



FIJI ELECTRICITY AUTHORITY

BIDDING DOCUMENT

MR 14/2018

**PREFERRED SUPPLIER FOR 132KV LINE
HARDWARE**

Section 1: Instructions to Bidders

- 1. Scope of Bid** The Fiji Electricity Authority (hereinafter referred to as "the purchaser"), wishes to receive bids for Preferred Supplier for 132kV Line Hardware as specified in these bidding documents (hereinafter referred to as "LINE HARDWARE").
- 2. Eligible Bidders** This Invitation to Bid is open to bidders who have sound financial background and have previous experience in handling such projects.
- Bidders shall provide such evidence of their continued eligibility satisfactory to the purchaser as the purchaser shall reasonably request.
- Bidders shall not be under a declaration of ineligibility for corrupt or fraudulent.
- 3. Eligible Materials, Equipment and Services** The LINE HARDWARE to be supplied under the Contract shall have their origin from reputable companies from various countries. At the Purchaser's request, bidders may be required to provide evidence of the origin of various parts of the LINE HARDWARE.
- 4. Qualification of the Bidder** To be qualified for award of Contract, bidders shall submit proposals regarding work methods, scheduling and resourcing which shall be provided in sufficient detail to confirm the bidder's capability to fulfill the contract.
- 5. Cost of Bidding** The bidder shall bear all costs associated with the preparation and submission of its bid and the Purchaser will in no case be responsible or liable for those costs.
- 6. Sealing and Marking of Bids** The bidder shall furnish and submit 2 Original copies of the bid.
- The inner and outer envelopes shall be addressed to the purchaser at the following address:
- Tuvitu Delairewa
General Manager Corporate Services 2
Marlow Street, Suva, FIJI. Phone: 679 3224
185 Facsimile: 679 331 1882 Email:
TuvituD@fea.com.fj
- And
- bear the following identification:
- Bid for: Preferred supplier for the 132 kV LINE HARDWARE
 - Bid Tender Number: MR 14/2018
 - DO NOT OPEN BEFORE Wednesday, **21/03/18**
- 7. Deadline for Submission of Bids** Bids must be received by the purchaser at the address specified above no later than 1600 hours (Fiji Time i.e. UTC + 12:00 hrs) (**Wednesday, 21/03/18**).
- The purchaser may, at its discretion, extend the deadline for submission of

bids by issuing an addendum, in which case all rights and obligations of the purchaser and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

8. Late Bids

Any bid received by the purchaser after the deadline for submission of bids prescribed will be rejected and returned unopened to the bidder.

**9. Modification and
Withdrawal of
Bids**

The bidder may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline for submission of bids.

The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

No bid may be modified by the bidder after the deadline for submission of bids.

**10. Purchaser's Right
to Accept any Bid
and to Reject any
or all Bids**

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Purchaser's action.

**11. Notification of
Award**

Prior to expiration of the period of bid validity prescribed by the Purchaser, the Purchaser will notify the successful bidder by fax/email, confirmed by registered letter, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall name the sum which the Purchaser will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").

The notification of award will constitute the formation of the Contract.

Upon the furnishing by the successful bidder of a performance security, the Purchaser will promptly notify the other bidders that their bids have been unsuccessful.

**12. Signing of
Contract
Agreement**

At the same time that he notifies the successful bidder that its bid has been accepted, the Purchaser will send the bidder the Form of Contract Agreement provided in the bidding documents, incorporating all agreements between the parties.

Within 7 days of receipt of the Form of Agreement, the successful bidder

shall sign the Form and return it to the Purchaser.

**13. Corrupt or
Fraudulent
Practices**

The Purchaser requires that the Contractor observe the highest standard of ethics during the procurement and execution of such contracts. In Pursuance of this policy, the Purchaser:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
 - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition;
- (b) Will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

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Section 2: Technical Specification

1 General Description

The Fiji Electricity Authority invites sealed tenders from reputable companies with the relevant experience, for the Supply of 132kV Line Hardware.

This document specifies the requirements for the design, manufacture, testing and supply of 132,000 Volts – rated Line Hardware for the installation in the Authority’s 132kV transmission network.

2 Scope

The Line hardware shall be installed on the 132,000 Volts transmission network.

2.1 Estimated quantities

The following table shows the Purchaser's total estimated requirement of 132kV Transmission Line hardware to be purchased each year for the next five (5) years. The Tenderers should note that the total estimated requirement for Transmission Line hardware to be purchased under this contract is not guaranteed.

#	Line Hardware	Quantity (pieces)	
1	132 kV Sag Link (160kN)	1000	
2	132 kV Compression Dead End Assembly	Conductor Type: 1). Lime	150
		2). Grape	150
3	132 kV Compression Jumper terminal	Conductor Type: 1). Lime	150
		2). Grape	150
4	16mm Stirrup D Shackle (160kN)	100	
5	132 kV Ball Socket Clevis for arcing horn on suspension insulators	600	
6	132 kV Armor Grip suspension (Lime Conductor)	300	
7	132 kV Armor Grip suspension (Grape Conductor)	300	
8	M20 X 500 with Split Pins on both ends and double nuts	300	
9	M16 X 500 with Split Pins on both ends and double nuts	300	
10	132kV Bow Shackle 160kN	1500	
11	132kV Bow Shackle 120kN	1500	
12	132kV Compression mid span joints – full tension	Conductor Type: 1). Lime	200
		Conductor Type: 2). Grape	200

13	132kV Conductor fittings suspension clamp Aluminium Alloy	Conductor Type: 1). Lime	300
		Conductor Type: 2). Grape	300
14	Vibrational Dampers	Conductor Type: 1). Lime	1000
		Conductor Type: 2). Grape	1000

3 Service Conditions

The hardware shall be capable of satisfactory operation outdoors in a tropical environment, which has high solar radiation and varies from hot dry and dusty to hot and humid and subject to cyclonic wind. The following conditions apply:

1. Air Temperature
 - Extreme maximum 45 °C
 - Average maximum 35 °C
 - Average minimum 18 °C
 - Extreme minimum -5 °C
2. Relative Humidity
 - Maximum 93%
3. Solar Radiation
 - Maximum 1.1kW/m²
4. Wind Loading
 - Wind loading shall be assessed in accordance with AS 1170.2—2011, for Region C (Tropical Cyclone)

4 Manufacturer's Qualification/ Certification

4.1 Certification

Every bidder shall include in his bid each Line Hardware manufacturer's supply experience list of the same or similar types of each offered Line Hardware. The list shall include year of supply, type and quantity of supplied insulator, and full name of user.

Manufacturer shall have sufficient supply and manufacturing experience of Line Hardware for at least ten (10) years for the required system voltage and above.

Certificates from customers with satisfactory usage shall be provided with the supply record. Insulators shall be considered, for which a minimum 5 years manufacturing and successful service experience is available, without change of basic design and material.

The qualified manufacturer shall have designed, manufactured, tested and supplied at least 100,000 units of similar hardware for the same system voltage and above. Supplied Line Hardware must have same or higher electro-mechanical strength required in this tender document.

- i. Then less than 1/100,000 of annual failure rate shall be guaranteed.
- ii. The bidder shall include with its bid the Certificate of less than 1/100,000pcs of Annual failure rate issued from at least three different foreign utilities outside of manufacturer's country.

Also, at least two certificates out of above three certificates that show the supplied insulators shall be under successful commercial operation for at least five years shall be submitted.

5 Technical Requirements for the 132kV Line Hardware

5.1 Design and Material Requirements

5.1.1 Galvanising

All ferrous parts shall be hot dip galvanised as per AS/NZS 4680 and other [standard](#) listed.

5.1.2 Mechanical Strength

Each individual Line Hardware shall be capable for withstanding the rated mechanical terminal loads and electromagnetic forces, without effecting the operation and current carrying properties. **The mechanical strength and electrical strength of each Line Hardware accessory shall be submitted with the bid.**

5.1.3 Specifications and standards

The bidder shall provide an original copy of the specification sheet of each Line Hardware Item and all attachments. The standards used for each aspect shall also be cited.

5.1.4 Marking

Markings shall be legible, durable and permanent to include the following:

- a. Manufacturer's name or trademark
- b. Specified mechanical load
- c. Routine mechanical load
- d. FEA Stock Code

5.2 Type Tests

The following type tests are required:

- Visual examination
- Verification of dimensions
- Visible discharge tests
- Temperature cycle test
- Mainly active load breaking capacity test
- Mechanical strength tests
- Operational and mechanical endurance test
- Tests for galvanisation of ferrous parts
- Measurement of the resistance of all Line Hardware accessories.
- Operation test

Note: All the above tests shall be conducted as per the relevant IEEE, IEC, ANSI or AS/NZS specification and a copy of the test report shall be furnished along with the tender.

5.3 Factory Acceptance Tests

The FEA reserves the right to witness sample and routine tests at the manufacturing. The bidders shall factor in the entire costs (Visa, air fare, Local Transportation, Hotel, Meals, etc) for facilitating one factory visit by two (2) FEA engineers at the manufacturing facility to witness sample and routine tests, as part of the factory acceptance testing of the hardware, prior to shipment.

6 Warranty

The supplier and/or manufacturer shall provide warranty of a minimum of **3 Years** from the date Fiji Electricity Authority receives the equipment.

On the contrary, if the bidder cannot warranty for 10 years than a preferred warranty period shall be given by the bidder.

7 Drawings

The bidder shall outline dimension drawings for each component, general arrangement drawing showing component layout and a complete drawing of each Line Hardware item with different drawings of variable components.

8 Quality and Environment Assurance

The quality assurance system of design, manufacture, and inspection shall conform to ISO 9001.

Quality assurance certificate according to ISO 9001 issued by an authorized inspection agency shall be submitted with the bid.

The environment management system of manufacture shall confirm to ISO 14001.

Environment assurance certificate according to ISO 14001 issued by an authorized inspection agency shall be submitted with the bid

Bids will not be considered if the manufacturer's experience or quality assurance system does not meet the above requirements.

9 Standards

Standards for Line Hardware Accessories	
AS/NZS 4680—2006 and AS 1650	Hot-dip Galvanized (zinc) Coatings on Fabricated Ferrous Articles
AS/ NZS 7000	Overhead Line Design
AS 1222	Steel conductors and stays
As 1222.1	Part 1: Bare overhead – Galvanized (SC/GZ)
AS 1222.2	Part 2: Aluminum Clad (SC/AC)
AS 1111.1	ISO Metric Hexagon bolts and screws Product Grade C
AS 1112.1	ISO Metric Hexagon Nuts Part 1: Style 1 – Product grade A and B Part 2: Style 2 – Product grade A and B Part 3: Product grade C Part 4: Chamfered thin nuts – Product grade A and B
AS 1214	Hot dip galvanized coatings in threaded fasteners [ISO metric Coarse thread series]
AS 1275	Metric Screws for fasteners
AS 1393	Coach screws - metric series with ISO hexagon heads
AS/NZS ISO 9001:2008	Quality Management Systems - Requirements
AS 1154	Insulator and Conductor fittings (performance, material requirements)

Section 3: Pricing Schedule

1 Incoterms

All pricing shall be done on Cost, Insurance and Freight (CIF) basis, delivered to Suva wharf, Fiji.

2 Currency

All pricing shall be in US dollars.

3 Taxation

The pricing shall be EXCLUSIVE of any type of taxation that needs to be paid in Fiji.

4 Pricing breakdown

The prices quoted will be fixed and NOT variable.

5 Validity

The pricing shall be valid for **180 days**.

6 Price Breakdown

#	Line Hardware	Quantity (pieces)	Price
1	132 kV Sag Link (160kN)	1000	
2	132 kV Compression Dead End Assembly	Conductor Type: 1). Lime	150
		2). Grape	150
3	132 kV Compression Jumper terminal	Conductor Type: 1). Lime	150
		2). Grape	150
4	16mm Stirrup D Shackle (160kN)	100	
5	132 kV Ball Socket Clevis for arcing horn on suspension insulators	600	
6	132 kV Armor Grip suspension (Lime Conductor)	300	
7	132 kV Armor Grip suspension (Grape Conductor)	300	
8	M20 X 500 with Split Pins on both ends and double nuts	300	
9	M16 X 500 with Split Pins on both ends and double nuts	300	
10	132kV Bow Shackle 160kN	1500	
11	132kV Bow Shackle 120kN	1500	
12	132kV Compression mid span joints – full tension	Conductor Type: 1). Lime	200

		Conductor Type: 2). Grape	200	
13	132kV Conductor fittings suspension clamp Aluminium Alloy	Conductor Type: 1). Lime	300	
		Conductor Type: 2). Grape	300	
14	Vibrational Dampers	Conductor Type: 1). Lime	1000	
		Conductor Type: 2). Grape	1000	

Section 4: Bid Documentation

The Bidder shall furnish, as part of the bid, documents establishing the Bidder’s eligibility to bid and its qualifications to perform the contract if its bid is accepted.

The documentary evidence of the bidder’s qualifications to perform the contract of its bid is accepted will establish to the purchaser’s satisfaction.

- a) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
- b) that the Bidder meets the qualification criteria listed in Section 2.

1 Documents establishing equipment conformity to Bidding documents

The Bidder shall furnish as part of its bid, documents establishing conformity to the bidding documents of each Line Hardware Item, which the Bidder proposes to supply under the contract.

The documentary evidence of conformity of the Line Hardware to bidding documents may be in the form of literature, drawings, and data, and will consist of:

- a) A detailed description of the essential technical and performance characteristics of the Line Hardware.
- b) The bidder should specifically mention about furnishing the test certificates and a specimen form of test certificate should be furnished along with the bid.
- c) A list giving full particulars, including available sources and current prices of spare parts, special tools etc., necessary for the proper and continuing functioning of the materials/equipment following commencement of the use of the Line Hardware by the purchaser; and
- d) An item-by-item commentary on the purchaser’s Technical specifications demonstrating substantial responsive-ness of the Insulators and services to those specifications, or a statement of deviations and exceptions to the provisions of the technical specifications.

For purpose of the commentary to be furnished pursuant to above, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications, are intended to be descriptive only and not restrictive.

The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in their bid, provided that it demonstrates to the Purchaser’s satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

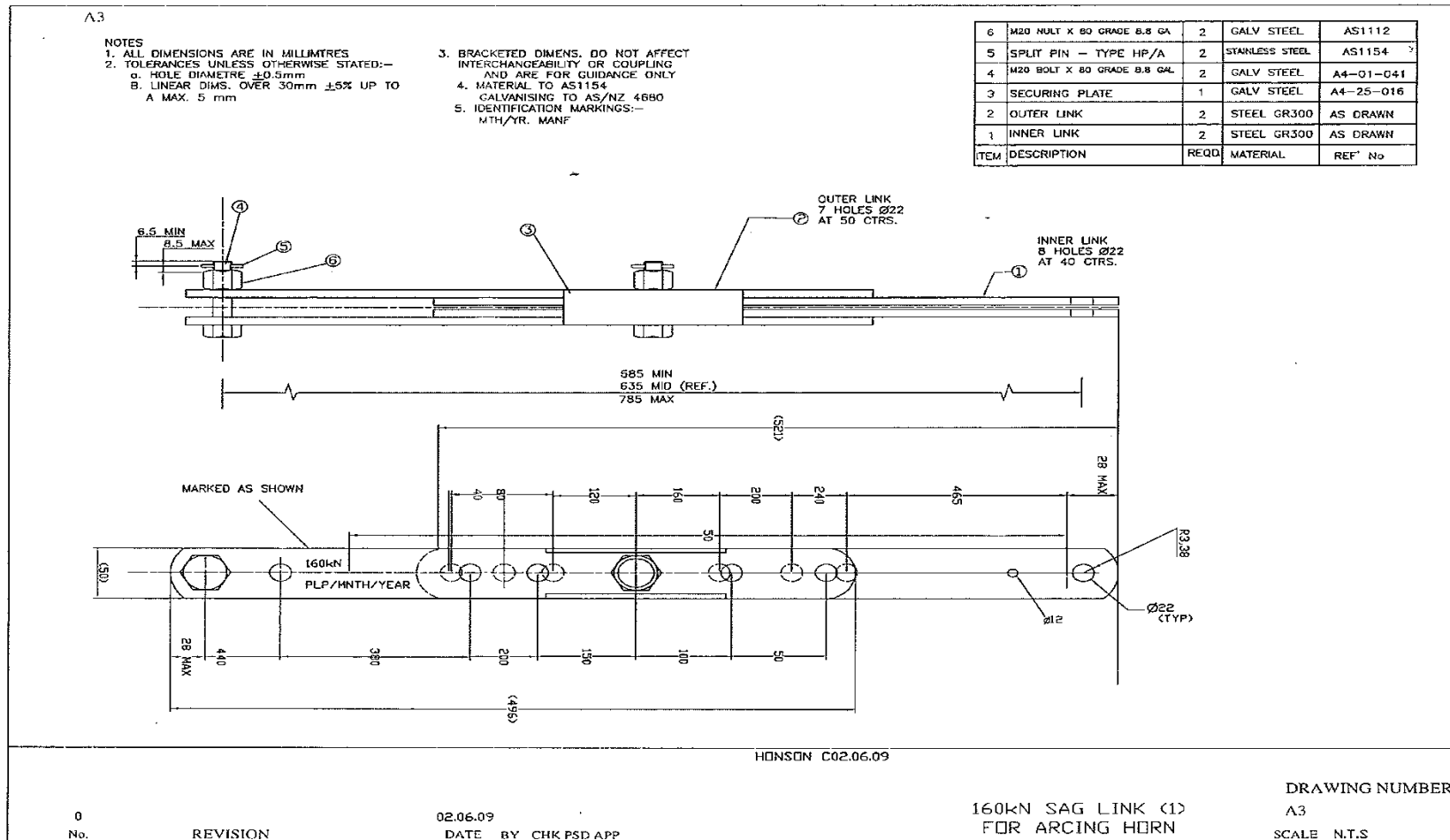
2 Submission Checklist

The following shall be provided in the bid submission:

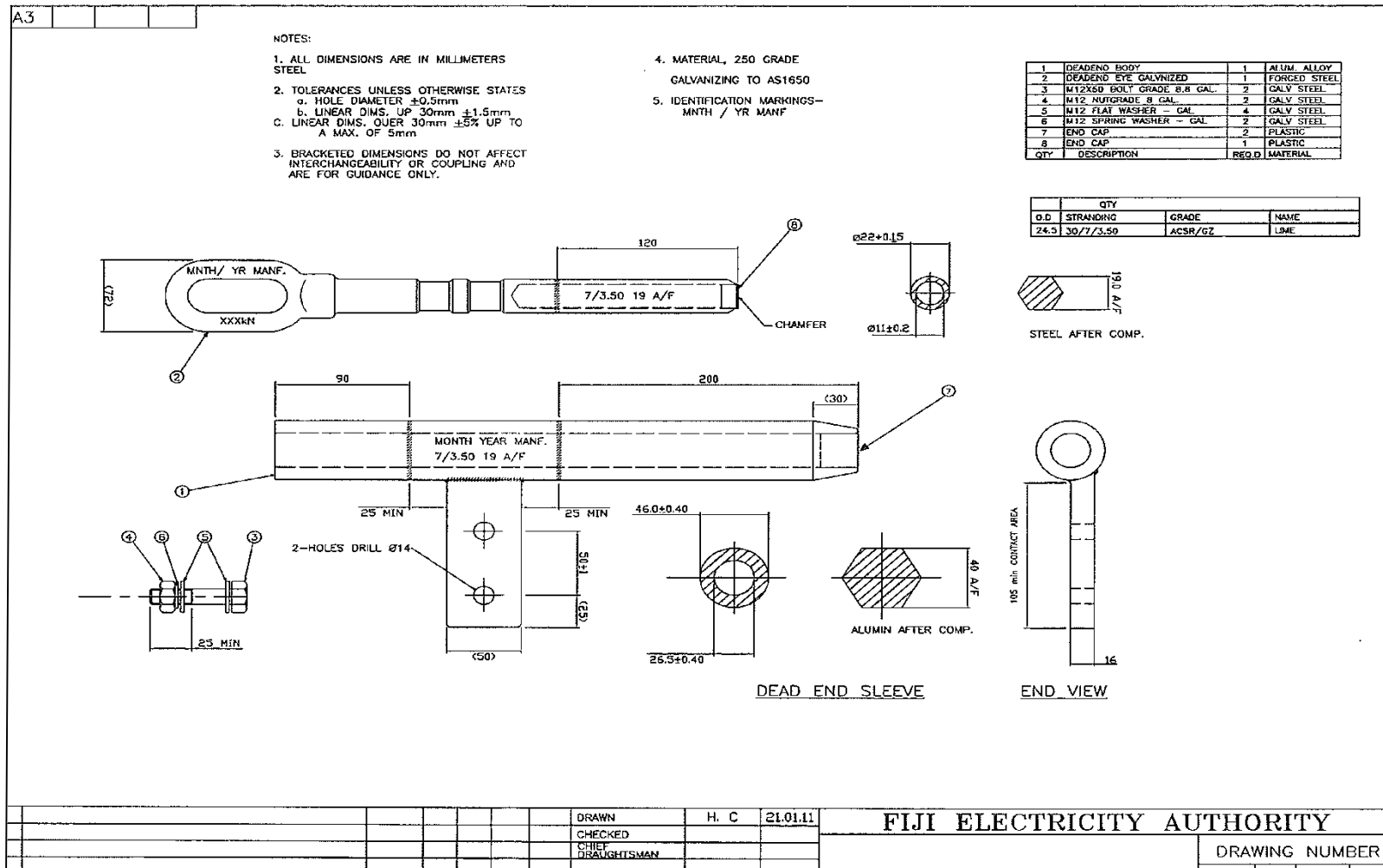
Particulars	Yes	No
1. Item-by-item commentary on the purchaser's Technical specifications		
2. Descriptive literature giving full technical details of equipment offered;		
3. Outline dimension drawing for each component, general arrangement drawing showing component layout;		
4. Type test certificates and sample routine test reports;		
5. Detailed reference list of customers already using equipment offered during the last 5 years with particular emphasis on units of similar design and rating;		
6. Details of manufacturer's quality assurance standards and programme and ISO 9000 series or equivalent national certification;		
7. Supplier experience details		
8. Deviations from this specification (if any).		
9. Certificates of annual failure rate		
10. Standards Compliance and Listing		
11. Factory Acceptance Test Plan and Breakdown		
12. Complying and Completed pricing schedule		

Section 5: Appendix - Drawings \ Technical Specifications

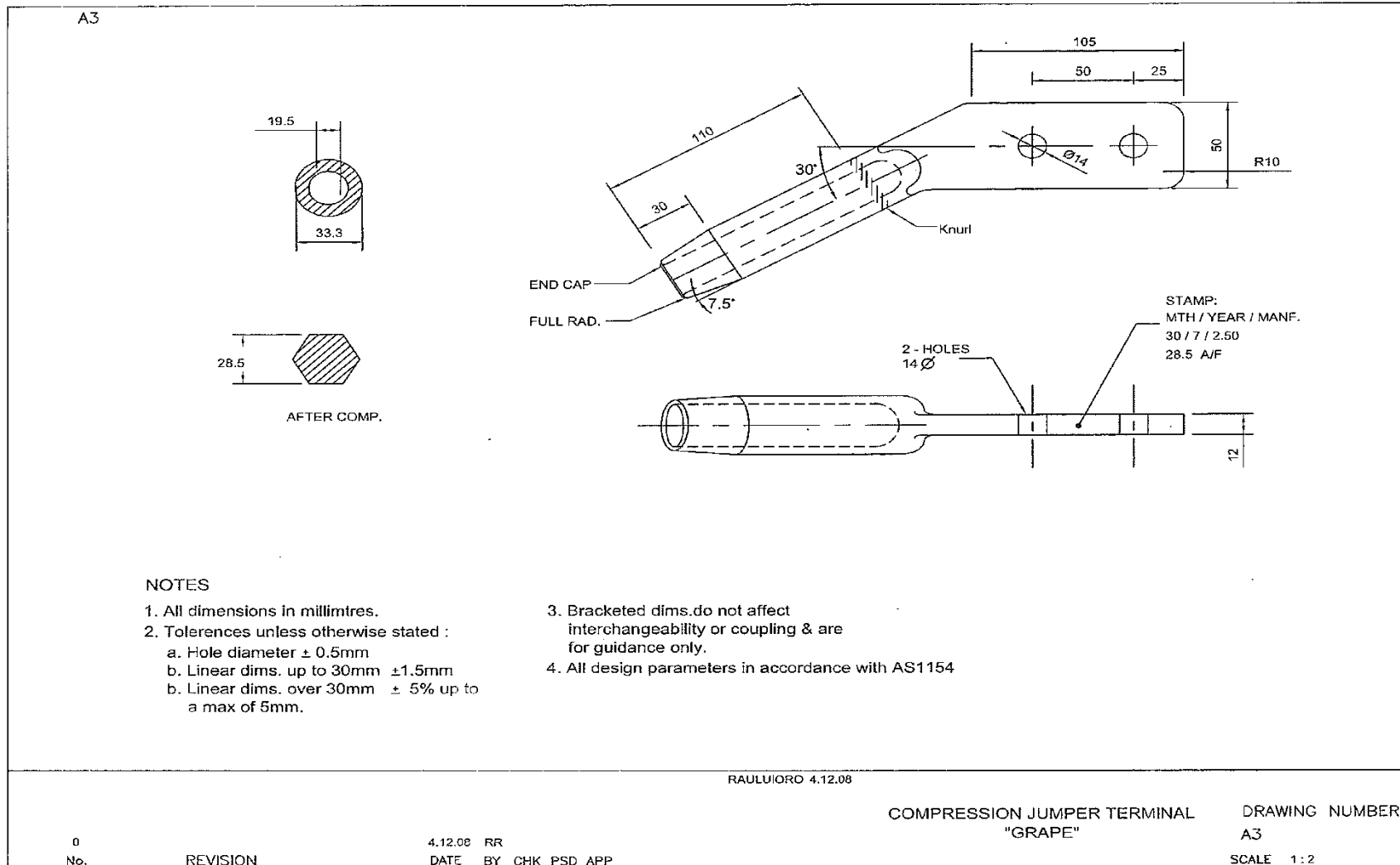
1. 132kV Sag Link (160kN) for Arcing Horn



2. 132kV Compression Dead end assembly



3. 132kV Compression jumper terminal



4. 16mm Stirrup D Shackle (160 kN)

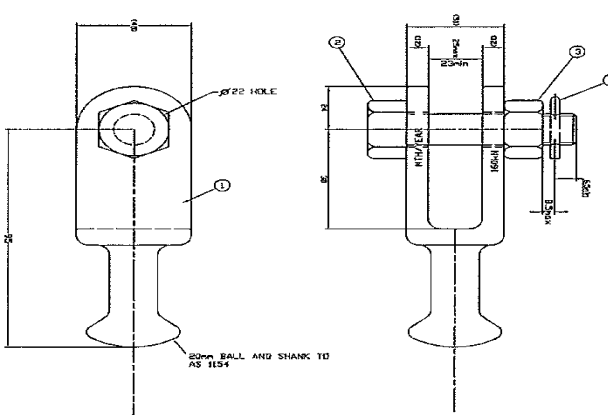
5. 132kV Socket Clevis for arcing horn

A3

NOTES

- ALL DIMENSIONS ARE IN MILLIMETRES.
- TOLERANCES UNLESS OTHERWISE STATED—
 - HOLE DIAMETRE $\pm 0.05mm$
 - LINEAR DIMS UP TO 30mm $\pm 0.15mm$
 - LINEAR DIMS OVER 30mm $\pm 0.2%$ UP TO \pm MAX OF 5mm
- BRACKETED DIMENSIONS DO NOT AFFECT INTERCHANGEABILITY OR COUPLING AND ARE FOR GUIDANCE ONLY.
- MATERIAL TO AS1154
- GALVANIZING TO AS/NZS 4693

SP-HPA	4	HUMPBACK SPLIT PIN	L	S/STEEL
GNH-20-B	3	M20 NUT GRADE 8 GAL	L	STEEL
GCB-20095	2	M20 X 85 BOLT GRADE 8.8 GAL	L	STEEL
BC-160-1F	1	BALL CLEVIS BODY	L	S/STEEL
CAT No.	ITEM	DESCRIPTION	REQ'D	S/STEEL



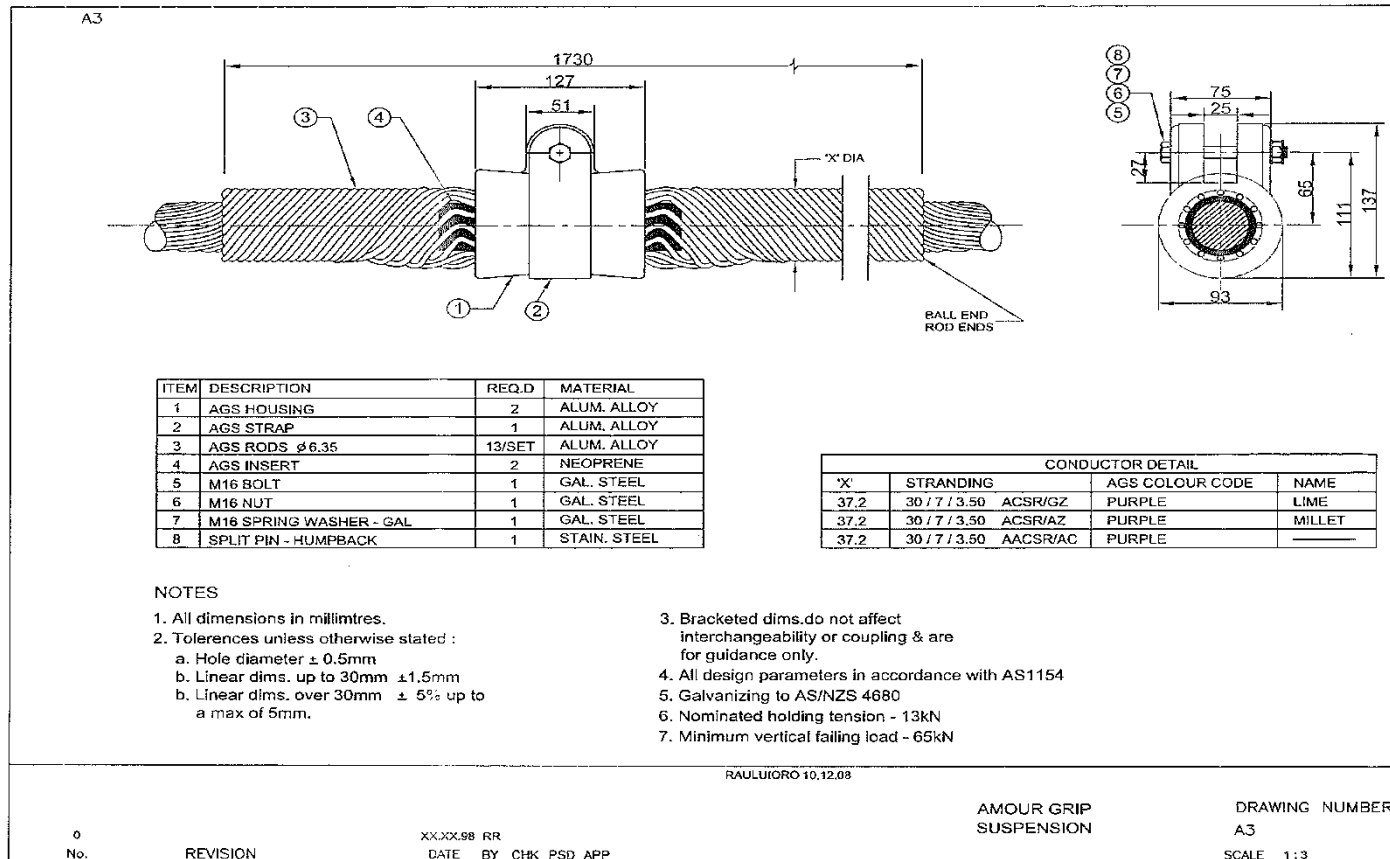
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A3

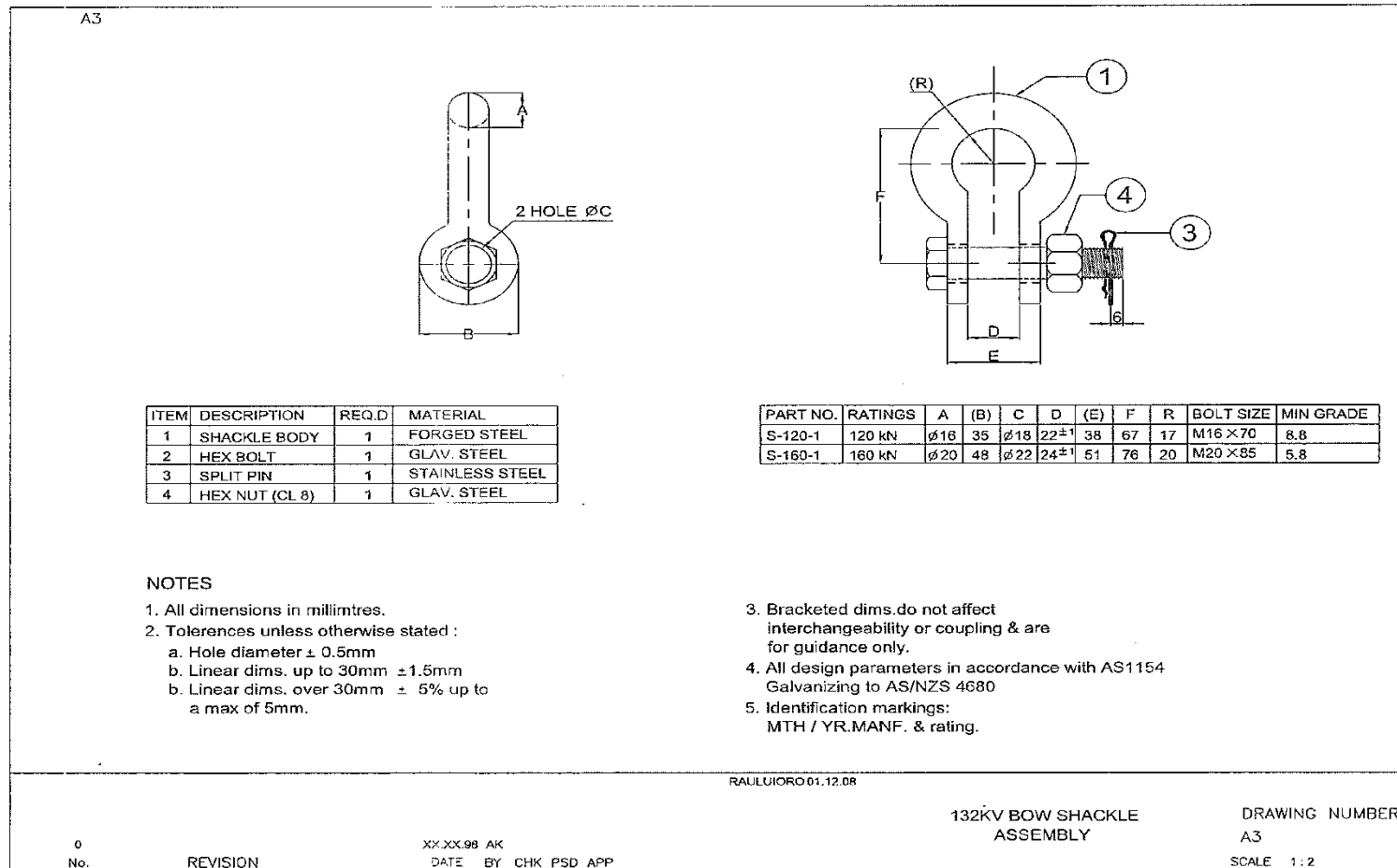
SCALE N.T.S

0	REVISION	08.07.09	DATE	CHK	PSD	APP	ENGINEER	R.N	23.12.10	D SHACKLE	SCALE 1:1
No.	REVISION	DATE	BY	CHK	PSD	APP	HEAD OF DEPARTMENT	R.N	23.12.10		

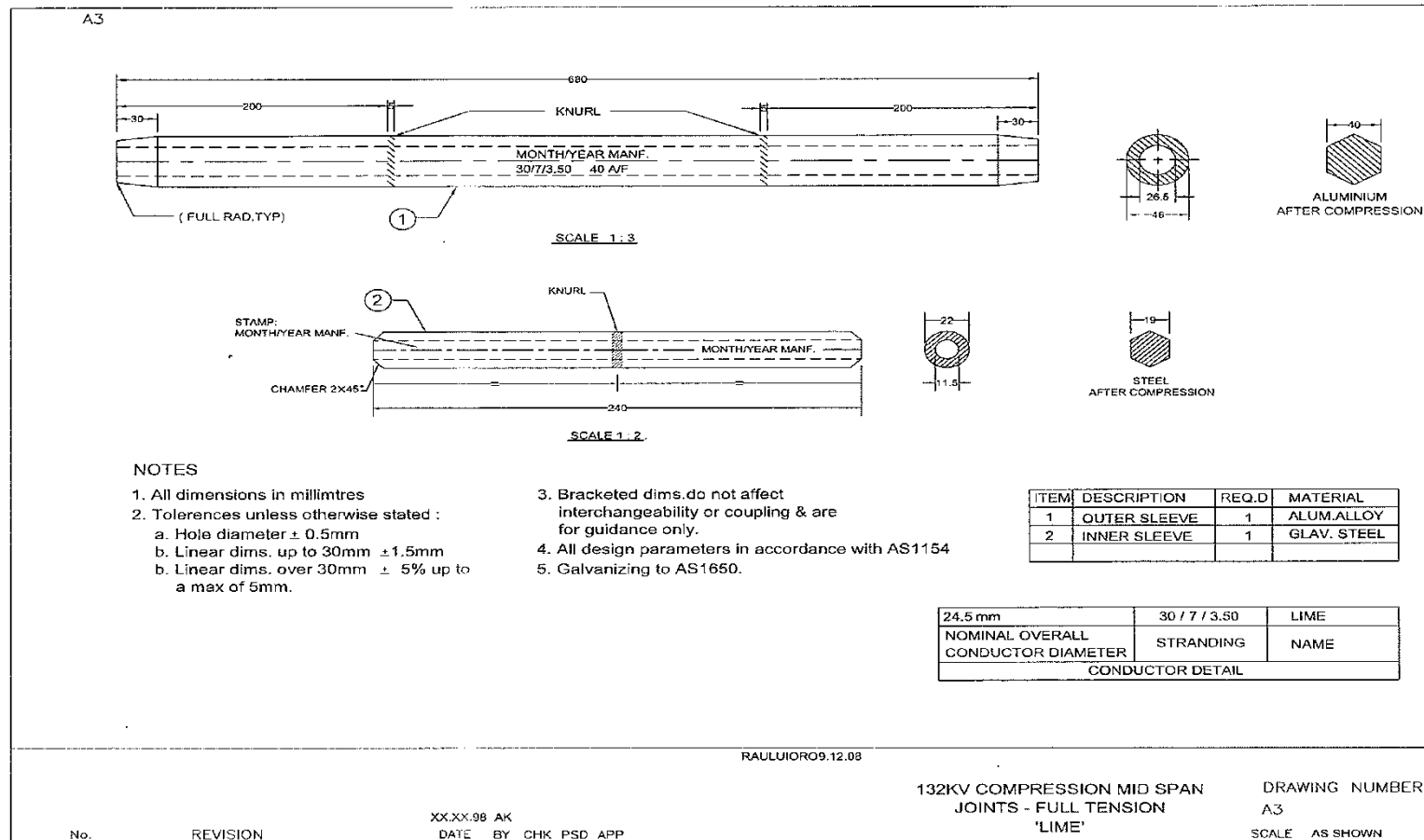
6. 132kV Armour grip suspension



7. 132 kV Bow Shackle Assembly

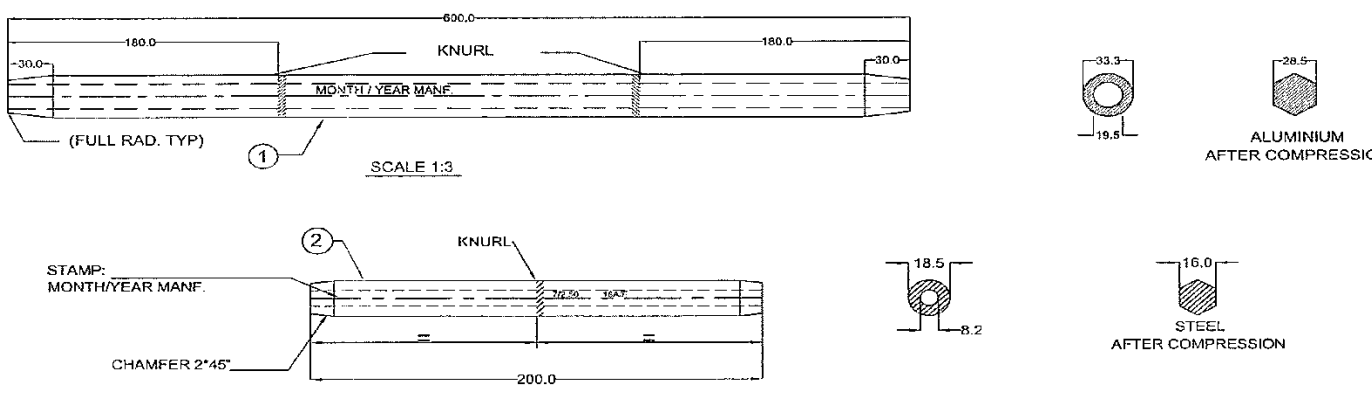


8. 132 kV Compression mid span joints - full tension lime



9. 132 kV Compression mid span joints – full tension grape

A3



SCALE 1:3

SCALE 1:2

NOTES

- All dimensions in millimetres
- Tolerances unless otherwise stated :
 - Hole diameter $\pm 0.5\text{mm}$
 - Linear dims. up to 30mm $\pm 1.5\text{mm}$
 - Linear dims. over 30mm $\pm 5\%$ up to a max of 5mm.
- Bracketed dims. do not affect interchangeability or coupling & are for guidance only.
- All design parameters in accordance with AS1154
- Galvanizing to AS1650.

ITEM	DESCRIPTION	REQ.D	MATERIAL
1	OUTER SLEEVE	1	ALUM.ALLOY
2	INNER SLEEVE	1	GLAV. STEEL

17.5 mm	30 / 7 / 2.50	GRAPE
NOMINAL OVERALL CONDUCTOR DIAMETER	STRANDING	NAME
CONDUCTOR DETAIL		

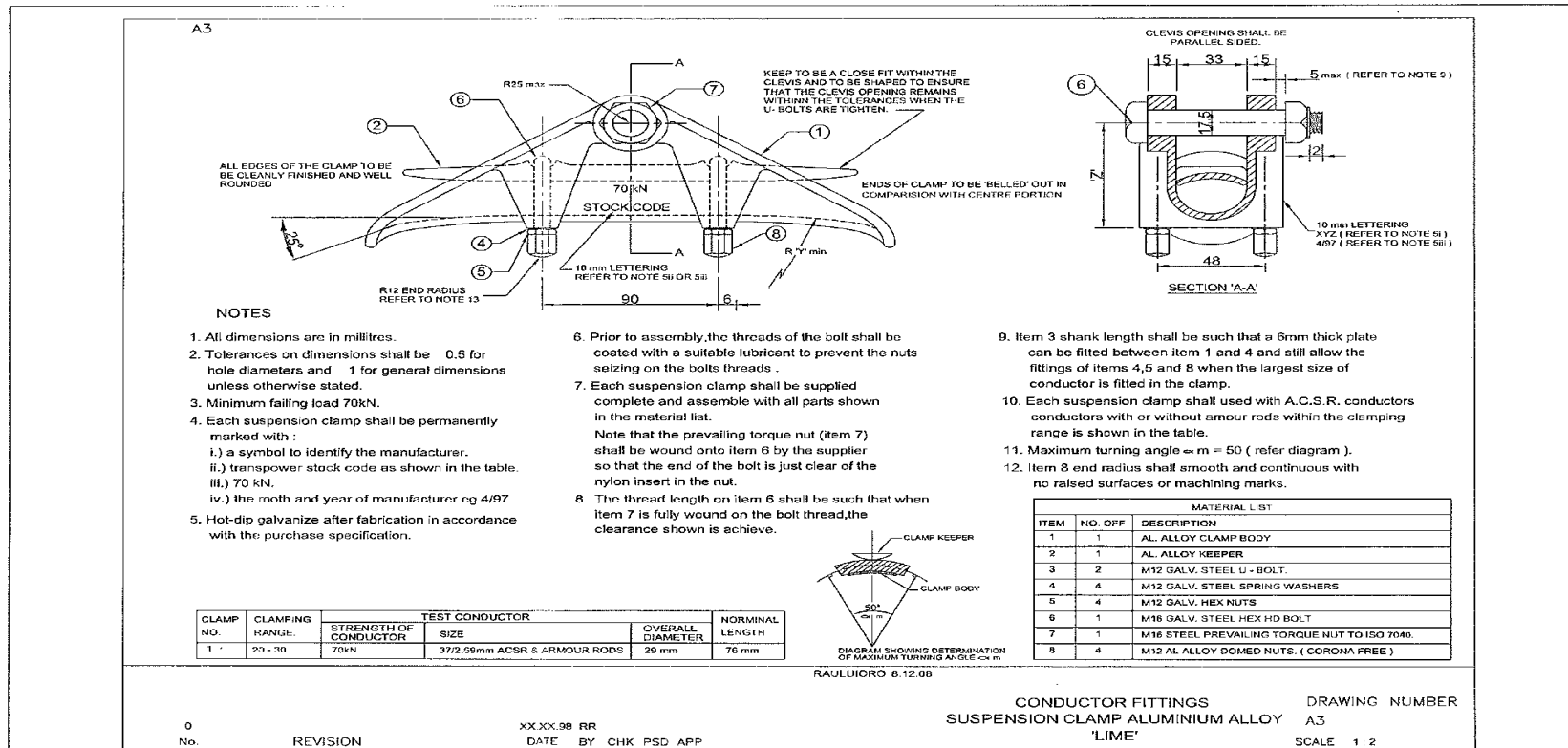
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132KV COMPRESSION MID SPAN JOINTS - FULL TENSION 'GRAPE'

DRAWING NUMBER A3
SCALE AS SHOWN

No.	REVISION	DATE	BY	CHK	PSD	APP
		XX.XX.98	AK			

10. 132kV Conductor fittings suspension clamp aluminium alloy - Lime



Tender Submission - Instruction to bidders

It is mandatory for Bidders to upload a copy of their bid in the **TENDER LINK** Electronic Tender Box no later than **4:00pm, on Wednesday 21st March, 2018**.

To register your interest and tender a response, view 'Current Tenders' at:
<https://www.tenderlink.com/fea>

For further information contact The Secretary Tender Committee, by e-mail
TDelairewa@fea.com.fj

In additional, hard copies of the tender, one original and one copy must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than **4:00pm, on Wednesday 21st March, 2018** - Addressed as

Tender – MR 14/2018 Preferred Supplier for the Supply of 132kV Line Hardware

**The Secretary Tender Committee
Fiji Electricity Authority
Head Office
Suva
Fiji**

- **Hard copies of the Tender bid will also be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and hard copy is dispatched to courier before the closing date and time. Please note courier submission date should be forwarded to FEA with your bid.**

Tenders received after **4:00pm** on the closing date of **Wednesday 21st March, 2018**

- will not be considered.
- Lowest bid will not necessarily be accepted as successful bid
- **It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission including any Duties/Taxes. Hard copies of the Tender submission via Post Box will not be considered.**