATION PROFILE CH60

Item No.	Name	Weight, kg/m
3849962	Plate CH60-3/4 ST-WB-C-5 SS	0,243

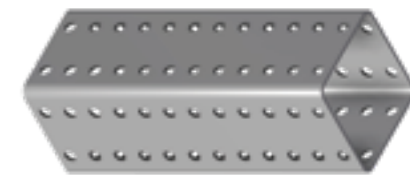
CH-100 MOUNTING PROFILE

Item No.	Name	Weight, kg/m
3859949	Profile CH-100-5,8m OC	13,57



CH-100 MOUNTING PROFILE SUPPORT

Item No.	Name	Weight, kg/m
3862091	OS S-M WB-200-CH100-1 CS	0,75



CH100 MOUNTING PROFILE CONNECTORS

Item No.	Name	Weight, kg/m
3862123	Connector CH100-LP L OC	1,35

Item No.	Name	Weight, kg/m
3862119	Connector CH100-LP T OC	1,2

