

STER-ACAR™

Aluminium Conductor Alloy reinforced (ACAR) is formed by concentrically stranded wires of Aluminium 1350 and high strength Aluminium-Magnesium-Silicon (AlMgSi) alloy core. The number of wires of each depends on the cable design. The typical design comprises a stranded core of AlMgSi alloy strands but in certain cable constructions, the wires of AlMgSi alloy strands can be in layers throughout the Aluminium 1350 strands.

APPLICATION

Aluminium Conductors Alloy Reinforced (ACAR) are extensively used for overhead distribution and transmission lines.

ADVANTAGES

ACAR has better mechanical and electrical properties as compared to an equivalent ACSR, AAC or AAAC. A very good balance between mechanical & electrical properties makes ACAR the best choice where ampacity, strength and low weight are main consideration for line design. ACAR offers higher strength and ampacity than ACSR of same weight. A higher UTS and current carrying capacity can be obtained by increasing aluminium alloy and aluminum content respectively.

MANUFACTURING CAPABILITY

SR. NO.	DESCRIPTION	RANGE	
01	Conductor Area	10.6 mm ² to 1520 mm ²	0.0164 in ² to 2.356 in ²
02	Conductor construction	4Al/3Al Alloy to 72Al/19 Al Alloy	
03	Conductivity of Aluminium	61%	
04	Conductivity of Al Alloy	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) and aluminium alloy wires 2.70 g/cm³ (168.56 lb/cf)

SR. NO.	CONDUCTOR CONSTRUCTION	MODULUS OF ELASTICIITY*		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.