

**JAIPUR VIDYUT VITARAN NIGAM LIMITED  
OFFICE OF THE SUPERINTENDING ENGINEER (PROC)  
OLD POWER HOUSE PREMISES, NEAR RAM MANDIR, BANIPARK, JAIPUR-6  
FAX:0141- 2208098, TELE:0141- 2208098**

**SPECIFICATION FOR SUPPLY OF HOT DIP GALVANISED STEEL STAY SETS OF  
SIZE 16X1800MM AND 20x2400MM UNDER TN-4332**

|                                     |   |
|-------------------------------------|---|
| <b>Last Date of receipt of bids</b> | <b>25.03.2011 upto 2:30 PM</b>  |
| <b>Date of opening of bids</b>      | <b>25.03.2011 at 3:00 PM</b>  |
| <b>Cost of Specification</b>        | <b>Rs. 2500.00 ( Rs. Two Thousand Five Hundred Only )</b>   |
| <b>Validity</b>                     | <b>120 days from the next date of opening of techno-commercial bids.</b>  |
| <b>Earnest Money</b>                | <b>Rs. 500,000.00 (Rs. Five Lac only) / Exemption Certificate / Vendor Registration Of Class " A " Category or above.</b> |

**Note :** The bidders in their own interest are advised to go through the Complete specification carefully.

## INDEX

|                |  |   |
|----------------|--|---|
| Section-I      | Instructions to bidders  |   |
| Section-II     | General Conditions of Contract   |   |
| Section-III    | Technical Specification  |   |
| Schedule-I     | Schedule of Requirement  |   |
| Schedule-II    | P.V. Formula   |   |
| Schedule-III   | Details of Standards   |   |
| Schedule-III-A | Pre Qualification Requirement(PQR)   |   |
| Schedule-III-B | Performa of Bank Guarantee in lieu of type test certificates   |   |
| Schedule-IV    | Price Schedule   | To be submitted in Price Bid Envelop.   |
| Schedule-IV-A  | Details of tendered quantity, quantity offered alongwith justification with reference to Qualifying Requirement. | The bidder is required to justify quantity offered as per Qualifying Requirement. |
| Schedule V     | Departure from Guaranteed Technical Particulars  |   |
| Schedule V A   | Guaranteed Technical Particulars   |   |
| Schedule VI A  | Departure from the requirement of Technical Specification.   |   |
| Schedule VI B  | Departure from commercial terms & conditions of specification  |   |
| Schedule VII   | List of Past supplies.   |   |
| Schedule VII A | C.A. Certificate for Quantity Justification  |   |
| Schedule VIII  | Delivery schedule.   |   |
| Schedule IX    | List of equipment & technical hands available with the tendering firm.   |   |
| Schedule X     | General Particulars about the bid in brief.  |   |

**Note:- The bidder, in their own interest, are requested to read very carefully Section-I (Instruction to bidders), Section-II (General Condition of Contract) & Section-III (Technical Specification) before filling the bid. The Bid documents be downloaded from JVVNL website [www.jaipurdiscom.in](http://www.jaipurdiscom.in) . No hard copy of the bidding documents will be provided to the bidders through this office. In case of any discrepancy found in bidding documents downloaded from the website and appended with the bid (as a bid document) and original copy of such document available in the office of Superintending Engineer (Proc.), Jaipur Discom, Jaipur then the copy available with Superintending Engineer (Proc.), Jaipur Discom, Jaipur will be considered as final document for all purpose. The cost of Bid document as published in NIT shall be furnished along with downloaded bid document in the manner prescribed in bid document.**

**SECTION-III****TECHNICAL SPECIFICATION FOR GALVANISED STEEL STAY SETS OF SIZE 16X1800MM AND 20x2400 MM AGAINST TN-4332.****1.0 SCOPE**

This section provides for manufacture testing before despatch, supply and delivery F.O.R. destination anywhere in Jaipur Discom of hot dip galvanized steel stay sets of size 16x1800 mm and 20X2400( oiled threads) with G.S. Anchor plates, as per pattern-1 of BS:16/1974.

**1.1 Size 20X2400 mm**

Hot dip galvanized steel stay sets of dia 20mm, 2400 mm long (oiled threads complete with ratchet nut, GS anchor plates size 380x380x4 mm ( having square hole size as 22 x 22 mm in centre) & fitted with cast iron cross head and steel bow dia 14 mm conforming to pattern-1 of BS:16/1974

**1.2 Size 16X1800 mm**

Hot dip galvanized steel stay sets of dia 16mm, 1800 mm long (oiled threads complete with ratchet nut, GS anchor plates size 300x300x4 mm ( having square hole size as 18 x 18 mm in centre) & fitted with cast iron cross head and steel bow dia 12 mm conforming to pattern-1 of BS:16/1974

**2.0 CLIMATIC CONDITIONS :**

|       |   |                   |
|-------|---|-------------------|
| i)    | Maximum ambient Air Temperature (deg.C)       | 50                |
| ii)   | Minimum ambient Air Temperature (deg.C)       | (-) 2.5           |
| iii)  | Average daily Ambient Air Temperature (deg.C) | 32.2              |
| iv)   | Maximum relative humidity (%)                 | 100               |
| v)    | Minimum relative humidity (%)                 | 50                |
| vi)   | Average rainfall per annum (mm)               | 150-1000          |
| vii)  | Number of rainy days per Annum                | 70                |
| viii) | Altitude above mean sea level (meters)        | 100-1000          |
| ix)   | Isoceraunic level (Days/Annum)                | 25(thunder Storm) |
| x)    | Maximum wind pressure (Kg/sq.m.)              | 195               |
| xi)   | Seismic level (Horizontal Acceleration)       | 0.08 g            |

**3.0 PRINCIPAL PARAMETERS :**

The hot-dip galvanizing steel stay sets and anchor plates shall strictly conform to BS:16/1974 with latest amendments thereof as per pattern-1 in all respect, except herein otherwise stated. The ratchet nut and the cross head bow shall be having three (3) cuts in place of six(6) . The dimensions of the cross head portion of the bow of each type of stay set shall be as per the drawing enclosed at

Appendix-A. Tolerances in dimensions shall be governed by the values appearing at Schedule of GTP.

The stay sets shall have galvanizing as per BS:729/1961 part-I with latest amendments thereof and shall be galvanized by hot dip galvanization process.

#### **4.0 GENERAL TECHNICAL REQUIREMENTS :**

i) The rod and bow shall be free from flaws and other defects, shall of good finish and the cross head shall not fail, draw and deformed when the assembly is tested to fracture as their full section by tensile strength. The ratchet nuts and ratchet face of each cross head shall be well formed, so that any nut and any cross head of the appropriate size shall provide good ratchet action. The treads of stay sets shall be cut after galvanising and shall be lubricated with good quality of mobile oil to prevent rusting.

(ii) The rods and bow shall be of steel suitable to give strength as per table of tensile strength as at 6.2(a) below:

(iii) The cross head may be made of forged mild steel/ hot rolled steel. The ratchet nuts shall be of steel or malleable cast iron.

(iv) The side of each bow shall be well riveted into the cross head ( sound / strong iron casting) & shall not draw when the complete assembly is tested to fracture by tensile stress.

(v) In case of galvanized steel stay sets & anchor plates, all the ferrous metal parts shall be smoothly & continuously hot dip galvanised with zinc, the nuts shall have neat fit so that they can be turned easily through out the length of the threads on the bolts & nuts shall be capable of developing the full strength of the bolts. The galvanising shall satisfactorily withstand the test specified BSS:729/1961 Part.I with latest amendments.

(vi) The parts of stay sets of the same type shall be strictly interchangeable.

(vii) The steel anchor plates shall be clearly cut off and punched and shall be free from cracks after punching.

(viii) The rods,bows and plates shall strictly conform to table 3 and 6 of BS:16/1974 ( stay rods No.13 M & 15 M & anchor plates No.23 M1 & 45 M1) in respect of dimensions etc. and figure 4& 5 (Pattern-I) in respect of shape etc. The dimensions of the cross head portion of the bow shall be as per the drawing enclosed at Appendix-A of this section.

#### **5.0 TEST :**

##### **5.1 TEST BEFORE DESPATCH :**

The G.S.Stay Sets and accessories shall be subjected at maker's works before despatch to the following test as per BS/IS.

## A) ROUTINE TEST ON EACH UNIT AS PER RELEVANT STANDARD :

The dimension of the stay rods, bows and plates shall strictly conform to table 3 and 6 of BS-16/1974 (Stay rods No.13 M & 15 M and anchor plates No.23 M-1 & 45 M-1) in respect of dimensions etc., and fg. No.4 & 5 (Pattern-1) in respect of shape etc. the dimensions of cross head portion of the bow shall be as per drawing enclosed at Appendix-A.

### 5.2 ROUTINE / ACCEPTANCE TEST :

The following tests shall be got conducted in presence of Purchaser's representative.

#### a) TENSILE TEST :

The finished stay sets when subject to tensile test shall comply with the requirement of the tensile strength as per the table given below:

| S.No.                 | Diameter of rods | Breaking load |
|-----------------------|------------------|---------------|
| 1.                    | 20 mm            | 96 KN         |
| 2.                    | 16 mm            | 62 KN         |
| ( 1 KN = 101.972 Kgf) |                  |               |

#### b) HOT DIP GALVANISED TEST :

The finished stay sets when subject to dip test in standard copper sulphate solution for the testing of galvanization quality should be able to witness four dips of one minute each as per BS:729/1961 Pt.I with out any copper deposits on the surface.

The weight of zinc coating should not be less than 610 grams per sq.m for rods and 460 grams per sq.m for plates as per BS:729/1961 Pt.I.

### 5.3 SAMPLING PLAN FOR INSPECTION:

Since the sampling procedure/ plan has not been mentioned in the BS:16/1974, the following sampling plan shall be applicable for inspection testing/ checking of the stay sets.

#### (i) FOR TENSILE STRENGTH TEST : 1 out of 1000 Nos. CRITERIA FOR CONFORMITY :

If one or more samples fail, twice the number of samples originally tested shall be selected and shall be subjected to the test. If there is no failure among these samples, the lot or the sub lot shall be considered to have satisfied the requirement of this test. If one more sample of the second sample fails, the lot or sub lot represented by the corresponding samples shall be considered not to have passed the test.

## (ii) FOR PHYSICAL DIMENSIONAL CHECKING AND GALVANISATION TEST:

The sampling plan will be as under :

The lot offered for inspection, be divided in sub lot not exceeding 5000 Nos. sets for each sub lot. Acceptance or otherwise of sub lot shall be determined on the basis of performance of the samples selected from it as per details mentioned as under :

| Size of sub-lot | Sample size | Sample size for re-inspection | Permissible Failure  |  |
|-----------------|-------------|-------------------------------|----------------------|--|
|                 |             |                               | From 1st sample size | From total samples including re-inspection |
|                 | n1          | n2                            | c1                   | c2   |
| Upto 1000       | 2           | 4                             | 0                    | 1  |
| 1000 to 2000    | 4           | 8                             | 0                    | 1  |
| 2001 to 3000    | 6           | 12                            | 1                    | 2  |
| 3001 to 5000    | 10          | 20                            | 1                    | 3  |

### 5.4 CRITERIA FOR CONFORMITY

Sub lot shall be considered as conforming to the requirement of the acceptance test if the Nos. of failure found in first samples selected as per Col. No.2 of above table, are upto the No. mentioned in Col.4 If the No of failure is more than or equal to the sample mentioned in Col.5 lot shall be considered as not conforming to the requirement of acceptance and shall be rejected. If the No. of failure is between c1 and c2, a second sample of n2 stay sets shall be selected and subjected to acceptance test. If the number of failure in the two samples sizes (n1+n2) combined is less than c2, the lot shall be considered as conforming to the requirement of acceptance tests otherwise it shall be considered to have failed.

### 5.5 TOLERANCE ON TEST RESULTS :

As per BS:16/1974 and GTP of specification .

**5.5.1** The purchaser reserve the right to conduct all test on stay sets after arrival at site and the contractor shall guarantee tests certificate under actual service condition.

### 6.0 INSPECTION

**6.1** All the tests (as mentioned at Clause 6.1.2) and Inspection shall be made at the place of manufacturer unless otherwise especially agreed upon by the bidder and purchaser at the time of purchase. The bidder shall afford the inspection officer(s) representing the purchaser all reasonable facilities without charges, to satisfy him that the material is being furnished in accordance with this specification. The purchaser has the right to have the tests carried out at his own cost

by an independent agency whenever there is a dispute regarding the quality of supply.

**6.2** The Inspection may be carried out by the purchaser at any stage of manufacture/ before despatch as per relevant standard.

**6.3** Inspection and acceptance of any material under the specification by the purchaser, shall not relieve the bidder of his obligation of furnishing material in accordance with the specification and shall not prevent subsequent rejection if the material is found to be defective. The Bidder shall keep the purchaser informed in advance, about manufacturing programme so that arrangements can be made for inspection.

**6.4** The purchaser reserves the right to insist for witnessing the acceptance/ routine testings of the bought out items.

**6.5** The Bidder shall give 15 days advance intimation to enable the purchaser to depute his representative for witnessing the acceptance and routine tests. The inspection charges would be to the purchaser's account.

## **7.0 DOCUMENTATION :**

**7.1** All drawing shall conform to International Standard Organisation (ISO) 'A' series of drawing sheet / Indian Standards Specification IS:656. All drawing shall be in ink and suitable for microfilming. all dimension shall be in SI Units.

### **7.2 List of drawing and documents :**

The bidder shall submit four sets of drawings, complete with fully dimensioned elevation, cross sectional and longitudinal section drawings of each type of material and its assemblies. All drawings shall be to scale with full details.

All important dimensions being given therein and the material of which each part is made of shall be clearly indicated. The drawing of cross head portion and bow and tolerance in the dimensions as per this specification shall be forming a part of contract.

**7.3** The manufacturing of the equipment shall strictly be in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.

**7.4** The equipment shall conform to high standard of engineering, design workmanship and latest revisions of relevant standards at the time of ordering and purchaser shall have the power to reject any work or materials which in his judgment, is not in full accordance herewith.

## 8.00 MARKING, PACKING & FORWARDING :

### 8.1 MARKING:

Each bow of stay sets shall be provided with the following marking :

- a) Name of Manufacturer or Trade Mark.
- b) Month & year of manufacturing.

The marking on bow should be embossed during the course of casting.

### 8.2 PACKING & FORWARDING :

**8.2.1** The stay sets shall be supplied in bundles securely tied and compactly fastened. The bundles of rods shall be tied by wire. The anchor plates shall be tied by wire or bolts and plates & bow shall be supplied in gunny bags.

**8.2.2** Each consignment shall be accompanied by a detailed packing list containing the following information:

- a) Name of the consignee
- b) Details of consignment
- c) Destination
- d) Total weight of the consignment
- e) Handling and unpacking instructions
- f) Bill of material indicating contents of each package.

**8.2.3** The offers, from manufacturers of G.S.Stay sets shall be preferred . The bidders must, therefore, supply the information alongwith the bid regarding date of starting the manufacturing of the material under reference, manufacturing capacity, details of machinery installed etc. in the schedules -IX appended with the specification.

## 9. PRICES & PRICE VARIATION :

a) The prices quoted shall be variable as per price variation formula given in the specification (**Schedule-II**). The IEEMA formula allowing price variation for transmission line accessories & H/W containing all steel as under, shall hold good for stay sets.

$$P = \frac{Po}{100} \left( 20 + 58 \frac{LA}{LAo} + 7 \frac{Zn}{Zno} + 15 \frac{W}{Wo} \right)$$

The details of this PV clause are available at (Schedule-II).

- b) If the price variation formula is changed, the same shall be applicable for the price variation. During the transit period when both old and new indices are being circulated, then the admissible price variation shall be applicable, which is advantageous to NIGAM, and the period from which old indices are discontinued then the PV shall be admissible with the new indices.
- c) The date of delivery ( i.e. date of readiness of material ) is to be considered as per clause No. 1.10 of Section-I(Instructions to bidder).

## **10.0 DELIVERY SCHEDULE**

The bidder is required to quote monthly delivery. The delivery of quoted quantity should be completed in **Ten months** period including commencement period of **maximum 30 days in equal monthly installments in respect of each type of stay set**. In case ordered quantity is different than quantity monthly delivery shall be adjusted proportionately. Bids in which equal monthly delivery schedule is not indicated shall be ignored.

The bidders are required to indicate the delivery schedule in the schedule attached with the Specification.

## **11.0 TEST CHECKING OF MATERIAL AT STORES**

The material received in the stores of the NIGAM shall be subjected to the test checking at stores before final acceptance of the material, the procedure for the same shall be as under :

### **11.1. SAMPLING**

One sample out of each sub-lot / lot consisting of following quantities or part thereof in case of each type of G.S. Stay Set from each inspected lot received in stores shall be selected for test checking of material and shall be got tested.

- I. G.S Stay Set of size 16X1800 mm– 1000 sets.
- II. G.S Stay Set of size 20X2400 mm – 1000 sets.

The selection of sample from the material received at stores shall be done as soon as material is received in stores without the presence of the representative of the supplier. However, testing of sample(s) at CTL shall be carried out in the presence of representative of the supplier after identification / confirmation by him that sample so selected belongs to them. In case the supplier disputes that the selected samples does not pertain to them, then fresh sample shall be selected in the presence of the representative of the supplier and test(s) be carried out.

### **11.2 TESTS**

The following tests shall be carried out on the above items :

- a) Visual Examination, Verification of Dimension, weight and marking Test

- b) Tensile strength test.
- b) Galvanisation (Uniformity) Test.

**11.2.1** Only those tests shall be conducted at CTL for which facility with CTL is available.

**11.2.2** Test of the material shall be got done at the test laboratory of the NIGAM i.e CTL, Jaipur in the presence of representative of supplier. For witnessing of the testing, clear 7 (seven) days notice shall be given to the supplier by fax/ speed post stating date, time & place where the test is to be conducted. In case the supplier do not attend for witnessing the testing, the testing shall be proceeded and completed and action be taken as per the contract.

**11.2.3** The witnessing officers of the NIGAM or as designated by the purchaser shall send copies of test reports to the purchaser, consignees and the supplier.

### **11.3 CRITERIA FOR ACCEPTANCE**

a) Visual Examination, Verification of Dimension, weight and marking .

As per specification/ ISS/ BIS

b) Tensile strength test.

In case of failure of sample in tensile strength test the material contained in the lot / sub-lot to which the sample belongs, shall be rejected. The rejected material shall have to be replaced by the supplier free of cost.

b) Galvanisation (Uniformity) Test.

i) The sample(s) shall be first tested for (n-2) number of dips where (n) is specified number of dips in the contract. If the sample(s) does not pass the uniformity of Galvanisation Test for (n-2) dips, the material shall be rejected and the material relating to relevant lot / sub-lot to which sample(s) pertains shall have to be replaced by the supplier free of cost.

ii) If the sample has passed the uniformity of Galvanisation Test for (n-2) dips, then it shall be tested for (n-1) dips. If the sample has not passed the uniformity of Galvanisation Test with (n-1) dips, then material pertaining to relevant lot / sub-lot shall be accepted with a deduction @ 10% of cost of material.

iii) If the sample has passed the uniformity of Galvanisation Test with (n-1) dips, then sample shall be tested for last one dip of one minute to complete the test for `n' dips. If the sample does not pass the uniformity of Galvanisation Test with `n' dips, then the material pertaining to relevant lot/ sub-lot shall be accepted with a deduction @ 5% of cost of material.

iv) If the sample(s) have passed the Test with number of dips as specified in the contract (n), then material pertaining to relevant lot / sub-lot shall be accepted.

#### **11.4. TEST CHARGES :**

All test charges incurred towards test checking of the material received in our stores shall be borne by the NIGAM.

#### **11.5 PAYMENT :**

Payment shall be made only after receipt of successful test report from the CTL on the samples selected from the material received at the stores. However, the due dates for payment shall be considered from the date of submission of the bills along with receipted challans to Accounts Officer(CPC), JVVNL, Jaipur.

#### **12.0. TYPE TEST REPORTS :**

a) The bidder shall furnish valid and authenticated type test certificate reports for the tests specified in the BS : 16/1974 from a Govt. approved/ a Govt. recognized/ NABL accredited laboratory/ ILAC i.e. International Laboratory Accredited laboratory / ILAC i.e International Laboratory Accreditation Cooperation ( In case of foreign laboratory) of G.S. stay sets of size 16x1800 mm and 20x2400mm. Such type test certificates should not be older than three years as on the date of bid opening. For this purpose date of conduction Type Test(s) will be considered.

b) The type test certificates by in house laboratory of bidding firm even if it is a Govt approved/ Govt recognized/ NABL accredited/ ILAC accredited, shall not be accepted, in case of their own bid. This will not apply if bidding firm is Govt. Company/ Public Sector Undertaking.

c) The bidder should furnish documentary evidence in support of the laboratory whose type test have been furnished, that the said laboratory is a Govt/ a Govt. approved/ a Govt. recognized/ NABL accredited laboratory/ ILAC accredited ( in case of foreign laboratory)

d) The type test certificates shall be furnished either in original or duly attested by notary.

e) The bids of only those bidders shall be considered to be meeting the type test criteria who furnishes complete type test certificates with the bid as per above provision.

f) However, in the following cases the bid of the bidder may be considered meeting the type test criteria if the bidder furnishes an undertaking stating that valid type test certificates from a Govt/ a Govt. approved/ a Govt. recognized/ NABL accredited laboratory/ ILAC accredited shall be furnished from first lot (without asking for any delivery extension) along with Bank Gurantee, with the technical bid from a Nationalized/ Scheduled Bank in prescribed proforma at Schedule-III C or DD/ Pay

order amounting **Rs. 5.0 Lac.** The initial validity of BG shall be 9 months with claim period of 3 months in addition

- i) Where a new Rajasthan based firm is participating & is technically competent.
- ii) Where one or more type test(s) is/ are older than 3 years.
- iii) Where Rajasthan/outside Rajasthan firm furnishes requisite type test reports of higher rating material

**13.0 Quantity tolerance :**

Quantity tolerance of plus minus 2% of ordered quantity shall be allowed for completion of supply .