

COMMISSION of ELECTRICITY
Planning and Studies division
Baghdad – IRAQ

Specification NO.	D-47
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Technical Specification

OF

ALMINUM – BARE WIRES

REVISION	Year 2001		
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STATE COMPANY FOR ELECTRICITY DISTRIBUTION FOR MIDDLE

AL- BARE WIRES

1. SCOPE OF THE TENDER: -

This tender includes for the manufacturing, testing, packing, and shipping delivery exworks, FOP & CIF of bare conductors.

2. GENERAL REQUIREMENT: -

The materials shall be of first class quality and designed for continuous satisfactory operation as continuity of supply is of prime importance and to operate satisfactorily under variation of load voltage and short circuit or other conditions which may occur on the system provided that these variations are within the assigned rating of the apparatus. The materials used shall be suitable for the following climatic conditions.

2-1 Ambient temperature:

Highest maximum in the shade 50C° for about 6 hours a day.

Lowest minimum (-10) C°.

Maximum yearly average (+ 30) C°.

Maximum daily average (+ 40) C°.

2-2 Sun temperature:

Black objects under direct sunshine attain a temperature of 75 C°.

2-3 Air humidity:

Maximum	92% at 40C°
Minimum	12%
Yearly average	44%

2-4 Altitudes:

From sea level up to (1000 m).

3. TECHNICAL REQUIREMENT:

3-1 STANDARDS:

3.1.1. The bare aluminum conductor shall be in accordance with the latest issues DIN (48201) and IEC (207) publication.

3.1.2. The aluminum conductors, steel reinforced shall be in accordance with the latest issues of the DIN (48204) & IEC (209) publication.

3.1.3. The copper conductors shall be in accordance with the latest issues of BSS 125.

- 3-2 **DEVIATIONS:**
The tenderer shall particularly mention in his tender all deviations of his offer from the specifications described in tender documents.

4. GENERAL CONDUCTOR CHARACTERISTICS:

- 4-1 The bare copper conductor should be composed of stranded hard drawn electrolytic copper conductor of 99.97% purity.
- 4-2 The bare aluminum conductor should be composed of stranded hard drawn aluminum.
- 4-3 The A.C.S.R conductor shall have bare stranded hard drawn aluminum conductor's steel reinforced. The conductors shall be internally protected with appropriate grease suitable for a working temperature of 80C°.
- 4-4 **Packing**
The required conductor lengths are to be supplied on seaworthy wooden drums of lengths as specified in item 5.
The drums should be steel reinforced radically and round the borehole after winding the conductor on the drum, it should be covered with suitable stand. Wooden lagging the overall construction must be of robust. Quintile to withstand rough handling.
The drum should have a nameplate stating the following in both English and Arabic languages.
- a- Type & size of conductor.
- b- Net weight & gross weight.
- c- Total length of conductor on the drum.
- d- Our purchase order number.

5. TYPE OF CONDUCTOR:

5-1 Copper conductor

For this conductor, the applicable paragraphs of article 4 are: 4.1 & 4.4

The sizes of conductor required are as follows:

- ❖ 16 mm², conductor details 7/1.75 mm & 3000 m \pm 2% per drum.
- ❖ 25 mm², conductor details 19/1.32 mm & 3000 m \pm 2% per drum.
- ❖ 50 mm², conductor details 19/1.8 mm & 2000 m \pm 2% per drum.
- ❖ 70 mm², conductor details 19/2.1 mm & 2000 m \pm 2% per drum.
- ❖ 95 mm², conductor details 19/2.5 mm & 1500 m \pm 2% per drum.

5-2 AL – Aluminum conductor - AAC

For this conductor, the applicable paragraphs of article 4 are: 4.2 & 4.4

The sizes of conductor required are as follows:

- ❖ 95 mm² 19/2.5 mm & 2000 m \pm 2% per drum.
- ❖ 70 mm² 19/2.1 mm & 3000 m \pm 2% per drum.
- ❖ 50 mm² 19/1.8 mm & 3000 m \pm 2% per drum.
- ❖ 35 mm² 7/2.5 mm & 3000 m \pm 2% per drum.

5-3 A. C. S. R conductor

For this conductor, the applicable paragraphs of article 4 are: 4.3 & 4.4

The sizes of conductor required are as follows:

- ❖ 210/35 AL 26/3.20 mm St 7/2.49 mm & 2000 m \pm 2% per drum.
- ❖ 120/20 AL 26/2.44 mm St 7/1.90 mm & 2000 m \pm 2% per drum.
- ❖ 95/15 AL 26/2.15 mm St 7/1.67 mm & 2000 m \pm 2% per drum.

6. TECHNICAL INFORMATION:

The tenderer is requested to give the following information with his offer:

- 6-1 Nominal sectional area in sq. mm.
- 6-2 Stranding details i.e. number of strands and strand diameter.
- 6-3 Sectional and overall diameter.
- 6-4 Weight of conductor in Kg. Per Km – in case of ACSR the weight of steel is also to be given.
- 6-5 Percentage conductivity at 20 C°.
- 6-6 Percentage elongation.
- 6-7 Minimum breaking strength.
- 6-8 Maximum resistance at 20 C°.
- 6-9 Maximum permanent current carrying capacity under Iraqi climatic conditions (A).
- 6-10 (1) sec. Short – circuit current carrying capacity (KA).

7. TESTS:

- 7-1 All tests are to be carried out according to the relevant specifications.
- 7-2 The tests shall be carried out in the presence of an authorized body appointed and paid by you to verify the compliance with the specifications. The contractor shall at his own expense, provide all necessary-testing facilities at his work for carrying out the requested tests.
- 7-3 The test reports shall contain clear and detailed references to the relevant IEC recommendations and national standards, comparing the requested values and the actual ones.

NOTE

- ❖ The prices for Aluminum should be based on L. M. E USD 1600/MT.
- ❖ Variation formula should be stated clearly to indicate the price.
- ❖ Variation related to Km of manufactured conductors.