



## ZIMBABWE ELECTRICITY TRANSMISSION & DISTRIBUTION COMPANY

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OUR REF:..... FN/ec .....

YOUR REF .....

WHEN CALLING WITH REFERENCE  
TO THIS LETTER PLEASE ASK FOR

..... F. Nyamakambo.....

15 December 2022

**To All Bidders**

Dear Sir/Madam

### **ADDENDUM NO. 3 TO TENDER NO. ZETDC/INTER/16/2022 FOR THE SUPPLY AND DELIVERY OF CABLES AND CONDUCTORS**

The above subject matter refers.

Kindly find attached **Addendum No. 3** in response to query under ZETDC Clarification No. 2, raised by participating bidder for Tender No. ZETDC/INTER/16/2022 for the Supply and Delivery of Cables and Conductors.

Yours faithfully

**F. NYAMAKAMBO**  
**SUPPLY CHAIN MANAGER**

**ZETDC**



**DISTRIBUTION SERVICES DEPARTMENT**

**ZESA SPECIFICATION NO. DS2710202021HDA**

**SPECIFICATION FOR**

**HARD DRAWN ALUMINIUM CONDUCTOR**



## 1. SCOPE

This Specification covers the details of the hard drawn aluminium conductors for use on low voltage (230/400 volts) overhead lines.

## 2. PARTICULARS OF ELECTRICAL SYSTEM

The conductors shall be suitable for use on the following electrical system.

- a) outdoor, 3-phase
- b) Operated at 50 Hz variable between plus or minus 2.5%
- c) Directly Earthed
- d) Load currents up to 280 amps for 100 mm square HDA.
- e) Faults currents to 25kA

## 3. STANDARDS, UNITS AND LANGUAGE

All conductors supplied under this specification shall conform to the following standards (latest edition and any amendments):

- a) BS 215
- b) IEC 207
- c) IEC 1089
- d) IEC 889
- e) Any other standard provided the Tenderer can provide documentary evidence that the standard is equal to or better than the above standards.

All tenderer's correspondence and all descriptions upon drawings, illustrations or instructions shall be in the English language.

SI units of measurements shall be used throughout. The conductors shall be manufactured to high quality standards. The companies manufacturing the conductors shall have ISO 9001 Certification and shall submit documentary proof thereof.

The conductors shall be sourced from manufacturers who can document at least 10 years experience in manufacture of conductors and have supplied and/or manufactured at least 10 000 km of conductors. The supply record for the last 5 years shall be submitted with the bid.



#### 4. MECHANICAL AND ELECTRICAL CHARACTERISTICS

The required electrical and mechanical characteristics of conductor are as shown on table below.

##### HARD DRAWN ALUMINIUM CONDUCTORS

###### WASP

Item	Description	Unit	Requirement
1	Size		100
2	Code Name		WASP
3	Overall Diameter	mm	13.17
4	Stranding		7/4.39
5	Ultimate Tensile Strength	kGF	1632
6	Mass per km	kGF	290
7	(Maximum) AC Resistance at 20 <sup>0</sup> C	ohms	0.27
8	Overall Area	mm <sup>2</sup>	105.97

###### GNAT

Item	Description	Unit	Requirement
1	Size		25
2	Code Name		Gnat
3	Overall Diameter	mm	6.63
4	Stranding		7/221
5	Ultimate Tensile Strength	kGF	468
6	Mass per km	kGF	73
7	(Maximum) AC Resistance at 20 <sup>0</sup> C	ohms	1.07
8	Overall Area	mm <sup>2</sup>	26.86

###### ANT

Item	Description	Unit	Requirement
1	Size		50
2	Code Name		Ant
3	Overall Diameter	mm	9.3
4	Stranding		7/3.1
5	Ultimate Tensile Strength	kGF	846
6	Mass per km	kGF	145
7	(Maximum) AC Resistance at 20 <sup>0</sup> C	ohms	542
8	Overall Area	mm <sup>2</sup>	52.84



## 5. TESTS

The samples of individual wires for the tests shall normally be taken before stranding. The manufacturer shall carry out test on samples taken out at least from 10% of aluminium wire spools. The wires used for all aluminium conductors shall comply with the following tests.

- a) Breaking load test
- b) Wrapping test
- c) Resistance test

## 6. PARKING AND MARKING

### 6.1 CONDUCTOR DRUMS

The conductor shall be supplied and delivered on drums. The flanges and barrels of the drums shall be made entirely of a suitable and seasoned wood, which shall be treated. If hardwood is used, it shall not form more than 40% of the total weight of wood making up the drum, neither shall it be, used on the inside of the flanges and barrels, so that it shall not be in contact with the conductor. Spindle holes shall not be less than 60mm in diameter. The surrounding of the holes shall be suitably reinforced.

The flanges and barrel shall be free from protruding material capable of damaging the conductor or the hands of the operator during rotation of the drum.

### 6.2 PARKING

The surface of the barrel and the inside of the flanges shall be lined with waterproof paper.

The loose end of the conductor shall be firmly stapled to the inside of the flanges.

The drum number shall brand or gauged into the outside of one of the flanges. An arrow shall indicate the direction in which the drum shall be rolled.

A label showing size, type and length of conductor shall be firmly secured to the outside of one

Of the flanges. The label shall be suitably weatherproofed.

Where battens are not used on the circumference of the flanges, the circumference of the conductor shall be well protected by hessian or similar to prevent damage to the outer layers of the conductor.

The gross mass for various conductors shall not exceed by more than 10% of the values given in the following table:

25mm<sup>2</sup>Al. Area (7/2.21mm) 500kg

50mm<sup>2</sup>Al. Area (7/3.10mm) 500kg

100mm<sup>2</sup>Al. Area (7/4.39mm) 500kg



The normal length of various conductors shall be as given in the following-table:

**Conductor size normal conductor length**

25mm <sup>2</sup> Al. Area. (7/2.21)	1.0km
50mm <sup>2</sup> Al. Area. (7/3.10)	1.0km
100mm <sup>2</sup> Al. Area. (7/4.39)	1.0km

Longer lengths shall be acceptable. Short lengths, not less than 50% of the standard lengths, shall be acceptable to the maximum extent of 10% of the quantity ordered.

**6.3 MARKING**

The following information shall be marked on each package:

- a) Manufacturers' name
- b) Trade mark, if any
- c) Drum or identification number
- d) Size of conductor
- e) Number and lengths of conductor
- f) Gross mass of the package
- g) Net mass of conductor

**7. INSPECTION**

All tests and inspection shall be made at the place of manufacture unless otherwise especially agreed upon by the manufacturer and purchaser at the time of purchase. The manufacture shall afford the inspector representing the purchaser all reasonable facilities without charge, to satisfy him that the material is being furnished in accordance with this Specification. For imported conductor a reputable international Inspection Agency such as LLOYDS or SGS shall inspect every shipment. The successful bidder shall arrange and pay for such inspection. Inspection costs shall be included in the bid price. An inspection certification shall be submitted with every shipment of conductor.



## 8. TECHNICAL GUARANTEE SCHEDULE

### 8.1 PREAMBLE

- a) The Technical schedule shall be filled in and completed by the Bidder, and submitted with the Bid.
- b) All documentation necessary to evaluate whether the equipment offered is in accordance with this Specification shall be submitted with the Bid.
- c) All data entered in the schedules of Technical Guarantees are guaranteed values by the Bidder and cannot be departed from whatsoever.
- d) The Bidder also guarantees all data entered in the schedules of informative Data. These data may only be altered following the Engineer's written consent.

### HARD DRAWN ALUMINIUM CONDUCTORS TECHNICAL GURANTEE SCHEDULES

#### WASP

Item	Description	Unit	Requirement	Guaranteed
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ZETDC H/O PROCUREMENT  
**15 DEC 2022**  
2nd Floor, Soutrivrig, Electricity Centre  
25 S. Machel Avenue, Harare  
Tel: 0242 750262  
procurement@zetdc.co.zw *PW*



## IMPORTANT INFORMATION

1. **Technical Brochures with detailed literature** covering the tendered items to be included in the bid.
2. **Drawings and Diagrams** of the tendered items to be submitted with the bid.
3. Manufacturer's supply history of at least 3 years to be provided with the bid.
4. Partial bid shall not be accepted.
5. Results of **Type tests or type test reports** carried out by an independent Technical Institute on previously manufactured conductors must be submitted with the bid.
6. Bidders should note that only the main offers will be considered. No alternatives or options will be entertained unless on a separate bid.
7. Compliance statement to the technical specification **on a clause by clause basis** to be provided.
8. **Technical Guarantee Schedule** to be completed in full, signed for and shall be compliant with ZETDC requirements.
9. **Valid Copy of ISO 9001/2** certification to be provided with the bid.

