

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
P.O. BHEL Jhansi 284120

POWER TRANSFORMER MANUFACTURING DEPARTMENT

Notice Inviting Tender (NIT)
For

Works contract in Power Transformer Manufacturing shops, BHEL Jhansi

Tender Enquiry No.

TRM/TW/22/01

Tender due date: 24.05.2022 13:15 hrs.

Tender Opening date: 24.05.2022 14:00 hrs.

We hereby accepted above (signature & seal of bidder)



BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India undertaking)

TRANSFORMER MANUFACTURING (TRM), JHANSI - 284120

TENDER ENQUIRY NO: TRM/TW/22/01

DATE: 10.05.2022

DETAILS OF TENDER DOCUMENT

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Transformer manufacturing department is manufacturing various size of transformer products at, BHEL Jhansi

1. TRM, BHEL JHANSI is in the process of finalizing the Works Contract for "in Power Transformer Manufacturing shops, BHEL Jhansi"
2. The tender document has been detailed as follows:
 - a) Notice Inviting Tender (Annexure 01)
 - b) Work Specifications including special terms and conditions (Annexure 02)
 - c) Qualifying Requirements (Annexure 03)
 - d) Other required documents (Annexure 04).
 - e) Proforma for submitting technical bid (Annexure 05).
 - f) General Terms & conditions
 - g) Forms & Formats (Annexure I, II, III & IV)
 - h) Self-declaration (Annexure V)
 - i) Contract Agreement (Annexure VI)
 - j) Indemnity Bond (Annexure VII)
 - k) Checklists of documents for enquiry (Annexure VIII)
 - l) Performa of Bank guarantee (Annexure IX)
 - m) Formats (Annexure X, XI, XII, XIII, XIV & XV)
 - n) Price Bid (Annexure JS 146)
 - o) Blank Price bid Format JS 472 attached

The duly filled in Technical and Price / Rate bids (Annexure C and JS -146, separately) along with General Terms and Conditions and all other attachments with the signature of the tenderer on all the pages and complete in all respects super scribed as "Quotation for Tender No TRM/TW/22/01 dated 10.05.2022" should reach us in a sealed cover on or before 24.05.2022 (13.15 hours) through Registered / Speed post or the same may be dropped in the tender box available at the following address:

Tender Box
Security Control Room/Office
Administrative Building
Bharat Heavy Electricals Limited
Jhansi-284 120

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Note: (i) Incomplete offers are liable for rejection.

(ii) Technical bid and price bid should be submitted in separate sealed envelopes. In case the bids are found in one single envelope then the "bids" are liable to be rejected.

TENDER DOCUMENT FOR

WORKS CONTRACT FOR Power Transformer Manufacturing shops, BHEL
JHANSI

The tender document has been detailed as follows:

SN	Description	Annexure No.	Page No.	No. of Pages
01.	Notice Inviting Tender	01		
02.	Work Specifications for Option A & Option B, Special terms and conditions	02		
03.	Qualifying Requirements	03		
04	Other Required Documents	04		
05	Performa for submitting Technical Bid	05		
06	Self Declaration	V		
07	General Terms & conditions of enquiry (JHS 2055C R02)	Copy Enclosed		
08	Price Bid Sheet	JS 146		
09	Blank Price bid Format JS 472	JS 472		
10	Clubbed Annexures (I to X) Forms	I to X		
11	Certificate by CA for MSME	XI		
	TOTAL			

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Annexure – '01'

NOTICE INVITING TENDER

	NIT Terms	Activity-A (Option A)	Activity-B (Option B)
1	Scope of Work	1. Power Transformer Winding, Dry Type Winding, Winding of three phase Freight Loco, Pre-coil Assembly 2. Insulation of Power Transformer & Special Power Transformer, Machine shop work & shipping work.	1. Core Assembly, Unlacing & re-lacing work 2. Core to Coil Assembly, TG, Servicing & Case-fitting Work
NOTE: Bidders can opt to quote either for option A or B. Further, bidders to mention the option i.e A or B in the blank price bid.			
2	Tender evaluation criteria	As per qualifying requirements & as per tender documents	
3	Validity of Contract	12 Months from the date of award of work order	
4	Date and Time of Receipt of Tenders	24.05.2022 13:15 hr	24.05.2022 13:15 hr
5	Date and Time of Opening of Technical bids	24.05.2022 14:00 hr	24.05.2022 14:00 hr
6	Address for submitting the Tender	Tender Box, Security Control Room/Office, Administrative Building, Bharat Heavy Electricals Limited, Jhansi-284120 Note: BHEL takes no responsibility for any delay / loss of documents or correspondence sent by courier or post. Late tenders shall be rejected outright	
7	Earnest Money Deposit (EMD)	Rs. 189300/- (Rupees One Lakh Eighty Nine Thousand Three Hundred Only)	Rs. 130640/- (Rupees One Lakh Thirty Thousand six Hundred Forty Only)
7(a)	The EMD may be accepted only in the following forms: (i) Electronic Fund Transfer credited in BHEL account (before tender opening) <i>BHEL account details: Bank Name: - SBI; A/c No.:- 10670828866 ; IFSC code:- SBIN0003807, A/c Holder Name:- BHARAT HEAVY ELECTRICALS LIMITED</i> (ii) Card swapping through POS machine at Cash section of BHEL Jhansi.)		

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8(a)	In case of successful bidder, EMD will be converted and adjusted against the security deposit.		
8(b)	EMD will be forfeited in following cases		
(i)	After opening the tender, the bidder revokes his tender within the validity period or increases his quoted rate.		
(ii)	The bidder does not commence the work within the stipulated period as per LOI/ Contract. In case the LOI/contract is silent in this regard, then within 15 days after award of contract.		
(iii)	For MSME bidder's submission of EMD and tender cost will be applicable as per MSME act.		
8(c)	EMD given by all unsuccessful tenderers shall be refunded normally within 15 days of acceptance of award of work by successful tenderer.		
8(d)	EMD shall not carry any interest.		
9	Validity of Offer	120 days from the date of opening of Technical Bid (Part-I)	
10	Security Deposit (SD)	As per General terms & conditions	
11	GST	18 % of quoted rate.	18 % of quoted rate.
12	PF & ESI	Contractor has to submit PF and ESI registration certificate after issue of LOI and before award of Work Order to him.	Contractor has to submit PF and ESI registration certificate after issue of LOI and before award of Work Order to him
13	Reverse Auction	BHEL Shall be resorting to reverse auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in the reverse auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.	
14	Address for issue of Tender	AGM(CCC), Bharat Heavy Electricals Limited Jhansi, PIN-284120	

Note: (i) The contractors may physically visit the work place before quoting their rates.

For relevant details please visit our website "www.bhel.com" &

www.eprocure.gov.in.

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Annexure 02

Activity-A (Option A)

WORK SPECIFICATION (Brief Description of work)

A.1) SCOPE OF WORK OF THE CONTRACTOR FOR Activity-A (Option A) SHALL BE AS FOLLOWING: In Power

Transformer Manufacturing shops following work is to be carried out:

S. No.	Description of work	Section
1	Manufacturing activities of Power Transformer Winding, Dry Type Winding, Winding of three phase Freight Loco, Pre-coil Assembly. (For details refer A.2.1)	WINDING SHOP (Bay-4 & Bay-11)
2	Transformer Manufacturing – Preparation at Insulation shop, machine shop & shipping activity (For details refer A.2.2)	BAY 3 - MACHINE SHOP, BAY 7 -INSULATION & SHIPPING

A.1.1) The details of activity involved in the above said work is given in A.2. The total work will be limited to 253775 technology hrs.

A.1.2) The contractor will have to appoint sufficient no. of his own supervisors to organize and supervise the work being done by his employees in 1st, 2nd & 3rd shifts (if needed). Supervisors allocated for each section, 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.

A.1.3) Contractor have to collect all required raw material, drawings and manufacturing information from shops/ SPC/contracting department. Required space, tools & tackles and facilities like material handling equipment, 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, fevicol /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.

A.1.4) All the material, electricity, compressed air, consumable applicable in jobs 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 arrange by the contractor at their cost.

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A.1.5) All the job after manufacturing will be inspected by CQX/Section executive or Supervisor /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 contactors' responsibility.

A.1.6) Contractor is advised to visit the work place to know the work content before submission of quotation. The required documents / drawings / 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.

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Annexure 02

A.2) Detailed scope of Work (Activity A/Option-A)

A.2.1) Detailed Scope of Work in manufacturing activities of Power Transformer Winding, Dry Type Winding, Winding of three phase Freight Loco, Pre-coil Assembly (Winding shop/TRM Bay-4&11

Sl. No.	Work nature	Details of activity involved
1.	Power Trfr- Pasting of edge blocks, Scarf cylinder and preparation of Static Ring/Shield	<ol style="list-style-type: none">1. Setting of mould as per required diameter.2. Loading of pressboard items of edge blocks and cylinder into oven for 6-8 hours.3. Taking out the items from oven and pasting as per requirement.4. Curing for 8 hours and then smoothening the joint part by grinding from both inside and outsides.5. Removing cylinder/Edge block from mould. Cylinder sent to machine and edge block sent to insulation shop for edge cutting etc.6. Preparation of Static ring/Shields as per drawing/ES.
2.	Power TRFR-Starting of coil	<ol style="list-style-type: none">1. All below activities before start of each coil2. Collect all required material from SPC store.3. Setting of mould as per required diameter.4. Operating winding machine (both helical and vertical)5. Wrapping or lowering of cylinder as per ES/Dwg.6. Marking and dressing with Dovetail spacer and dovetail blocks.7. Checking of Copper size as per ES.8. Lead preparation as per ES/Dwg and lead mounting Etc.9. Issuing of QC tag and unloading coil from machine Etc.10. Quality check points are to be strictly followed
3.	Power Trfr-Winding of Helical and inter wound helical coil	<ol style="list-style-type: none">1. Providing Dummy blocks and end blocks as per ES.2. Tapping on first turn and then start winding3. Making Strand transpositions and block transpositions of conductor as per ES/Dwg.4. For both types sequence of conductor is must by quality after completion of coil and before cutting of conductors.5. For inter wound helical first marking of pitch then start the coil.6. All steps pitch must be accurate.7. Top lead preparation and locking of coil.8. Issuing of QC tag and unloading coil from machine Etc.9. Quality check points are to be strictly followed

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4.	Power Trfr-Winding of plain RS and interleaved coils	<ol style="list-style-type: none"> 1. Check Copper reels as per ES 2. Pasting of rider dummy, marking of rider/step dummy and cutting as required. 3. Starting of coil from first section and moving continue as per ES/Dwg/Cross over Diagram. 4. Operating resistance brazing machines. 5. Jointing copper as per design standard. 6. Making of standard transposition, strand transposition and block transposition as per standard. 7. Preparations of all leads of the coil as per standard. 8. For interleaved sections conductors sequence to be checked with buzzer before joining them in presence of BHEL person. 9. Sequence of conductors in PID coil must be check as per given check list. Etc. 10. Issuing of QC tag and unloading coil from machine Etc. 11. Quality check points are to be strictly followed as per check list.
5.	Power Trfr-Winding of double layer and composite coils	<ol style="list-style-type: none"> 1. Complete first layer winding as per above activities. 2. Alignment of the winding, lead preparation and then wrapping as per ES/Dwg. 3. Starting winding of second layer winding as per given above activities (Sr.No.3 &4 of work nature). 4. Completing the winding and unloading Etc. 5. Quality check points are to be strictly followed as per check list.
6.	Power Trfr- Coil final preparation, Rectification, Clamping and pressing	<ol style="list-style-type: none"> 1. Unloading coil from machine and shifting it to clamping area. 2. Alignment and rectification of the coil and followed by QC check. 3. Clamping the coil and loading it to vessel for heating. 4. After heating as per standard taken out coil for pressing. 5. Maintaining CD by pressing the coil and tightening. 6. Shifting the coil to Bay-4 area. 7. After testing wrapping the coil with polyfilm. 8. Handing over the coil to assembly shop. 9. Quality check points are to be strictly followed as per check list.
7.	Winding of three phase Freight loco coil	<ol style="list-style-type: none"> 1. Collection of material (Copper/insulation items, cylinder and other required material) 2. Pasting of dovetails strips on FG cylinder as per ES/Dwg. 3. Loading cylinder on mould and start winding as per ES/Dwg. 4. Joints in copper must be as per TRE Standard. 5. Complete the coil and then lock from outside with dovetails locking strips. 6. Quality check points are to be strictly followed as per check list. 7. Final preparation of coil as per point no.6.

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8.	Winding of DTT coils	<ol style="list-style-type: none"> 1. Mold readiness by applying mold releasing agent and loading on machine. 2. Issuing material from SPC store/Main Store 3. Start winding as per ES and Dwg. 4. Copper joints brazing must be as per Design standard. 5. Cleaning of segments and then applying releasing agent and then putting on winding before start of second layer. 6. Use fiber glass mate and other insulating items as per requirement/ ES/Drwg. 7. Completing the coil and sending it to for preparation Etc. 8. Quality check points are to be strictly followed as per check list.
9.	DTT coil Casting	<ol style="list-style-type: none"> 1. TG work of HV coils followed by terminal brazing. 2. Jacketing of the coils. 3. Loading of coils in encapsulation plant. 4. Filling of Epoxy material in plant as per standard. 5. Shifting of coils in heater for curing 6. After heating dismantling of coil and removal of jackets and segments. 7. Cutting and finishing of conductors and maintaining CD. 8. Testing of coils and handing over to Assy shops. 9. Quality check points are to be strictly followed as per check list.
10.	Crane work	<ol style="list-style-type: none"> 1. Loading and unloading of mould on machines and mould setting. 2. Unloading coils from machine. 3. Raking out coils and cylinders from mold. 4. Shifting of coils to clamping area 5. Loading and unloading of copper reels 6. Shifting of moulds. 7. Shifting of materials. 8. Handling of coils for loading in vessel, pressing on press machines. 9. Handing over the coils to assembly shops.
11.	SPC Store Work	<ol style="list-style-type: none"> 1. Collecting material from Main store. 2. Collecting material from Insulation shop. 3. Collecting material from feeder section and Bay-8. 4. Maintaining all material records. 5. Providing/shifting materials to the shops as per requirement. 6. Checking of items as per drawings/ES.
12.	Cleaning, Housekeeping and '5S'	<ol style="list-style-type: none"> 1. Proper upkeeping of items and housekeeping is to be maintain in the shop, office and spc area. 2. Cleaning of machines and shop must be on regular basis. 3. Sweeping and wiping of floor on daily basis. 4. All items are to be placed with identification and at allocated/Defined place. 5. '5S' is to be maintain in the shop.

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13.	Office work	<ol style="list-style-type: none"> 1. Maintaining attendance of workers regular (daily and monthly) basis. 2. Maintaining production records and daily work progress sheet. 3. Submitting material MIV on time and maintain records. 4. Generating SIV and maintain records. 5. Maintain material records like copper, insulation items, fg items etc. 6. Sending of breakdown reports to maintenance etc
<p>NOTE :- For all above activities, BHEL Shop/Quality/TRE/Customer shall inspect the job at any point of time and their bookings to be attended.</p>		

A.2.2) Detailed Scope of Work in Preparation at Insulation shop, machine shop & shipping activity Scope of Work- Insulation shop, machine shop & shipping activity (BAY 3 - MACHINE SHOP, BAY 7 -INSULATION & SHIPPING)

Sl. No.	Work nature	Details of activity involved
1	Insulation items preparation of Power / Spl Transformers	<ol style="list-style-type: none"> 1. Preparations of Winding Insulation and Coil Assy Insulation of Power and special transformers. It includes preparation of Spacers, Block, washers, cleats, gaskets, Bend washer, cylinders, edge block, Scarf cylinders, center block, Wrap, Barrier, Circular Barriers, F G Insulation, Crimp washer etc. and other insulation items of Transformers, as per BHEL drawings. 2. Preparations of coil Supports Top rings, Bottom rings, Ring segments, Base plate, packing, etc. as per BHEL drawings. 3. Preparation of Core Insulation and Tank Insulation items of Power and Special Power Trfr. It includes Separator, yoke Insulation, E Type Packing, Feet Insulation, Square Bar Packing, End Frame Packing etc. 4. Preparation of T G Insulation of Power and special Trfr. It includes Cleats, Packing, closing piece, Horizontal and vertical cleats, Template based items of PCB and Permawood etc. 5. Preparation of Gasket and C T Insulation of Power and Special Transformers. It includes Gasket items of erection, shipping, tanking and outside fittings of transformer tank and accessories and C T Insulation of Transformer Tanks. 6. All manufacturing activities of insulation items which involve operation of Circular saw cutting, Finishing, Marking, Drilling, Grinding, Guillotine machine shearing, Spacer Cutting machine, Gumming/ Pasting, rolling, Bending, Scarfing, circle cutting, Jig Saw machine, Die Punching Machine, Gasket Surface grinding, Hand Circular Saw, Hand Jig Saw etc.

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		<ol style="list-style-type: none"> 7. Material movement from Stores to Shop Floor and from one work center of shop floor to another. 8. Segregation and stacking of prepared material and keeping its record. In-house handling of prepared material/Raw material. 9. Handing over and Maintaining the record of Dispatch Items to different Sections after getting checked from Shop Supervisors. 10. Proper keeping the offcuts for further Utilization to prepare items. 11. Stacking, Tieing, Packing and Placing of finished insulation Items in proper place as directed. 12. Maintaining the housekeeping and cleaning of work area and machines on regular basis and maintain the 5 S in the Shop Floor. 13. Attendance of workers, Production Records, daily Work progress sheets etc. to be maintained. 14. Operation of overhead crane for loading of material on machine or at work place and fork lifter operation for material movement such as Placing Pre-Compress Pressboards and Perma wood sheets and coil supports, picking raw material from store, scrap bins delivery to scrap yard etc.
2	Preparation of machine shop Items of Power / Spl Trfr Assy.	<ol style="list-style-type: none"> 1. Preparations of copper TG items for Power, dry type, Esp and special transformers. It includes preparation of copper Bus bar, flexible jumper, earthing links and strips, Neutral grounding other miscellaneous items of Transformers, as per BHEL drawings. 2. Slitting and cutting of CT-VT copper tubes and connecting palm preparation as per BHEL drawings. 3. Preparations of steel items such as pressure bolt, cover support bolt, tie rod, square bar and other machined items. 4. Machining Operation on bushing mounting steel rings etc. 5. Additional copper and machined Items required at sites. Spare items required by assembly shop or any modification work related to suit to assembly work for example machining on locking channel and feet, rethreading of tie rods, nozzle requirements by different shops etc. 6. All manufacturing activities of copper and steel items which involve operation of marking, bend saw & power saw cutting, tube slitting, Drilling, Grinding, Guillotine machine shearing, machining on lathe and milling machines, Bending, slot drill, hot dip tinning, brazing, heat treatment of copper sleeves and other items. 7. Material movement from Stores to Shop Floor and from one work center of shop floor to another. 8. Segregation and stacking of prepared material and keeping its record. In-house handling of prepared material/Raw material. 9. Handing over and Maintaining the record of Dispatch Items to different Sections after getting checked from Shop Supervisors. 10. Proper keeping the offcuts for further Utilization to prepare items such as small earthing links, strips and other small items.

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		<ol style="list-style-type: none"> 11. Stacking, Tying, counting, Packing and Placing of finished Items in proper place as directed. 12. Maintaining the housekeeping and cleaning of work area and machines on regular basis and maintaing the 5 S in the Shop Floor. 13. Operation of overhead crane for loading of material on machine or at work place and fork lifter operation for material movement such as withdraw of heavy steel and copper raw material from store, scrap bins delivery to scrap yard etc. 14. Attendance of workers, Production Records, daily Work progress sheets etc. to be maintained.
3	Activities of Shipping	<ol style="list-style-type: none"> 1. Foundation bolt, Hardware, Roller preparation. 2. Breather bracket, m box bracket, shim, tool kit, tie bar, valve preparation. 3. Gasket preparation. 4. PRV, buchholz relay, OSR, OTI & WTI, 0.6 Kg/cm² pressure gauge, 1.6 kg/cm² pressure gauge, OFI, breather with silica gel preparation. 5. Ladder assembly, cable box preparation 6. Turret, Radiator, Fan and Fan support Assy preparation. 7. Header, A frame and pipework preparation. 8. Oil pump and motor preparation. 9. Conservator and conservator pipework preparation. 10. OLTC conservator and its pipe work preparation. 11. Terminal Connector for HV and LV bushing preparation. 12. Post insulator and its support preparation. 13. Copper items and Oil preparation. 14. Cable marking, cutting and cable tray preparation. 15. Marshelling box & RTCC preparation. 16. Thermosyphen, Alumina, Cooler preparation. 17. Hydraulic jack preparation. 18. All Types bushing preparation. 19. NIFPS preparation. 20. Online DGA and Online moisture removal system preparation. 21. Instruction manual preparation. 22. Paper work between store, QC, CDC and shipping. 23. Crane operation. 24. Welding & brazing activity. 25. Store activity. 26. Transportaion of material from store to shipping and from shipping to CDC. 27. Painting and touch up (If Required) 28. Office activity etc.
<p>NOTE :- For all above activities from SI No 1 to 21, BHEL Shop/Quality/TRE/Customer shall inspect the job at any point of time and their bookings to be attended</p>		

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Annexure 02

Activity-B (Option B)

WORK SPECIFICATION (Brief Description of work)

B.1) SCOPE OF WORK OF THE CONTRACTOR FOR Activity-B (Option B) SHALL BE AS FOLLOWING: In Power Transformer Manufacturing shops following work is to be carried out:

S. No.	Description of work	Section
1	Transformer Manufacturing - CORE ASSEMBLY, UNLACING & RELACING.	BAY 9 & 10 - BTG
2	Transformer Manufacturing – Coil ASSEMBLY, TG, SERVICING & CASE + FITTING handing over to dispatch section (RL-01)	BAY 9 & 10 - ATG

B.1.1) The details of activity involved in the above said work is given in Annexure-XI. The total work will be limited to 175137 technology hrs.

B.1.2) The contractor will have to appoint sufficient no. of his own supervisors to organize and supervise the work being done by his employees in 1st, 2nd & 3rd shifts (if needed). Supervisors allocated for each section, 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.

B.1.3) Contractor have to collect all required raw material, drawings and manufacturing information from shops/ SPC/contracting department. Required space, tools & tackles and facilities like material handling equipment, 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, Fevicol /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.

B.1.4) All the material, electricity, compressed air, consumable applicable in jobs 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 arrange by the contractor at their cost.

B.1.5) All the job after manufacturing will be inspected by CQX/Section executive or Supervisor /customer and if any default / defect occurs, the same has to be rectified by contractor at free of cost.

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TRANSFORMER MANUFACTURING (TRM), JHANSI - 284120

TENDER ENQUIRY NO: TRM/TW/22/01

DATE: 10.05.2022

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 contactors' responsibility.

B.1.6) Contractor is advised to visit the work place to know the work content before submission of quotation. The required documents / drawings / 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.

We hereby accepted above (signature & seal of bidder)



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Annexure 02

Detailed scope of Work (Activity B/Option-B)

B.2.1) Detailed Scope of Work in CORE ASSEMBLY, UNLACING & RELACING is as under

Sl. No	Work nature	Details of activity involved
1	Core assembly	<ol style="list-style-type: none">1. Drg availability.2. Material Availability as per drg.3. Collection of hardware/consumable material from store/CRX/Insulation Shop4. Layout of cradle beam & end-frame, cleaning of thread (taping) of end-frame etc.5. Preparation of insulation item of core.6. Shifting of lamination from store to core layout,7. Core build up, clamping, preparation of belts, tightening, & lifting of core8. Application of blue -lacquer & Epilux hardener, application of resin-glass belt & curing,9. Paint touch up, cleaning of core & readiness for testing.
2	Unlacing	<ol style="list-style-type: none">1. Drg availability.2. Material Availability as per drg.3. Collection of hardware/consumable material from store/CRX/Bay-74. Station preparation, unlacing of core.
3	Re-lacing	<ol style="list-style-type: none">1. Pressing to achieve required relacing level & re-lacing of job after process2. Additional work if required in case level not achieved as per COX/ TRE /Shop guidelines.3. Placement of insulation items & tightening of end-frame, application of pressure, mounting of cover support bolt etc.4. cleaning of job
NOTE :- For all above activities, BHEL Shop/Quality/TRE/Customer shall inspect the job at any point of time and their bookings to be attended.		

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ANNEXURE 02

B.2.2) Detailed Scope of Work in ASSEMBLY, TG, SERVICING & CASE+FITTING is as under:

Sl. No	Work nature	Details of activity involved
1	Core coil assembly	<ol style="list-style-type: none">1. Drg availability.2. Material Availability as per drg.3. Collection of hardware/consumable material from store/CRX/Bay-74. Station preparation, unlacing of core, bottom ring assembly arrangement.5. yoke shunt preparation if any & assembly6. lead preparation, assy of block washer and spacer, lowering of coil etc into core as per drawing,7. end frame and pressure bolt mounting after taping,8. preparation of job to be sent for process9. cleaning of job before loading for processing.
2	Re-lacing	<ol style="list-style-type: none">1. Pressing to achieve required relacing level & re-lacing of job after process2. Additional work if required in case level not achieved as per CQX/ TRE /Shop guidelines.3. placement of insulation items & tightening of end-frame, application of pressure, mounting of cover support bolt etc.4. cleaning of job
3	Terminal Gear Assembly	<ol style="list-style-type: none">1. Drg availability.2. Material Availability as per drg.3. Collection of hardware/consumable material from store/CRX/Bay-74. Removal of enamel of CTC conductor.5. cleat fitting, preparation of copper cable/bus bars and its crimping/brazing with winding conductors, cleaning of brazing joints6. OLTC assy.7. mounting of OLTC bracket & OLTC, connection of copper cables with OLTC,8. finishing of complete active part in all respect, cleaning & readiness for testing.9. Additional work if required in case any testing failure

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4	Tank and turret preparation	<ol style="list-style-type: none">1. Drg availability.2. Material Availability as per drg.3. Collection of material from store/CRX/Bay-7.4. Assy of items, valves, hardwares, cord, gaskets etc. as per drg.5. Assy of CTs in turret and tank as per drg.6. CT board assy.7. Mounting of turrets on tank.8. Copper earthing of turret with tank and top& bottom tank to be done as per requirement.9. Shunt and barrier assy to be done as per requirement in drg.10. BHEL Shop/Quality/TRE/Customer shall inspect the job at any point of time and their bookings to be attended.11. Store Keeping for raw materials & hardwares.12. Tank TG to be done as per requirement in drawing.
5	Trial Tanking	<ol style="list-style-type: none">1. OLTC flange to be removed.2. Transformer to be placed in tank.3. Top tank to be placed.4. Ferrule brazing /lug crimping in low voltage winding, intermediate winding, high voltage winding to be done as per drg /suit to assembly.5. Locking channel fouling/resting to be checked and rectified to suit to assembly.6. Flange matching to be checked for the OLTC bracket down/up scope.
6	Servicing	<ol style="list-style-type: none">1. Servicing (all hardware/permalite tightening, core padding, pressure by dash pot/bolt etc.) of transformer to be done as per technology. Any other requirement related to SCT jobs to be done as per instruction BHEL Shop/Quality/TRE. Any mechanical/testing failure to be taken care by contractor.2. Testing will be done by testing department, any issue faced (testing failure) will be taken care by contractor.3. Required earthing of core, end frame, and tank to be done after successful testing.
7	Tanking	<ol style="list-style-type: none">1. After point 3 transformer to be placed in its respective tank.2. Clearances etc. to be taken by BHEL Shop/Quality/TRE/Customer and their bookings to be attended.3. Tank to be tightened by giving specified torque using torque wrench.4. All the inspection covers except on top to be tightened for oil filling purpose.5. OLTC flange matching, diverter insertion and necessary connection of bushing, earthing lead, CT leads etc. to be done.6. Necessary earthing at required places to be done.

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8	Case fitting	<ol style="list-style-type: none">1. Bushing assy of various rating to be done on transformer.2. Lead taping to be ensured up to bushing bowl.3. MDU mounting and coupling with OLTC to be done.4. All the inspection covers to be tightened properly.5. Locking channel insulation packing.6. Top up of the job with mobile conservator and any leakage point to be attended.7. Leakage point during oil pressure to be attended.
9	Dismantling	<ol style="list-style-type: none">1. Dismantling of all the bushing and turrets.2. Proper tying of leads/jumper with polyester.3. Cleaning of tank and active parts from inside.4. Epoxy plate mounting & connection and tightening.
10	RL01: Heat Run Preparation	<ol style="list-style-type: none">1. Main transformer preparation for dispatch etc.2. Radiator, Fan and Fan support mounting and dismantling.3. Header, A Frame and Pipework assy and dismantling.4. Oil pump and motor assy and dismantling.5. Conservator and conservator pipework assy and dismantling etc.
NOTE :- For all above activities, BHEL Shop/Quality/TRE/Customer shall inspect the job at any point of time and their bookings to be attended		

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Annexure 02

SPECIAL TERMS AND CONDITIONS FOR BOTH (Activity A/Option-A & Activity B/Option-B)

- 1) **Taxes and Duties:** GST shall be applicable @18 % of total contract value. In case of credit is not available as denied by GST portal due to improper documentation of wrong uploading of data by bidder, the same will be recovered from the bidder along with interest, if any.
- 2) **Payment Terms:** The work shall be measured in terms of technological hrs provided by the technology department of work completed and payment shall be made on ₹ / technological hrs. as quoted by successful lowest bidder.
Finance department shall, on satisfactory compliance, and after deduction (if any) on account of defaults / Penalties / TDS, will make the due payment to the contractor.
- 3) **Penalty 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.
- 4) For all technical operation only suitable skilled /experience workers to be engaged.
- 5) **PVC/ORC** : Not applicable
- 6) **Bonus Clause:** Not applicable, however the contractors to comply the statutory obligations as per the extant statute.
- 7) **RA shall be conducted among the techno-commercially qualified bidders.**
- 8) Quantity variation (Technological Man hours) is + 30%.
- 9) **Splitting of Contract:** Each activity A & B will be spilt into two bidders. The L1 price will be offered to L2 bidder, if L2 do not accept then will be offered to L3 and so on based on no. of qualified bidders and their acceptance. Splitting will be as L1: L2 :: 60: 40 respectively. If L1 rate not accepted by other bidders, then total quantity will be awarded to L1 bidder.
- 10) No relaxation in PQR for MSE vendor, however benefit to MSE vendor shall be available as per the attached annexure "X".
- 11) In case there are multiple MSE vendors who satisfies the condition mentioned in sl.no "d" above, then the 25% qty allocation shall be limited to one MSE vendor who sequentially (i.e. L2, L3....) accepts the L1 vendor rates.
- 12) **Bidders can opt to quote either for option A or B. Further bidders to mention the option i.e A or B in the blank price bid.**

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Annexure 03

Qualifying Requirement

S.No	NIT Terms	Activity-A (Option A)	Activity-B (Option B)
1	Name of Work	1. Power Transformer Winding, Dry Type Winding, Winding of three phase Freight Loco, Pre-coil Assembly 2. Insulation of Power Transformer & Special Power Transformer, Machine shop work & shipping work.	1. Core Assembly, Unlacing & re-lacing work 2. Core to Coil Assembly, TG, Servicing & Case-fitting Work
2	Annual Turnover		
2a	The average annual financial turnover in the past 3 years, ending 31st March 2022, should be at least X (Refer 2b for respective column for value of 'X' Contract), wherein the bidder(s) has to attach Income tax return along with balance sheet, Profit & Loss Account of last three financial years, ending 31st March 2022, or Certificate of CA. Provisional /Actual Turnover for financial year 2021-22 duly certified by CA shall also be acceptable for evaluation purpose. If turn over details of 3 years are not available, then available years turnover shall be evaluated by dividing it by 3.		
2b	Annual Turnover (Refer 2a above)	Rs 28.39 Lac	Rs 19.59 Lac
3	Experience: Experience of having successfully completed including partial completed similar works* (defined below) in past 7 years, ending last day of the month previous to the one in which tender are invited should be either of the following		
3a	Three similar completed/partial completed works each costing not less than	Rs 37.86 Lac	Rs 26.13 Lac
3b	Two similar completed/partial completed works each costing not less than	Rs 47.33 Lac	Rs 32.66 Lac

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3c	One similar completed/partial completed works, each costing not less than	Rs 75.72 Lac	Rs 52.26 Lac
3d	<p>In case of experience in Government Organization/ PSU/ Semi- Government, following documents must be attached:</p> <ul style="list-style-type: none">i) Copy of Work order/ Purchase Order.ii) Copy of Work Completion Certificate. <p>In case of experience in Private Sector, following documents must be attached:</p> <ul style="list-style-type: none">i) Copy of Work order/ Purchase Order.ii) Copy of Work Completion Certificate.iii) TDS Certificate <p>*Similar Work: 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>		

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Annexure-04

S.No	Other required documents
1	Contractor Should have PAN number.
2	Contractor Should have GST (PAN based)
3	Bidders are required to submit a self-declaration on their letter head as per the Format enclosed in Annexure V.
4	The bidder should submit the required documents for the proof of their firm as legal entity under whose name and style Contractor has participated in the tender as given below: i. Partnership Firm: Partnership Deed registered at the office of Registrar of Firms. ii. Company: Certified copy of Memorandum of Association, Article of Association and Incorporation Certificate. iii. Society: Registration certificate issued by Registrar of societies. iv. Sole Proprietor-ship Firm: Profession Tax Regn./ Municipal Regn/ PAN of Firm (Proprietor) along with Self declaration on Letter head.
5	Declaration by bidder w.r.t sister firms

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**BHARAT HEAVY ELECTRICALS LIMITED****(A Govt. of India undertaking)****TRANSFORMER MANUFACTURING (TRM), JHANSI - 284120****TENDER ENQUIRY NO: TRM/TW/22/01****DATE: 10.05.2022****Annexure 05****PROFORMA FOR SUBMITTING TECHNICAL BID**

1	Name of the firm (Essential)	
2	Address and Contact Numbers (Essential)	
3	Name of the Proprietor (Essential)	
4	Registration Number of the Firm (If Applicable) (Essential)	
	Copy of the Certificate	Enclosed / Not Enclosed
5	Proprietorship/ partnership deed	
6	PAN/TAN Number (Essential)	
7	GST Number (PAN Based) (Essential)	
8	Copy of PF registration	PF no-
9	Copy of ESI Registration	ESI No-
10	Experience Certificate (Along with balance sheet & profit and loss account/ turnover certificate issued by CA) (Essential)	Enclosed / Not Enclosed
11	Earnest Money Deposit (Essential, if applicable)	
	Receipt No. & Date	
	Electronic fund Transfer no. (Bank)	
12	Validity of offer	120 days from the date opening of technical bid
13	Blank Price bid 'JS-472' (Essential)	Enclosed / Not Enclosed
14	Valid E-Mail Id (Essential)	
15	Participation in RA	YES / NO

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16	Copy of turn over for last three year (Essential) (refer Qualifying requirement) i. 2019-20 ii. 2020-21 iii. 2021-22	Submitted/ Not submitted
17	Work Experience (refer Qualifying requirement) (Essential) i. Work order ii. Completion Certificate iii. Relevant TDS/TRACES (in case of Experience in private sector)	Submitted/ Not submitted
18	Copy of Income Tax return i. F.Y 2019-20 ii. F.Y 2020-21 iii. F Y 2021-22	Submitted/ Not submitted
19	Acceptance of Scope of work (for quoted option A or option B), Special terms and conditions & General Terms & conditions Signature on all pages without deviation by bidder	YES / NO
20	Submission of Security Deposit after issue of LOI and before award of Work Order to contractor.	YES / NO
21	Self declaration as per as per Annexure V on Rs 100 stamp paper	Submitted/ Not submitted

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

We hereby accepted above (signature & seal of bidder)