

SCOPE OF WORK – LT MOTOR OVERHAULING- Anexure-1

1.1 **LT Motor overhauling at OPGC** (List of Motors – Refer Table -1, Pg – 4)

- a. Careful disassembly of the motor, remove old windings
- b. Cleaning of stator core & slot suitably with compressed air/ mechanical cleaning / chemical cleaning
- c. Hot Spot testing of stator core and re-staggering of the stator core if required
- d. Rewinding of stator with good quality material and specified insulation
- e. Varnishing & drying of winding
- f. Repair of rotor (stamping only) if required, bearings to be replaced if required, bearing covers to be repaired / replaced as per requirement
- g. Use phase insulation in all three phases. Stator insulation strength must be ensured by measuring R60/R15 and should be more than 1.3. The VVVF drive motors, special varnishing shall be done on the stator windings, that shall be carried out by VPI process i.e. dip impregnating coils in Class F moisture protection and finishing varnish by VPI Process and curing the same in Auto control cut off oven.
- h. Brazed connections to be used instead of crimped ones
- i. Rewinding of rotor as per requirement
- j. Healthiness of motor space heater to be ensured
- k. Final assembly of motor with terminal chambers
- l. Conduct relevant tests as per Relevant, Latest BIS standards, Prepare test reports and submission with the Purchaser
- m. Third party inspection, the cost of third party deputation shall be in the scope of Purchaser.
- n. All kinds of enabling jobs e.g. replacement of minor hardware i.e. circlips, fasteners etc.,
- o. Replacement of cooling fans (Purchaser Supply), Terminal Blocks (Purchaser Supply) shall be done with prior approval of Purchaser
- p. Dynamic balancing of Rotor, bushing, end shield covers, undercutting and metalizing jobs, reconditioning of shafts (at bearing locations) / replacement of shaft
- q. The motor shall be painted with one coat of red oxide primer and two coats of epoxy paint of original colour followed by proper surface cleaning.

1.2 **Optional Jobs, LT Motor Overhauling**

- a. Dynamic balancing of rotor, bushings
- b. Undercutting work of end shield covers
- c. Undercutting and metalizing
- d. Reconditioning of rotor shaft (both end) at bearing location
- e. Replacement of Rotor shaft
- f. Replacement of OPGC supplied cooling fan, OPGC supplied terminal Blocks

2. **Inspection and testing**

- a. The agency shall conduct all relevant stage inspections tests / Routine Tests, as per relevant BIS standards, but not limiting only to Insulation Resistance, winding resistance test etc. and maintain records of such tests.
- b. Final Test of the motor e.g. No Load trial run & other characteristics as per relevant BIS standard of the motor shall be done and records of such tests shall be maintained.
- c. Offer for inspection shall be made to the purchaser with all test records. Inspection of the motor at vendors site by the purchaser's representative / or Third party shall be arranged

by the Purchaser at his own cost. Despatch clearance with / without inspection shall be sole discretion of the purchaser.

3. Contractors Scope:

- a. To & fro transportation of the motor (in assembled condition only) with road worthy packaging, handling at vendor's premises, transit insurance
- b. Supply of all consumables, the list of consumables of approved makes to be used can be referred from clause 6. below.
- c. Enabling jobs e.g. machining jobs, minor reconditioning jobs etc. shall be covered in the contractors' scope.
- d. All metallic scraps (except ferrous) shall be returned to the purchaser
- e. Arrangement of joint inspection & third party inspection at vendor's site shall be arranged by the agency at no additional cost to the purchaser. The charges of the third party shall be borne by the purchaser.
- f. Offer Guarantee / warrantee for the repaired motor for a period of 09 months from the day of taking the motor into service / 12 months from date of supply, whichever is earlier. Defect dilution during Guarantee / warrantee period shall be done by the agency on cost free basis. The visit of the agency's engineer shall also be on cost free basis to the purchaser.

4. Purchaser's scope

- a. Issue e- way bills
- b. Handling of the motor at purchaser's site
- c. Supply of cooling fan, terminal block (if required)

5. Special conditions of the contract

- a. The item rates shall be firm over the contract period
- b. The agency shall indemnify the purchaser (OPGC) against any untoward incident by furnishing suitable indemnity bond, valid through the contract period.
- c. The defective motor shall be issued to the Authorised person of the agency against submission of Authorisation Letter.
- d. In case of dispute / repair of the motor cannot be taken up, leading its return to purchaser's site without being repaired, only to & fro transportation charges shall be paid at pre scheduled rate.
- e. All OPGC EHS Norms & statutory compliances shall be done by the agency and records of such compliance shall be submitted with the purchaser on demand.
- f. The agency shall not sublet the job without prior approval from OPGC.
- g. The purchaser reserves the right to terminate the contract with 07 (seven) days notice, in the event of quality of the job getting unsatisfactory. The earnest money & security deposit shall be forfeited in the event of termination of the contract.
- h. The Contract period shall deemed to be treated valid till completion of the already initiated motor repair job (in the event of PO delivery period expiring before completion of the job), without any price escalation and without any changes in PO terms, except LD.

6. Approved Consumables

- a. F Class Varnish by Dr. Beck
- b. Elmotherm F – 50 Varnish by Dr. Beck
- c. Conducting Tapes by Semicatherm
- d. Insulating Tapes by PGMP
- e. Bearings by SKF / FAG / ZKL / NTN / Timken

7. Defect dilution period

- a. Guarantee / warrantee for a repaired motor for a period of 09 months from the day of taking the motor into service / 12 months from date of supply, whichever is earlier shall be offered on the repaired motor. Defect dilution during Guarantee / warrantee period shall be done by the agency on cost free basis. The visit of the agency's engineer shall also be on cost free basis to the purchaser.

8. Contract period

- a. The contract shall be valid for a period of 24 (Twenty four) months from the PO / LOI date.

9. Delivery period & LD Charges

Sl. No.	Motor Rating (hp)	Normal Delivery period
1	3 ph., up to 2 hp	5 days
2	3 ph. 2 – 5 hp	5 days
3	3 ph. 5 – 20 hp	7 days
4	3 ph. 20 hp – 50 hp	7 days
5	3 ph. More than 50 hp	9 days

Failure to comply the delivery dates shall attract LD charges @1% of the basic value of the item rate per day, subject to a cap of 10% of the basic value of the PO.

10. Payment terms

- a. 90% of the bill value with 100% taxes and duties shall be cleared within 30 days from submission of bill duly certified from the EIC, with all relevant documents
- b. Balance 10% of the retention amount of the bill shall be cleared within 30 days from completion of defect dilution period & duly certified from the EIC.

11. Price Bid Format-Anexure-2

Table – 1.1

PRICE BID FORMAT , ARC OF LT MOTORS - CHP - II, OPGC

Sl. No.	Item Description	KW Band	Voltage (KV)	UOM	Qty.	Cost	
						Unit rate (Rs.)	Total Cost (Rs.)
1	Repair & Rewinding of LT Motor	< 3.7 KW	0.415	No.s	40		
	Dynamic Balancing of Rotor, Bushings				2		
	Undercutting, metallizing of end shield covers				2		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				2		
	Replacement of Rotor Shaft				2		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				5		
2	Repair & Rewinding of LT Motor	3.8 - 5.5 KW	0.415	No.s	20		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
3	Repair & Rewinding of LT Motor	5.6-10	0.415	No.s	10		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
4	Repair & Rewinding of LT Motor	10.1-15	0.415	No.s	4		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
5	Repair & Rewinding of LT Motor	15.1-25	0.415	No.s	4		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				2		
6	Repair & Rewinding of LT Motor	25.1 - 37.5	0.415	No.s	2		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				2		
7	Repair & Rewinding of LT Motor	37.6-50	0.415	No.s	2		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		

Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
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PRICE BID FORMAT , ARC OF LT MOTORS - CHP - II, OPGC

Sl. No.	Item Description	KW Band	Voltage (KV)	UOM	Qty.	Cost	
						Unit rate (Rs.)	Total Cost (Rs.)
8	Repair & Rewinding of LT Motor	50.1-75	0.415	No.s	2		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				2		
9	Repair & Rewinding of LT Motor	75.1-90	0.415	No.s	2		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				2		
10	Repair & Rewinding of LT Motor	90.1-100	0.415	No.s	1		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
11	Repair & Rewinding of LT Motor	100.1-132	0.415	No.s	1		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				2		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
12	Repair & Rewinding of LT Motor	132.1-160	0.415	No.s	1		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		
13	Repair & Rewinding of LT Motor	160.1 - 200	0.415	No.s	1		
	Dynamic Balancing of Rotor, Bushings				1		
	Undercutting, metallizing of end shield covers				1		
	Reconditioning of Rotor Shaft at Bearing Locations (Both ends)				1		
	Replacement of Rotor Shaft				1		
	Replacement of Cooling Fans, Terminal Blocks (supply by OPGC)				1		



12. Qualifying Criteria- Anexure-3

- 12.1 The agency shall have executed “similar jobs” earlier and shall submit credentials of previous three financial years (FY 15-16, FY 16-17, FY 17-18) i.e.
- a. At least one credential of PO value Rs. 15.0 Lacs or more
 - b. At least two credentials of PO value Rs. 11.0 Lacs or more each
 - c. At least three credentials of PO value Rs. 09.0 Lacs or more each.

The agency shall submit documentary evidence in support of the mentioned qualifying criteria.

- 12.2 The average financial turnover of the agency should be more than Rs. 10 Lacs in last three preceding financial years (FY 15-16, FY 16-17, FY 17-18)

The agency shall submit documentary evidence in support of the mentioned qualifying criteria e.g. audited financial results.

- 12.3 The party should not have been black listed, nor should have faced order cancellation due to poor quality or any other similar reasons in last ten years.

The agency shall submit self declaration on his company letterhead as documentary evidence in support of these qualifying criteria.

- 12.4 The purchaser reserves the right to disqualify any bidder having prior bad experience of causing unusual delay in delivery, quality problems etc. without assigning any reason.