



# LSCC

Low Sag Composite-core Conductor



# LSCC - Low Sag Composite-core Conductor



## Application

LSCC (Low Sag Composite-core Conductor) is used for both new transmission lines with fewer towers or longer spans and up-rating an existing transmission lines by replacing the existing conductor without tower modification or reinforcement.

## Construction

- Stranded conductor based on ASTM B 857 and EN 50182
- Aluminum-covered carbon fiber composite-core based on ASTM B 987
- Aluminum wire with trapezoidal shape based on ASTM B 609

### Aluminum-covered Carbon Fiber Composite-core

- Extra high tensile strength, low thermal expansion and light weight
- Galvanic protection
- Stable protection of composite-core from various environment conditions
- More current carrying capacity
- Less electrical resistance (low line losses)

### Aluminum wire with trapezoidal shape

- High conductivity (63% IACS)



### Capacity Upgrading

LSCC offers double current capacity compared to the same diameter of the conventional conductor. In addition, the extra high tensile strength and low thermal expansion coefficient of LSCC provides utilities with excellent sag tension properties for both new and existing overhead transmission lines.

### Long Term Reliability

Carbon fiber composite-core is fully covered with aluminum layer as a hybrid polymer and metallic composite-core. Aluminum layer can provide protection against mechanical forces, corrosion and extreme high temperature etc.

### Reduced Line Loss

Line loss for the transmission lines with LSCC can be reduced by approximately 30% compared to the conventional conductor, because cross-sectional area and conductivity of aluminum are higher than that of the conventional conductor.

### Hardware Fittings & Installation

Hardware fittings of LSCC including dead-end clamp are similar to that of the conventional conductor. In addition, installation method and procedure of the conventional conductor can be used for the installation of LSCC. During the installation, LS Cable & System as a total solution provider can provide a supervisor to assist the installation work.

## Value of Line Loss Reduction

Type	Conductor	Amps (A)	Temp. at Amps (°C)	Load Factor	MVA	Annual Line Losses (MWh)	Line Loss Reduction (MWh)
New Transmission Line	ACSR	1,000	91	53%	398	106,008	-
	LL-ACSR	1,000	81	53%	398	84,601	21,408
	<b>LSCC</b>	<b>1,000</b>	<b>77</b>	<b>53%</b>	<b>398</b>	<b>75,557</b>	<b>30,451</b>
Up-rating an Existing Transmission Line	ACSS	1,600	190	53%	637	342,597	-
	Existing Composite Core Conductor	1,600	151	53%	637	240,903	101,694
	<b>LSCC</b>	<b>1,600</b>	<b>150</b>	<b>53%</b>	<b>637</b>	<b>238,851</b>	<b>103,746</b>

\* 230kV Line, route length 100km, Drake equivalent conductors  
 \* Ambient temp.: 30°C, Wind speed : 0.61 m/s, Emissivity : 0.5, Solar absorption : 0.5  
 \* LL-ACSR : Low Loss ACSR, ACSS : Aluminum Conductor Steel Supported

## Type Test Certificate (Kinetrics/Canada)



\* Type Test conducted according to CIGRE 426, IEEE 1138, IEC 61089, IEC 61395, ASTM B987 and ASTM B193





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