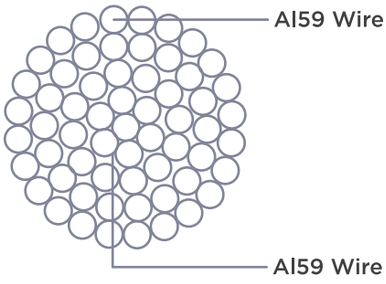
# STER-AL59™

These are homogenous alloy conductors of Aluminium + Magnesium + Silica Alloy type. These conductors have a conductivity of 59% and hence have lesser DC resistance and higher current carrying capacity.




## APPLICATION

Al59 alloy conductors are used in power transmission and distribution lines for a wide voltage range (low to ultra-high voltage). These conductors have higher current carrying capacity and lower losses due to DC resistance. Al59 conductors have high corrosion resistance, making them most suited for deployment in coastal regions.

## BENEFITS

- 26%-31% more current carrying capacity than ACSR of the same size, while maximum sag remains the same and working tension is lesser than that of ACSR.
- Resistivity is substantially lesser than that of ACSR/AAAC conductors, resulting in lower $I^2R$ losses.
- Higher corrosion resistance than 6201 alloy series (AAAC).

## TECHNICAL SPECIFICATIONS

| PROPERTIES | AL59 (ACSR MOOSE EQUIVALENT) | | AL59 (ACSR ZEBRA EQUIVALENT | | AL59 (ACSR PANTHER EQUIVALENT) | |
|---|---|---|---|---|---|---|
| Typical factors | 3.50 mm | 0.1378 in | 3.18 mm | 0.1252 in | 3.00 mm | 0.1181 in |
| Reference specifications | SS 4240814 | | SS 4240814 | | SS 4240814 | |
| Total cross section area | 587.00 $mm^2$ | 0.9099 $in^2$ | 484.25 $mm^2$ | 0.7506 $in^2$ | 261.50 $mm^2$ | 0.4053 $in^2$ |
| Conductive wire | Al59 | | Al59 | | Al59 | |
| Core wire | Al59 | | Al59 | | Al59 | |
| Conductor diameter | 31.50 mm | 1.2402 in | 28.62 mm | 1.1268 in | 21.00 mm | 0.8268 in |
| Weight | 1618 kg/gm | 1087.2 lbs/mile | 1336 kg/km | 897.8 lbs/mile | 720 kg/km | 483.8 lbs/mile |
| Ultimate tensile strength | 14350 kg | 31636.3 lbs | 12340 kg | 27205.01 lbs | 6661 kgf | 14684.97 lbs |
| DC resistance at 20°C temperature | 0.05 Ω/km | 0.08 Ω/mile | 0.06 Ω/km | 0.10 Ω/mile | 0.11 Ω/km | 0.18 Ω/mile |
| Maximum operating temperature | 95°C | 203°F | 95°C | 203°F | 95°C | 203°F |
| Current carrying capacity at maximum operating temperature | 1094 Amp | | 958 Amp | | 654 Amp | |

*Assumptions: Ampacity is calculated based on, 45°C (113°F) ambient temperature, 0.6 m/s wind velocity, 0.5 as coefficient of solar absorption, 0.6 as coefficient of emmisivity and 1200 wt/sqm coefficient for solar radiation, at sea level.*