38 Years Of Trust & Reliability

MVCC

MEDIUM VOLTAGE COVERED CONDUCTOR

STANDARDS COMPLIANCE

EN-50397-I/ BSEN-50182/ IEC: 61089/
AS-NZS-3675/ IS 398 PART IV

Dynamic Cables Ltd.

COMPANY PROFILE

Dynamic cables was initially formed as a partnership company in 1986, as "Dynamic Engineers". We were manufacturing only Super Enamelled and DPC wires for the Transformer Industry till about 1995-96, whereupon we started manufacturing overheads conductors to cater to the requirements of the majority of electricity boards in India. With quality products and excellent customer service, we started getting queries about other related products also from the present customers as well as new prospective clients. This prompted us to plan a major expansion project in the year 2003, whereupon, we decided to enter into the cable segment, especially the aerial bunched cable. The unit was successfully established in the year 2006.

Planning forward, we started to work on our next expansion in the year 2007 and the third unit, spread over 100000 sq. ft. was established in Vishwakarma Industrial Area (Jaipur), to manufacture LV and HV cables up to 33 KV, using Sioplas technology. With increasing demand from the market, we planned our fourth unit. This unit had been planned in the year 2016 over an area of 2,70,000 sq. ft. and is established at Khatushyamji Industrial Area, Reengus, Rajasthan.

The Reengus plant has further increased the current production capacity and added the 66 KV high voltage cables into the existing range. Here we also manufacture the Railway signalling cables for RDSO. Apart from this, the company has an expansion plan also to get into the 220 KV Cables.

Our range in cables itself has become comprehensive and with continuous advancement in technology, there are plans to extend this range further. Currently, the range includes - LV, HV & EHV Power cables, LV & HV aerial bunched cables, LV communication cables, LV Control Cables, Solar Cables, EV Charging Cables, ACSR/ AA/AAA/ AL59 conductors, Medium Voltage Covered Conductors (MVCC), HTLS Conductors, Bare and insulated copper conductors. The company is also manufacturing and supplying the AL 59 type of conductors. Our products are type tested &

approved by globally recognized NABL Accredited testing laboratories such as CPRI, ERDA, RTRC & TAG CORPORATION. Our production facilities are ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified & products are CE certified.

On the business front, we are further strengthening our position In the Indian Market. We have established 6 strategically located marketing offices across India in New Delhi, Mumbai, Vadodara, Hyderabad, Bangalore & Kolkata. We are now exporting to 40 Countries in the Asian subcontinent, Africa, the USA, and the Middle East Dynamic Cables is continuously expanding its footprints in all sectors like - INDUSTRIAL, TURNKEY PROJECTS, POWER TRANSMISSION & DISTRIBUTION, INFRASTRUCTURE WORKS in India and abroad.

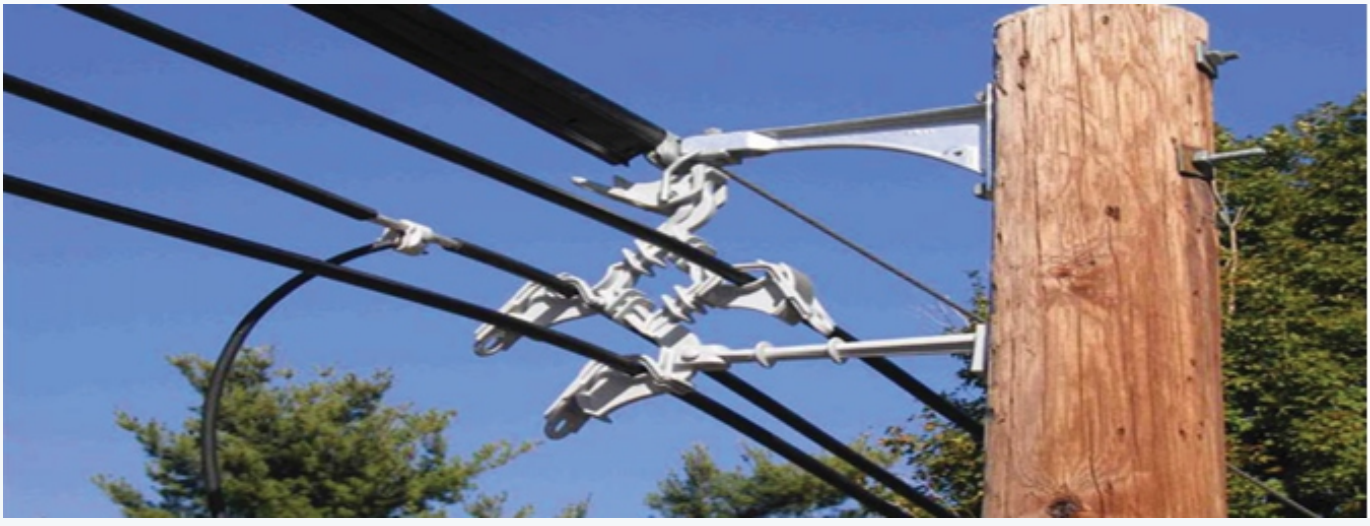
With 20% of the total turnover coming from exports, we are ever diligently working towards making investments in growing market segments in Europe and Latin America. Our major Indian Government clients include PGCIL, BHEL, BSES, Adani, Tata Power, Railways, Airport Authority of India, NTPC, MECON, IOCL, MSEDCL, MSETCL, KPTCL, UGVCL, MGVCL and majorly all state electricity boards in India. The notable overseas government clientele includes KPLC & REA - Kenya, TANESCO- Tanzania, EEP - Ethiopia, IDECO - Jordan, LEC - Liberia, EDM - Mozambique, NEA - Nepal, BPC- Bhutan & many more.

Our Indian EPC Clientele includes companies such as PEC Limited, Bajaj electrical, L&T, Transrail Lighting Limited, Voltas Ltd., Tata Projects, Hitachi, Adari ABB, Kalpataru power, Lucky Exports, Jaguar Overseas among many companies who are currently operating on projects in India & Overseas.

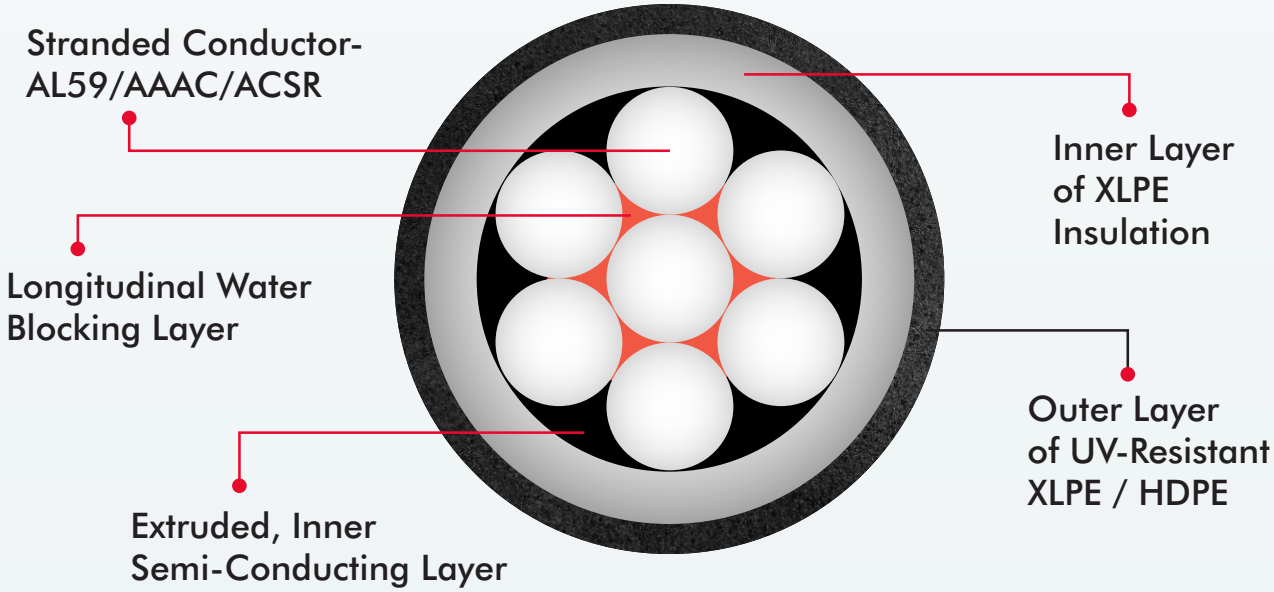
Medium Voltage Covered Conductor (MVCC)

INTRODUCTION

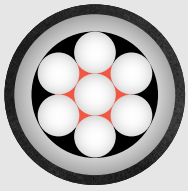
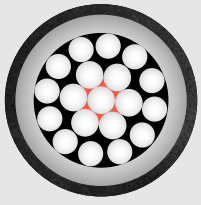
Medium Voltage Covered Conductors are developed to improve the reliability of the distribution of electricity. The concept of covered conductor has proven to be extremely functional and reliable. It consists of a conductor surrounded by a covering made of insulating material as protection against accidental contacts with other covered conductors and with grounded parts such as tree branches, etc. Medium voltage covered conductors are produced in voltage rating between 6.6KV to 33KV.The applicable standards for MVCC are IEC: 61089/ IS: 398 Part-II/ EN: 50182/50397-1:2006/ IS:398.



Cross Sectional Drawing



Technical Specifications of MVCC

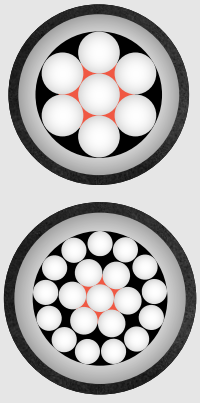
Type & Size	Options	Cross Sectional View
Medium Voltage Covered Conductor (MVCC) Upto 33KV, AL-59/ AAAC/ACSR MVCC as per EN-50397-I/ BSEN-50182/ IEC: 61089/ AS-NZS-3675/ IS 398 PART II PART IV/IEC 6/232/BSEN IEC 63248	Conductor- AL-59/AAAC/ACSR/AL59ACS (Watertight) Conductor Screen- Semi-Conductive Inner Covering- XLPE compound Outer Covering- Anti Tracking	AAAC. **Sizes:** 55, 80 and 100 mm2  AAAC. **Sizes:** 148, 173, 232,241 288 mm2 

Description	Unit	11KV_All Aluminum Alloy Medium Voltage Covered Conductor (MVCC) (Reference Standard - IS 398 Part 4 & EN 50397-1)						
Cross Section	Sqmm	55	80	100	148	173	232	241
Lay up of conductor	-	7 x 3.15	7 x 3.81	7 x 4.26	19 x 3.15	19 x 3.40	19 x 3.94	19 x 4.02
Conductor Diameter, Bare	mm	9.45	11.43	12.78	15.75	17.0	19.7	20.1
Inner Semi Conductive layer (Nom.)	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Inner Insulation (nom.)	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Outer UV-Resistant, Anti Tracking (Nom.)	mm	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Approx. Overall Diameter	mm	14.65	16.63	17.98	20.95	22.20	24.90	25.3
Rated Operating Voltage	KV	11	11	11	11	11	11	11
DC Resistance at 20'C (Max.)	Ohm/Km	0.621	0.425	0.339	0.229	0.1969	0.1471	0.1412
Current Carrying Capacity	A	188	237	271	345	378	451	462
Tensile Strength of Conductor (Min.)	KN	16.03	23.41	29.26	43.5	50.54	68.05	70.8

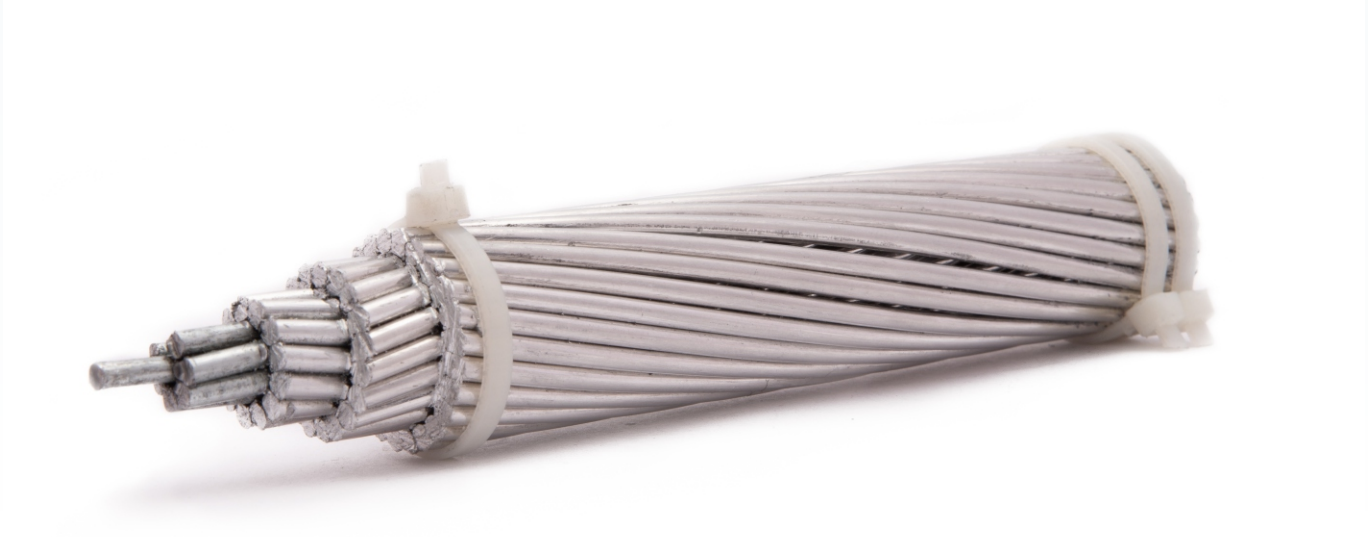
Description	Unit	33KV_All Aluminum Alloy Medium Voltage Covered Conductor (MVCC) (Reference Standard - IS 398 Part 4 & EN 50397-1)						
Cross Section	Sqmm	80	100	148	173	232	288	241
Lay up of conductor	-	7 x 3.81	7 x 4.26	19 x 3.15	19 x 3.40	19 x 3.94	37 x 3.15	19.4.02
Conductor Diameter, Bare	mm	11.43	12.78	15.75	17	19.7	22.05	20.1
Inner Semi Conductive layer (Nom.)	mm	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Inner Insulation (nom.)	mm	2.43	2.43	2.43	2.43	2.43	2.43	2.43
Outer UV-Resistant, Anti Tracking (Nom.)	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Approx. Overall Diameter	mm	19.49	20.84	23.81	25.06	27.76	30.11	28.2
Rated Operating Voltage	KV	33	33	33	33	33	33	33
DC Resistance at 20'C (Max.)	Ohm/Km	0.425	0.339	0.229	0.1969	0.1471	0.1182	0.1412
Current Carrying Capacity	A	237	271	345	378	451	515	462
Tensile Strength of Conductor (Min.)	KN	23.41	29.26	43.5	50.54	68.05	84.71	70.8

Technical Specifications of MVCC

Type & Size	Options	Cross Sectional View
Medium Voltage Covered Conductor (MVCC) Upto 33KV, AL-59/ AAAC/ACSR MVCC as per EN-50397-I/ BSEN-50182/ IEC: 61089/ AS-NZS-3675/ IS 398 PART II PART IV/IEC 6/232/BSEN IEC 63248	Conductor- AL-59/AAAC/ACSR/AL59ACS (Watertight) Conductor Screen- Semi-Conductive Inner Covering- XLPE compound Outer Covering- Anti Tracking	**AL-59-ACS Sizes:** 31.6,52.88,78.82, 104.98mm^2 **AL-59-ACS Sizes:** 102,160,241mm^2

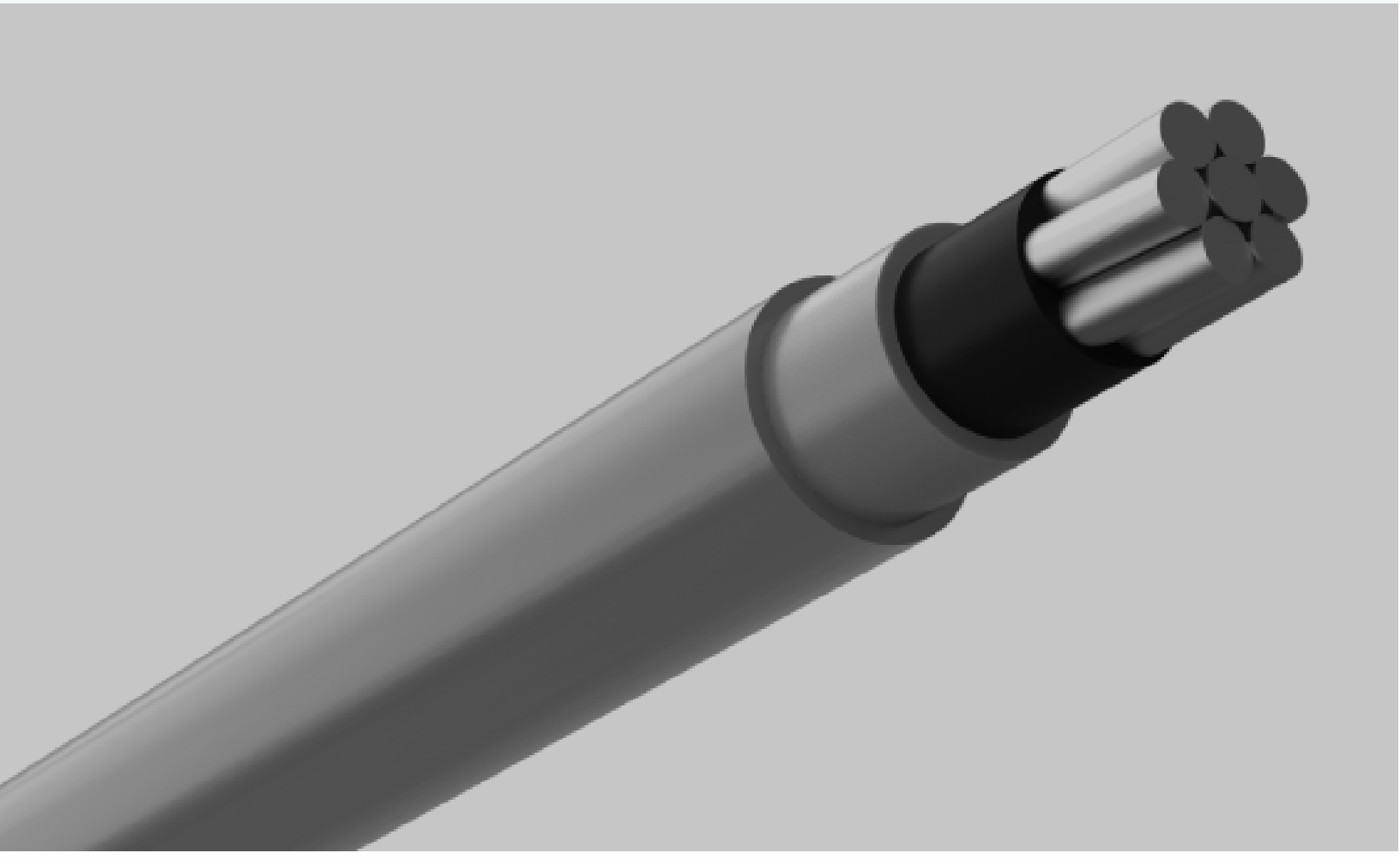


Description	Unit	11KV_AL-59 - ACS Medium Voltage Covered Conductor (MVCC)						
Cross Section	Sqmm	31.6	52.88	78.82	104.98	120	160	241
No. of Wires/ Diameter - AL-59 Wires	Nos./mm	6 / 2.59	6 / 3.35	6 / 4.09	6 / 4.72	26 / 2.44	30 / 2.59	30 / 3.20
No. of Wires/ Diameter - ACS Wires	Nos./mm	1 / 2.59	1 / 3.35	1 / 4.09	1 / 4.72	7 / 1.90	7 / 2.59	7 / 3.20
Conductor Diameter, Bare	mm	7.77	10.05	12.27	14.16	15.46	18.13	22.40
Inner Semi Conductive layer (Nom.)	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Inner Insulation (nom.)	mm	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Outer UV-Resistant, Anti Tracking (Nom.)	mm	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Approx. Overall Diameter	mm	13.0	15.3	17.5	19.4	20.7	23.3	27.6
Rated Operating Voltage	KV	11	11	11	11	11	11	11
DC Resistance at 20'C (Max.)	Ohm/Km	0.923	0.551	0.370	0.278	0.239	0.180	0.118
Tensile Strength of Conductor (Min.)	A	155	215	278	335	383	445	630
Tensile Strength of Conductor (Min.)	KN	14.23	23.62	32.58	41.64	52.69	81.7	120



Technical Specifications of MVCC

Description	Unit	33KV_AL-59 - ACS Medium Voltage Covered Conductor (MVCC)				
Cross Section	Sqmm	78.82	104.98	120	160	241
No. of Wires/ Diameter - AL-59 Wires	Nos./mm	6 / 4.09	6 / 4.72	26 / 2.44	30 / 2.59	30 / 3.20
No. of Wires/ Diameter - ACS Wires	Nos./mm	1 / 4.09	1 / 4.72	7 / 1.90	7 / 2.59	7 / 3.20
Conductor Diameter, Bare	mm	12.27	14.16	15.46	18.13	22.40
Inner Semi Conductive layer (Nom.)	mm	0.4	0.4	0.4	0.4	0.4
Inner Insulation (nom.)	mm	2.43	2.43	2.43	2.43	2.43
Outer UV-Resistant, Anti Tracking (Nom.)	mm	1.2	1.2	1.2	1.2	1.2
Approx. Overall Diameter	mm	20.3	22.2	23.5	26.2	30.5
Rated Operating Voltage	KV	33	33	33	33	33
DC Resistance at 20'C (Max.)	Ohm/Km	0.370	0.278	0.239	0.180	0.118
Current Carrying Capacity	A	278	335	383	445	630
Tensile Strength of Conductor (Min.)	KN	32.58	41.64	52.69	81.7	120



Benefits of MVCC over Bare Conductor

Application	MVCC	Bare Conductor
Reduced Conductor Slashing	Yes	No
Reduced right of way	Yes	No
Reduce power interruptions and outage	Yes	No
Interruptions by contact of tree branches or creepers	No	Yes
Operation and maintenance cost	Low	High
Faults due to clashing of phase conductors during wind and stormy conditions	No	Yes
Reliability under bad weather conditions	More Reliable	Less Reliable
Protection of big sizes birds & Animal	High Level Protection	No Protection
Effectiveness in difficult terrain and in high densely populated areas	Highly Effective	Less Effective
Installation in forest areas	Ideal	Not Ideal
Safety	Highly Safe	Safety on Risk
Electromagnetic field effect	Very Low	High
Frequent Break downs due to high velocity wind and Forest fire/ bush fire	No	Yes
space requirement for erection and operations	Very Low Space	High Space

AL59 ACS
COVERED CONDUCTOR

Covered Conductors (as per EN 50397-1:2006) is widely accepted and installed in various DESCOMs of India who are using the AAAC/ACSR Covered conductors and Dynamic is regularly supplying them either directly/or through EPC our 11KV and 33KV AAAC/ACSR covered conductors.

This solution is working perfectly and satisfactory in Gujarat, Sikkim, Assam and is now under procurement process under the RDSS scheme with many utilities in India.

Working on our mission "Bringing energy to your doorstep" Dynamic is offering High Current carrying capacity and low resistivity Covered Conductor AL59 ACS tested by **CPRI.**

STANDARDS USED: SS: 424 08 13, SS: 424 08 14, IEC 61232, EN 50397-1:2006, EN 50182

BENEFITS OF AL59 ACS COVERED CONDUCTOR

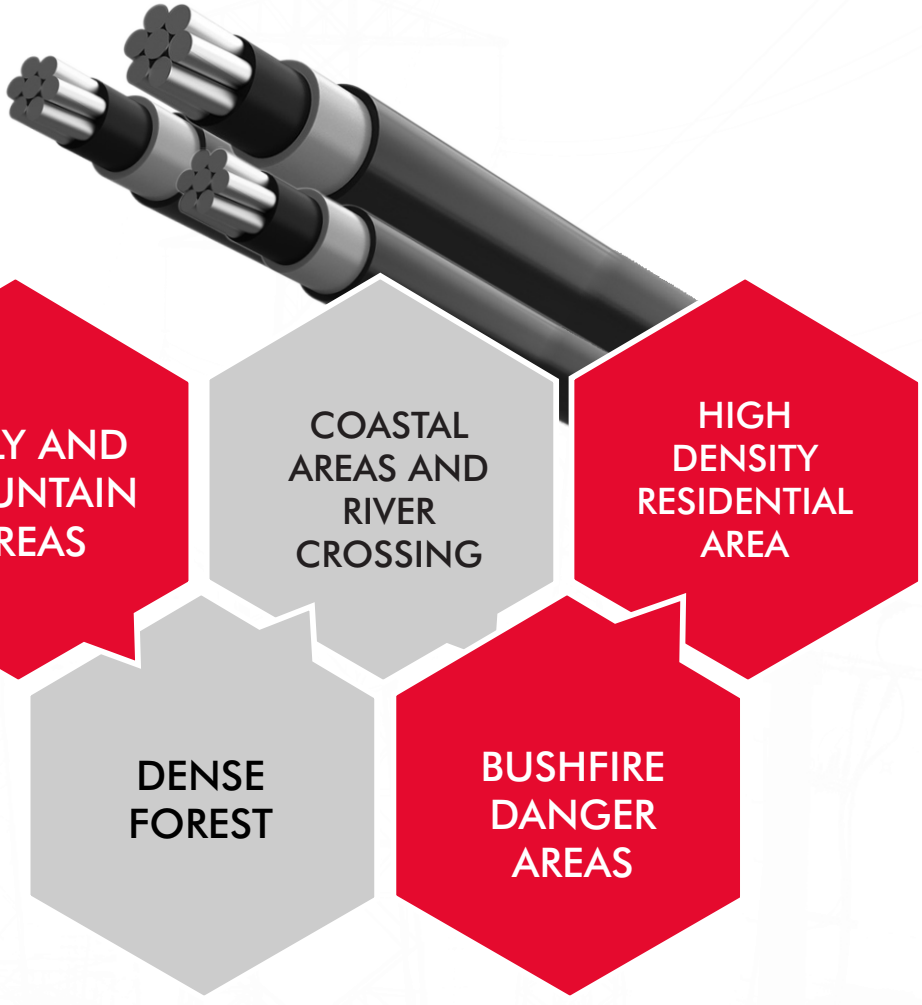
1. 15% to 20% more ampacity with the same sag & less working tension as compared to ACSR
2. Better Mechanical Properties
3. Better Electrical Properties
4. Better Resistance to Corrosion
5. Improved Sag
6. Economically Suitable, Low resistivity in comparison of AAAC, hence lower losses
7. Better Strength for the longer Spans + can be string up to 60 Mtrs, hence saving of No. of poles in the network
8. Better Strength for the longer Spans + can be string up to 60 Mtrs, hence saving of No. of poles in the network
9. Outer Layer: XLPE UV and Track Protected
10. Temperature: Threshold temperature up to 105·C
11. Lower cross-section, reduced diameter and weight make it easy to handle and installation
12. Higher mechanical stress can reduce the SAG, by maintaining the F.O.S at Pole during stringing

Relevancy of MVCC

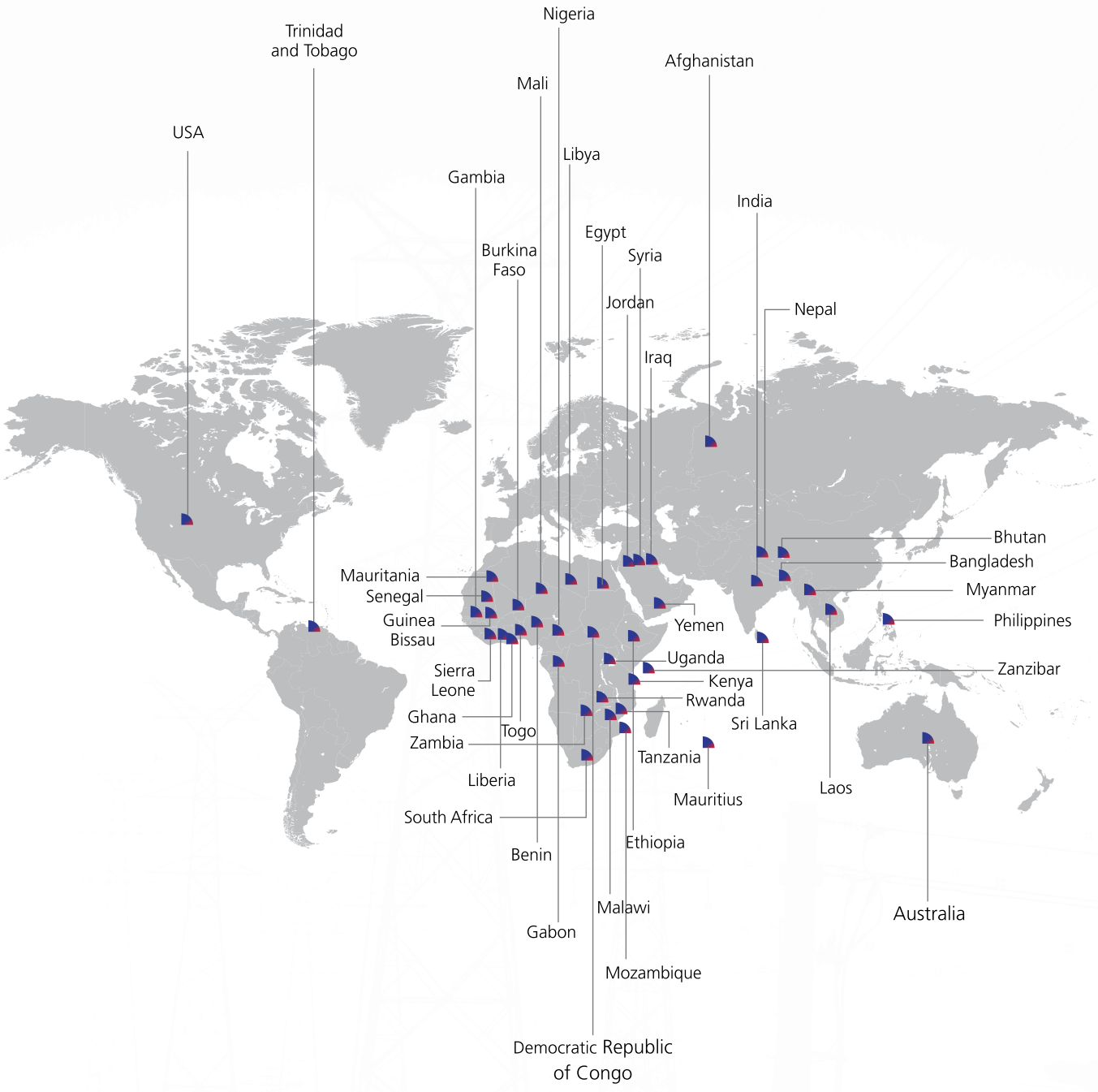
Conductor (MVCC) is becoming as one of the best replacements of Over Head Bare Conductor (ACSR) and Aerial Bunched cable in power transmission and distribution system in some part of the world. The uses of Covered Conductor which is similar like SABC (Space Aerial Bunch Cables) are seen in South Korea, Japan, Iran, Myanmar and some parts of Australia. It has witnessed a very successful journey so far.

- Covered Conductor is extensively used in voltage up gradation projects ranging between 6.6KV to 33 KV.
- Covered Conductors can function smoothly with conductor temperature up to 90ºC and in corrosive and highly polluted area.
- The outer jackets of covered conductors being Abrasion and Impact resistant, Stress crack resistant, Track Resistant & UV resistant. Can be used in high UV radiation areas.

Where we can use the MVCC



OUR GLOBAL FOOTPRINTS



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