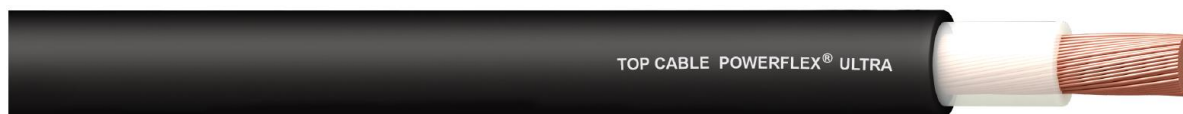


POWERFLEX® BESS ULTRA

Extra flexible power cable for BESS

ACCORDING TO: IEC 60502-1 / UNE 21123-2



E_{ca}

APPLICATION

Powerflex® Ultra is designed and manufactured for the most demanding and stringent battery energy storage systems and grids installations.

Its high flexibility makes the installation process substantially easier and, as a result, it is particularly suitable for use in difficult layouts, having a direct impact in installation costs reduction. It can be buried or installed in a tube as well as outdoors without requiring additional protection. This cable can withstand in damp conditions including total submersion in water (AD8).

CONSTRUCTION

Conductor

Electrolytic annealed copper, class 5 (flexible) up to 150 mm² and class 6 from 185 mm² according to EN 60228 and IEC 60228.

Insulation

Cross-linked polyethylene, type DIX-3 according to HD 603-1 and type XLPE according to IEC 60502-1. Natural colour.

Outer sheath

Special flexible PVC, type DMV-18 according to HD 603-1 and type ST2 according to IEC 60502-1. Black colour.

CHARACTERISTICS



Electrical performance

Low voltage: 0,6/1 (1,2) kV AC
1,5 (1,8) kV DC



Thermal performance

Maximum conductor temperature: 90°C.
Maximum short-circuit temperature: 250°C (max. 5 s).
Minimum service temperature: -40°C (fixed and protected installations).
Minimum installation and handling temperature: 0°C (on cable surface).



Fire performance

Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Reaction to fire CPR: E_{ca} according to EN 50575.
Reduced halogen emission. Chlorine < 15%.



Mechanical performance

Minimum bending radius during installation: 5x cable diameter (diameter cable ≤ 50 mm).
Minimum bending radius during installation: 6x cable diameter (diameter cable > 50 mm).
Impact resistance: AG2 Medium severity.



Environmental performance

Chemical & Oil resistance: Good.
UV Resistant according to UNE 211605.
Water resistance: AD8 Submersion.



Installation conditions

Open Air.
Buried.
In conduit.
In tray.

STANDARDS / COMPLIANCE



According to
IEC 60502-1 / UNE 21123-2



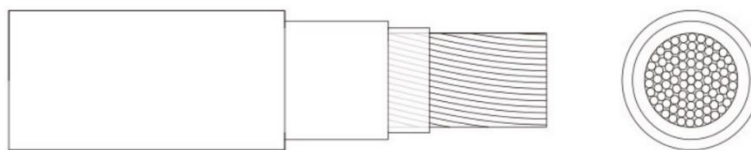
Standards and approvals
AENOR / BUREAU VERITAS / RETIE / KEMA-KEUR / RoHS / CE



CPR (Construction Products Regulation)
E_{ca}



DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm ²)	Diameter (mm)	Weight (kg/km)	Open air (A) ¹	Buried (A) ²	Voltage drop (V/A · km) ³
1 x 50	13,0	500	242	183	0,984
1 x 70	14,8	690	310	225	0,693
1 x 95	16,8	895	377	270	0,525
1 x 120	18,7	1.130	437	306	0,410
1 x 150	20,9	1.405	504	343	0,328
1 x 185	23,0	1.650	575	387	0,270
1 x 240	25,7	2.210	679	448	0,204
1 x 300	28,5	2.745	783	502	0,163
1 x 400	32,6	3.670	940	592	0,123
1 x 500	36,9	4.625	1.083	670	0,097
1 x 630	43,1	6.270	1.254	762	0,073
1 x 800*	48,0	8.155	1.454	870	0,056
1 x 1000*	59,9	10.410	1.670	988	0,044

*Cable based on UNE 21123-2

¹ Reference method F for single-core and method E for multicore cables according to IEC 60364-5-52 in open air at 30°C ambient temperature.

² Reference method D2 according to IEC 60364-5-52. Directly buried at 0,7 m depth with soil thermal resistivity of 2,5 K·m/W and 20°C of ground temperature.

³ At maximum conductor temperature and cosφ=1.

In all cases are supposed a single-phase circuit.

SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm ²	452	320	261	202	143	117	101	90	83

CORRECTION FACTORS FOR AIR TEMPERATURE

Air T. (°C)	20	25	30	35	40	45	50	55	60
Factor	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (°C)	10	15	20	25	30	35	40	45	50
Factor	1,07	1,04	1	0,96	0,93	0,89	0,85	0,80	0,76

CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY

Moisture degree of soil	Very damp	Slightly damp	Slightly dry	Dry	Very dry
Thermal Resist. (K·m/W)	1	1,5	2	2,5	3
Factor	1,50	1,28	1,12	1	0,90

Other correction factors (for grouping cables, for harmonic currents), that are not in this specification, can be applied. Further information can be found in IEC 60364-5-52.