

STER-ACSR™

Aluminium Conductors Steel Reinforced (ACSR), also known as Bare aluminium conductors, are one of the most widely used conductors for transmission. The conductor consists of one or more layers of aluminium wires stranded over a high strength steel core that can be single or multiple strands depending on the requirement. There can be various stranding combinations of Al and steel wires lending flexibility to obtain suitable current carrying capacity and mechanical strength for the application.

APPLICATION

Overhead T&D lines-MV, HV & EHV (11 kV to 800 kV Lines).

ADVANTAGES

Its low weight combined with high tensile strength allows larger span runs. Electrical losses by corona effect are greatly reduced, due to the larger diameter size. Economical transmission and distribution of electrical energy can be achieved by ACSR, at very high voltages and distances.

MANUFACTURING CAPABILITY

| SR. NO. | DESCRIPTION | RANGE | |
|---------|---------------------------|--|--|
| 01 | Conductor Area | 10.6 mm ² to 1393 mm ² | 0.0164 in ² to 2.1592 in ² |
| 02 | Conductor construction | 6A/ 1 Steel to 84Al/19 Steel | |
| 03 | Conductivity of Aluminium | 61% | |

PHYSICAL PROPERTIES

At a temperature of 20°C (68°F), the density of hard-drawn aluminium has been taken as 2.703 g/cm³ (168.74 lb/cf) and for steel wire 7.78 g/cm³ (485.69 lb/cf).

| SR. NO. | CONDUCTOR CONSTRUCTION | MODULUS OF ELASTICITY* | | LINEAR COEFFICIENT* | |
|---------|------------------------|------------------------|-------|-------------------------|-------------------------|
| | | MPA | KSI | /°C | /°F |
| 01 | 6Al/1Steel | 81000 | 11748 | 19.2 X 10 ⁻⁶ | 10.7 X 10 ⁻⁶ |
| 02 | 6Al/7Steel | 75000 | 10878 | 19.8 X 10 ⁻⁶ | 11.0 X 10 ⁻⁶ |
| 03 | 12Al/7Steel | 107000 | 15519 | 15.3 X 10 ⁻⁶ | 8.5 X 10 ⁻⁶ |
| 04 | 18Al/1Steel | 66000 | 9572 | 21.2 X 10 ⁻⁶ | 11.8 X 10 ⁻⁶ |
| 05 | 24Al/7Steel | 74000 | 10733 | 19.4 X 10 ⁻⁶ | 10.8 X 10 ⁻⁶ |
| 06 | 26Al/7Steel | 77000 | 11168 | 18.9 X 10 ⁻⁶ | 10.5 X 10 ⁻⁶ |
| 07 | 30Al/7Steel | 82000 | 11893 | 17.8 X 10 ⁻⁶ | 9.9 X 10 ⁻⁶ |
| 08 | 26Al/19Steel | 76000 | 11023 | 19.0 X 10 ⁻⁶ | 10.5 X 10 ⁻⁶ |
| 09 | 30Al/19Steel | 81000 | 11748 | 17.9 X 10 ⁻⁶ | 9.9 X 10 ⁻⁶ |
| 10 | 42Al/1Steel | 60000 | 8702 | 21.2 X 10 ⁻⁶ | 11.8 X 10 ⁻⁶ |

| SR. NO. | CONDUCTOR CONSTRUCTION | MODULUS OF ELASTICITY* | | LINEAR COEFFICIENT* | |
|---------|------------------------|------------------------|-------|-------------------------|-------------------------|
| | | MPA | KSI | /°C | /°F |
| 11 | 45Al/7Steel | 61000 | 8847 | 20.9 X 10 ⁻⁶ | 11.6 X 10 ⁻⁶ |
| 12 | 48Al/7Steel | 62000 | 8992 | 20.5 X 10 ⁻⁶ | 11.4 X 10 ⁻⁶ |
| 13 | 54Al/7Steel | 70000 | 10153 | 19.3 X 10 ⁻⁶ | 10.7 X 10 ⁻⁶ |
| 14 | 54Al/19Steel | 68000 | 9863 | 19.4 X 10 ⁻⁶ | 10.8 X 10 ⁻⁶ |
| 15 | 84Al/7Steel | 65000 | 9427 | 20.1 X 10 ⁻⁶ | 11.1 X 10 ⁻⁶ |
| 16 | 84Al/19Steel | 64000 | 9282 | 20.0 X 10 ⁻⁶ | 11.1 X 10 ⁻⁶ |

| SR. NO. | DESCRIPTION | RANGE | |
|---------|--|-------|-------|
| 01 | Permissible Temp in continuous operation | 85°C | 185°F |
| 02 | Temp in a short circuit (duration up to 5 s) | 200°C | 392°F |

STANDARDS

IEC, BS, ASTM, CAN-CSA, DIN, IS, AS and relevant national and international standards.