

# **REF SPECIFICATION FOR LINE HARDWARE WIDE ANGLE SUSP CLAMPS**

## **1. INTRODUCTION**

This Specification covers the manufacture, supply and delivery of line hardware and accessories for REA's electrical distribution system. The type of line hardware and accessories required under this Specification are as detailed in this Specification in the corresponding clauses.

## **2. Standards**

Except where otherwise specified or implied, IEC Recommendation or British Standards (BS) where they amplify IEC, shall apply throughout.

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 unit of measurements shall be used throughout. The line hardware shall be manufactured to high quality standards. The companies manufacturing the units shall have ISO 9001 or 2 or Standard Association of Zimbabwe Certification and shall submit documentary proof thereof.

## **3. DETAILED SPECIFICATION**

### **3.1 General**

All the line hardware specified herein shall be of a design approved for the relevant conductors. The relevant conductor sizes are specified in detail in the Schedule of Requirements. All drawings referred to in this Specification are given in Appendix A of this Specification.

Care shall be taken to ensure that all hardware and fittings supplied constitute complete assemblies. The Supplier has complete responsibility in this respect

whether drawings are approved or not and shall replace at no cost to the Authority any parts not fitting the assemblies.

The minimum factor of safety for line hardware incorporated in insulator strings and other related to the guaranteed breaking load shall be 2.5kN.

All materials, whether fully specified herein or not, shall be of first class quality and shall conform with the best modern practice and comply in all respects with these Specifications.

All material shall be free from folds, cracks and other exterior and interior defects, which can affect its strength, ductility, durability or ability to function.

All materials shall be inspected and tested in full to prove compliance with the requirements of the specifications to the satisfaction of the Authority. The testing shall be carried out according to the relevant standards approved by the Authority, like:

BS 3288 Insulator and conductor fittings for overhead power lines.

Part 2: Specifications for a range of fittings.

ASTMA 153 Zinc coating (hot-dip) on Iron and Steel Hardware

All iron and steel hardware shall be hot-dip galvanised to British or IEC standards. All bolts and nuts shall be made of stainless steel .

Type test Certification shall be submitted for all major components certified by an internationally recognised test institute or laboratory, if the Supplier fails to submit such test certificates, the bid is liable to be rejected.

#### **4.1 Wide Angle Suspension Clamps**

The suspension clamp attachments shall be the same as for the tension clamps. The same conductor cross-section as for the tension clamp shall also apply for the suspension clamp.

The suspension clamp shall be light and free to pivot in the vertical plane. The pivoting centre shall be close to the conductor axis. The conductor groove shall be bell-mouthed at both ends. The groove shall be free of burrs and edges. It shall be tailored to suit the conductor for a turning angle of at least 25%.

Clamping pressure on the conductor shall not be applied near the ends of the supporting groove of the clamp where conductor-bending stresses are high. Clamping bolts shall be provided with locking devices.

The wide-angle clamps shall be suitable for use for conductor angles between 0 degrees and 25 degrees measured from the straight through axis and have a minimum failing load of 70 kN.