


TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

**STANDARDISED GUARANTEED TECHNICAL PARTICULARS FOR AL-59 CONDUCTOR
(EQUIVALENT DIAMETER OF PANTHER ACSR CONDUCTOR)**

Sl. No	Description	Units	Details for AL - 59 conductor (37/3.00).
1	Standard according to which the conductor will be manufactured and tested. However if any amendments are there they shall also to be taken into consideration.	-	SS 42 40814 & 42 40813 SS
	The type tests should have been conducted not earlier than 5 years in the Standard third party laboratory. The Manufacturer shall produce the type test reports at the time of acceptance tests.		
2	Quality of material & standard to which conform	-	SS 42 40814 & 42 40813 SS and BIS
	The Manufacturer shall produce the valid BIS certification at the time of acceptance tests.		
3	Number of strands		
	a) AL-59	Nos	37
4	I) Diameter of Strands (AL-59)		
	a) Nominal	mm	3.00
	b) Maximum	mm	3.03
	c) Minimum	mm	2.97
	II) Overall diameter of Conductor	mm	21.00
5	Cross Sectional Area of		
	a) Whole Conductor	Sq mm	261.5
	b) Each Strand	Sq mm	7.069
6	Purity of Aluminium rods - min	%	99.6
7	Number of Strands		
	a) Centre wire (AL-59)	Nos	1
	b) First Layer (AL-59)	Nos	6
	c) Second Layer (AL-59)	Nos	12
	d) Third Layer (AL-59)	Nos	18
8	Weight of		
	a) Whole Conductor	Kg /Km	721
	b) Aluminium strand (At Nominal Dia.)	Kg /Km	19.11
9	Calculated D.C. resistance at 20 degC		
	a) Whole Conductor	Ohms / Km	0.1136
	b) Strands	Ohms / Km	3.25

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CHIEF ENGINEER / CONSTRUCTION-1
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10	Ultimate Tensile Strength		
	I) Whole Conductor	kgf	6647.00
	II) Min breaking load before stranding		
	a) AL-59 strand	kgf	180
	III) Min breaking load after stranding		
	a) AL-59 strand	kgf	171
11	Modulus of elasticity of		
	a) AL-59 strand	Kg/sq. cm.	10
	b) whole conductor	Kg/sq. cm.	57
12	Co-efficient of linear expansion per degree centigrade of		
	a) AL-59 strand	per deg. C	23.0×10^{-6}
	b) whole conductor	per deg. C	23.0×10^{-6}
13	Resistivity	Ohms Sq.mm / Mtr	Max.0.02930
14	a) Continuous maximum current rating of conductor in still air at ambient Temperature (90Deg.C)	Amp	642
	b) Temperature rise for the above 40 degree C		55
15	Lay Ratios		Min. Max.
	AL-59 : 1st Layer (6 Wires)		10 17
	AL-59 : 2nd Layer (12 Wires)		10 16
	AL-59 : 3rd Layer (18 Wires)		10 14
16	Maximum working tension.		70% of UTS of Conductor
17	Maximum single length of conductor which can be manufactured	KM	1.3
18	Tolerance, if any, on standard lengths.		± 5 %
19	No. of standard lengths in one reel.		1
20	Weight of the conductor in one reel	KG	937.3
21	Weight of the drum	KG	250 Kgs ± 5%


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22	Gross weight of the reel including weight of the conductor	KG	1187.3
23	Drum (Reel) details		
	a) Dimensions of the reel		IS 1778/1980
	b) Whether the drum on which the conductor is wound conforms to the specification		IS 1778/1980
	c) Other particulars, if any.	Company Name and other details are to be provided on the surface of drum as per the specification.	
24	Raw Materials are to be procured directly from the Primary Producers so as to ensure the quality of raw materials. The test certificates of raw materials and invoices shall be produced at the time of inspection.		
	a) AL-59 wire	Make : VEDANTHA /BALCO/HINDALCO / NALCO	
	Complete Conductor to be purchased directly from the conductor manufacturer only	As per the approved list of conductor Manufacturers indicated in the specification	
28	Important Packing & Markings: For the detailed package and markings please refer the specification.	Medium grade Kraft paper shall be used in between the layers of the conductor. After reeling the conductor, the exposed surface of the outer layer of conductor shall be wrapped with thin polythene sheet across the flanges to preserve the conductor from dirt, grit and damage during transportation and handling and also to prevent ingress of rain water during storage/transport.	
<div></div> <div>Standardised Guaranteed Technical Particulars for AL59 equivalent <u>DIA</u> of Panther ACSR Conductor. STD/GTP-DWG/Approval No. <u>4</u> / Revision No. <u>0</u> Prepared & Approved during October - 2011</div>			

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