



PRODUCT STANDARD
BUSDUCT ENGINEERING DIVISION

ANNEXURE-III TO
FA/ENGG/STRUC/
2017-2018/001

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ANNUAL FRAME WORK AGREEMENT FOR GALVANIZED STEEL
SUPPORT STRUCTURE

TECHNICAL SPECIFICATION:-

- 1) Raw material shall be in conformance to IS: 2062/Grade E250/A/B and our Corp. Std. No. AA10119.
- 2) Tolerance of the Raw material shall be as Per IS: 1852/ latest.
- 3) The firm must source all the Steel Raw Material from SAIL, IISCO, TATA STEEL, RINL or their authorized re-rollers or any other manufacturers or their re-rollers having BIS license for the required raw material. The firm must submit documentary evidence like invoice, Test certificate, BIS License as proof of procurement from BIS license holder, with each consignment of supply to sustain that the raw material used is as per the above IS and procured from BIS License.
- 4) Finish: All the Components are Hot Dip Galvanized as per IS: 4759 (latest)/ IS: 2629 and it should pass the Dip Test as per IS: 2633. Thickness of zinc coating shall be minimum 610 gm. /sq. meter. However, against customer's specific requirement for customer Zinc coating may be asked minimum 910 gm. /sq. meter. (Therefore, Suppliers should also quote alternative rates with Zinc coating of minimum 910 gm. /sq. meter).
- 5) The Project name, Work Order No. and BOM No. shall be marked on 4 places (at 2 ends and 2 side faces) with indelible ink/paint/welding. Height of words/numbers shall be minimum 1.5" (INCH) for easy viewing. Welded Assembly Drawings & variant/item no. Shall also be marked at one place. Miscellaneous small items shall be packed in suitable gunny bags/wooden crates in order to avoid pilferage and identification should be clearly marked on the bags / wooden crates.
- 6) Components shall be fabricated as per the drawing provided with respective purchase orders (sample drawings only for estimation purpose attached. Actual requirement may partially/entirely differ from the sample drawings).

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REV.	01	PRINTS TO:-	APPROVED BY-
ALTD.		Grade added	Arvind Narayan
APPD.			PREPARED BY
DATE.			CHECKED BY
			DATE
			Suvankar sarkar
			Arvind Narayan
			22.04.17

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		COPYRIGHT AND CONFIDENTIAL The information on this document is the property of Bharat Heavy Electricals Limited It must not be used directly or indirectly in any way	7) Supply of the components should strictly conform to dimensions and tolerances indicated in the Drawings and Quality Plan, if applicable. 8) Inspection shall be by our Quality Control Department and / or by our customers and / or by an appointed agency or persons authorized by us. 9) T.C. & G.C. shall be submitted for Chemical composition, Mechanical properties and Galvanizing. 10) PVC Formula: The prices in the contract will be variable as per New PVC Clause for Transmissions Line Tower published by IEEMA vide circular no. IEEMA <u>(PVC)/TLT-2014)/03/2017</u> dated MARCH 2017. Copy of the same attached for ready reference. 11) BHEL reserve the right to cross check the WEIGHBRIDGE's weight either at vendor's works or at site or both. 12) Packing slip shall be accompanied with each delivery challan listing of BOM Nos. of structure elements being supplied as per drawing. Final payment shall be released to vendor only after reconciliation of each item of BOQ having been supplied. 13) WEIGHT VARIATION CLAUSE: Variation in weight is expected due to various reasons. Major factor being tolerance in section (sheet/plate/extrusions) weights. Guidelines regarding these are listed in IS: 1852. Further, Weight reduction due to holes and slots etc. are to be ignored in line with guidelines of IS: 802 (part-2). Some weight of weld deposits shall also be there, in addition to calculated engineering weight. Based on these considerations, weight variation maximum up to $\pm 5\%$ shall be allowed. However, payment shall be released on the basis of WEIGHBRIDGE's actual weight basis (billed by supplier or received at BHEL Rudrapur (if applicable), whichever is lower), within the tolerance limit of PO Weight as mentioned above. For cases of direct supply to site, BHEL reserve the right to cross check the WEIGHBRIDGE's weight either at vendor's works or at site or both. This will be frequently done.					
			REV. 01	PRINTS TO:- Grade added	APPROVED BY- Arvind Narayan			
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			APPD.		CHECKED BY			
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14) General Notes on Joints & jointing member

RULES FOR JOINTS

- a) Joints in main section shall NOT be allowed for any length less than 5 meters.
- b) Joints are NOT allowed in stiffeners, batten plates, tie plates etc.
- c) For horizontal beam supports (identified by having drilled plates in the middle for Bus Duct support) - joints shall NOT be allowed up to a length of 6 meters.
- d) For main section length exceeding 5 meters and up to 10 meters - one joint along the length shall be allowed.
- e) The butt joint is allowed at minimum $1/5^{\text{th}}$ distance and up to maximum $1/3^{\text{rd}}$ distance (of total section length). For example, in a 6 meters. Long section, joint is allowed between 1200 mm to 2000 mm from one end.
- f) For main sections consisting of multiple sections in parallel combination (like 4 angle box formation, 2 channel box formation etc.) - joint will be allowed in maximum 50% pieces per section. For example, in a 4 angle box formation, joints will be allowed in only 2 angles as per above criteria.

RULES FOR JOINTING MEMBERS

- g) Jointing of the lengths shall be done by proper butt welding with V grooves.
 - h) The jointing piece in case of channels and beams shall be fitted on both side of the jointing surface (after butt welding of main section and grinding). Width of the jointing plate shall be 10 mm less on both side from the flat edges. Overall thickness of jointing plate shall be minimum 1.6 times main section thickness. These will be continuously welded from all around.
 - i) The jointing piece in case of Angles shall be fitted on one side (inside) of the jointing surface (after butt welding of main section and grinding). Width of the jointing plate shall be maximum 10 mm less on both side from the flat edges. Overall thickness of jointing plate shall be minimum 1.2 times main section thickness. These will be continuously welded from all around.
 - j) Length of jointing plate/angle shall not be less than 200 mm.
 - k) Drawing weight shall NOT consider weight of jointing plates.
 - l) It will be responsibility of the vendor to ensure that any bolt hole and the nut-bolt-washer assembly during erection should not foul with the jointing member.
- The above set of description regarding joints should NOT imply that joints shall be generally accepted. Effort should be made to ensure that no. of pieces of sections with joints should not be more than 2/3rd quantity of an order.

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