

STER-AAAC™

AAAC (All Aluminium Alloy Conductors)-Several layers of aluminium alloy (generally Al-Mg-Si) stranded in concentric layers. Designed using a high strength aluminium alloy to achieve a high strength-to-weight ratio; affords better sag characteristics.

APPLICATION

All Aluminium Alloy Conductors (AAAC) are extensively used for primary and secondary transmission in bare overhead distribution and transmission lines (11 kV to 800 kV lines) and HV substations. Also, usable in highly polluted industrial areas and coastal regions due to corrosion resistance.

ADVANTAGES

AAAC has good corrosion resistance, however due to the absence of steel, its resistance is lower than ACSR. AAAC can carry 15-20% extra current and has a higher life span (60 years) as compared to ACSR of equal size (30 years). The surface hardness of AAAC is 80 BHN while ACSR has hardness 35 BHN. This reduces damage to the surface during handling, thereby leading to lesser corona losses and ratio interference at EHV. AAAC can be operated with stable temperature of 85°C against ACSR conductors which are stable upto 75°C. Since AAAC has higher strength-to-weight ratio, span can be increased by 2-15% resulting in overall reduction of cost in tower supports and other accessories in the transmission line system.

MANUFACTURING CAPABILITY

SR. NO.	DESCRIPTION	RANGE	
01	Conductor Area	10.6 mm ² to 1095 mm ²	0.0164 in ² 1.6973 in ²
02	Conductor construction	7Al Alloy to 91 Al Alloy	
03	Conductivity of Aluminium	52.5% to 53%	

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).

SR. NO.	CONDUCTOR CONSTRUCTION	MODULUS OF ELASTISITY*		LINEAR COEFFICIENT*	
		MPA	KSI	/°C	/°F
01	7 Strands	62000	8992	23.0 X 10 ⁻⁶	12.8 X 10 ⁻⁶
02	19 Strands	60000	8702	23.0 X 10 ⁻⁶	12.8 X 10 ⁻⁶
03	37 Strands	57000	8267	23.0 X 10 ⁻⁶	12.8 X 10 ⁻⁶
04	61 Strands	55000	7977	23.0 X 10 ⁻⁶	12.8 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.