



# Bharat Heavy Electricals Limited, Jhansi

## Special Transformer Manufacturing Department

Tender Enquiry No: TRM/TW/106

Date: 29.12.2021



### TENDER DOCUMENT For Works Contract Tender Enquiry No : TRM/ TW/106

For  
**Manufacturing activities of Special Transformers using In-house facilities at  
BHEL Jhansi**

#### Contact Person :

Name : Anshuman Sharma  
Designation : Dy. Manager  
Email : anshuman.sharma@bhel.in  
PH : 0510 – 241 – 2784

**Tender Due Date : 14.01.2022 at 13 :15 Hrs  
Tender Opening Date : 14.01.2022 at 14 :00 Hrs**

Rev .... Date .....	Short details of revision (In case of revision in tender document, otherwise NA)
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**NON POWER TRANSFORMER MANUFACTURING DEPARTMENT  
BHEL, PO : BHEL, Jhansi 284120 (UP)**

We hereby accepted above (Signature & seal of bidder)

**Details of bidder and Documents To Be Submitted Along With Technical Bid**

Please number your documents in continuation with tender documents at bottom (footer) of page.

(कृपया निविदा प्रपत्र के साथ संलग्न किये गये अपने दस्तावेजों पर निविदा प्रपत्र के क्रम में पेज में सबसे नीचे पेज संख्या अंकित करें)

S.No	Particular	Detail
1.	Name of the firm	
2.	Name of the Proprietor/Partners	
3.	Address	
4.	Mobile No-	
5.	E-mail ID-	

**Essential Documents**

	Particular	Detail	Page No
6.	Acceptance of Terms & conditions Signature on all pages without conditions of contractor	Submitted/ Not submitted	
7.	Blank price bid format duly signed by the contractor.	Submitted/ Not submitted	
8.	Copy of PF registration	PF no-	
9.	Copy of ESI Registration	ESI No-	
10.	Copy of PAN card	PAN No-	
11.	Copy of GST registration	GST No-	
12.	Self declaration as per as per annexure-'V' on firm's letter head .	Submitted/ Not submitted	
13.	Copy of ownership of firm (Refer page 21 point 8)	Submitted/ Not submitted	
14.	Receipt of tender fees deposition	Amt-	
15.	Receipt of EMD deposition	Amt-	

15.	Copy of turn over for last three year i. 2018-19 ii. 2019-20 iii. 2020-21	Submitted/ Not submitted	
16.	Work Experience (refer point 2 page 16) i. Work order ii. Completion Certificate iii. Relevant TDS/TRACES (in case of Experience in private sector)	Submitted/ Not submitted	
<b>Desirable Documents</b>			
17.	Copy of IncomTax return i. F.Y 2018-19 ii. F.Y 2019-20 iii. F.Y 2020-21	Submitted/ Not submitted	

We will fulfill all the obligations of the contractor and abide by the terms & Conditions mentioned in the enquiry.

Date :-

Signature With Name &amp; Seal

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**PARTII: PRICE BID**

**(Separate envelope)**

<b>S. No.</b>	<b>Section</b>	<b>Page nos.</b>
1.	PRICE BID (JS 146)	1-page

## **NOTICE INVITING TENDER**



**1- NOTICE INVITING TENDER**

S. No.	Particulars	Details
1	Name of work	<b>Manufacturing activities of Special Transformers using In house facilities at BHEL Jhansi.</b>
2	Estimated Value	NA
3	Tender Evaluation Criteria	(As per GTC issued by “Central Contracting Cell” of BHEL Jhansi.
4	Duration of the Contract	7 months
5	Last date of receipt of the Tender	(as on page # 1)
6	Date of opening Tender	(as on page # 1)
7	Address for submitting the tender	(as on page # 7)
8	Earnest Money Deposit (EMD)	₹ 1.59 lacs only/- (waived for MSE bidder)
9	Cost of tender	NIL
10	Validity of Offer	120 days

**Note:** The EMD may be accepted only in the following forms:

(i) Electronic Fund Transfer credited in BHEL account (before tender opening)

**BHEL account details: Bank Name: - SBI; A/c No. :- 10670828866 ; IFSC Code:-**

**SBIN0003807 A/c Holder Name:- BHARAT HEAVY ELECTRICALS LIMITED**

(ii) At BHEL cash office through POS machine **No Demand Drafts shall be accepted.**

The contractors may physically visit the work place before quoting their rates. For relevant details, please visit our website “[www.bhel.com](http://www.bhel.com)” & “[www.eprocure.gov.in](http://www.eprocure.gov.in)”

***Note : BHEL takes no responsibility for any delay / loss of documents or correspondence sent by courier or post. Late tenders shall be rejected outright.***



# Bharat Heavy Electricals Limited, Jhansi

## Special Transformer Manufacturing Department

Tender Enquiry No: TRM/TW/106

Date: 29.12.2021

The techno-commercial bid comprising (i) all its sections, (ii) all enclosures in support of various clauses and requirements and (iii) EMD, shall be duly signed and sent in a sealed envelope boldly super-scribing “**PART-I TECHNO COMMERCIAL BID FOR ‘Manufacturing activities of Special Transformers using In house facilities at BHEL Jhansi’**”. Similarly the Price-bid must be duly signed and sent in a sealed envelope boldly super-scribing “**PART-II PRICE BID FOR ‘Manufacturing activities of Special Transformers using In house facilities at BHEL Jhansi’**”. Both these envelopes **shall be placed inside 3<sup>rd</sup> sealed** envelope super-scribing” duly signed and sent in a sealed envelope boldly super-scribing ‘**Manufacturing activities of Special Transformers using In house facilities at BHEL Jhansi’**’.

### **The tender shall be addressed to as follows:**

Tender Box  
CISF Control Room/Office  
Administrative Building  
Bharat Heavy Electricals Limited  
Jhansi-284120 (U P)

### **Part-I Techno Commercial bid:**

Part I of the sealed tenders alone will be opened by BHEL in the presence of tenderers who are present at the time & place of opening. A signed blank price-bid copy should be enclosed with this bid. The spaces for prices should be crossed (x).

### **Part-II Price bid:**

The price bid should contain prices only. Price bid will be opened only for the parties who qualify in techno commercial bid.

#### **TO BE SIGNED BY THE TENDERER**

Certified that all Sections of the Tender have been read / complied & agreed to, and each page of the tender offer has been signed & stamped.

(Signature of Authorized person(s))

**Name and designation of Authorized Person(s)**

We hereby accept above (Signature & seal of bidder)

**WORK SPECIFICATION**  
**Brief Description of work**

1) **Scope of work: In Special Transformer Manufacturing shops following work is to be carried out:**

Sl.no	Description of work	unit of measurement	quantum of work	Tech.hrs/ Job
(A)	(B)	(C)	( D)	( E)
1	Manufacturing activities of 3 phase freight Transformers.	No.	82	536.4
2	Manufacturing activities of IGBT MEMU Transformers	No.	20	332
3	Manufacturing activities of freight 5400 KVA Transformers	No.	1	441.34
4	Manufacturing activities of ESP	No.	170	121.6
5	Manufacturing activities of Dry Type Transformers (0-1000 KVA)	No.	13	125.28
6	Manufacturing activities of Dry Type Transformers (1000-2500) KVA	No.	60	151.84
7	Manufacturing activities of Dry Type Transformers (2501-4600) KVA	No.	2	199.76
8	Manufacturing activities of Dry Type Transformers ( Above 4600) KVA	No.	1	260.16
9	Manufacturing activities of 24/33/66 KV Current Transformer	No.	1	62.8
10	Manufacturing activities of 132 KV Current Transformer	No.	75	80
11	Manufacturing activities of 220 KV Current Transformer	No.	75	117.2
12	Manufacturing activities of 132 KV Voltage Transformer	No.	5	54
13	Manufacturing activities of 220 KV Voltage Transformer	No.	7	88
14	Manufacturing of bushing / Turret CT of Power trfr	set	53	36
15	Manufacturing of static ring of Power trfr	set	53	69.6
16	Manufacturing of dovetail strips of Power trfr	set	53	144
17	Manufacturing of Angle ring of Power trfr	set	53	14.4
18	Operation of process palants and oil filtration plant	hrs.	10087	1
19	Total			

We hereby accepted above (Signature & seal of bidder)

The details of activity involved in the above said work is given in **Annexure-G**. The total work quantity shall vary by +30% within the currency of the contract.

- The contractor will have to appoint sufficient no. of supervisors to organize and supervise the work being done by his employees in 1st, 2nd & 3rd shifts (if needed). Supervisors allocated for all the sections, against this contract need to be present full day and supervise the activities
- The above work should meet the requirement of the shop/CQX executive/supervisor. The above work shall be normally done in 1st & 2nd shift. Work shall also be done in 3rd shift and on Sunday/Holidays as and when required.
- Contractor have to collect all required material, drawings and manufacturing information from shop SPC/contracting department. Required space, tools & tackles and facilities like material handling equipments, fixture and crane will be provided by BHEL subject to its availability in normal working conditions. Consumables like resin glass tape, araldite, varnish, paint, cotton waste, feviquik etc. will be issued by BHEL, and these will be collected by contractor. Contractor will check for any defect in material and get it rectified/ replaced before starting work.
- All the material, electricity, compressed air, consumable and tools available with BHEL shall be provided by BHEL free of cost.
- EOT crane shall be provided by BHEL free of cost, however the assistance in operation of the same i.e. crane operator and slinger, shall be the responsibility of contractor. However, in contingency in order to meet the job requirement, any additional resources if required shall be arranged by the contractor at their cost.
- All the job after manufacturing will be inspected by CQX/contracting department/customer and if any default/defect occurs, the same has to be rectified by contractor at free of cost.
- The contractor shall maintain proper records of all the activities/inspection stages and the same should be made available, as and when required by BHEL.
- The house keeping of the work area and maintaining work discipline shall be the contractors' responsibility.
- Contractor is advised to visit the work place to know the work content before submission of quotation. The required documents/ drawing/MI Sheet can be seen at our works.

**Note: - The Above work should meet the technical requirement of the BHEL and customer. Work should be carried out as per drawings, standards, procedures, laid down by BHEL, which may get revised as per requirement time to time. Party will be liable to follow drawings standards, procedures are in use at that time without any change in rates and terms and conditions of contract.**

Annexure-G

Date:13.12.21

**Scope of work**

Sl. No.	Work nature	Details of activity involved	Area Section
1.	<p><b>Core Assembly of LOT, Core coil assembly,E/F mounting Terminal Gear assembly ,servicing and tanking of LOT,SOD and GOD.</b></p> <p><b>Core Assembly,Coil winding ,Core Coil Assembly And TG of SOD.</b></p> <p><b>Core Assembly, Coil winding Core Coil Assembly And TG of GOD.</b></p>	<ol style="list-style-type: none"> <li>1. Laying of Endframe, Core Assembly,resin glass taping of LOT,SOD &amp; GOD as per drawing.</li> <li>2. Welding of SOD core as per drawing.</li> <li>3. unlacing of core , lowering of coil into core ,clamping and tightening of coil and relacing of core.</li> <li>4. Enamel burning and cleaning, Terminal gear assembly, Brazing taping, and compartment fitting.</li> <li>5. Servicing of transformer: Re-tightening of all hardwares using torque wrench, varnishing, and quality inspection as per their checklist.</li> <li>6. Tanking of LOT,SOD &amp; GOD in tank and final cover mtg after vacuum processing.</li> <li>7. Preparation of job for Electrical testing.</li> <li>8. Cleaning of tank if dirty.</li> <li>9. Collection of material from store/CRX.</li> <li>10. BHEL Shop/quality/Customer shall inspect the job at any point of time and their bookings to be attended.</li> <li>11. Oil pressure testing &amp; final Painting pinking of transformers for dispatch as PER CQX checklist.</li> <li>12. Operation of drill machine ,if required.</li> <li>13. Store Keeping for raw materials &amp; hardwares.</li> </ol>	Bay 6
2.	<p><b>Core Assembly, Varnishing of coils, coil Assembly ,Core coil assembly, E/F mounting ,TG, Tanking, Tank preparation and</b></p>	<ol style="list-style-type: none"> <li>1. Laying of End Frame,Core Assembly, E/F tightening and 2 KV test.</li> <li>2. Varnishing of coil as per BHEL Jhansi Specifications.</li> <li>3. Leg assembly of coils ( 2 legs /set)</li> <li>4. unlacing of core , lowering of coil into core ,clamping and tightening of coil and relacing of core.</li> </ol>	Bay 6

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	wiring of IGBT ACEMU trfr	<ol style="list-style-type: none"> <li>5. Terminal gear assembly, brazing, taping.</li> <li>6. Equipments mounting on tank, wiring, tanking &amp; cover mounting.</li> <li>7. Preparation of job for Electrical testing.</li> <li>8. Oil pressure testing &amp; final Painting, pinking of transformers for dispatch as PER CQX checklist.</li> <li>9. Collection of material from shop store/CRX.</li> <li>10. Preparation of job for Electrical testing.</li> <li>11. Operation of varnish plant.</li> <li>12. Operation of drill machine ,if required.</li> </ol>	
3.	Dry Transformers	<ol style="list-style-type: none"> <li>1. Laying of End Frame,Core Assembly, E/F tightening and 2 KV test.</li> <li>2. unlacing of core , lowering of coil into core ,clamping and tightening of coil and relacing of core.</li> <li>3. Terminal gear assembly, brazing, taping.</li> <li>4. Enclosure assembly &amp; wiring, E/F wiring, roller assembly.</li> <li>5. Preparation of job for Electrical testing.</li> <li>6. Store Keeping for raw materials &amp; hardware.</li> <li>7. Collection of material from shop store/CRX</li> </ol>	Bay 7
4.	5400 KVA trfr for WAG-7 locomotives.	<ol style="list-style-type: none"> <li>1. Laying of End Frame,Core Assembly, E/F tightening and 2 KV test.</li> <li>2. Coil stacking of leg I,II, III.</li> <li>3. unlacing of core , lowering of coil into core ,clamping and tightening of coil and relacing of core.</li> <li>4. Terminal gear assembly, Brazing taping,.</li> <li>5. Tanking of trfr in tank and final cover mtg after vacuum processing.</li> <li>6. Preparation of job for Electrical testing.</li> <li>7. Oil pressure testing &amp; final pinking of transformers for dispatch</li> <li>8. Cleaning of tank if dirty.</li> <li>9. Collection of material from store/CRX.</li> <li>10. BHEL Shop/quality/Customer shall inspect the job at any point of time and their bookings to be attended.</li> </ol>	Bay 6

		11. Store Keeping for raw materials & hardwares.	
5.	<b>Bay 8 - ESP transformer assembly</b>	<ol style="list-style-type: none"> <li>1. Laying of End Frame,Core Assembly, E/F tightening and 2 KV test of ESP &amp; ACR.</li> <li>2. Unlacing of core, lowering of coils (HV &amp; LV) into core, clamping and tightening of coils and re-lacing of core after pre-heating.</li> <li>3. Brazing, cleaning, taping &amp; lug crimping of LV leads. Crimping, soldering &amp; taping of HV leads.</li> <li>4. Terminal gear (TG) assembly followed by vacuum processing &amp; tank preparation.</li> <li>5. Servicing of TG assembly: Re-tightening of all hardwares using torque wrench &amp; varnishing.</li> <li>6. ACR assembly: Unlacing of core, lowering of coils into core, clamping and tightening of coils and re-lacing of core after pre-heating. Brazing, cleaning &amp; taping of leads followed by TG assembly.</li> <li>7. Tanking of TG &amp; ACR assembly in tank and final cover mounting after vacuum processing.</li> <li>8. Assembly of M Box.</li> <li>9. Preparation (case fitting) of job for electrical testing.</li> <li>10. Cleaning of tank (if dirty).</li> <li>11. Shop/quality/customer shall inspect the job at any point of time and their bookings to be attended.</li> <li>12. Oil pressure testing (IH/CI) &amp; final painting &amp; pinking of transformers for dispatch as per QC checklist.</li> <li>13. Collection of material from store/CRX.</li> <li>14. Store keeping for raw materials &amp; hardwares.</li> </ol>	Bay 8

6.	<b>Bay 8 - Instrument transformer assembly</b>	<ol style="list-style-type: none"> <li>1. Tank preparation.</li> <li>2. Lowering of primary &amp; secondary coil in tank. Taping &amp; tightening/clamping of coils.</li> <li>3. Secondary coil connection preparation &amp; fitting of the same in secondary terminal board followed by pre heating of job.</li> <li>4. Mounting of tank cover followed by lowering of insulator &amp; tightening.</li> <li>5. Top chamber preparation &amp; its mounting. Primary coil connection preparation followed by vacuum processing &amp; final electrical testing.</li> <li>6. Shop/quality/customer shall inspect the job at any point of time and their bookings to be attended.</li> <li>7. Oil pressure testing (IH/CI), final painting &amp; pinking of transformer (including nitrogen filling) before dispatch as per QC checklist.</li> <li>8. Collection of material from store/CRX.</li> <li>9. Store keeping for raw materials &amp; hardwares.</li> </ol>	Bay 8
7.	<b>Feeder shop – Tube tapping (Instrument transformer - CT)</b>	<ol style="list-style-type: none"> <li>1. Collection of material (Copper/Aluminium pipes) from store/CRX.</li> <li>2. Bending of tube as per approved drawing.</li> <li>3. Thorough cleaning of tube through cotton tape, emery paper &amp; thinner.</li> <li>4. Marking &amp; tapping of tube (multi-layer insulation) as per approved drawing in dust free environment.</li> <li>5. Insulation through copper foil &amp; soldering on top layer of tube.</li> <li>6. Soldering of earth lead followed by single layer insulation of crepe paper &amp; cotton tape.</li> <li>7. Store keeping for raw materials.</li> </ol>	Aux. feeder shop
8.	<b>Feeder shop – LV coil (ESP transformer)</b>	<ol style="list-style-type: none"> <li>1. Fixing of mould on winding machine followed by pressboard wrapping over the mould.</li> <li>2. Fixing of spacer, bottom blocks &amp; edge blocks through adhesives.</li> <li>3. LV lead preparation (bottom side) followed by its locking with edge blocks.</li> </ol>	Aux. feeder shop

		<ol style="list-style-type: none"> <li>4. Winding to done as per approved drawing.</li> <li>5. LV lead preparation (top side) followed by cotton taping from top to bottom.</li> <li>6. Insulation of coil by usage of spacer, AWW paper &amp; aluminum kraft paper.</li> <li>7. Soldering of earth strip.</li> <li>8. Final layer of insulation of press paper, spacer, pressboard &amp; polyester tape.</li> <li>9. Collection of material from store/CRX.</li> <li>10. Store keeping for raw materials.</li> </ol>	
9.	Feeder shop – ACR coil (ESP transformer)	<ol style="list-style-type: none"> <li>1. Fixing of mould on winding machine followed by pressboard wrapping over the mould.</li> <li>2. LV lead preparation followed by its locking with edge blocks.</li> <li>3. Winding to done as per approved drawing.</li> <li>4. LV lead preparation (opposite side) followed by cotton taping from top to bottom.</li> <li>5. Collection of material from store/CRX</li> <li>6. Store keeping for raw materials.</li> </ol>	Aux. feeder shop
10.	Feeder shop – Static ring (ESP transformer)	<ol style="list-style-type: none"> <li>1. Lead marking on former of static ring.</li> <li>2. Insulation of copper foil followed by soldering of copper strip &amp; leads on layer of copper foil.</li> <li>3. Multi-layer insulation of crepe paper followed by single layer insulation of cotton tape.</li> <li>4. Collection of material from store/CRX.</li> <li>5. Store keeping for raw materials.</li> </ol>	Aux. feeder shop
11.	Feeder shop – Cable (ESP transformer)	<ol style="list-style-type: none"> <li>1. Collection of material from store/CRX.</li> <li>2. Store keeping for raw materials.</li> <li>3. Cutting of cable from drum followed by cleaning of cables.</li> <li>4. Marking of cables &amp; part removal of rubber portion.</li> <li>5. Cutting of iron wire (present inside the cable) followed by fixing &amp; tightening of glands.</li> <li>6. Cutting &amp; marking of red, yellow, green &amp; black wires (present inside the cable) as per requirement.</li> <li>7. Insertion of ferrule followed by lug crimping.</li> <li>8. Steps from Sl. no. 4 to 7 to be repeated on opposite side of the cable.</li> </ol>	Aux. feeder shop

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12.	<b>Feeder shop – Dovetail blocks (Power transformer)</b>	<ol style="list-style-type: none"> <li>1. Collection of material from store/CRX.</li> <li>2. Store keeping for raw materials.</li> <li>3. Thorough cleaning &amp; oiling of power press machine.</li> <li>4. Dye &amp; plate fitting followed by block setting.</li> <li>5. Cutting of blocks as per approved drawing.</li> <li>6. Arranging &amp; bundling of blocks through adhesives in line with approved drawing &amp; requirement.</li> </ol>	Aux. feeder shop
13.	<b>Feeder shop – Angle ring (Power transformer)</b>	<ol style="list-style-type: none"> <li>1. Manufacturing of mould as per drawing.</li> <li>2. Insulation of press paper followed by marking &amp; cutting.</li> <li>3. Insertion of top, middle &amp; bottom washer through adhesives.</li> <li>4. Drilling of hole on washers.</li> <li>5. Tightening of ring by cotton tape.</li> <li>6. Cutting of off cut paper followed by final finishing &amp; identification work.</li> <li>7. Collection of material from store/CRX.</li> <li>8. Store keeping for raw materials.</li> </ol>	Aux. feeder shop
14.	<b>Bay 8 winding – Ring core CT (Power &amp; Instrument transformer)</b>	<ol style="list-style-type: none"> <li>1. Lifting of bare core from Bay 5 &amp; unloading in Bay 8.</li> <li>2. Fixing of bare core on winding machine. Cutting of washer &amp; wrapping of the same on bare core thrice.</li> <li>3. Winding of core as per approved ES/drawing &amp; offering the ring core CT to testing department.</li> <li>4. After satisfactory testing results, leads to be prepared &amp; soldering of the same to be done on tested ring core CT.</li> <li>5. Insulation through cotton tape followed by insertion of ferrules &amp; identification/marketing of ring core CT.</li> <li>6. For bare core of size (greater than 550mm dia &amp; lesser than 150mm dia), hand winding to be done.</li> <li>7. Collection of material from store/CRX.</li> <li>8. Store keeping for raw materials</li> </ol>	Bay 8

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15.	Bay 8 winding – Flaring (Instrument transformer – 24/36kV CT)	<ol style="list-style-type: none"> <li>1. Lifting of bare core from Bay 5 &amp; unloading in Bay 8.</li> <li>2. Fixing of bare core on winding machine. Cutting of washer &amp; wrapping of the same on bare core thrice.</li> <li>3. Winding of core as per approved ES/drawing &amp; offering the ring core CT to testing department</li> <li>4. After satisfactory testing results, leads to be prepared &amp; soldering of the same to be done on tested ring core CT.</li> <li>5. Preparation of insulation material followed by flaring (multi-layer insulation by crepe paper, aluminium foil &amp; copper strip through adhesives) in line with approved drawing/requirement.</li> <li>6. Collection of material from store/CRX.</li> <li>7. Store keeping for raw materials</li> </ol>	Bay 8
16.	Bay 8 winding – Flaring (Instrument transformer – 132kV & 220kV VT)	<ol style="list-style-type: none"> <li>1. Fixing of coil on flaring machine.</li> <li>2. Lead &amp; neck preparation.</li> <li>3. Preparation of insulation material followed by flaring (multi-layer insulation by crepe paper through adhesives) in line with approved drawing/requirement.</li> <li>4. Collection of material from store/CRX.</li> <li>5. Store keeping for raw materials.</li> </ol>	Bay 8
17.	Bay 8 winding – SSD Card & resistor board (ESP transformer)	<p><b>SSD Card:</b></p> <ol style="list-style-type: none"> <li>1. Engraving &amp; marking on SSD card base.</li> <li>2. Lead preparation (12 nos.)</li> <li>3. Mounting of glow tube, resistance &amp; relay base on SSD card base.</li> <li>4. Collection of material from store/CRX.</li> <li>5. Store keeping for raw materials</li> </ol> <p><b>Resistor board:</b></p> <ol style="list-style-type: none"> <li>1. Engraving &amp; marking on resistor board base.</li> <li>2. Lead preparation (6 nos.)</li> <li>3. Dismantling of resistor board for fixing of leads followed by re-assembly.</li> <li>4. Collection of material from store/CRX.</li> <li>5. Store keeping for raw materials</li> </ol>	Bay 8

18.	<b>Bay 8 winding – Static ring (Power transformer)</b>	<ol style="list-style-type: none"> <li>1. Lead marking on former of static ring.</li> <li>2. Insulation through copper foil followed by soldering of copper strip &amp; lead on layer of copper foil.</li> <li>3. Multi-layer insulation of crepe paper followed by single layer insulation of cotton tape.</li> <li>4. Collection of material from store/CRX.</li> <li>5. Store keeping for raw materials.</li> </ol>	Bay 8
19.	<b>Operation of vacuum vessel &amp; oil filtration plant.</b>	<ol style="list-style-type: none"> <li>1. Loading and unloading of job to/from the vessel.</li> <li>2. Data capturing like temperature &amp; vacuum at regular intervals.</li> <li>3. Filling of oil into vacuum pumps.</li> <li>4. Emptying of oil tanker to storage tank.</li> <li>5. Oil filtration of raw oil as per requirements.</li> <li>6. Filling and emptying of oil into the transformers.</li> <li>7. Cleaning and general maintenance of vessels and oil filtration plants.</li> </ol>	Bay 8 & bay 6

### LD CLAUSE AND PAYMENT TERMS

- LD Clause:** Any delay in execution of specified work will attract penalty. Contract has to deploy adequate number of workers to execute the quantum of work. The quantum of work will be monthly production plan which shall be reviewed/monitored on weekly basis. Delay if attributable to firm; penalty shall be imposed @0.5% per week for delayed work and maximum up to the ceiling of 10 % of the contract value for the delayed work. If any defect is noticed in the work at later stage, the firm shall repair the same, in short time free of cost. Cost of rework / rejection will be recovered from the contractor, if the same is found to be occurred due to negligence/lack of skill of the worker. Executive in charge shall keep proper records for above purpose. The Penalty shall be recovered from the EMD, Security Deposit, Contract amount and running bills etc.
- Payment Terms:** The Payment to the contractor shall be made on the successful completion of activities /milestones defined in the below table.

Sl. No.	PAYMENT TERMS OF DIFFERENT TYPES OF TRANSFORMER	
1	PAYMENT TERMS OF 3 PHASE FRT LOCO TRFR	
	Activity/Milestones	% Allocation
1.1	Core Assembly of LOT	10
1.2	Core Assembly of SOD & GOD	10
1.3	Core Coil Assembly & E/F Mounting	10
1.4	TG Assembly & Compartment fitting	20
1.5	Servicing, Tanking & Cover Mounting	15
1.6	SOD Core Coil Assembly & TG assembly	15
1.7	GOD Core Coil Assembly & TG assembly	10
1.8	Final Clearance after oil Pressure test	10
1.9	Total	100
2	PAYMENT TERMS OF IGBT MEMU TRFR	
2.1	Core Assembly and E/F Tightening	10
2.2	Varnishing, Core Coil Assembly & E/F Mounting	20
2.3	TG Assembly, Tank Preparation & tanking	40
2.4	Wiring Assembly	20
2.5	Final Clearance after oil Pressure test & Painting	10
2.6	Total	100
3	PAYMENT TERMS OF 1- PHASE FRT LOCO TRFR ( 5400 KVA)	
3.1	Core Assembly and E/F Tightening	10
3.2	Coil Stacking ,Core Coil Assembly & E/F Mounting	35
3.3	TG Assembly, Tanking & Final Tightening	40
3.4	Final Clearance after oil Pressure test & Painting	15
3.5	Total	100
4	PAYMENT TERMS OF ESP TRFR	
4.1	Core Assembly of ESP ,ACR and E/F Tightening	10
4.2	HV,LV, ACR & RF Choke Coil winding	30
4.3	ACR Strips, Static rings & dovetail Blocks	10
4.4	ACR assembly, Core Coil & TG Assembly, Cabling, SSD card & Resistor board assy	20
4.5	Tanking, Cover mounting, Buchholz, Conservator, M.box Assy, Servicing & case fitting	20
4.6	Final clearance after testing & painting/pinking	10
4.7	Total	100

We hereby accepted above (Signature &amp; seal of bidder)

<b>5-8</b>	<b>PAYMENT TERMS OF DTT TRFR</b>	
5.1-8.1	Core Assembly and Resin Glass Curing	30
5.2-8.2	Core -Coil Assembly ,E/F wiring & TG Assembly	35
5.3-8.3	Enclosure Assembly ,Wiring & roller Assembly	25
5.4-8.4	Final Clearance After testing	10
5.5-8.5	Total	100
<b>9-11</b>	<b>PAYMENT TERMS OF CURRENT TRFR</b>	
9.1-11.1	Ring Core CT winding	<b>30</b>
9.2-11.2	Primary Tube bending & Taping	40
9.3-11.3	Assembly	20
9.4-11.4	Final Clearance after testing & painting/pinking	10
9.5-11.5	Total	100
<b>12-13</b>	<b>PAYMENT TERMS OF VOLTAGE TRFR</b>	
12.1-13.1	Ring Core CT winding	30
12.2-13.2	Flaring	40
12.3-13.3	Assembly	20
12.4-13.4	Final Clearance after testing & painting/pinking	10
12.5-13.5	Total	100
	<b>PAYMENT TERMS OF AUX. FEEDER SHOP ACTIVITIES</b>	
14	Bushing/Turret CT Preparation per set of Trfr	100
15	Static Ring Preparation per set of Trfr	100
16	Dove tail Strips per set of Trfr	100
17	Angle Ring per set of Trfr	100
	<b>PAYMENT TERMS OF PROCESS PLANT AND OIL FILTRATION PLANT</b>	
18	Technical hrs basis	100

**Qualifying Requirements**

SI No	Description of Qualifying Requirements
1.	<p><b>Average Annual financial turnover</b> during the last 3 years ending 31<sup>st</sup> March 2021, should be at least <b>Rs. 16.74 Lakhs</b> (Please attached <i>Income tax return along with balance sheet and along with Profit &amp; Loss Account of last three financial year, ending 31<sup>st</sup> March 2021, or Certificate of CA</i>).</p> <p>Note-Provisional /Actual Turnover for financial year 2020-21 duly certified by CA shall also be acceptable for evaluation purpose.</p> <p><i>If T/o details of 3 years are not available then available years T/o shall be evaluated by dividing it by 3.</i></p>
2.	<p><b>22.1: Work Experience:</b> (Bidder should fulfill any one of the following):</p> <p>Experience of having successfully completed <b>similar works*</b> (defined below) during last 7 years ending 30.11.21 should be either of the following:-</p> <ul style="list-style-type: none"> <li>a. Three similar completed works each valuing not less than the amount equal to <b>Rs 22.32 lacs.</b> <b>OR</b></li> <li>b. Two similar completed works each valuing not less than the amount equal to <b>Rs 27.91 Lacs.</b> <b>OR</b></li> <li>c. One similar completed works each valuing not less than the amount equal to <b>Rs 44.65 lacs.</b></li> </ul> <p><b>*Similar Work :</b> Any service or works contract of requisite value in any PSU/CPSU/State govt./ Central Govt./ Private sector involving manufacturing/maintenance or assistance in manufacturing/maintenance activities of electrical equipment.</p> <p>Documentary proof (Completion Certificate and WO/PO / LOI) for the experience performance report issued by Customer for successful execution of the contract to be submitted. In case of experience in Private Sector, in addition to above, relevant TDS Certificate must be attached as evidence.</p>
3.	Contractor Should have an ESI Code number and PF number.
4.	Contractor Should have PAN number.
5.	Contractor Should have GST (PAN based)
6.	Bidders are required to submit a self-declaration on their letter head as per the Format enclosed in <b>Annexure V</b> of tender enquiry.

Sl No	Description of Qualifying Requirements
7.	Blank Price Bid as per annexure "JS 471".
8.	<p>The documents required for legal entities under whose name and style Contractor has participated in the tender are as follows:</p> <p>8.1) Partnership Firm: Partnership Deed registered at the office of Registrar of Firms.</p> <p>8.2) Company: Certified copy Memorandum of Association, Article of Association and Incorporation Certificate.</p> <p>8.3) Society: Registration certificate issued by Registrar of societies.</p> <p>8.4) Sole Proprietor-ship Firm: Undertaking on oath (On Rs. 100/- Stamp Paper ) that Proprietor is solely responsible for all rights and liabilities while working under the name and style of Sole Proprietorship firm namely ( _____ ).</p>

### **Manner of splitting of work**

All the eligible bidders will be categorized from L1 to Lh bidder (Lh will be the bidder who quoted highest rate) On basis of their quoted rates. In case of equal rates at the same level, toss/lottery shall be drawn among all the contractors having quoted equal rates for grading from lower to higher rates. This list shall be referred for award of work.

The contract shall be splitted maximum between two contractors as illustrated below:

P	L1	L2	TOTAL
1	100	-	100
2	70	30	100

where P is the accepted no. of qualified responses.

The distribution shall be done on the acceptance given by the bidder(s) to the L1 price counter offered to them. In case none of the bidders accepts the counter offer (L2 to Lh), the entire work order will be awarded to lowest bidder.



**Bharat Heavy Electricals Limited, Jhansi**  
**Special Transformer Manufacturing Department**

Tender Enquiry No: TRM/TW/106

Date: 29.12.2021

**GENERAL TERMS AND CONDITIONS OF ENQUIRY (JHS2055C R01)**

**UPLOADED IN SPERATE FILE -PAGE NO 01 TO 14**  
**(To be signed by contractor and submitted along with bid.)**

**ANNEXURE "X"**

**Blank Price Bid**

NAME OF THE FIRM:

S.n o	Description	UM	qty	Tech.hrs / Job	Total tech.hrs	Rate/job ( ₹)	Total Amount
(A)	( B)	(C)	(D)	( E)	( F)	(G)	(H)
1	Manufacturing activities of 3 phase freight Transformers.	No.	82	536.4	43984.8	0.00	0.00
2	Manufacturing activities of IGBT MEMU Transformers	No.	20	332	6640	0.00	0.00
3	Manufacturing activities of freight 5400 KVA Transformers	No.	1	441.34	441.34	0.00	0.00
4	Manufacturing activities of ESP	No.	170	121.6	20672	0.00	0.00
5	Manufacturing activities of Dry Type Transformers (0-1000 KVA)	No.	13	125.28	1628.64	0.00	0.00
6	Manufacturing activities of Dry Type Transformers (1000-2500) KVA	No.	60	151.84	9110.4	0.00	0.00
7	Manufacturing activities of Dry Type Transformers (2501-10000) KVA	No.	2	202.94	405.88	0.00	0.00
8	Manufacturing activities of Dry Type Transformers ( Above 10000) KVA	No.	1	242.08	242.08	0.00	0.00
9	Manufacturing activities of 24/33/66 KV Current Transformer	No.	1	62.8	62.8	0.00	0.00
10	Manufacturing activities of 132 KV Current Transformer	No.	75	80	6000	0.00	0.00
11	Manufacturing activities of 220 KV Current Transformer	No.	75	117.2	8790	0.00	0.00
12	Manufacturing activities of 132 KV Voltage Transformer	No.	5	54	270	0.00	0.00
13	Manufacturing activities of 220 KV Voltage Transformer	No.	7	88	616	0.00	0.00
14	Manufacturing of bushing / Turret CT of Power trfr	set	53	36	1908	0.00	0.00
15	Manufacturing of static ring of Power trfr	set	53	69.6	3688.8	0.00	0.00
16	Manufacturing of dovetail strips of Power trfr	set	53	144	7632	0.00	0.00
17	Manufacturing of Angle ring of Power trfr	set	53	14.4	763.2	0.00	0.00
18	Operation of process palants and oil filtration plant	hrs.	10087	1	10087	0.00	0.00
19	<b>GROSS TOTAL</b>				<b>122942.9</b>		
	<b>Total price in words:</b>						

We hereby accepted above (Signature & seal of bidder)

**Instructions to bidders to fill the price bid**

1. Bidders have to download the excel sheet in .xls format and fill the value in yellow color cell only (on computer) before taking print out of the price bid.
2. All the other cells of excel sheet are locked and is non editable.
3. Value in Col. 'G' & 'H' will be auto-populated automatically.
4. Bidders must not fill the price bid manually after taking print out, else the price bid shall be rejected.
5. After filling the price bid and taking print out, bidder have to sign and seal at the designated place on the price bid.
6. Price bid have to kept in separate sealed envelope with tender name and tender no. written on the top of it.