Top Cable

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FLEXTEL THEATER VV-F 0,6/1 kV

1. Object

This document defines the design and manufacturing characteristics of the cable type VV-F 0,6/1 kV manufactured by Top Cable.

2. Design

The desing of these cables is adapted from IEC 60502 standard.

3. Applications

Flexible cable for medium mechanical stresses with free movement without tensile stress or forced movements (avoid cable torsion!). Suitable for control, transport and distribution of electric power. Special designed wiring cable for the theatre branches, for lighting and controlling. The cable structure and conductor lay-length make the cable more flexible and suitable for easy winding and unwinding.

4. Characteristics

Nominal voltage: U_0/U 0,6/1 kV.

Temperature range:
Flexing: -5 °C to +70 ºC *(+90 ºC acc. UL 1581)*
Fixed installation: -40 °C to +70 ºC (+90 ºC acc. UL 1581)

Maximum short-circuit temperature: 160 °C. (maximum 5 s.)

Minimum bending radius:
Flexing: 6x cable Ø
Fixed installation: 4x cable Ø

No flame propagation: according EN 60332-1/IEC 60332-1

Enviromental: RoHS compliant

5. General make-up of the cables

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5.1 Conductor

Electrolytic annealed copper conductor, class 5 according to IEC 60228.

5.2 Insulation

Flexible PVC insulation, type PVC/A according to IEC 60502 and PVC 90 ºC acc. UL 1581.

The standard identification, according to HD 308 and HD 186, is the following:

- 6 or more.. black numbered + green/yellow

Other identifications are available under request.

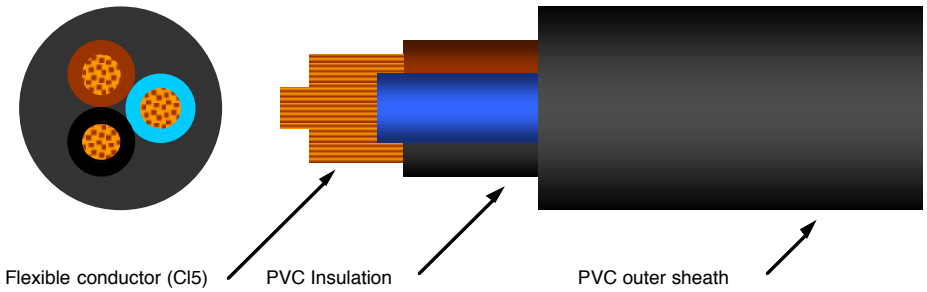
5.3 Assembly of cores

Cores stranded in layers with optimal lay-length.

5.4 Outer sheath

Flexible PVC outer sheath, black, type ST_2 according to IEC 60502 and PVC 90 ºC acc. UL 1581.

5.5 Diagram representation



6.- Current-carrying capacities:

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6.1 Nominal current-carrying capacities.

Table 1 shows the current-carrying capacities and voltage drop detailed for every cable.

Current-carrying capacities, in amperes, are calculated according to IEC 60364 and for the following conditions:

- Open air installation: one cable with adequate ventilation and ambient temperature of 30 °C, supported by cleats and hangers or on perforated tray (reference method F for single-core and E for multi-core cables).
- For cables having 6 or more conductors, it is supposed that not all conductors are fully charged.

For conditions other than this apply the adequate correction factors (point 6.3).

Voltage drop is the maximum that may occur. It is calculated for the maximum service temperature and for cos φ = 1.

nº x Section (mm^2)	Open Air Inst. (A)	Voltage drop (V/A·km)
7 x 1,5	22	31,9
7 x 2,5	30	19,2
12 x 1,5	22	31,9
12 x 2,5	30	19,2
14 x 1,5	22	31,9
14 x 2,5	30	19,2
19 x 1,5	22	31,9
19 x 2,5	30	19,2
27 x 1,5	22	31,9

Table 1

6.2 Short-circuit current-carrying capacities

The maximum short-circuit current that a cable can withstand depend on the time of reaction of the protection elements installed in the line. The maximum current-carrying capacity in a short-circuit accident, for a specific type of cable, is the result of multiplying the cross section of the cable for the values shown in table 2. These values are taken from IEC 949.

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm2	364	257	210	163	115	94	81	73	66

Table 2

6.3 Correction factors

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The current-carrying capacities must be multiplied with the adequate correction factor, when the installation conditions differs from point 6.1

Correction factors for air temperature other than 30 °C.

Air T. (ºC)	20	25	30	35	40	45	50	55	60
Factor	1,12	1,06	1	0,94	0,87	0,79	0,71	0,61	0,50

Table 3

7. Dimensions

Table 4 shows diameter and weight detailed for every cable.

nº x Section (mm^2)	Diameter (mm)	Weight (Kg/Km)
7 x 1,5	12,1	231
7 x 2,5	14,0	329
12 x 1,5	14,9	351
12 x 2,5	17,6	520
14 x 1,5	16,1	407
14 x 2,5	19,1	596
19 x 1,5	17,8	518
19 x 2,5	21,3	774
27 x 1,5	21,3	696

Table 4