

### TECHNICAL SPECIFICATION

1. SCOPE: This specification covers the design, manufacture, testing, supply and delivery of Pressure/Gravity Die Casting Aluminum Alloy Dead End Clamps as per the details given herein and drawing no. 120 given herewith suitable for ACSR conductor of size 30 mm<sup>2</sup> to 80 mm<sup>2</sup> use on 11 KV Over Head lines.

2. STANDARD: The Dead End Clamps shall strictly comply as regards material, design, manufacture and tests with the Indian Standard Specification 2486/1971 as amended from time to time except in so far as the same may be modified by this specification. The uniformity of Zinc Coating of Hot dip galvanized ferrous parts shall satisfy the requirements of IS: 2633-1986 (or the latest edition). The chemical composition of the material shall be as per IS: 617. Threaded ferrous parts shall be as per IS: 1367/1967 (Latest edition).

3. ATMOSPHERIC CONDITIONS:-

i) The climatic conditions under which this material is required to be operated shall be as per data given as under:

a	Maximum temperature of air in shade	50 <sup>0</sup> C
b	Minimum temperature of air in shade	0 <sup>0</sup> C
c	Maximum temperature of air in sun	80 <sup>0</sup> C
d	Maximum humidity	100%
e	Average number of thunder storm days per annum	40
f	Average number of dust storms per annum	40
g	Maximum rain fall per annum	98 cm
h	Average rainfall per annum	60 cm
i	Limits of ambient temperature averaged over a period of 24 hours.	10 <sup>0</sup> C to 45 <sup>0</sup> C
j	Wind pressure	195 kg/ m <sup>2</sup>
k	Altitude above MSL	1000 Meters.

ii) Tests for the purpose of this standard shall preferably be carried out under conditions of temperature and humidity as specified in IS:196/1966 (that is a temp. of 27°C +2°C and relative humidity of 65+2 percent) and at the prevailing atmospheric pressure. When this is not possible, test may be carried out under conditions naturally prevailing at the time of test. The baro-metric pressure, air temperature and humidity shall be recorded for the purpose of corrections.

4. GENERAL REQUIREMENT:

The casting shall be of good finish and free from flaws and other defects. The edges on the outside of fittings such as at the eye, clevis and holes, shall be rounded.

- i. All support of different fittings which provide for inter-connections shall be made such that sufficient clearance is provided at the connection point to ensure free movement. The eye and clevis connections shall be free. Care shall be taken that too much clearance between eye and the tongues of the clevis is avoided.
- ii. All support fittings (alongwith small fittings like plain washers, spring washers and nuts etc.) shall be Hot Dip Galvanized, The plain washers & spring washers shall however be either Hot dip galvanized conforming to relevant standards or electro galvanized conforming to service grade -IV as specified in IS-1573 (Latest edition with amendments if any) and shall be tested accordingly.
- iii. The composition of the Aluminum Alloy shall be declared by the manufacturer giving reference to the relevant Indian Standard.
- iv. The Dead End Clamps shall be made of Aluminum Alloy and manufactured by Pressure or Gravity Die-Casting Process. The breaking strength of clamp shall not be less than 4500 Kg.

5. TYPE: Only tongue and clevis type Insulator fittings shall be supplied. The Dead End Clamps shall be suitable to hold ACSR conductor of size 30 mm<sup>2</sup> to 80 mm<sup>2</sup> only. Aluminum Alloy Dead End Clamps shall be accepted as per drawing enclosed. The strap shall be of MS Steel galvanized with hot dip process.

6. SAMPLES: Two samples of Dead End Clamp must be supplied before opening of tender. Samples should be duly labeled with full address of the firm, tender enquiry no. & due date. Samples should either be sent by post or handed over personally but these should reach on or before the due date of opening of tender, failing which the tenders are likely to be rejected.

7. MARKING:

Each clamp shall have, the following identification marks duly embossed:-

- a) Name or trade mark of the Manufacturer.
- b) Word 'PSPCL' on the main Aluminum Alloy body.



c) Year of manufacture.

#### 8. PRICE VARIATION:

- i) Bidders should quote variable prices & as per price variation formula given below. Basic prices of raw materials (as per IEEMA(PVC)/TLA&H(R-3)) prevailing as on the first day / first working day of the calendar month, one month prior to the original date of opening of tender enquiry, should form the basis for quoting variable rates. However, price adjustment shall be made on corresponding rates of variable elements prevailing on the first day/first working day of the month prior to (as prescribed in price variation formula) the date of readiness of the material intimated in the offer by the firm for inspection or date on which the offer for inspection of material is duly received in the concerned office (whichever is later), if the date of readiness of material is not specified in the offer. However, the period of two weeks for inspection as per clause-22 of schedule-E will not be counted for computing price variation.

Change in Prices of Dead End clamps	=	$\frac{1100X (\text{Change in price of Steel per kg}) + 275 (\text{Change in price of Aluminium ingot per kg}) + 22 (\text{Change in price of Zinc per kg})}{1000}$
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- ii) For price variation prices for Aluminium, zinc and steel billets as per IEEMA/ (PVC) TLA&H (R-3) circular shall be taken into account.
- iii) In case, any tenderer quotes his rates with base rates higher than that prevailing on the specified date. no unloading will be done for the purpose of working out equated rates/preparation of merit statement.
- iv) No variation in prices shall be allowed on labour consumables, handling, transportation or freight charges etc.
- v) For claiming price variation on Aluminium, Zinc and Steel, price variation claims shall be allowed as per IEEMA Circulars rate mentioned above. Necessary circular showing rates will be submitted along with PV bills.
- vi) If the variation is to be claimed along with the bills, Suppliers shall submit their claim supported by documents to AO/CPC(M), PSPCL, Patiala well before actual despatch of material/submission of documents to AO/CPC(M), PSPCL, Patiala under intimation to the purchaser for certification of variation claim and to get the same approved before sending the documents.
- vii) In case indigenous/imported raw material is used to cope with the delivery schedule and its cost is more than the other, the firm will have to furnish documentary proof to the effect that imported/ indigenous raw material was not available with them for utilization and manufacture of Dead End Clamp for PSPCL. The variation in this case will be restricted to lesser of the two prices i.e. imported/indigenous price of raw material.
- viii) For calculation of variation, only the difference between the basic price of Aluminium, Zinc and Steel as mentioned in the tender and the prices prevailing on the first day/first working day of the month prior to (as prescribed in price variation formula) the date of readiness of the material intimated in the offer by the firm for inspection or date on which the offer for inspection of material is duly received in the concerned office (whichever is later), if the date of readiness of material is not specified in the offer. However, the period of two weeks for inspection as per Clause-22 of Schedule-E will not be counted for computing Price variation. In case of delayed deliveries, the purchaser reserves the right to make payments for price variation on the basis of price computed according to the contractual delivery date or actual delivery date or date of offer whichever is advantageous to the purchaser.
- ix) If rate of taxes and duties leviable on the price of finished goods are not indicated separately then calculation of price variation, if applicable will be done considering the lowest slabs of GST prevailing one month prior to the inspection call for the material on which this price variation is applicable
- NOTE:** If statutory variation in GST or other levies declared by Govt. of India are to be claimed on raw material, it shall be indicated specifically.
- x) The rates should be quoted after taking into account the Input Tax Credit (ITC) benefit accruing to the bidder due to GST. However, the extent of ITC benefit available which has been taken into account while quoting the prices must be indicated. Any increase or decrease in this benefit due to change in policy of Govt. shall be to the PSPCL's account. (The price variation shall be paid during the contractual delivery period, however, the benefit of ITC accruing due to increase in the rates of Aluminium Zinc and Steel shall be passed on to the PSPCL).

#### 9. DELIVERY SCHEDULE:-

**The whole of the ordered quantity shall be supplied within 10 (Ten) months, in equal monthly lots from the date of placement of PO.**

If the ordered quantity to a bidder is less than the quantity offered by the bidder, then delivery period can be reduced accordingly by PSPCL.

**10. RANDOM CHECKING:**

On receipt of material in the stores/workshops, PSPCL shall inspect the material at random as per provision of the Purchase order/contract irrespective of the fact whether or not, it has been inspected before dispatch. If the shortage/deviation from declared quantity /specification is noticed, the same shall be reported immediately by the consignee to the supplier, under intimation to all concerned. On receipt of such intimation from consignee(s), the CE in charge of the stores/workshops shall fix a date and time for joint verification under intimation to the supplier & all concerned giving minimum 10 days-time. The checking shall be carried out in the presence of firm's representative at Destination Station and in case the firm's representative does not happen to be present at destination on the specified date & time so fixed, then PSPCL shall be at liberty to do joint verification in his absence. The shortage/discrepancies so detected shall be applied on the full lot. In case shortage/discrepancies, in particular lot supplied to various consignees, are also noticed by different consignees, the above procedure shall be followed for joint verification by each and all such consignees. The maximum shortages/discrepancies detected by any of consignees shall be applied to the entire lot of material supplied to various consignees. In case of any failure of material during random checking, PSPCL reserves the right to reject the entire lot at the risk and cost of the supplier.

In case of repeated shortages/discrepancies the firm shall be liable for suspension of business dealings/black listing. This is without prejudice to the other rights arising/accruing to the purchaser under various clauses of the Tender specification & Purchase Order-Cum-Contract.

**11. PAST PERFORMANCE:**

The past performance of the firms on whom orders have been placed by this office for this material shall be taken into account while deciding the case. The firms, with unsatisfactory performance, are likely to be ignored, even if, otherwise found technically acceptable and coming within the Zone of consideration.

**12. INSPECTION & TESTS:**

No material will be allowed to be dispatched without prior inspection and approval. In case, inspection of the consignment is waived off by the PSPCL, the tenderer will be required to furnish the test certificate of the material, in triplicate for approval. The material consumed/destroyed during testing will be to the account of the tenderer.

The Dead End Clamps shall comply with the following tests as per ISS:2486/1971 with latest amendments:-

**a) Type Tests**

- a) Slip strength
- b) Mechanical test
- c) Verification of dimensions
- d) Galvanizing test
- e) Visual examination test.

Type tests certificates from a Govt. approved/ recognized Test House indicating the results of type tests conducted (before original date of opening of tender) on one no. clamp, identical in all essential details with those to be supplied, should be enclosed with the tender. Type test should be conducted on the tendered item manufactured only at work(s) from where material is to be supplied. Purchaser, however, reserves its right to carry out the type test(s) whenever felt necessary at firm's cost.

**b) ACCEPTANCE TESTS**

All the acceptance tests shall be carried out on each sample as per ISS:2486.

**c) OTHER TESTS**

Any other test(s) becoming necessary with the amendment in relevant ISS: or otherwise agreed to between the supplier & purchaser shall also be carried out.

**13. PACKING:**

The Dead End Clamps shall be suitably packed in double gunny bags, sewn with lashed wire or in wooden boxes, which shall be tied with cross G.I. Wire. The packing shall be fit to withstand rough handling during transit & storage at destination without causing any damage to galvanizing or surface finish.



Each packing shall not weight more than 50 Kg. The packing shall be done immediately after the material is cleared for despatch by Purchaser's representative after its successful testing and each packing will be sealed by the purchaser's representative.

All Dead End Clamps received damaged shall be to the supplier's account.

Since, the packings containing the inspected quantity of Dead End Clamps are required to be sealed by our Inspecting Officer after carrying out the successful testing/inspection of material as per relevant standards, the lead seals & lash wire for this purpose shall be supplied by the supplier without any additional charges to the PSPCL. The supplier shall, therefore, provide proper seals & lash wires of good quality so as to ensure that these give clear and legible impression of the sealing plier used by our Inspecting Officer. They(supplier) shall further be required that their authorized representative gives the following certificate before our Inspecting Officer leaves their premises, so as to ensure that the impressions on the seals are proper and legible:-

"It is certified that I have checked that the impressions of the sealing pliers are legible on lead seals and is provided on all the packing."

The quoted prices shall be deemed to include the cost of suitable packing as above unless otherwise specifically mentioned in the tender.

14. MANUFACTURE:


Place of manufacturer, testing & inspection of material must be stated by the tenderers clearly.

15. DRAWING:

The material shall be supplied as per PSPCL's Drawing no.120 enclosed herewith.

16. GUARANTEED TECHNICAL PARTICULARS:

Guaranteed technical particulars as per Annexure-A shall be furnished with the tender. Any other particulars considered necessary by the Supplier may also be given in addition to those listed in Annexure-A.

  
Chief Purchase Officer,  
PSPCL, Patiala.