

SPECIFICATION**For****ACSR/GA**

Aluminium Conductor Steel Reinforced

BY 

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Rev.	Date	Description
0	24/09/2019	Issued specification
1	19/2/2024	Update specification

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CUSTOMER

Customer Document	Rev.

Remark:

This document is based on the Customer Document for the structure and properties of electric wire and cable only. If there are different points, will be shown in deviation table.

1. Scope

This specification covers bare aluminium conductor steel reinforced to be used for overhead power transmission purposes.

The conductors shall be in accordance with ASTM B 232, Class AA.

(Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated-Steel Reinforced)

(Reference EGAT's specification No. 502 and No. 1001)

2. Component Wire

Aluminum wire :

The component wire shall be hard drawn aluminium wire for electrical purposes according to ASTM B 230.

The wire shall be clean, smooth and free from harmful defects.

Steel wire :

The component wire shall be galvanized round steel wire for general purposes.

The steel core wires shall meet all of the requirements of ASTM B498 specification for zinc-coated (galvanized) steel core wire for aluminium conductors, steel reinforced Class A coating (ACSR/GA)

The wire shall be clean, smooth and free from harmful defects.

3. Stranded conductor

The conductor shall be concentrically stranded uniformly and closely in the construction of a steel core aluminium conductor.

The direction of lay shall be right-hand (Z) lay in the outermost layer.

4. Test and Properties


The conductors shall meet the requirements in reference 1 when tested in accordance with ASTM B 232 and EGAT's specification No. 502 and No. 1001.

5. Packing

The conductor shall be placed on non-returnable wooden reels.

The reel shall be covered with suitable covering to provide the conductors with physical protection during transportation and during ordinary storage and handling operations.

Each reel shall be clearly marked as follows.

1. Designation "ACSR/GA"
2. Number of core and size of conductor
3. Conductor length
4. Net and gross weight
5. Manufacturer's name and/or trade mark "  "
6. Rolling direction of reel
7. Reel number and other suitable identification for reel and reel size
8. Date of manufacturer

Test and Inspection

Sample Tests

- Maximum conductor resistance, Ohm/km specified in Reference 1
- Construction..... specified in Reference 1

Definition concerning the tests

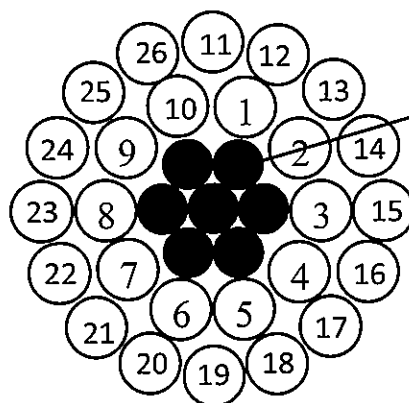
Routine tests: Tests made by the manufacturer on each manufactured length of cable to check that each length meets the specified requirements.

Sample tests: Tests made by the manufacturer on samples of completed cable or components taken from a completed cable, at a specified frequency, so as to verify that the finished product meets the specified requirements.

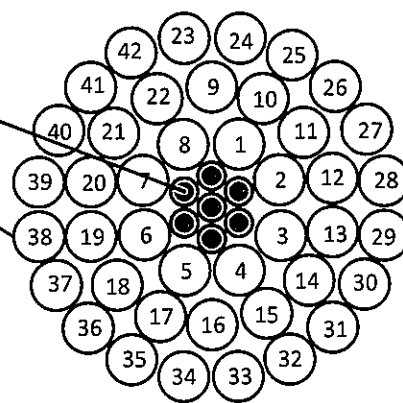
Type tests: Tests made before supplying, on a general commercial basis, a type of cable covered by this standard, in order to demonstrate satisfactory performance characteristics to meet the intended application.

Cable structure

Cross-sectional (Not scale)



Size 477 MCM



Size 795, 1272 MCM

No.	Structure	Material
1	Steel wire	Galvanized steel wire
2	Aluminium wire	Hard drawn aluminium wire

Application: For overhead transmission and distribution line

REFERENCE 1

ALUMINIUM CONDUCTOR STEEL REINFORCED

241.6/39.2 mm² (477 MCM (HAWK))

DESCRIPTION		SPECIFIED VALUE	
		Al.	Steel
1. Construction			
1. Number of wires	(No.)	26	7
2. Diameter and tolerance of component wire	(mm)	3.44±0.0344	2.675±0.051
3. Construction of conductor	(No./mm)	26/3.44	7/2.675
4. Calculated cross-sectional area	(mm ²)	241.6	39.2
5. Overall diameter of conductor	(mm)		21.81
6. Ultimate strength (Maximum tension)	(kgf)		8,860
not less than			
7. Ultimate tensile strength of aluminium average	(kg/mm ²)		17.58
not less than (before stranding)			
8. Ultimate tensile strength of steel not less than	(kg/mm ²)		144
(before stranding)			
9. D.C. Conductor resistance at 20°C (Max.)	(Ohm/km)		0.1193
10. Conductivity at 20°C (Min.)	(% IACS)		61
11. Approximate weight of conductor	(kg/km)		978
2. Packing details			
1. Packing length per reel	(m)		1,760
2. Net weight per reel (Approx.)	(kg)		1,720
3. Gross weight per reel (Approx.)	(kg)		2,080

REFERENCE 2

ALUMINIUM CONDUCTOR STEEL REINFORCED

404.1/20.7 mm² (795 MCM (230KV))

DESCRIPTION		SPECIFIED VALUE	
		Al.	Steel
1. Construction			
1. Number of wires	(No.)	42	7
2. Diameter and tolerance of component wire	(mm)	3.50±0.035	1.94±0.04
3. Construction of conductor	(No./mm)	42/3.50	7/1.94
4. Calculated cross-sectional area	(mm ²)	404.1	20.7
5. Overall diameter of conductor	(mm)		26.80
6. Ultimate strength (Maximum tension)	(kgf)		9,120
not less than			
7. Ultimate tensile strength of aluminium average	(kg/mm ²)		17.58
not less than (before stranding)			
8. Ultimate tensile strength of steel not less than	(kg/mm ²)		148
(before stranding)			
9. D.C. Conductor resistance at 20°C (Max.)	(Ohm/km)		0.0718
10. Conductivity at 20°C (Min.)	(% IACS)		61
11. Approximate weight of conductor	(kg/km)		1,274
2. Packing details			
1. Packing length per reel	(m)		1,800
2. Net weight per reel (Approx.)	(kg)		2,305
3. Gross weight per reel (Approx.)	(kg)		2,890

REFERENCE 3

ALUMINIUM CONDUCTOR STEEL REINFORCED

644.4/33.3 mm² (1272 MCM) (230KV)

DESCRIPTION		SPECIFIED VALUE	
		Al.	Steel
1. Construction			
1. Number of wires	(No.)	42	7
2. Diameter and tolerance of component wire	(mm)	4.42±0.0442	2.46±0.051
3. Construction of conductor	(No./mm)	42/4.42	7/2.46
4. Calculated cross-sectional area	(mm ²)	644.4	33.3
5. Overall diameter of conductor	(mm)		33.91
6. Ultimate strength (Maximum tension)	(kgf)		14,050
not less than			
7. Ultimate tensile strength of aluminium average	(kg/mm ²)		16.87
not less than (before stranding)			
8. Ultimate tensile strength of steel not less than	(kg/mm ²)		144
(before stranding)			
9. D.C. Conductor resistance at 20°C (Max.)	(Ohm/km)		0.0449
10. Conductivity at 20°C (Min.)	(% IACS)		61
11. Approximate weight of conductor	(kg/km)		2,040
2. Packing details			
1. Packing length per reel	(m)		1,140
2. Net weight per reel (Approx.)	(kg)		2,330
3. Gross weight per reel (Approx.)	(kg)		2,915