Ergon Energy Corporation Limited

Technical Specification for Suspension and Suspension Angle Clamps

ETS01-09-21

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Contents

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1. Purpose and Scope

This specification sets out the technical requirements for the manufacture, testing at works, supply and delivery of suspension and suspension angle clamps for use on overhead electricity distribution systems in a totally exposed environment.

The items covered by the specification are listed below:

ITEM NUMBER	STOCK CODE NUMBER	DESCRIPTION
1	413455	CLAMP, Suspension, Clevis, clamp to suit steel and copper based conductors fitted with armour rods, overall diameter 7-16mm
2	2400796	CLAMP, Suspension, Clevis, to suit aluminium based conductors fitted with armour rods, overall diameter 16-28mm
3	2401235	CLAMP, Suspension, Clevis, to suit aluminium based conductors fitted with armour rods, overall diameter 27-36mm
4	0413463	CLAMP, Suspension, Angle, Clevis, to suit steel and copper based conductors fitted with armour rods, for line deviations up to 60^0, overall diameter 6-15mm
5	2401236	CLAMP, Suspension, Angle, Clevis, to suit aluminum based conductors fitted with armour rods for line deviations up to 60^0, overall diameter 16-28mm
6	2401735	CLAMP, Suspension, Angle, Clevis, to suit aluminum based conductors fitted with armour rods for line deviations up to 60^0, overall diameter 27-36mm

2. References

2.1 Applicable Standards

The items shall be designed, manufactured and tested in accordance with the relevant parts of the following Standards and all amendments issued from time to time except where varied by this specification.

STANDARD	TITLE
AS 1111	ISO Metric Hexagon Commercial Bolts and Screws
AS 1112	ISO Metric Hexagon Nuts, Including Thin Nuts, Slotted Nuts and Castle Nuts
AS 1154	Insulator and conductor fittings for overhead power lines
AS 1214	Hot-dip Galvanized Coatings on Threaded Fasteners
AS 1222	Steel Conductors and Stays for Overhead Power

STANDARD	TITLE
AS 1531	Conductors – Bare overhead – Aluminium and aluminium alloy
AS 1746	Conductors – Bare overhead - Hard-drawn copper
AS 3607	Conductors – Bare overhead, aluminium and aluminium alloy – Steel reinforced
AS/NZS 4680	Hot-dip Galvanized (Zinc) coatings on Fabricated Ferrous Articles
AS/NZS ISO 9001	Quality management systems - Requirements

3. Drawings

3.1 Drawings by the Purchaser

There are no drawings attached to this specification.

3.2 Drawings by the Tenderer

The Tenderer shall supply with the tender, detailed drawings of the items tendered.

4. Service Conditions

The suspension clamps will be subject to the following additional service conditions:

Solar radiation intensity of1000W/m².
Tropical summer storms with gust wind speeds above 160km/h and an annual rainfall in excess of 1 500mm.
Temperatures between -5^{0}C(winter night time)and 45^{0}C(summer day time)
Extended periods of humidity in excess of 90%
Areas of coastal salt spray and/or industrial pollution with equivalent salt deposits densities in the range of 2.0 - 3.0g/m².

5. Design and Construction

5.1 General

The items tendered shall comply with the requirements of the Section 6 of AS1154.1 and the following:

- The Materials used in the manufacture of fittings shall be compatible with the conductor with which they will be contact.
- Be of clevis type suitable for attachment to a 16mm (70kN) socket tongue in accordance with AS1154 and supplied with a clevis bolt conforming to AS 1154.2 reference 16/B, figure 44.
- All ferrous metal parts, except those made of stainless steel shall be hot dipped galvanised.
- The fittings shall be designed, manufactured and finished so as to avoid sharp radii of curvature, ridges and imperfections that may cause radio

interference or harmful corona discharge or employee injury, when installed in accordance with recommended procedure.

5.2 Suspension Clamps

The suspension clamps (items 1-3) shall have a minimum failing load of 44kN.

5.3 Suspension Angle Clamps

The suspension angle clamp (items 4) shall have a minimum failing load of 34 kN, and items 5&6 shall have a minimum failing load of 64 kN.

The suspension angle clamps (items 4-6) shall have a maximum allowable angle of conductor deviation of 45 degrees.

5.4 Markings

Fittings shall be marked with the Manufactures name or trademark and the minimum and maximum conductor diameters.

6. Technical Details

Technical details of fittings tendered are to be set out in **Attachment 1**.

7. Performance and Testing

7.1 Type Tests

Type Test Certificates to AS 1154.1 shall be submitted with the tender.

A certificate of compliance shall be accompanied with each delivery. Batch tests and routine tests certificates shall be held by the Supplier and made available on request to the Purchaser within 24 business hours.

8. Risk Assessment

There is no requirement for manufacturer provided safety risk assessments for the items covered in this specification.

9. Quality Assurance

9.1 Purchasers Policy

It is the Purchaser's policy to procure goods, equipment and services from sources that demonstrate the ability to supply quality products.

9.2 Documentary Evidence

Tenderers are required to submit documentary evidence that the design and manufacture of the fuses offered is in accordance with AS/NZS/ISO 9001. This documentation shall include the Capability Statement associated with the Quality System Certification.

Tenderer's attention is drawn to MP000801F100**:** Management Systems Information Schedule (Form) which forms an integral part of this specification.

10. Samples

10.1 Production Samples

The Tenderer must submit, when requested, one (1) production sample of each item Tendered to assist in the evaluation of the Tender. Samples shall be delivered to the address nominated within five (5) working days of the request. The Tenderer shall allow the cost of supply and delivery of samples in the Tendered prices.
Each sample shall be suitably packaged and labelled with the following information:

Name of Supplier and this Contract No.
Contract Item Numbers
Any supporting data on features or characteristics

11. Packaging and Marking

11.1 General

Each packaged lot shall be marked with the following information:

Manufacturers Name
Purchase Order Number
Contract No.
Ergon Stock Code
Item Description
Pack Size
Pack Weight

12. Service Performance

Suppliers shall state:

(a) the period of service achieved by the items tendered within Australian service conditions;

(b) Australian electricity supply authorities who have a service history of the items tendered; AND

(c) Contact names and phone numbers of relevant employees of those supply authorities who can verify the service performance claimed.

13. Reliability

13.1 Service Life

Suppliers are required to comment on the reliability of the equipment and the performance of the materials tendered for a service life of 35 years under the specified system and environmental conditions.

13.2 Evidence in Support of Reliability

Such comments shall include evidence in support of the reliability and performance claimed including information on Failure Mode and Effect Analysis.

14. Training

14.1 Training Material

Training material in the form of drawings, instructions and/or audio visuals may be required to be provided for the items accepted under the tender.

Tenderers shall state the availability of training materials which should include but is not limited to the following topics:

- Application (particularly in areas of heavy coastal pollution)
- Installation
- Maintenance
- Mechanical performance

15. Environmental Considerations

Suppliers are required to comment on the environmental soundness of the design and the materials used in the manufacture of the items Tendered. In particular, comments should address such issues as recycling and disposal at the end of service life.

16. Information to be Provided

16.1 Specific Technical Requirements

The specific technical requirements for the items Tendered shall be as stated in **Attachment 1** of this specification. The supplier shall provide all details requested by **Attachment 1** and shall guarantee such data.

16.2 Checklist of Supporting Documentation

Attachment 2 details a checklist of supporting technical documentation which is required to be submitted with the Tender

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17. Attachment 1 – Technical Details

NOTE: A separate schedule is to be provided for each item tendered except where information common to all items which only needs to be provided once.

Particulars	Units	Tenderer's Response
Manufacturer's Name & Address		
Place of Manufacture		
Manufacturer's Product Catalogue Number		
Manufacturer's Drawing Number		
Type Test Report/Certificate No.		
Minimum failing load	(kN)	
Material or combination of materials from which fitting is made		
Type of corrosion protection of metallic fittings		
Conductor diameter range	(mm)	
Are clamps marked in accordance with Clause 5.4		
Pack Size		
Pack Weight	(kg)	

SIGNATURE OF TENDERER: _____

18. Attachment 2 – Technical Document Checklist

Clause Ref.	Particulars	Tenderer's Response
Have full and comprehensive details been submitted **WITH** the Tender documents associated with each of the following items?		
3.2	Drawings of item Tendered	Yes/No
7.1	Type Test Certificate	Yes/No
9.2	Documentary evidence of the Quality System Certification of **BOTH** the **SUPPLIER** and the **MANUFACTURER** (including **Capability Statement**)	Yes/No
12	Service Performance	Yes/No
13	Reliability	Yes/No
14	Training materials	Yes/No
15	Environmental considerations	Yes/No
16	Information to be Provided: Completed **Attachment 1 & 2**	Yes/No

NAME OF TENDERER:

ADDRESS OF TENDERER:_____

SIGNATURE: _____ FOR AND ON BEHALF OF TENDERER

DATE: _____