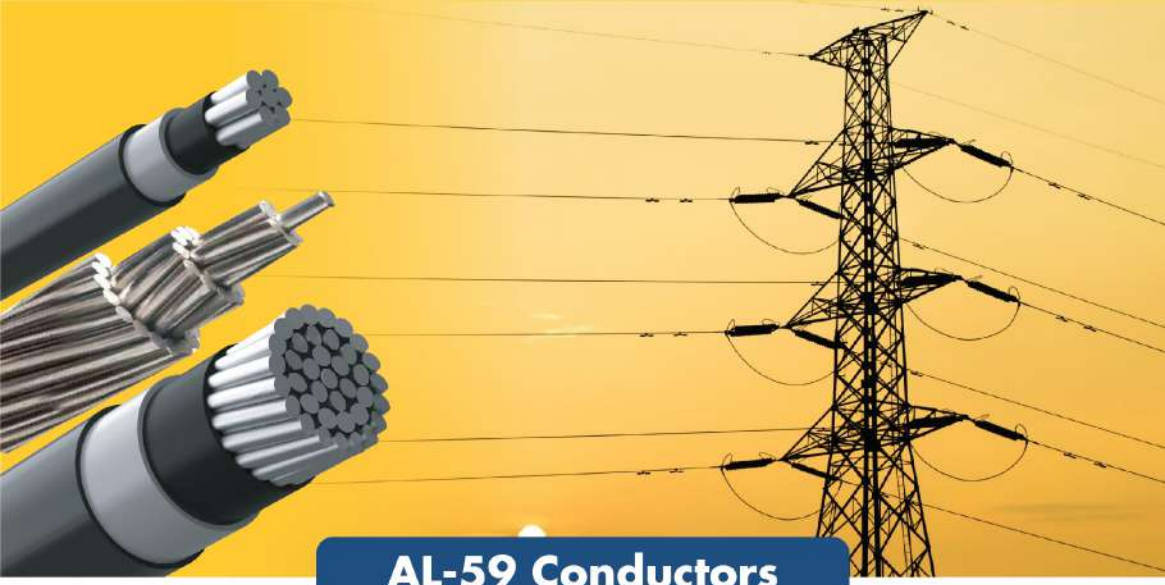

AL-59 Conductors

After pioneering the manufacturing of **ACSR Conductors, Aerial Bunched (ABC) Cables, and Medium Voltage XLPE Covered Conductors,** Litmus has now introduced **AL-59 conductors** in Nepal.

AL-59 conductor is an aluminium alloy conductor composed of Al-Mg-Si (aluminium-magnesium-silicon), designed for overhead power transmission and distribution lines. The resulting conductor is lightweight and strong, ensuring high electrical conductivity. Its advanced composition enhances efficiency, reduces energy losses, and provides exceptional durability.

Applications:

- High-voltage transmission lines (132 kV, 220 kV, 400 kV).
- Long-span river crossings and hilly terrains.
- Upgrading existing ACSR lines for better efficiency.

Product Type:

- Al 59 overhead Bare conductor
- Al 59 Covered conductor

FEATURES:

Lightweight yet high-strength design ideal for long-distance power transmission, reducing load on towers and poles. Offers superior electrical conductivity with minimal loss compared to pure aluminium. Excellent corrosion resistance in humid and harsh climates, minimizing maintenance and replacement needs. Cost-effective solution for transmission lines without sacrificing performance or durability.

Technical Specification

AL 59 ALLOY CONDUCTOR - AS PER IS 398 (PART - VI)						
NOMINAL ALUMINIUM AREA	STRANDING		Overall Dia. (mm) (Approx.)	CONDUCTOR WEIGHT kg/km	RESISTANCE AT 20 DEG C	ULTIMATE BREAKING LOAD (KN)
	NO. OF WIRES	WIRE DIAMETER (mm)			OHMS/KM	
15	3	2.5	5.39	40.15	1.992	3.5
22	7	2	6	60.15	1.3379	5.2
34	7	2.5	7.5	93.98	0.8563	8.2
80	7	3.81	11.43	218.28	0.3687	18.2
100	7	4.26	12.78	272.88	0.2949	21.8
125	19	2.89	14.45	342.55	0.2372	29.6
173	19	3.4	17	474.09	0.1714	41
200	19	3.66	18.3	549.39	0.1479	45.6
276	37	3.08	21.56	759.2	0.1075	65.47
454	61	3.08	27.72	1254.34	0.0653	108
484	61	3.18	28.62	1337	0.0613	115.1
525	61	3.31	29.79	1448.61	0.0566	124.7
554	61	3.4	30.6	1528.44	0.0536	131.53
594	61	3.52	31.7	1638.23	0.0501	135.4
642	61	3.66	32.94	1771.16	0.0463	146.4
695	61	3.81	34.29	1919.3	0.0427	158.6
774	61	4.02	36.18	2136.69	0.0384	169.17

Comparison between AL-59 & ACSR conductor

Features	AL-59	ACSR
Material	Special Al-Mg-Si alloy (no steel core)	Aluminium strands over a galvanised steel core
Strength	Higher than AAC, but less than steel-reinforced ACSR	Very high due to the steel core
Current Carrying Capacity	Higher than ACSR of the same size (≈26–31% more)	Lower compared to AL-59 of the same size
Losses	Minimal losses (higher efficiency)	Higher losses than AL-59
Corrosion Resistance	Excellent (no steel, so no galvanic corrosion)	Prone to corrosion at the aluminium–steel interface
Weight	Lighter	Heavier (due to steel core)
Sag Characteristics	~8% less sag than ACSR (alloy resists elongation better)	More sag at high temperatures
Cost	If valued for better performance, especially in high-load, long-span, or corrosive environments, AL-59 offers more economic benefits over time	If the lowest initial cost is the priority, ACSR is cheaper per kilometre.