



KEI[®]
Wires & Cables



MVCC CONDUCTORS

MEDIUM VOLTAGE COVERED CONDUCTORS

CMD'S MESSAGE



MR. ANIL GUPTA

Chairman & Managing Director
KEI Industries Limited

KEI Industries, an Indian MNC founded in 1968, is a global leader in wire and cable solutions having an extensive range of world-class products and services. With multiple robust & cutting edge manufacturing facilities and a vast network of more than 30,000 channel partners, KEI serves clients in 65+ countries, establishing itself as a one-stop-shop for comprehensive wire and cable solutions. The company achieved a turnover of INR 8000+ crore in the fiscal year 2023-24.

As the world faces the pressing challenges of global warming and climate change, KEI Industries is dedicated to leading the way towards a sustainable and a carbon-neutral future. Our

dedication involves using clean gas and solar energy, alongside advanced air and water treatment systems, to eliminate hazardous chemicals and ensure a safe, sustainable environment. Our diverse array of products also reflects our strong commitment towards building an eco-friendly efficient surrounding. With an ongoing focus on innovation, KEI is positioned to lead in sustainability while meeting the demands of global consumers through using cutting-edge technologies, driving progress and setting new standards for environmental responsibility.

STATE OF THE ART MANUFACTURING 5 UNITS



BHIWADI
RAJASTHAN



CHOPANKI
RAJASTHAN



PATHREDI
RAJASTHAN



RAKHOLI
DADRA AND NAGAR
HAVELI



CHINCHPADA
DADRA AND NAGAR
HAVELI

BUILDING THE NATION...! PRESTIGIOUS PROJECTS WIRED BY KEI



RAM MANDIR



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STATUE OF UNITY**



**WORLD'S
LARGEST NARENDRA
MODI STADIUM**



**PARLIAMENT OF
INDIA**



**KONKAN RAILWAY
PROJECT**



**INDIA'S LONGEST
BOGIBEEL BRIDGE**



BULLET TRAIN



**INDIAN INSTITUTE
OF TECHNOLOGY
BOMBAY**



**AIROLI-KATAI
NAKA TUNNEL**



**MUMBAI COASTAL
ROAD MEGA PROJECT**



MUMBAI MONORAIL



**MUMBAI NAGPUR
SAMRUDDHI HIGHWAY**

MVCC cables: what are they?

In the domain of electrical engineering and power distribution systems, the term "medium voltage covered conductor (MVCC)" typically denotes a type of electrical conductor designed for medium voltage applications, typically ranging between 11 kV and 33 kV. These conductors are insulated and covered to ensure safe and efficient power distribution.

To enhance performance and safety, a covered conductor, such as those designated as medium voltage covered conductors (MVCC), commonly features insulation or a protective covering made of cross-linked polyethylene (XLPE). This insulation or covering serves the critical purpose of shielding the conductor, thereby reducing the risk of electrical malfunctions and preventing accidental contact with external elements.

In overhead power distribution systems, covered conductors play a crucial role, particularly in various environmental conditions. The insulation of the conductor acts as a protective barrier, shielding it from elements such as sunlight, moisture, and other potential sources of damage.

This type of covered conductor is often employed in areas where additional safety measures are necessary or where exposed conductors pose potential hazards. By providing an extra layer of protection, covered conductors help ensure the reliability and safety of the power distribution infrastructure.

The design and materials used for covered conductors are influenced by several factors, including voltage level, intended application, environmental conditions, and regulatory requirements.

In medium voltage networks, these conductors are indispensable for ensuring the efficient and safe distribution of electrical power.

By carefully considering these factors and selecting appropriate designs and materials, We at KEI manufacture MVCC cable to optimize the performance and reliability of the power distribution system while maintaining compliance with local regulations and standards.

This underscores the critical role that covered conductors play in the functioning of medium voltage networks and the broader electrical infrastructure.



Applicable Standards

These Cables are generally offered as per IEC: 61089, IS : 398 -2/IEC: 61089, BS EN : 50182/50397.

Construction of MVCC

Conductor:

Longitudinally watertight stranded all aluminium alloy (AAAC), AL-7, AL-59, or AL-59 Aluminium Clad Steel (ACS).

Shielding:

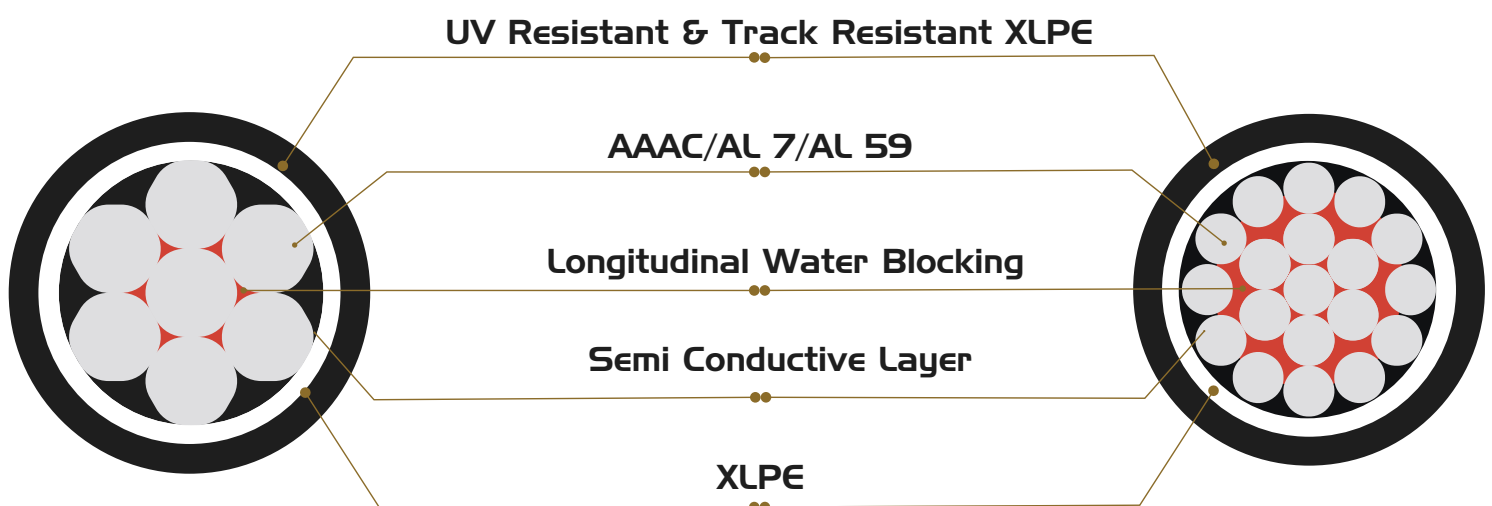
Semi Conducting Cross-Linked Polymer.

Inner Covering:

Low-Density track resistance cross-linked Polyethylene (Without Carbon Black)

Outer Covering:

High-density UV & track resistance Cross-linked Polyethylene



UV Resistant & Track Resistant XLPE

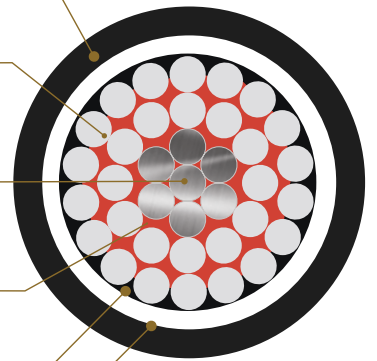
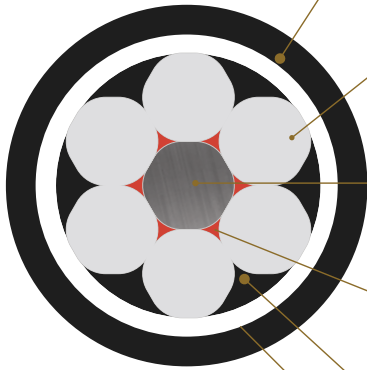
AL 59

ACS

Longitudinal Water Blocking

Semi Conductive Layer

XLPE



Application of MVCC

Medium voltage-covered conductors are used in a variety of electrical power distribution system scenarios. The following are a few typical uses:

◆ Overhead Power Distribution Lines:

Medium-voltage electricity is delivered from substations to residential, commercial, and industrial areas via overhead power distribution lines, which frequently use covered conductors.

By shielding the conductors from the elements, the insulation lowers the possibility of electrical failures brought on by exposure to pollutants, moisture, or other impurities.

◆ Urban and Suburban Areas:

Covered conductors can be used to increase the visual impact of power lines and reduce the possibility of unintentional contact with live parts in urban and suburban settings where aesthetics and safety are valued.

◆ High Environmental Stress Areas:

Over an extended period, bare conductor performance may deteriorate in environments with elevated pollution, moisture, or corrosive elements. The power distribution system's longevity is increased by covered conductors, which offer an extra degree of defense against these types of environmental stresses.

◆ Areas with Vegetation:

In places with a lot of vegetation, where there is a greater chance of branches or trees coming into contact with power lines, covered conductors are appropriate. The insulation lessens the possibility of faults and outages caused by vegetation.

◆ Coastal and Harsh Environments:

Covered conductors offer an extra layer of defense against corrosion and environmental damage in coastal areas and other harsh environmental regions where exposure to salt, humidity, and extreme weather is a concern.

◆ High-Altitude Installations:

Given their greater exposure to inclement weather, covered conductors may be recommended in mountainous or high-altitude areas. The insulation aids in shielding the conductors from environmental hazards like snow and ice.



◆ Industrial Facilities:

Industrial facilities may use medium voltage-covered conductors to distribute power from the main substation to different areas of the building. Harsh operating conditions and the presence of industrial chemicals are two things that the insulation helps shield against

◆ Renewable Energy Projects:

Covered conductors can be used for medium voltage interconnection within the power generation facility and for connecting the facility to the larger electrical grid in renewable energy projects, such as solar or wind farms.

◆ Railway Electrification:

In electrified railway systems, where trains are powered by medium voltage, covered conductors may be used. Insulation improves safety by reducing electrical interference.

Cold Environments



Hot Environments



Forest Areas

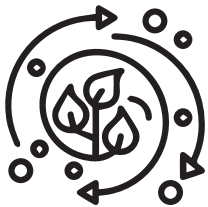


Advantage of MVCC over bare Conductor:

In some applications, medium voltage-covered conductor cables are superior to bare conductors due to several benefits. Here are a few main benefits:

◆ Improved Safety:

Improved safety is the main benefit of covered conductors. By preventing accidental contact with live parts, the insulation or covering on the conductor lowers the risk of electric shock and other safety hazards. This is especially crucial in suburban and urban settings where people and property are close to power lines

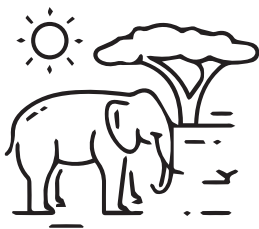
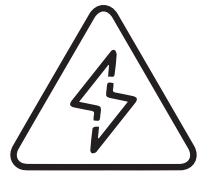


◆ Reduced Environmental Impact:

The negative effects of power distribution systems on the environment are reduced by covered conductors. By shielding the conductors from environmental elements like pollution and corrosion, the insulation increases their lifespan and lowers the need for upkeep and replacement.

◆ Lower Risk of Outages:

The possibility of outages brought on by things like tree branches, animals, and weather-related problems is decreased by the protective covering on medium voltage-covered conductors. This can result in a power distribution system that is more dependable, particularly in places with harsh environmental conditions.



◆ Vegetation and Wildlife Protection:

Electricity faults brought on by plants or animals coming into contact with the conductors are less likely to occur when covered conductors are insulated. Areas with thick vegetation or wildlife corridors should pay special attention to this.

◆ Corrosion Resistance:

Covered conductors offer an extra layer of protection against corrosion in harsh environmental settings, such as coastal areas where salt exposure is a concern. This prolongs the lifespan of the cables and lowers the need for maintenance.



◆ Aesthetics and Urban Planning:

Better aesthetics are a result of covered conductors in suburban and urban settings. Power lines can be designed in a more aesthetically pleasing and compact manner thanks to the insulation, all without sacrificing safety.



◆ Improved Reliability:

By providing protection from environmental elements, insulation on covered conductors lowers the risk of electrical failures and disruptions. As a result, downtime is decreased and system reliability is increased.

◆ Flexibility in Routing

Since covered conductors are less restricted by clearance requirements than bare conductors, they provide greater routing and installation flexibility. In some situations, this flexibility can make the design and installation process easier.



◆ Reduced Electromagnetic Interference (EMI):

In sensitive electronic environments or areas with a high concentration of communication equipment, electromagnetic interference can be reduced with the help of the conductor covering. In industrial settings or locations with sophisticated technological infrastructure, this may be advantageous.

◆ Protection Against Vandalism:

An extra line of defense against unapproved tampering and vandalism is offered by the insulation. This is particularly important in public areas where there is a chance that power lines may be intentionally damaged.



◆ Maintenance and Durability:

Decreased Maintenance Needs: Because insulation helps shield against wear and tear and lengthens the lifespan of the cable, covered conductors may require less maintenance than bare conductors

◆ Compliance with Environmental Regulations:

Because covered conductors lessen the effect that power distribution systems have on the local ecosystem, they may aid in complying with environmental regulations. In areas that are sensitive to the environment, this is especially crucial.



Dimensions of MVCC

Cross Section (Sq mm)	Construction	Type
50	7 Strands	AAAC / AL-7 / AL -59
55	7 Strands	AAAC / AL-7 / AL -59
70	7 Strands	AAAC / AL-7 / AL -59
80	7 Strands	AAAC / AL-7 / AL -59
90	7 Strands	AAAC / AL-7 / AL -59
100	7 Strands	AAAC / AL-7 / AL -59
120	19 Strands	AAAC / AL-7 / AL -59
125	19 Strands	AAAC / AL-7 / AL -59
148	19 Strands	AAAC / AL-7 / AL -59
159	19 Strands	AAAC / AL-7 / AL -59
160	19 Strands	AAAC / AL-7 / AL -59
232	19 Strands	AAAC / AL-7 / AL -59
241	19 Strands	AAAC / AL-7 / AL -59

Cross Section (Sq mm)	Construction		Type
	ACS	AL-59	
31.6	1 Strands	6 Strands	AL-59 ACS
52.88	1 Strands	6 Strands	AL-59 ACS
78.82	1 Strands	6 Strands	AL-59 ACS
104.98	1 Strands	6 Strands	AL-59 ACS
120	7 Strands	26 Strands	AL-59 ACS
160	7 Strands	30 Strands	AL-59 ACS
241	7 Strands	30 Strands	AL-59 ACS

Sr.NO	Cable Attributes	UOM	Nominal Thickness		
			11 KV	22 KV	33 KV
1	Aluminium Alloy Wire	Sq.mm	As Per Requirement		
2	Extruded Longitudinal Water Blocking Layer	mm	As Required to make Water Blocked Arrangement		
3	Extruded Semi Conductive Layer	mm	0.3	0.3	0.4
4	Inner Insulation of XLPE Without Carbon Black	mm	1.2	1.32	2.43
5	Outer Insulation with UV & Track Resistant XLPE	mm	1.1	1.1	1.2

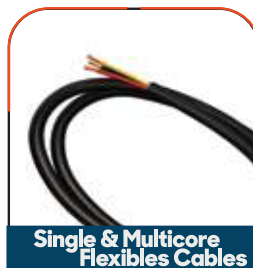


Our Product Range

Safety and Quality, Our Priority.



House Wires



Single & Multicore
Flexibles Cables



Winding Wires



Flat Cables



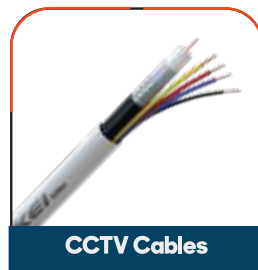
EV Cable



CAT 6 Cables



Co-Axial Cables



CCTV Cables



Telephone Cables



Solar Cables



Stainless Steel Wires



LV Cables



HV Cables



Control Cables



MVCC Cables



EHV Cables



Fire Survival
Resistant Cables



Instrumentation
Cables



Rubber Cables



Marine &
Offshore Cables



Thermo-couple
Cables

Widest range of wires and cables from 1.1kV up to 400kV



BRIDGING THE GAP ACROSS 60 DIFFERENT COUNTRIES



THE POWER BEHIND THE POWER



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