

• Introduction

High Voltage (HV) Cross-Linked Elastomer Insulated Flexible Cables are specifically designed for use in new energy electric vehicles (EVs). These cables are essential for transmitting power from the battery to various electrical systems within the vehicle, including the electric motor, inverter, and onboard charging systems. The cross-linked elastomer insulation provides superior electrical properties, mechanical flexibility, and durability under the demanding conditions typical of electric vehicle applications.

• Application

HV cross-linked elastomer insulated flexible cables are used in various parts of electric vehicles, including:

Battery Connections:

Battery to Inverter: Transmit high voltage power from the battery to the inverter, which converts DC to AC power for the electric motor.

Battery Management System (BMS): Connect the battery cells to the BMS, ensuring efficient monitoring and control of the battery's state of charge and health.

Powertrain Components:

Motor Connections: Provide power to the electric motor, enabling the conversion of electrical energy to mechanical energy for vehicle propulsion.

Power Distribution Units (PDU): Distribute high voltage power from the battery to various components within the powertrain.

Charging Systems:

Onboard Chargers: Connect the charging port to the onboard charger, allowing for efficient charging of the vehicle's battery.

DC Fast Charging: Suitable for high-power DC fast charging applications, ensuring rapid and efficient battery charging.

Auxiliary Systems:

Heating and Cooling Systems: Power the heating and cooling systems, ensuring optimal thermal management of the battery and cabin.

High Voltage Accessories: Provide power to high voltage accessories such as air conditioning compressors and electric heaters.

• Performance

Operating Temperature: -40°C-125°C

Rated Voltage: A.C. 600V/D.C. 900V; A.C. 1000V/D.C. 1500V

Short-term Ageing: 240h

Long-term Ageing: 3000h

Halogen Free: PH weighted value ≥ 4.3 , Conductivity weighted value $\leq 10\mu\text{s}/\text{mm}$

Withstand Voltage: 6000v/15min

• Advantages

Thermal Stability:

High Temperature Resistance: Cross-linked elastomer insulation can withstand high operating temperatures, ensuring reliable performance even in demanding conditions.

Low Temperature Flexibility: Maintains flexibility at low temperatures, preventing cracking and ensuring durability.

Electrical Properties:

Insulation Integrity: Excellent electrical insulation properties to prevent short circuits and ensure safe power transmission.

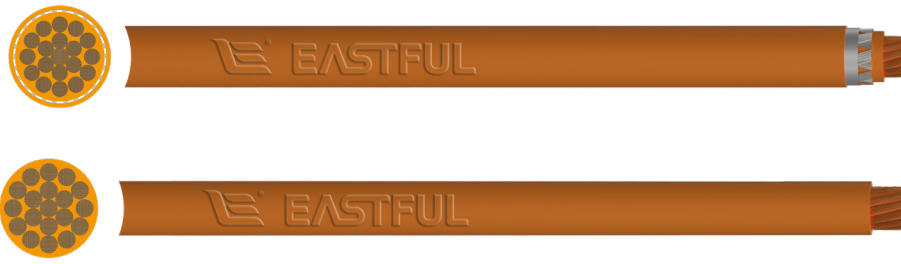
Voltage Withstand Capability: Designed to withstand high voltage levels without degradation or failure.

Mechanical Durability:

Flexibility: High flexibility to accommodate the dynamic movements and tight spaces within electric vehicles.

Abrasion and Impact Resistance: The optional outer sheath provides additional protection against mechanical damage, ensuring longevity.

Chemical Resistance: Resistant to oils, fuels, and other chemicals encountered in automotive environments.



Construction

For A.C. 600V/DC 900V:

1.Single core unshielded cable

Conductor: annealed plain copper wires

Insulation: thin-walled XLPO

2.Single core shielded cable

Conductor: annealed plain copper wires

Insulation: thin-walled XLPO

Shielding: bare or tinned copper wire braid

Sheath: XLPO

For A.C. 1000V/DC 1500V:

1.Single core unshielded cable

Conductor: annealed plain copper wires

Insulation: thick-walled XLPO

2.Single core shielded cable

Conductor: annealed plain copper wires

Insulation: thick-walled XLPO

Shielding: bare or tinned copper wire braid, or film shielding

Sheath: XLPO

Specification

This is customized product and can be designed according to customers' request.

Eastful Cable Lab



We have CNAS Accredited Facility to assure conformity assessment services with a focus on quality, expertise, and customer satisfaction.

CNAS has international mutual recognition among IAF, ILAC, APLAC and PAC.

Accreditation

We meet the requirements of ISO9001, ISO14001, ISO45001 and ISO50001 and our cables have certificate of CCC, RoHS, CASC, UL, cUL, TÜV Rheinland and CCS.



National Green Factory



Our facility has been awarded of National Green Factory by Ministry of Industry and Information Technology of China. We are committed to the development of high-end, intelligent and green manufacturing industry.

*The overall energy consumption level of green factories is better than the energy efficiency benchmark level.

● Technical Parameters

A.C. 600V/D.C. 900V Single Core Unshielded Cable						
Nominal Cross Section Area	Dia. of Single Wire	Conductor		Insulation		
		Conductor Overall Dia.	Max. Conductor Resistance @20°C	Nominal Thickness	Min. Thickness	Overall Dia.
mm ²	mm	mm	Ω/km	mm	mm	mm
1.5	0.26	1.8	11.7~12.7	0.3	0.24	2.2~2.40
2.5	0.26	2.2	6.99~7.60	0.35	0.25	2.70~3.00
4	0.31	2.8	4.33~4.71	0.4	0.32	3.40~3.70
6	0.31	3.4	2.89~8.14	0.4	0.32	4.00~4.30
10	0.21	4.5	1.68~1.82	0.5	0.48	5.30~6.00
16	0.21	5.8	1.07~1.16	0.65	0.52	6.40~7.20
25	0.21	7.2	0.688~0.743	0.65	0.64	7.90~8.70
35	0.21	8.5	0.489~0.527	0.8	0.64	9.40~10.40
50	0.21	10.5	0.343~0.368	0.9	0.71	11.00~12.20
70	0.21	12.5	0.243~0.259	1	0.8	13.00~14.40

A.C. 600V/D.C. 900V Single Core Shielded Cable										
Nominal Cross Section Area	Dia. of Single Wire	Conductor		Insulation		Shielding		Sheath		
		Conductor Overall Dia.	Max. Conductor Resistance @20°C	Nominal Thickness	Min. Thickness	Overall Dia.	Dia. of Single Braid Wire	Nominal Thickness	Min. Thickness	Overall Dia.
mm ²	mm	mm	Ω/km	mm	mm	mm	mm	mm	mm	mm
1.5	0.26	1.8	11.7~12.7	0.3	0.24	2.2~2.40	0.11	0.5	0.38	3.7~4.2
2.5	0.26	2.2	6.99~7.60	0.35	0.25	2.70~3.00	0.11	0.5	0.38	4.3~4.8
4	0.31	2.8	4.33~4.71	0.4	0.32	3.40~3.70	0.16	0.5	0.38	5.1~5.7
6	0.31	3.4	2.89~8.14	0.4	0.32	4.00~4.30	0.16	0.8	0.54	6.1~6.7
10	0.21	4.5	1.68~1.82	0.5	0.48	5.30~6.00	0.16	1	0.7	7.8~8.8
16	0.21	5.8	1.07~1.16	0.65	0.52	6.40~7.20	0.21	1	0.7	9.0~10.0
25	0.21	7.2	0.688~0.743	0.65	0.64	7.90~8.70	0.21	1.3	0.8	11.4~12.4
35	0.21	8.5	0.489~0.527	0.8	0.64	3.40~3.70	0.21	1.5	0.54	13.0~14.5
50	0.21	10.5	0.343~0.368	0.9	0.71	4.00~4.30	0.21	1.5	0.54	14.8~16.8
70	0.21	12.5	0.243~0.259	1	0.8	5.30~6.00	0.21	1.7	1.16	16.8~18.5

● Technical Parameters

A.C. 1000V/D.C. 1500V Single Core Unshielded Cable						
Nominal Cross Section Area	Dia. of Single Wire	Conductor		Nominal Thickness	Insulation	
		Conductor Overall Dia.	Max. Conductor Resistance @20°C		Min. Thickness	Overall Dia.
mm ²	mm	mm	Ω/km	mm	mm	mm
10	0.21	4.5	1.68~1.82	1	0.8	5.90~6.50
16	0.21	5.8	1.07~1.16	1.1	0.82	7.70~8.30
25	0.21	7.2	0.688~0.743	1.3	1.04	9.40~10.40
35	0.21	8.5	0.489~0.527	1.3	1.04	9.60~11.60
50	0.21	10.5	0.343~0.368	1.5	1.2	11.50~13.50
70	0.21	12.5	0.243~0.259	1.5	1.2	13.50~15.50
95	0.21	14.8	0.185~0.196	1.5	1.2	16.00~18.00
120	0.21	16.6	0.146~0.153	1.5	1.2	17.70~19.70

A.C. 1000V/D.C. 1500V Single Core Shielded Cable										
Nominal Cross Section Area	Dia. of Single Wire	Conductor		Insulation		Shielding		Sheath		
		Conductor Overall Dia.	Max. Conductor Resistance @20°C	Nominal Thickness	Min. Thickness	Overall Dia.	Dia. of Single Braid Wire	Nominal Thickness	Min. Thickness	Overall Dia.
mm ²	mm	mm	Ω/km	mm	mm	mm	mm	mm	mm	mm
10	0.21	4.5	1.68~1.82	1	0.8	5.90~6.50	0.16	1.3	0.8	9.1~9.9
16	0.21	6.3	1.07~1.16	1.1	0.82	7.70~8.30	0.16	1.3	0.8	10.9~11.7
25	0.21	7.2	0.688~0.743	1.3	1.04	9.40~10.40	0.21	1.5	1	13.2~14.5
35	0.21	9	0.489~0.527	1.3	1.04	9.60~11.60	0.21	1.5	1	13.4~15.7
50	0.21	10.5	0.343~0.368	1.5	1.2	11.50~13.50	0.21	1.7	1.16	15.7~18
70	0.21	12.5	0.243~0.259	1.5	1.2	13.50~15.50	0.21	1.7	1.16	17.7~20.0
95	0.21	14.8	0.185~0.169	1.5	1.2	16.00~18.00	0.21	1.7	1.16	20.2~22.5
120	0.21	16.5	0.146~0.153	1.5	1.2	17.70~19.70	0.21	1.7	1.16	21.9~24.2