

# 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 a one or more layers of aluminium wires stranded over a high strength steel core. The core can be single or multiple strands depending on the application or requirement. There can be various stranding combinations of Al and steel wires giving flexibility to obtain the suitable current carrying capacity and mechanical strength based on the application.

## Advantages

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

## Applications

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

## Manufacturing Capability

Sr. No	Description	Range
1	Conductor Area	10.6 mm <sup>2</sup> to 1393 mm <sup>2</sup>   0.0164 in <sup>2</sup> to 2.1592 in <sup>2</sup>
2	Conductor Construction	6Al/1Steel to 84Al/19Steel
3	Conductor of Aluminum	61%

## Physical Properties

At a temperature of 20°C (68°F), the density of hard-drawn aluminum has been taken as 2.703 g/cm<sup>3</sup> (168.74 lb/cf) and for steel wire 7.78 g/cm<sup>3</sup> (485.69 lb/cf)

Sr. No	Conductor Construction	Modulus of elasticity*		Linear Coefficient*	
		Mpa	ksi	/°C	/°F
1	6Al/1Steel	81000	11748	19.2 X 10 <sup>-6</sup>	10.7 X 10 <sup>-6</sup>
2	6Al/7Steel	75000	10878	19.8 X 10 <sup>-6</sup>	11.0 X 10 <sup>-6</sup>
3	12Al/7Steel	107000	15519	15.3 X 10 <sup>-6</sup>	8.5 X 10 <sup>-6</sup>
4	18Al/1Steel	66000	9572	21.2 X 10 <sup>-6</sup>	11.8 X 10 <sup>-6</sup>
5	24Al/7Steel	74000	10733	19.4 X 10 <sup>-6</sup>	10.8 X 10 <sup>-6</sup>
6	26Al/7Steel	77000	11168	18.9 X 10 <sup>-6</sup>	10.5 X 10 <sup>-6</sup>
7	30Al/7Steel	82000	11893	17.8 X 10 <sup>-6</sup>	9.9 X 10 <sup>-6</sup>
8	26Al/19Steel	76000	11023	19.0 X 10 <sup>-6</sup>	10.5 X 10 <sup>-6</sup>
9	30Al/19Steel	81000	11748	17.9 X 10 <sup>-6</sup>	9.9 X 10 <sup>-6</sup>
10	42Al/7Steel	60000	8702	21.2 X 10 <sup>-6</sup>	11.8 X 10 <sup>-6</sup>
11	45Al/7Steel	61000	8847	20.9 X 10 <sup>-6</sup>	11.6 X 10 <sup>-6</sup>
12	48Al/7Steel	62000	8992	20.5 X 10 <sup>-6</sup>	11.4 X 10 <sup>-6</sup>
13	54Al/7Steel	70000	10153	19.3 X 10 <sup>-6</sup>	10.7 X 10 <sup>-6</sup>
14	54Al/19steel	68000	9863	19.4 X 10 <sup>-6</sup>	10.8 X 10 <sup>-6</sup>
15	84Al/7steel	65000	9427	20.1 X 10 <sup>-6</sup>	11.1 X 10 <sup>-6</sup>
16	84Al/19steel	64000	9282	20.0 X 10 <sup>-6</sup>	11.1 X 10 <sup>-6</sup>

Sr. No.	Description	Range	
1	Permissible Temp in continuous operation	850C	1850F
2	Temp in a short circuit (duration up to 5 s)	2000C	3920F

## Standards –

IEC, BS, ASTM, CAN-CSA, DIN, IS, AS and relevant National and International standards.