

Cables for EV Charging Points



Applications

These cables are designed for installation at EV charging points.

The cables are composed by Power element with 3 or 5 cores and a Data element with 4 pairs.

The cables can be supply with or without galvanized steel wire armour, for extra protection.

Jacket can be LSZH or PVC low halogen compound.

General Construction

DATA - LAN CABLE CAT.5e F/UTP - LSZH - 4x2x24/1 AWG

(Available also LAN CABLE CAT.6 F/UTP and 6A F/FTP - LSZH - 4x2x23/1 AWG)

Power elements

Conductor

Plain annealed copper class 2 (stranded) or class 5 (flexible)

Insulation

Cross-linked polyethylene

Colours

3 cores: ● ● ●

5 cores: ● ● ● ● ●

Total cabling

Inner sheath (for armoured cables)

LSZH or Low Halogen PVC

Armour (on request)

Galvanized steel wire

Outer sheath

LSZH or Low Halogen PVC

Colour

●

MADE IN ITALY

DATA ELEMENT	POWER ELEMENTS	
	Stranded Conductor	Flexible Conductor
LAN CABLE CAT.5e F/UTP - LSZH - 4x2x24/1 AWG	R-XLPE - 3G2.5 mm ²	F-XLPE - 3G2.5 mm ²
LAN CABLE CAT.6 F/UTP - LSZH - 4x2x23/1 AWG	R-XLPE - 5G2.5 mm ²	F-XLPE - 5G2.5 mm ²
LAN CABLE CAT.6A F/FTP - LSZH - 4x2x23/1 AWG	R-XLPE - 3G4 mm ²	F-XLPE - 3G4 mm ²
	R-XLPE - 5G4 mm ²	F-XLPE - 5G4 mm ²
	R-XLPE - 3G6 mm ²	F-XLPE - 3G6 mm ²
	R-XLPE - 5G6 mm ²	F-XLPE - 5G6 mm ²
	R-XLPE - 3G10 mm ²	F-XLPE - 3G10 mm ²
	R-XLPE - 5G10 mm ²	F-XLPE - 5G10 mm ²

TECHNICAL DATA

ELECTRIC DATA

DATA ELEMENT - (LAN CABLE - LSZH - formation)	
Dielectric test (core/core)	1000 Va.c. for 1 min
Dielectric test (core/screen)	500 Va.c. for 1 min
Max. Conductor resistance (20°C)	95 Ω/km for 24/1 AWG
	80 Ω/km for 23/1 AWG
Min. Insulation resistance	1000 MΩxkm
Max. attenuation (20°C)	as per IEC 61156-6 (6.3.3.1)
Nom. core/core capacitance (800 Hz)	48 nF/km for Cat.5e and Cat.6
	43 nF/km for Cat.6A
Characteristic Impedance Z (1 MHz)	100 ± 20 Ω
Max. Phase or Propagation delay (100 MHz)	537.6 nsec/100 m
Velocity of propagation	67% for Cat.5e and Cat.6
	77% for Cat.6A
Max. delay skew	45 nsec/100 m

POWER ELEMENT - (Cu-XLPE - formation)	
Dielectric test (core/core + armour)	as per IEC 60502-1
Max. Conductor resistance (20°C)	as per IEC 60228
Min. Insulation resistance	1000 MΩxkm

PHYSICAL DATA

Min. bending radius	6xD	for unarmoured cables with flexible conductors
	8xD	for unarmoured cables with stranded conductors
	10xD	for armoured cables with flexible conductors
	12xD	for armoured cables with stranded conductors
Flex/installation temperature	-5/+65 °C	
Static/working temperature	-30/+80 °C	

STANDARDS

DATA ELEMENT - (LAN CABLE - LSZH - formation)	
Construction (as far as applicable)	EIA-TIA 568; ISO/IEC 11801; IEC 61156; EN 50173; EN 50288

POWER ELEMENT - (Cu-XLPE - formation)	
Conductors	IEC 60228
Construction (as far as applicable)	IEC 60502-1

FIRE BEHAVIOUR

Fire retardant	IEC 60332-3-24 Cat. C	
Flame retardant	IEC 60332-1-2	
Acid gas emission	IEC 60754-1 (HCl ≤ 22%)	for PVC
	IEC 60754-1 (HCl ≤ 0.5%)	for LSZH
	IEC 60754-2 (pH ≥ 4.3, Conductivity ≤ 10 μS/mm)	for LSZH
Smoke density	IEC 61034-2 (Light transmittance ≥ 20%)	for PVC
	IEC 61034-2 (Light transmittance ≥ 60%)	for LSZH

CAVICEL SpA
Via Caduti del Lavoro, 18/A
20096 Pioltello (Milano) Italy
ph. +39 - 02 - 921.605.21
fax +39 - 02 - 921.607.53
e-mail: cavicel@cavicel.com

DUBAI BRANCH OFFICE
Fortune Executive Tower
Office 406 - Plot No. T1
Jumeirah Lakes Towers
Dubai - UAE - PO Box 634377
ph. +971 4.4581199
fax +971 4.4581144
e-mail: middleeast@cavicel.com

HONG KONG OFFICE
12/F, THE GRID
133 Wai Yip Street,
Kwun Tong Hong Kong
ph. +852 9472 3067
e-mail: apac@cavicel.com



COMPOSITE CABLE

Doc code	Variant	Revision	Date
ST/2302/104	A	03	16/10/2023

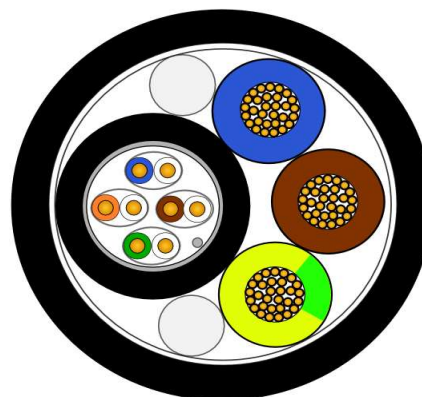
COMPOSITE CABLE - ((LAN CABLE CAT.6A F/FTP - LSZH - 4x2x23/1 AWG) + (F-XLPE - formation)) /LSZH



Cable type :

The design of this cable is intended for installations at EV charging points. It is a composite cable made up of power conductors and a shielded Cat.6A data cable; these components are assembled in a layer of protective LSZH sheath.

Picture for illustrative purpose only.



Customized features :

Low Smoke - Zero Halogens - Fire retardant - Flame retardant - UV resistant

GENERAL CONSTRUCTION

ELEMENT A - (LAN CABLE CAT.6A F/FTP - LSZH - 4x2x23/1 AWG)

Conductors	Solid plain annealed copper
Insulation	Foam polyethylene
Colours	Blue, white* Orange, white* Green, white* Brown, white* (*: with or without coloured strip)
Primary cabling	Pairs
Individual screen components	Al/PET tape
Total cabling	The elements are cabled together
Overall screen components	DW + Al/PET tape
Drain wire	Solid tinned copper drain wire
Sheath	LSZH thermoplastic compound
Colour	Black

ELEMENT B - (F-XLPE - formation)

Conductors	Flexible plain annealed copper class 5
Insulation	Cross-linked polyethylene
Colours	3 cores: Blue - Brown - Yellow/Green 5 cores: Blue - Brown - Black - Grey - Yellow/Green

Total cabling	All the components are cabled together (with filler elements where needed) and wrapped with PET tape
Outer sheath	LSZH thermoplastic compound
Colour	Black
Printed marking	CAVICEL - EV POINT - P/N - formation - LSZH - IEC 60332-3-24 Cat. C - BATCH *****/year of manufacture - MADE IN ITALY + meter marking
-Durability as per BS EN 50396-5.1	

Caviced code (N)	Formation	Data cable diameter (±10%) mm	Outer diameter (±10%) mm	Net Weight (±10%) kg/km
170019	CAT.6A F/FTP + 3G4 mm ²	8.3	16.1	340
171917	CAT.6A F/FTP + 5G4 mm ²	8.3	18.1	440
170020	CAT.6A F/FTP + 3G6 mm ²	8.3	17.0	430
171916	CAT.6A F/FTP + 5G6 mm ²	8.3	19.8	580
171319	CAT.6A F/FTP + 3G10 mm ²	8.3	19.5	600
171918	CAT.6A F/FTP + 5G10 mm ²	8.3	23.1	840

TECHNICAL DATA

Electric Data

ELEMENT A - (LAN CABLE CAT.6A F/FTP - LSZH - 4x2x23/1 AWG)

Dielectric test (core/core)	1000 Va.c. for 1 min
Dielectric test (core/screen)	500 Va.c. for 1 min
Max. Conductor resistance (20°C)	73 Ω/km for 23/1 AWG
Min. Insulation resistance	1000 MΩxkm
Max. attenuation (20°C)	as per IEC 61156-6 (6.3.3.1)
Nom. core/core capacitance (800 Hz)	43 nF/km
Characteristic Impedance Z (1 MHz)	100 ± 20 Ω
Max. Phase or Propagation delay (100 MHz)	537.6 nsec/100 m
Velocity of propagation	77%
Max. delay skew	45 nsec/100 m

ELEMENT B - (F-XLPE - formation)

Dielectric test (core/core + armour)	3500 Va.c. for 5 min
Max. Conductor resistance (20°C)	4.95 Ω/km for 4 mm ² 3.30 Ω/km for 6 mm ² 1.91 Ω/km for 10 mm ²
Min. Insulation resistance	1000 MΩxkm

Physical data

Min. bending radius	6xD
Flex/installation temperature	-5/+65 °C
Static/working temperature	-20/+80 °C

Norms

ELEMENT A - (LAN CABLE CAT.6A F/FTP - LSZH - 4x2x23/1 AWG)

Construction (as far as applicable)	EIA-TIA 568; ISO/IEC 11801; IEC 61156; EN 50173; EN 50288-10-1
-------------------------------------	--

ELEMENT B - (F-XLPE - formation)

Conductors	IEC 60228
Construction (as far as applicable)	IEC 60502-1

Fire Behaviour

Fire retardant	IEC 60332-3-24 Cat.C
Flame retardant	IEC 60332-1-2
Acid gas emission	IEC 60754-1 (HCl ≤ 0.5%) IEC 60754-2 (pH ≥ 4.3, Conductivity ≤ 10 μS/mm)
Smoke density	IEC 61034-2 (Light transmittance ≥ 60%)