



**Bharat Heavy Electricals Limited
Piping Centre Chennai-17**

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TECHNICAL SPECIFICATION FOR RIGID STRUT

**NTPC BARH SUPER THERMAL POWER PROJECT
STAGE I (3 x 660 MW)-UNIT NOS. 1, 2 &3**

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I. General Requirements

The rigid struts shall be mounted in between a piping system & the supporting structure. The purpose is to provide a rigid connection in both compression & tension, offering a pivot connection while allowing a small angular displacement (+/- 6 degrees).

II. Technical requirements

- The rod ends to be fitted with captive, self-aligning, maintenance free spherical bearings to allow angular displacement and connection to pipe clamps and/or weld-on-brackets. Accurately machined load pins shall be supplied to prevent vibration. Bearing make shall be **SKF/ INA/ MAYFIELD/ ELGES/ NSK**.
- Right and left hand threaded rod ends provide the facility for on-site installation and adjustment to the actual length ('L' dimension in data sheets). The adjustment to be considered is minimum +/- 100mm.
- Lock nuts shall be provided on both ends.
- Spherical bearing details shall be indicated in the offer for technical evaluation.
- Rigid Struts material shall be carbon steel & manufactured from thick walled pipe with threaded end connection plates welded to the pipe in left and right handed threads to match with rod ends.
- Design of rigid struts shall take care of compressive & tensile loads as given in the data sheet.
- Sight holes to be located at each end of the strut to check required minimum thread engagement.
- Design calculations shall be submitted for the sizes not covered in Catalogue. Each calculation for **maximum load** and/or **maximum length** shall be submitted.

Type test to be carried out for one number each for the above cases.

Selection of clamps

- Clamps shall be of proven design and selected from the catalogue.
- Clamp ID shall match with the pipe OD considering tolerance.
- Material for clamp shall be selected based on temperature indicated in datasheets.

Selection of Weld-on-Brackets

- Weld on Bracket selected for each rigid strut shall be of proven design from the Catalogue compatible with the clamp and Rigid Strut.



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III. Specific requirements/Data

- a) Application: For pipe support
- b) Length of rigid strut assembly as indicated in the data sheet.
- c) Recommended spares list to be furnished by supplier.
- d) Supplier to furnish assembly drawings, relevant catalogues and maintenance procedures.
- e) For details of rigid strut, refer data sheet.
- f) For details of yoke restraint type clamp, refer drawing no: 4-00-301-40763.
- g) The dimension 'L' indicated in the data sheet is the actual length required based on arrangement.
- h) Dimensions 'A', 'B' and 'E' are to be selected by the supplier to achieve dimension 'L' as indicated in the data sheet.
 - i) Clamp 'A' dimension variation is allowed up to +/- 20%
 - j) Selected clamp ID, Clamp width and Material to be specified in the datasheets/drawings.

IV. Scope of Supply

- a) Rigid Struts with necessary accessories.
- b) Weld on brackets with load pins & split pins.
- c) Yoke type restraint clamps as per datasheets.
- d) Painting as per painting schedule.
- e) Any special tools required for erection and maintenance.
- f) Commissioning/recommended spares.

V. Documents to be submitted along with the offer:

- a) Detailed dimensional drawings of the struts, weld on brackets & clamps
- b) Details of material for the above
- c) Quality plan
- d) Reference list, relevant catalogues and maintenance procedures.
- e) Recommended spares list.

VI. Documents to be submitted along with supply of material

- a) Detailed dimensional drawings of the struts, weld on brackets & clamps.
- b) Details of material for the above.
- c) Quality plan.
- d) Recommended spares list.
- e) Special tools (if any).
 - i. Erection instructions.
 - ii. Technical Data sheets.
 - iii. Maintenance instructions.