

DEAERATOR SCOPE OF WORK – General requirements

(Applicable for Storage Tank and Heater assembly)

Quality plan to be followed :

STD.MFG.QP.No.HYQA/HE/SQP/500/01

ADDENDA REF.NO.HYQA/SSMQP/HE/436/4727

1.Qualification requirements, Design codes

- Vendor to be qualified to IBR by Director of Boilers of concerned state
- Complete equipment shall be manufactured as per IBR CHAPTER-XII (CLASS-I Boiler) and ASME Sec.VIII DIV.1-2013,HEI-2011
- If the job is loaded on Vendors outside Telangana State, Vendor shall get the drawings approved by DOB (Director of Boilers) of concerned state prior to manufacture of assembly

2. Documentation requirements

- IBR certificate in Form no: III/IV shall be submitted by the Vendor along with equipment

3.Materials :

- Materials for the manufacture of the equipment shall be supplied as per Bill of materials (BOM) with attestation by BHEL/QC, IBR and Review of records as per quality plan

Free Issue Materials : BHEL shall supply the following as free issue

- i) Drawings, BOMs, QAP, Standards / Specifications.
 - ii) Plates in the form of Full / Off - Cuts
 - iii) Pipes, Round Bars & Sections in running lengths.
 - iv) Trays & Spray Nozzles
 - v) Paints and other items as per BOM/Drawings
- 200 mm extra length is given on Equalizer and down comer nozzles to manufacture marking / matching fixture for Storage tank & Heater

4.Fabrication requirements

- Prior to forming of shell plates, remove the mill scales by shot/grit blast

- All L-Seams of shell segments and fabricated nozzles and C-Seams of shell segments to be fully radiographed. Inspection by BHEL QC/TPIA and IBR as per Q.P. and review of records by IBR
- Assemble the spiders at open ends and stiffening rings inside the shells before flame cutting of nozzle holes to restrict distortion
- Visual examination to be carried out on all welds before marking for nozzles and internals ,after Radiographic test of
 - a)Storage tank and Heater shells
 - b) Fabricated nozzles
 in presence of BHEL QC/TPIA
- Inside edges of all projected nozzles shall be round off
- PT examination to be carried out on Pads, saddle support seams & C-seams of shells on outer welds. Inspection by BHEL QC /TPIA as per Q.P
- Down comers and equalizer nozzles of Storage tank shall exactly match with corresponding nozzles on Heater. Alignment of nozzles to be checked in presence of BHEL QC / TPIA with a fixture prepared by vendor for marking and trail assembly checking, before closing these nozzles with end covers

5. Welding process

- a) For weld details refer Drg no: 2-16310-00014/R 02
- b) Welders qualified to IBR code, shall be employed on the job
- c) Welding procedure to be qualified by BHEL QC as per ASME Sec.IX
- d) Welding of L-seam and C-seam' s to be carried out by SAW process only
- e) Check for identification of welds (Weld no. punched for correlation with welder).
Inspection by QC/IBR/TPIA
- f) Use spiders for removing ovality for fit-up and during welding of C-seams of Shell segments
- g) Provide adequate stiffeners, to avoid deformation during welding. After final welding, remove auxiliary stiffeners/pipes with pads and grind the tack welded portion thoroughly.
- h) Root run of all L - seams and C- seams of shells and fabricated Nozzles shall be back gouged and examined by P.T and inspected by BHEL QC/TPIA as per Quality plan
- i) MT & PT Test shall be carried out on nozzle head welds and nozzle to shell welds.

- j) MT & PT Test shall be carried out on weld edge preparation of nozzles above 40 mm. Inspection by BHEL QC/TPIA

6. Quality requirements

- Stages of inspection by IBR shall be as per QP.No.HYQA/SQP/500/01. Additional stages of inspection as desired by IBR authorities shall also be offered.
 - Adhere strictly to the notes / remarks / instructions mentioned on the Individual / Sub-assemblies / Main assembly drawings
 - Test coupons shall be cut from same plates of shell and pipes (if rolled from plates). Separate part numbers are given for Test coupons in Bill of materials
 - 2 no's of Test coupons to be welded with 'L' seam of each shell and punch the identification numbers also
 - Testing of production weld test coupon shall be carried out as per IBR code (after PWHT)
 - Soap solution test and review of records for RF Pads in presence of BHEL QC/TPIA
 - Inspection of PWHT by QC /TPIA & IBR
 - Test certificates shall be furnished by vendor as required by BHEL QC / TPIA
 - Hydraulic test is to be conducted for Heater assembly and storage tank (if storage tank is in single piece) to the test pressure as indicated in drawings in presence of BHEL QC/TPIA and IBR as per plant std.HY0852061-Rev.03. and IBR regulation 601.
 - Chloride content of water used for Hydraulic test shall not be more than 30 ppm
 - Dimensional inspection of Heater and Storage tank after hydraulic test by BHEL QC/TPIA & Customer representative
 - In case of any special paint requirement, paint will be supplied by BHEL and the difference in labour rate for application of paint will be paid based on prevailing BHEL CMM rate contract rates.
- ## **7. Blasting and painting**
- Qualified painters shall only be employed on the job
 - Grit/shot blast the Storage tank and Heater shell both inside and outside (before closing joint of dished end)

- Check the cleanliness after grit/shot blasting of internal & external surfaces of Storage tank and external surface of heater by BHEL QC /TPIA.
- All internal & external surfaces of Storage tank and external surface of Heater shall be thoroughly cleaned before painting.
- Pre-dispatch inspection for cleanliness, completeness, dimensional check & blanking of open holes and review of quality documentation by BHEL QC/TPIA and customer representative
- Ensure that all openings are blanked while dispatch to prevent ingress of foreign matter

8. Marking

- Work order number, Deliverable (Material no), material description and net weight shall be written on all deliverables at a visible place with most visible color paint before dispatch to site.