

Pre-Qualifying Requirement (PQR)		Indent No.20250431
HP OUTER CASING- EXHAUST END (Drg. no. - 01052730500) (Complete Finish Machining)		TTX/PQR/2025/142
SL. No.	REQUIREMENT	REMARKS
1	Only those vendors should quote who have following machine, facilities installed & operational at their works for following operations for machining, fitting works of "HP Outer Casing - Exhaust End" as per Drg. No. 01052730500. Raw material castings (Drg. No. 01052756901) shall be supplied to vendor after control marking for complete finish machining as per drawing.	Vendor to confirm.
2	Vendor must have suitable tooling / facility such as Marking Table / Machine Bed etc. in good working condition, to facilitate marking. Vendor must have suitable facility for lifting / handling the subject job.	Vendor to confirm.
3	Turning / Vertical Boring Operation :-	(a) Vendor to confirm. (b) Vendor to provide machine details / specification for referred operation.
3.1	CNC Vertical Boring Machine, suitable for Vertical Boring of HP Outer Casing - Exhaust End as per drawing & T.R.'s requirement. Machine Requirement : (a) Table diameter of machine = 4000 mm or more. (b) Maximum Turning Height of job = 2100 mm or more. (c) Ram Stroke = 1900 mm or more (d) Weight capacity of machine = 30 Tons or more.	
4	Horizontal Boring work :-	(a) Vendor to confirm. (b) Vendor to provide machine accuracies & Geometrical details / specification for referred operation.
4.1	Vendor must have suitable CNC Horizontal Boring machine with suitable attachments (i.e. UT-800 or UT-1000) for machining of different details, holes, Threaded holes, Slots as per Drg. and TR requirement. Required Machine details as below : (i) SPINDLE + RAM (Movement) : 2000 mm (ii) X-AXIS : 4000 or more, Y-AXIS : 2500 mm or more, (iii) TABLE SIZE : 3000 x 3000 mm or more (iv) WEIGHT CAPACITY – 30 Ton or more.	
5	Fitting work :-	
5.1	Vendor must have suitable facility / arrangement for different fitting / assembly works to be done as per drawing & TR.	Vendor to confirm.
6	Vendor to confirm that above machines (as per pt. no. 3 & 4) are available at their works & are in good working condition with capability of achieving accuracies, surface finish & tolerances as per drawing requirements. If necessary, Vendor can suggest alternate machines (other than specified in pt. no. 3 & 4) for machining job with accuracies, surface finish & tolerances as per drawing, for review & acceptance by BHEL.	Vendor to confirm & submit the machine accuracies & Geometry details along with specification.
7	Vendor to confirm that all the dimensions, accuracies & surface finish of the component shall be met as per Technical Requirements & drawing.	Vendor to confirm.
8	Vendor to note that all tools, measuring equipment, technological items etc. required for manufacturing of subject item shall be arranged by vendor, in case of order.	Vendor to confirm.
9	BHEL reserves the right to verify the information provided by vendor. BHEL may also visit vendor works if so desired by BHEL. In case, the information provided by vendor is found to be false/ incorrect, their offer shall be rejected.	Vendor to note & Confirm.

(I K Ranjan)
Mgr. (TTX)

(R P Singh)
Sr. Mgr. (NCT)

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Scope of Work

H.P Outer Casing- Exhaust End of Steam Turbine in finish machined condition is proposed to be subcontracted for Finish Machining work as per machining details & technical requirements furnished in drg.no. 01052730500.

H.P Outer Casing- Exhaust End raw material with material specification HW19581 and casting Drg.01052756901 will be sent.

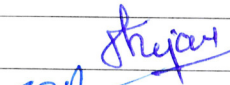
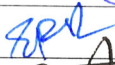
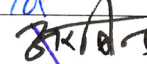

A) Scope of work at BHEL, Haridwar:

- Control marking
- All the connection and plates (item no. 2 to 7) shall be weld assembled as per details shown in the casting drawing to be done BHEL Haridwar.
- Hydraulic testing after complete machining shall be done at BHEL Haridwar.

B) Scope of Work for vendor:

Vendor to carry out complete finish machining of Outer Casing -Exhaust end as per machining details & technical requirements furnished in drg.no. 01052730500 consideration of following points:

- Machining should be carried out taking care of Rough machined (Casting) drg. as well as finish machined drg. Technical requirements specified in the rough machined drg. should be taken care of before carrying out finish machining.
- Vendor to carry out finish turn for complete casing in **one setting** including shaft seal area, specially detail P (Sh-1) & detail N (Sh-2).
- ID dia. 800-1 is to be machined up to 300mm from pipe face after machining pipe face at 2000 mm from casing center line. (Refer view at Zone G-8 at Sh-3).

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DEPTT.	NAME	SIGNATURE	DATE

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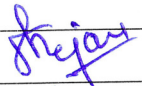
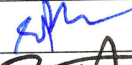
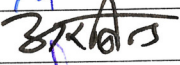
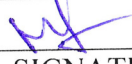
- The dimension shown as ~205 is a reference dimension. (Refer details W, Sh-1)
- All the bracketed dimension is a reference dimensions only mentioned in the drawing.
- Other details requiring relative accuracies shall be as per drawing.

C) Important points: Vendor to note following important points:

- All other requirements of QP, Standards and technical requirements specified on the drawings to followed.
- No flaws like blow holes, shrinkage, inclusions etc. should open up during machining. However, if any flaw opens up during machining, vendor shall immediately intimate detail and location of flaw and corrective action proposed. Further machining will be suspended till BHEL approves corrective action.
- BHEL shall furnish clarifications, if any, w.r.to scope of work or drg. dimensions / technical requirements to the vendor to enable it to submit technical / commercial offer.
- Party must ensure that all requirements indicated in the drg. regarding:
 - Surface finishes (Ra value indicated in microns).
 - Sizes and tolerances.
 - Geometrical accuracies e.g. run-outs, concentricity, parallelity, perpendicularity etc. shall be fully met.
 - Reference surfaces are clearly marked in the concerned drawings.

D) After finish machining, inspection report is to be submitted to BHEL for final clearance.

E) Inspection of the job at supplier's works shall be carried out as per BHEL approved quality plan by BHEL/ agency authorized by BHEL for which adequate prior notice (min. 4weeks) shall be given by the supplier.

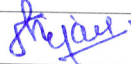
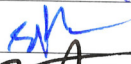
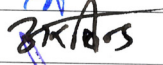

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F) Packing & Preservation:

- Conserve components as per BHEL's conservation instructions (Table-1 of ST 33004) suitable for 6 months. **PAINT IS NOT ALLOWED** on any surface. If as per ST33004 the outer unmachined surface of any component is specified to be painted, this requirement should be disregarded. Instead, the unmachined surface should be conserved in the same manner as the machined surface, following the conservation requirements outlined in ST33004.
- Cover joint plane flanges with plywood + rubber sandwiching (e.g., 10 mm rubber + 20 mm plywood) using suitable bracket and other critical machined surfaces with plastic/rubberized caps/wooden protectors to prevent mechanical damage.
- Wrap large components with a minimum 90 GSM polythene sheet, and enclose them with industrial-grade shrink wrap.
- Place components on strong suitable wooden skids or metal base frames with sufficient load-bearing capacity.
- Ensure that all lifting lugs and bollards are clearly marked and easily accessible, as lifting and handling of the component together with its skid shall be carried out using the bollards provided on the component.
- Use shock-absorbing materials (e.g., rubber pads) between the component and the skid/base to avoid impact damage during transport.
- Lock components with appropriate metallic strap/ slings or belts with skid after wrapping and placement on skids/base frames.
- Ensure packaging is durable enough to withstand the weight of the components and Packing of the finish machined component should be suitable to protect damage to machined surfaces during handling and transportation.

G) All cross-referred documents given in Annexure-I.

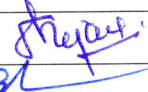
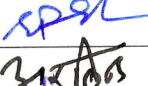
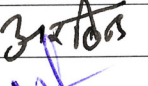

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ANNEXURE-I



List of drawings / standards to be referred

1. Casting for HP Outer Casing-Exhaust End (Rough machined): 01052756901
2. HP Outer Casing-Exhaust End (Finish machined drawing): 01052730500
3. Log Sheet: 01052730500LS
4. Material Specification: HW19581
5. Product Standard: ST01013, ST01030
6. Packing & Preservation..... ST33004

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Manufacturer Name and Address		MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar accepted sub-contractors only	ITEM/EQUIPM-ENTS	HP OUTER CASING-EXHAUST END 10880A11501, 10881A11501, 10885A11501	Q.P. NO	QP/QA/254019	PROJECT		
	W.O. NO.		DATE	27.08.2025			
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR	
			PAGE NO.	Page 1 of 2	Indent	20250431 rev 00 dated 23.08.2025	

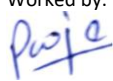

S. No.	COMPONENT OPERATION	CHARACTERISTIC CHECKED	CATEGORY	TYPE/METHOD OF CHECKED	QUANTITY OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE DOCUMENT	FORMAT OF RECORD	D	M	B	C	REMARK
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.0	Material Receiving Inspection at sub-contractor's work	Verification of identification of material	Major	Visual inspection	100 %	As per Drg./ Standard	As per Drg./ Standard	PPMIV/ Q.no.	✓	P	V	-	Material will be supplied by BHEL, transfer of identification to be ensured.
		Verification of dimensions and visual Inspection	Major	Measurement	100 %	As per drg./ Standard	As per drg./ Standard	Obs. Sheet	-	P	-	-	
2.0	INPROCESS-INSPECTION												
2.1		Verification of machined dimensions & visual inspection after machining	Major	Measurement & visual	100%	As per drg./ Standard/ TDC	As per drg./ Standard/ TDC	Logsheet/ Observation sheet	✓	P	W	W	1.Dimensions, which are not covered in logsheet shall be recorded in observation sheet. 2. "W" as per logsheet by customer/ customer nominated inspection agency and rest random by BHEL/BHEL nominated agency.
2.2		Surface Finish of machined surfaces	Major	Measurement & visual	100%	As per drg./ Standard/ TDC	As per drg./ Standard/ TDC	Logsheet/ Observation sheet	✓	P	W	-	W- Random by BHEL/BHEL nominated agency.
3.0	FINAL-INSPECTION	check for cleanliness & completeness of Job, Documentation	Major	Visual	100%	As per drg./ Standard/TDC	As per drg./ Standard/TDC	Record	✓	P	V	-	Item shall be dispatched to BHEL after acceptance by BHEL/ BHEL nominated agency after duly identifying by P.O.No., drg no. Plant Order No. & I.R.No
3.1		Preservation	Minor	Visual	100%	As per drg./ Standard/ TDC	As per drg./ Standard/ TDC	COC	✓	P	V	-	

Manufacturer/Subcontractor	Legends: P Perform by; W Witness by; V Record review; C Customer; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: documents with tick mark shall be submitted by vendor to BHEL; CHP: Customer Hold Point (Work will not proceed unless the clearance from customer)	For BHEL Use	
		Worked by:  Pooja Singh, (QAX)	Approved by:  Braj Bhushan Tripathy, Sr.Manager (QAX)

Manufacturer Name and Address	MANUFACTURING QUALITY PLAN				APPLICABILITIES TO	
BHEL Haridwar accepted sub-contractors only	ITEM/EQUIPM-ENTS	HP OUTER CASING-EXHAUST END 10880A11501, 10881A11501, 10885A11501	Q.P. NO	QP/QA/254019	PROJECT	
	W.O. NO.		DATE	27.08.2025		
			REV. NO.	00	CONTRACTOR	BHEL (HEEP) HWR
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3.2		Packing	Minor	Visual	100%	As per drg./ Standard/ TDC	As per drg./ Standard/ TDC	COC & Photo of packed item	✓	P	V	-	
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1. All requirements of P.O., standard and drawing shall be fulfilled.
2. BHEL reserves the right for conducting repeat test, if required.
3. During in process, BHEL job identification and customer seal is to be protected. Vendor to raise call for seal transfer, if required.

Manufacturer/Subcontractor	Legends: P Perform by; W Witness by; V Record review; C Customer; B BHEL/BHEL Representative; M Manufacturer/ sub-contractor; D: documents with tick mark shall be submitted by vendor to BHEL; CHP: Customer Hold Point (Work will not proceed unless the clearance from customer)	For BHEL Use	
		Worked by:  Pooja Singh, (QAX)	Approved by:  Braj Bhushan Tripathy, Sr.Manager (QAX)