





MANUFACTURER LOGO	MANUFACTURING QUALITY PLAN							PROJECT: AS PER PO						
	Manufacturer Name and Address: CUSTOMER /BHEL APPROVED SOURCE AS APPLICABLE				ITEM: AGITATOR			CUSTOMER:						
					QP NO: AGT:Rev 01, Dt: 03.01.2022			BHEL W/O:						
					Page 1 of 4			MAIN CONTRACTOR: M/s BHEL.						
SL. NO.	COMPONENT & OPERATION	CHARATERISTICS	CLASS	TYPE OF CHECK	QUATUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS	
					M	C/N				M	C	N		
1	2	3	4	5	6		7	8	9	D*	10			11

1.0 RAW MATERIALS INSPECTION.													
1.1	Shaft & Blades, rubber composition & other material including castings & forgings.	Chem. & Mech Properties	Major	Review of MTC	1/ Heat	-	Customer Approved Drawing / Data Sheet	TC	√	P	V	V	For shaft Dia ≥ 40mm UT shall be done as per ASTM A 388.
	Dimensions	Measure ment		100%	IR			P		-	-		
	Surface Defects	Visual		100%	IR			P		-	-		
2.0 Motor Refer Separate MQP for Electric Motor.													
3.0	Gear box	Make, Type, Rating, vibration, noise, Routine/Run test.	Major	Review of manufacture's test report	100%	-	Drawing/Data Sheet	TC/ Report	√	P	V	V	
4.0 IN PROCESS INSPECTION.													
4.1	Welding Qualifications	WPS, PQR, WPQ	Major	WPS, PQR & WPQ	100%	-	ASME Sec IX/AWS D1.1	WPS/ PQR	√	P	V	V	

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		Rakesh Kr Madhu (Dy.Mgr/QA)	K Renjith (Manager/QA)
		 PREPARED BY	 REVIEWED AND APPROVED BY

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4.2	Marking, cutting, Edge preparation Tacking	Dimensions	Major	Measure ment	100%	-	Approved Drawings	IR	-	P	-	-	
4.3	Shaft & Impeller	Visual & Dimension check, face out and run out of shaft (after flange welding)	Major	Measure ment	100%	100%	As per Spec. & Customer Appd. Drawing / Datasheet	IR	√	P	V	V	
4.4	Welds	Visual, Dimension	Major	Visual, Measure ment	100%	100%	ASME Sec-VIII/ AWS D1.1	IR	√	P	V	V	
4.5	Weld surface check	Weld surface check	Major	Measure ment DPT	100%	10%	ASME Sec-VIII/AWS D1 Appendix 8	IR	√	P	W	V	
4.6	Impeller	Dynamic Balancing	Major	Visual, Measure ment	100%	10%	ISO 1940/Appd.Drg.& Data sheet/Relevant standard	TR	√	P	W	V	



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4.7	Rubber Lining	Thickness of Rubber, Hardness, Spark test, Adhesion test on test piece	Major	Measure ment	100%	10%	As per Specs./ Appd. Drg. & data sheet	Appd.Drg.& Data sheet,	TR	✓	P	W	V	
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5.0 FINAL INSPECTION

5.1	Final Assembly Base Frame, Agitator etc.	Visual- Workmanship, Dimensional.	Major	Visual, Measure ment	100%	100%	Customer Appd.Drg./ Datasheet & Spec,		IR	✓	P	W	V	
5.2	Run test of Agitator assembled with Gearbox & job Motor. Medium-Slurry (Duration-30 minutes)	Current,RPM, Vibration,Noise & Temperature rise	Major	Measure ment	100%	20% of each type (side & top entry)	Manufacturer's procedure/ Approved Drawing/Data Sheet		IR	✓	P	W	W	For top agitator with shaft length >5Meter run test to be carried out with bearing shaft only.
5.3	Painting	Visual,DFT	Major	Paint Shade & DFT measure ment	100%	20% of each type	Customer Approved Painting Schedule		IR	✓	P	W	V	
5.4	Marking	Visual	Major	Visual	100%	100%	Approved Drawing		IR	✓	P	V	V	



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5.5	Quality Dossier	Compliance of Reports	Major	Document	100%	100%	Completion of all documents, Test Report as per Approved MQP.	Report	√	P	V	V		
5.6	Packing	Compilation of PO	Major	Visual	100%	100%	PO/specification/ Packing Drawing	Report	√	P	V	-		

- Notes:** a. This QP is applicable for Mandatory spare also. All other minor items, which are not cover under this QP, shall be manufactured inspected as per OEM (Original equipment Manufacturer)/BHEL standard practice and relevant standard. Relevant TC/COC will be submitted for the same.
- b. Latest version of standards & Specification shall be applied.
- c. Materials shall be procured in compliance to Functional Technical specification.
- d. Gauges and measuring instruments with valid calibration only shall be used.
- e. Inspection / Inspection wavier / approval by BHEL does not absolve Supplier's responsibility for conformity of the specification as per the terms of PO.
- f. This QP shall be read along with relevant PO, BHEL Specification / Approved Drawing / Datasheet.

RECORD OF REVISION

REV NO	DATE	DESCRIPTION
00	23.17.2019	Original Issue – First submission
01	03.01.2021	First revision.

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Annexure Q		
	Indent No:	Enquiry no:
Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)
1	Quality Plan Requirement: (If SQP is not given & Vendor QP applicable)	
	(i) MQP (Manufacturing Quality Plan) shall be submitted in attached format for BHEL/Customer review & approval. Our SQP/Typical MQP/ MQP Format is attached for guidance & use.	
	(ii) MQP shall invariably cover w.r.t Inward inspection including on Raw material Procurement, In process and Final inspection in elaborated way/details.	
	(iii) Bidder shall also to give specific confirmation that on need basis, their competent officials shall visit to BHEL / customer for finalization of Quality plan including test procedure/methodology during preaward / post award approval / detailed engineering in the event of an order.	
	(iv) No deviation on BHEL/Customer approved MQP/ SQP (In case BHEL SQP is provided) is acceptable.	
	(v) Bidder shall agree to submit all cross referred documents other than codes/standards to BHEL/Customer/Consultant.	
	Important Notes shall be included in MQP : (a) Latest revision of Standard s & Specification shall apply. Only International Standards are applicable. (b) Materials shall be procured in compliance to Functional Technical Specification. (c) Inspection shall be in compliance with Approved Quality Control Procedure for the Product. (d) NDT shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard. (e) Gauges and measuring Instruments, with valid calibration only shall be used. (f) Cleaning and Painting of products shall be carried out as per Approved Painting Schedule. (g) Finished Products shall be packed to comply with Approved Packing Schedule. (h) Welding shall be carried out by Qualified Personnel with compliance to Approved NDT Procedures and Acceptance Norms, as per ASME standard.	
2	Domestic / Inland Inspection will be carried out by BHEL/BHEL appointed Third Party Inspection Agency (TPIA) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (as applicable).	
3	Inspection Agency for Foreign Bidders and also for Indian Bidder but importing from Foreign Sources: (1) Any one of the following Third Party Inspection Agency (TPIA) shall be appointed by the bidder and same shall be furnished by the bidder in techno commercial bid itself. (2) The details of TPIA with contact details like Name of the official, Phone no, Email id shall also to be submitted during pre/post award. However cost for such inspection agency shall be borne by the bidder only. Inspection charges for such inspection agency shall be indicated separately so that if BHEL/Customer is undertaking the inspection by on their own , then these charges are non claimable by the bidder. List of TPIA 1.M/s Bureau Veritas 2.M/s TUV-Nord 3.M/s TUV-SUD 4.M/s TUV Rheinland 5.M/s Lloyds Register 6.M/s SGS 7.M/s Germanischer Lloyds 8.M/s QUEST 9.M/s Certification Engineers International 10.M/s Intertek 11.M/s IR Class Systems and Solutions 12.M/s DNV 13. M/s Fichtner 14. M/s ABS Inspection Services	

Receipt No : 755695/2022/BAP-QA_MECH

Sl.No	BHEL / Customer Requirements	## Specific confirmations by the manufacturer (Acceptable/Not acceptable)
4	Stage Inspection during manufacturing Process : Stage Inspection during manufacturing shall be carried out as per approved quality plan and all necessary documents shall be provided for review, verification and clearance for further processing. This inspection call shall be given well in advance (at least 2 weeks before) to TPI/Bidder's own inspection agency to avoid delay in the manufacturing processes.	
5	Inspection before despatch for domestic supplier : Inspection before despatch at supplier's works shall be carried out by BHEL appointed Inspection agency (as in Sl no. 2). Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet .	
6	Inspection at Foreign Source/Supplier: (a) As in sl no: 3. shall be ensured without fail (b) No material / items shall be despatched without getting the written communication from BHEL / Customer inspection carried out by Bidder appointed Third Party Inspection Agency (As per Sl no.3) / Customer/Customer Appointed Inspection Agency/Consultant. This is applicable for all Stage inspection and Final Inspection identified as "W" - Witness or "CHP" - Customer Hold Point as per customer approved Quality Plan/ Technical specification / Approved Drawing/ Approved Data sheet / Scheme / PID / PFD / SLD (Process Instrumentation Diagram / Process Flow Diagram / Single Line Diagram) etc. (As applicable). Inspection before despatch for Foreign supplier : Inspection before despatch at supplier's works shall be carried out by bidder appointed inspection agencies having international presence at vendors and or vendor's sub vendor works. Inspection shall be done as per approved Quality plan/ Technical specification/ Approved Drawing/ Approved Data sheet by TPIA mentioned in Sl no: 03 at supplier's cost.	
7	Painting shall be done strictly as per BHEL/Customer approved painting schedule / scheme only. Paint Thickness / Paint shade shall be ensured as per BHEL / Customer approved painting schedule / specification / data sheet etc. No deviation is acceptable unless otherwise accepted by BHEL/Customer in writing. Any conflict if any among BHEL / Customer approved painting schedule / Spec / data sheet etc. shall be brought to the notice of BHEL well in advance before proceeding including the BOI being procured for assy / skid like motors etc.	
8	Specific conformation for document package in the event of an order (2 Hard copies & soft copy in PDF file) is to be given containing the following with proper linkages (i) Index Sheet (ii) MQP/RQP/Endorsement Sheet (As applicable) (iii) TCs identified by BHEL/ Customer for record for "CHP" / "W" and Verification portion ("V") as given in approved QP. (iv) Final inspection report + TC including Chemical + Mechanical + HT + NDT etc. (v) Third party Inspection report + TC (vi) Customer CHP/ MDCC (vii) Type test / Performance Test reports conducted (viii) Type test / Performance Test approval/ clearance obtained from BHEL/Customer (ix) BOM with As Build Drgs with actual make / rating used with BHEL/customer approved drawings.	
9	Packing / Seaworthy Packing shall be as per BHEL Packing schedule / approved drg / sketch. This shall be ensured to take care transit / handling / transshipment in Road / Sea / Air. Photographs are to be submitted for BHEL review before despatching the material as per contract conditions.	
10	Outsourcing of test facilities: Bidder shall ensure all the testing facilities in house. However If any of the test facilities are not available with successful bidder, then bidder shall ensure the same at NABL accredited third party lab / Govt / Govt Lab for major testing such as NDT, Electrical & Mechanical testing.	
11	Important Note: No deviation on the above requirement 01 to 10 is acceptable with respect to Quality Requirement and those offers not meeting these specific customer requirement is liable for rejection and hence the bidder shall submit all the required documentary evidences in the offer itself.	
12	## Necessarily to be filled up by the bidder at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirement being customer specific requirement.	
VENDOR SIGN AND STAMP:		Vendor Name & Address:

Annexure-II**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW****(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)**

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) - Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)	DOC.NO: BAP/QR/R4U8/Bhusawal/ LTM/ Agitators: 002 Rev NO.: 00 PAGE : Page 1 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements		##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

01	Type Test Requirements	A. Vendor shall conduct all the type tests for LT Motors as listed in SL NO: 01 (D) below and accordingly submit the type test reports. These reports should be for the test conducted on the identical/similar LT Motors to those proposed to be supplied under this enquiry and test (s) should have been witnessed by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL (or) Ultimate client MAHAGENCO at respective LT Motor Manufacturer of OEM vendor.	
		B. Vendor shall conduct all the tests at no additional cost to BHEL either at third party lab (or) own lab in the presence of BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client MAHAGENCO and submit the reports for review & approval.	
		C. Type Test reports review and approval by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL / Ultimate client MAHAGENCO and its consultant DCPL is must in line with MAHAGENCO and its consultant DCPL approved data sheet / BOM/GA Drawing etc.	

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Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

01	Type Test Requirement(Contd)	D. The following Type test reports to be submitted covering the following for LT Motors as per relevant BIS (Bureau of Indian Standard) - BIS 325/IS 12615/ IEC 60034 etc i. Insulation Resistance Test ii. Measuring of resistance of winding of stator and wound rotor (if applicable) iii. No load test at rated voltage to determine input current, power and speed. iv. Locked Rotor Readings of Voltage, Current and Power Input at a Suitable Reduced Voltage v. Reduced Voltage Running up Test at no-load (for squirrel cage motor up to 37 kW only) vi. Open circuit voltage ratio of wound rotor motor (in case slip ring motors) vii. Locked Rotor Test (for Motors Having Output Rating Up to 37 kW) viii. Full load test to determine efficiency power factor and slip ix. Temperature rise test. x. Momentary excess load test xi. High voltage test xii. Test for vibration severity of motor xiii. Test of noise levels of motor (Noise level for all the motors shall be limited to 85dB(A) except for BFP motor for which the maximum limit shall be 90dB(A).) xiv. Over speed test xv. Degree of Protection Tests (Minimum Ingress Protection - IP 55). Type test certificate shall be acceptable, if the test is conducted for IP-55 degree of protection on motors of similar frame size within last 10 years. xvi. Fault Withstand Test for main terminal box. Type test certificate shall be acceptable, if the test is conducted on exactly identical terminal box within last 3 years. xvii. Type test reports for motors located in fuel oil area having flame proof enclosures as per BIS 2148/ IEC 60079-1 E. The TCs/Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB).	
02	Quality Plan Requirement	a. MQP (Manufacturing Quality Plan) is applicable for these LT Motors and accordingly Actual LT Motor Manufacture shall submit the MQP in BHEL format for review and approval by BHEL / Ultimate Customer – MAHAGENCO and its consultant DCPL.	

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Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

02	Quality Plan Requirement ...contd	b. If any of LT Motor manufacture is having, ultimate customer MAHAGENCO approved MQP (Manufacturing Quality Plan)/ NTPC approved RQP and having validity, the same is applicable for these LT Motor for inspection purposes subject to obtaining ultimate customer MAHAGENCO and its consultant DCPL formal approval in the event of an order.	
		c. If LT Motor Manufacture / OEM vendor does not have MQP, they should submit a fresh MQP to BHEL/MAHAGENCO (in BHEL format) for review & approval. (copy attached).	
		d. Typical Indicative MQP is attached for inf and & guidance purposes only and it is not final and binding on BHEL / Ultimate Customer MAHAGENCO.	
03	Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor	a. All LT Motors are to be inspected by BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet/drg/spec/ as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/ IEC 60034 etc by BHEL / Ultimate Customer-MAHAGENCO	
		b. All Type tests & Routine Tests are to be witnessed by BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacture works as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/ IEC 60034 etc by BHEL / Ultimate Customer-MAHAGENCO	
		c. BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-MAHAGENCO will also ensure LT Motor type tests reports review including Degree of Protection Test Reports & acceptance as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/ IEC 60034 etc.	
		d. BHEL AIA (BHEL authorized inspection Agency)) / Ultimate Customer-MAHAGENCO to witness / perform inspection at LT Motor Supplier works and submit all the inspection documents and routine & Type test reports including Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/IEC 60034 etc.	

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Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

03	Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor...contd	<u>LT Motors (below 60 KW) – Inspection Categorization: II</u> All Routine Tests (including Test for noise level and Test for vibration as Routine Tests) and Type tests on LT Motors are to be ensured by OEM vendor & witnessed by BHEL/BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacturer works including review of Type Test Reports and Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/ IEC 60034 etc and all the Routine Test and Type Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – MAHAGENCO and its consultant DCPL for review and to obtain inspection and dispatch clearance.	
		<u>From 60KW and up to 160KW – Inspection Categorization: I</u> All Routine(including Test for noise level and Test for vibration as Routine Tests) & Type Tests on LT Motors are to be ensured by OEM Vendor and same shall be offered to BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-MAHAGENCO for inspection & witnessing including review of Degree of Protection Test Reports as per approved MQP /RQP / approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/IEC 60034 etc and all the Routine Test Reports , Type test Reports including Degree of protection test report with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – MAHAGENCO and its consultant DCPL for review and to obtain inspection and dispatch clearance.	
		All the checks / tests /review of documents / inspection & witnessing at LT Motor Manufacture by OEM /BHEL / BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-MAHAGENCO are under OEM scope and any cost implication arising out of due to conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works (or) at third party etc by BHEL / BHEL AIA / Ultimate Customer – MAHAGENCO are in the scope of OEM Supplier only. As such No extra cost if any will be admissible and paid in the event of an order and also during execution of the contract.	
		No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer – MAHAGENCO Inspection and dispatch clearance.	

Annexure-II**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW****(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)**

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)	CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) - Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)	DOC.NO: BAP/QR/R4U8/Bhusawal/ LTM/ Agitators: 002 Rev NO.: 00 PAGE : Page 5 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

04	Painting Requirements	Painting requirement like paint shade and painting thickness including no of coats if any are to be ensured by the OEM vendor for these LT Motors as per BHEL/ Ultimate Customer –MAHAGENCO and its consultant DCPL approved data sheet/drg/spec (As applicable)	
05	Packing	Packing shall be as per Specification / Drg. / Data sheet including sea worthy packing if any to avoid any transit & handling damages	
06	For Inspection call	Inspection call by OEM Vendor for LT Motor inspection at Actual LT Motor Manufacture works to be raised for BHEL/BHEL AIA inspection/ Ultimate Customer – MAHAGENCO including for type test witnessing to be ensured / addressed to Mr R Kesavan., DGM (QC-Proc)., Mobile no: +91 9443006303., Email id: kesavan@bhel.in and Mr Kovarathanan., DM (QC-Proc)., Mobile no: +91 8903502628., Email id: kovak@bhel.in including for inspection related activities for immediate response / resolution.	
07	Document Package / Dossier	Specific confirmation for Document Package in the event of an order (3 hard copies + soft copies in PDF file) is to be given containing the following with proper linkages (.) (i) Index Sheet (ii) MQP/RQP (iii) TCs identified by BHEL/MAHAGENCO for record for “CHP” (Customer Hold Point) Verification & Witness “W” portion as given in MQP / RQP / MQP (as applicable). (iv) Final Inspection Report + TC (v) BHEL AIA (BHEL Appointed Inspection Agency) / BHEL report + TC (vi) Ultimate customer MAHAGENCO (Maharashtra State Power Generation Corporation Ltd) CHP (Customer Hold Point) / MDCC (Material Dispatch Clearance Certificate) (vii) Type test reports conducted/submitted with approval with approved data sheet and BOM with actual make used with Customer approved drgs.	

Annexure-II
CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW
(For FOREIGN (OUTSIDE INDIA) OEM VENDOR ONLY)

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)	CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) - Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) 	DOC.NO: BAP/QR/R4U8/Bhusawal/ LTM/ Agitators: 002 Rev NO.: 00 PAGE : Page 6 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) - Up to 160kW

08	Important notes	<p><u>Inspection Categorization: I</u></p> <p>Inspection by BHEL/BHEL AIA and also by Ultimate Customer – MAHAGENCO based on MQP/RQP approved and as in sl no:03</p> <p><u>Inspection Categorization: II</u></p> <p>Inspection by Main contractor (BHEL) / BHEL AIA based on Ultimate Customer – MAHAGENCO approved MQP/RQP & based on inspection as in sl no:03</p> <p>Any cost implication for conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works by BHEL / BHEL AIA / Ultimate Customer – MAHAGENCO is in the scope of OEM Supplier only and no extra cost if any will be admissible in the event of an order and also during execution of the contract.</p>																																																																																					
09	Motor details	<p>Vendor shall furnish following Motor details for the Agitators applicable for this enquiry.</p> <p>MAHAGENCO Bhusawal 1 x 660 MW – FGD Project :-</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No</th> <th style="width: 45%;">Agitators</th> <th colspan="3" style="text-align: center;">LT Motor</th> </tr> <tr> <th></th> <th></th> <th style="text-align: center;">Rating (in kW)</th> <th style="text-align: center;">Quantity (in nos)</th> <th style="text-align: center;">Make and Country of origin</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Absorber tank Agitator</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td>Other LT motors involved in the system (if any)</td> <td></td> <td></td> <td></td> </tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	S. No	Agitators	LT Motor					Rating (in kW)	Quantity (in nos)	Make and Country of origin	1	Absorber tank Agitator				2	Other LT motors involved in the system (if any)																																																																				
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OEM Supplier signature with seal

Necessarily to be filled up & submitted by the OEM vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements against LT Motors being BHEL/ ultimate customer – MAHAGENCO (Maharashtra State Power Generation Corporation Limited) specific requirements.

Manufacturer's Logo, if available		MANUFACTURER'S NAME & ADDRESS:		MANUFACTURING QUALITY PLAN					PROJECT: MAHAGENCO BHUSAWAL (1 X 660 MW) FGD PROJECT BHEL PO NO & DATE:				
				PRODUCT: LT MOTORS (UPTO 160 KW) USED IN AGITATORS					MQP NO: REV NO: DATE: DD/MM/YYYY PAGE: 1 OF 1				
Format No				SUB-SYSTEM : FGD PACKAGE									
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK 6		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
										M	C	N	
1	2	3	4	5	M	C/N	7	8	9	b**	**	10	11

[illegible]

Record of Revisions

Rev No	Date	Clauses revised	Description of Revision

		<p>LEGEND: * RECORDS IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.</p> <p>** M: MANUFACTURER, C: BHEL / BHEL AIA, N: CUSTOMER, P: PERFORM, W: WITNESS, V: VERIFICATION; CLASS: A - CRITICAL; B - MAJOR; C - MINOR; TC- MILL /MANUFACTURER'S TEST CERTIFICATE; IR- INSPECTION REPORT.</p>
PREPARED BY	REVIEWED & APPROVED BY	
MANUFACTURER	MAIN SUPPLIER (BHEL)	
SIGNATURE & SEAL		

Receipt No : 758367/2022/BAP-QA_MECH

BHEL BAP/ RANIPET / TAMIL NADU INDIA	OEM SUPPLIER		MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 160KW) - FGD Application						MQP:E:LTM:BHUSAWAL :FGD AGITATORS :001		
	To be filled by OEM Supplier								REV:NO:00		
	LT MOTOR Manufacture								DATE: 07.11.2020		
	To be filled by OEM Supplier								Page :		
S1.No.	COMPONENT/ASSEMBLY/OPERATION/TESTS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	D	AGENCY M	REMARKS BHEL/ BHEL AIA
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
INCOMING INSPCTIONS:											
1.1	Enamelled round copper conductor(Dual coated)MM	1.Overall diameter	Major	Mechanical	1 sample/lot	IS 13730 1993 Part 13 / IEC 60317-0-1-2008 (As applicable)	IEC 60317-0-1 2008	Plant format		P	V
		2.Bare conductor diameter	Major	Mechanical	1 sample/lot	BHEL / MAHAGENCO Spec & Apprd Datasheet	BHEL / MAHAGENCO Spec & Apprd Datasheet	Plant format		P	V
		3.BDV test	Major	Electrical	1 sample/lot	--do--	--do--	Plant format		P	V
		4.Elongation	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format		P	V
		5.Continuity (insulation)	Major	Electrical	1 sample/lot	--do--	--do--	Insp report/ Supplier TC		P	V
		6.Tan Delta (If applicable)	Major	Electrical	1 sample/lot	--do--	--do--	Insp report/ Supplier TC		P	V
1.2	Aluminum Ingots	1.Chemical composition	Major	Chemical	1 sample/lot	--do--	--do--	Supplier Tc		P	V
1.3	FAN	1.Diameter (ID&OD)	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection Report		P	V
1.4	Bearings (SKF OR FAG)	1.Type & Make	Major	Visual	100%	--do--	--do--	Inspection Record		P	V
		2.Dimensions - ID,OD&width	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection Record		P	V
1.5	Terminal Block	1.Dimensions	Major	Mechanical	Plant std.	--do--	--do--	Inspection Report		P	V
		2.Proof voltage test	Major	Electrical	Plant std.	--do--	--do--	Inspection Report		P	V

BHEL BAP/ RANIPET / TAMIL NADU INDIA	OEM SUPPLIER		MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 160KW) - FGD Application						MQP:E:\LTM:BHUSAWAL :FGD AGITATORS :001		
	To be filled by OEM Supplier								REV:NO:00		
	LT MOTOR Manufacture								DATE: 07.11.2020		
	To be filled by OEM Supplier								Page :		
S1.No.	COMPONENT/ASSEMBLY/OPERATION/TESTS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC		AGENCY	REMARKS
									D	M	BHEL/ BHEL AIA
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
INPROCESS INSPCETIONS:											
2.1	Stator core	1.Core length dia	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	
		2.Core locking	Major	Visual	100%	--do--	--do--	Inspection Record	P	V	
		3.Rigidity of core	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	
2.2	Die cast rotor	1.Core length	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	
		2.Blow holes	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	
2.3	Wound stator (if applicable)	1.Resistance	Major	Electrical	100%	--do--	--do--	Inspection Record	P	V	
		2.H.V.Test	Major	Electrical	100%	--do--	--do--	Inspection Record	P	V	
		3.Insulation resistance	Major	Electrical	100%	--do--	--do--	Inspection Record	P	V	
2.4	Final Assembly	1.Completeness	Major	Visual	100%	--do--	--do--	Inspection Record	P	V	
		2.Runout in case of flanged motors	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	
		3.Mounting dimensions	Major	Mechanical	100%	--do--	--do--	Inspection Record	P	V	

BHEL BAP/ RANIPET / TAMIL NADU INDIA	OEM SUPPLIER		MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 160KW) - FGD Application						MQP:E:LTM:BHUSAWAL :FGD AGITATORS :001		
	To be filled by OEM Supplier								REV:NO:00		
	LT MOTOR Manufacture								DATE: 07.11.2020		
	To be filled by OEM Supplier								Page :		
S1.No.	COMPONENT/ASSEMBLY/OPERATION/TESTS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	D	AGENCY	REMARKS
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
FINAL INSPECTION AND TESTING:											
3.1	Routine Test	1.Resistance Measurement on winding & space heater	Major	Electrical	100%	BHEL / MAHAGENCO Spec, GA Drawing & Apprd Datasheet and IS/IEC 60034 (As applicable)	BHEL / MAHAGENCO Spec, GA Drawing & Apprd Datasheet and IS/IEC 60034 (As applicable)	Inspection Record		P	W
		2.HV Test	Major	Electrical	100%	--do--	--do--	Inspection Record		P	W
		3.Phase sequence & direction of rotation	Major	Electrical	100%	--do--	--do--	Inspection Record		P	W
		4.No load run test	Major	Electrical	100%	--do--	--do--	Inspection Record		P	W
		5.Vibration test	Major	Mechanical	100%	--do--	--do--	Inspection Record		P	W
		6.Noise level measurement	Major	Measurement	100%	--do--	--do--	Inspection Record		P	W
		6.Name plate recheck	Major	Visual	100%	--do--	--do--	Inspection Record		P	W
		7.Paint shade thickness & adhesion	Major	Visual & Measurement	100%	--do--	--do--	Inspection Record		P	W
		8.Mountings & Overall dimensions	Major	Mechanical	100%	--do--	--do--	Inspection Record		P	W

Receipt No : 758367/2022/BAP-QA_MECH

BHEL BAP/ RANIPET / TAMIL NADU INDIA	OEM SUPPLIER		MANUFACTURING QUALITY PLAN FOR LT MOTOR (Up to TO 160KW) - FGD Application						MQP:E:LTM:BHUSAWAL :FGD AGITATORS :001		
	To be filled by OEM Supplier								REV:NO:00		
	LT MOTOR Manufacture								DATE: 07.11.2020		
	To be filled by OEM Supplier								Page :		
S1.No.	COMPONENT/ASSEMBLY/OPERATION/TESTS	CHARACTERISTIC	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	D	AGENCY M	REMARKS BHEL/ BHEL AIA
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
3.2 TYPE TESTS ###											
3.3	Preservation and Packing	1.Completeness	Major	Review	100%	--do--	--do--	Inspection Record		P	V
		2.Motors covered with polythene sheets	Major	Visual	100%	--do--	--do--	Inspection Record		P	V
		3.Packing	Major	Visual	100%	--do--	--do--	Inspection Record		P	V
### TYPE TEST REQUIREMENTS FOR LT MOTOR INCLUDING DEGREE OF PROTECTION TEST REPORT (IP 55)											
BHEL/BHEL AIA (Authorised Inspection Agency) shall witness type tests and review the type test reports during including degree of Protection Test report (IP 55) for acceptance in line with BHEL/ Ultimate Customer - MAHAGENCO approved Data sheet/Drg/Spec for LT Motors. OEM / LT Motor Manufacture shall conduct all these type tests in presence of BHEL/BHEL AIA /Ultimate Customer MAHAGENCO without any cost implication to BHEL/Ultimate Customer - MAHAGENCO within reasonable time.											
1.Insulation Resistance Test											
2. Measurement of Resistance of Stator											
3. No Load test at Rated Voltage											
4.Locked Rotor Readings of Voltage, Current and Power Input at a Suitable Reduced Voltage											
5.Reduced Voltage Running up Test at no-load (for squirrel cage motor up to 37 kW only)											
6.Open circuit voltage ratio of wound rotor motor (in case slip ring motors)											
7.Locked Rotor Test (for Motors Having Output Rating Up to 37 kW)											
8.Full load test to determine efficiency power factor and slip											
9.Temperature Rise Test											
10.Momentary Exceeds Torque Torque Test											
11.High Voltage Test											
12.Test for Vibration Severity											
13.Test for Noise Level Measurement											
14. Over Speed Test											
15.Fault withstand test for Main Terminal Box											
16. Degree of Protection TC (IP 55)											
LEGEND: OEM = Original Equipment Supplier M = LT Motor Manufacture - BHEL AIA = BHEL AUTHORISED INSPECTION AGENCY GA Drawing : General Arrangement Drawing MAHAGENCO - MAHARASHTRA STATE POWER GENERATION CORPORATION LIMITED (Ultimate Customer) OEM SUPPLIER : (To be Filled up by OEM Supplier) LT MOTOR Manufacture : (To be Filled up by OEM Supplier)											

Annexure-I**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW****(For INDIGENOUS OEM VENDOR ONLY)**

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)		CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) -Up to 160kW used in <u>Agitators for FGD</u> <u>application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)		DOC.NO: BAP/QR/R4U8 LTM/ /Bhusawal/ Agitators: 001 Rev NO.: 00 PAGE : Page 1 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor		
<u>ITEM: LT Motors (IE3) Up to 160KW</u>					
01	Type Test Requirements	A. Vendor shall conduct all the type tests for LT Motors as listed in SL NO: 01 (D) below and accordingly submit the type test reports. These reports should be for the test conducted on the identical/similar LT Motors to those proposed to be supplied under this enquiry and test (s) should have been witnessed by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client MAHAGENCO at respective LT Motor Manufacturer of OEM vendor.			
		B. Vendor shall conduct all the tests at no additional cost to BHEL either at third party lab (or) own lab in the presence of BHEL AIA (BHEL Appointed Inspection Agency) / BHEL /Ultimate client MAHAGENCO and submit the reports for review & approval.			
		C. Type Test reports review and approval by BHEL AIA (BHEL Appointed Inspection Agency) / BHEL / Ultimate client MAHAGENCO and its consultant DCPL is must in line with MAHAGENCO and its consultant DCPL approved data sheet / BOM/GA Drawing etc.			

Annexure-I**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW****(For INDIGENOUS OEM VENDOR ONLY)**

<p>PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8)</p> <p>MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)</p> <p>MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018</p> <p>PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS:</p> <p>(To be filled by OEM VENDOR)</p>	<p>CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) -Up to 160kW used in <u>Agitators for FGD application</u></p> <p>MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)</p>	<p>DOC.NO: BAP/QR/R4U8 /Bhusawal/ LTM/ Agitators: 001 Rev NO.: 00 PAGE : Page 2 of 6 DATE: 07.11.2020</p>	<p>##Enquiry No:</p> <p>## OEM Supplier Name & Address:</p> <p>##Offer reference:</p> <p>##Date:</p> <p>Contact Official Name: Mobile no: Email id:</p>
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor
ITEM: LT Motors (IE3) Up to 160KW			
01	Type Test RequirementContd	<p>D. The following Type test reports to be submitted covering the following for LT Motors as per relevant BIS (Bureau of Indian Standard) - BIS 325 /IS 12615/ IEC 60034 etc</p> <ul style="list-style-type: none"> i. Insulation Resistance Test ii. Measuring of resistance of winding of stator and wound rotor (if applicable) iii. No load test at rated voltage to determine input current, power and speed. iv. Locked Rotor Readings of Voltage, Current and Power Input at a Suitable Reduced Voltage v. Reduced Voltage Running up Test at no-load (for squirrel cage motor up to 37 kW only) vi. Open circuit voltage ratio of wound rotor motor (in case slip ring motors) vii. Locked Rotor Test (for Motors Having Output Rating Up to 37 kW) viii. Full load test to determine efficiency power factor and slip ix. Temperature rise test. x. Momentary excess load test xi. High voltage test xii. Test for vibration severity of motor xiii. Test of noise levels of motor (Noise level for all the motors shall be limited to 85dB(A) except for BFP motor for which the maximum limit shall be 90dB(A).) xiv. Over speed test xv. Degree of Protection Tests (Minimum Ingress Protection - IP 55). Type test certificate shall be acceptable, if the test is conducted for IP-55 degree of protection on motors of similar frame size within last 10 years. xvi. Fault Withstand Test for main terminal box. Type test certificate shall be acceptable, if the test is conducted on exactly identical terminal box within last 3 years. xvii. Type test reports for motors located in fuel oil area having flame proof enclosures as per BIS 2148/ IEC 60079-1 <p>E. The TCs / Type Test reports shall also be given as PDF file with index sheet & page control through Email & Soft Copy (File size to less than 9MB).</p>	

Annexure-I
CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW
(For INDIGENOUS OEM VENDOR ONLY)

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)	CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) -Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)	DOC.NO: BAP/QR/R4U8 /Bhusawal/ LTM/ Agitators: 001 Rev NO.: 00 PAGE : Page 3 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd),, Quality Requirements	##Specific confirmations by the vendor
<u>ITEM: LT Motors (IE3) Up to 160KW</u>			
02	Quality Plan Requirement	<ol style="list-style-type: none"> 1. MQP is applicable for these LT Motors and accordingly Actual LT Motor Manufacturer and OEM shall submit the MQP for BHEL and ultimate customer MAHAGENCO and its consultant DCPL approval. 2. If any of LT Motor manufacturer is having, ultimate customer MAHAGENCO and its consultant DCPL approved MQP (Manufacturing Quality Plan) / NTPC approved RQP (Reference Quality Plan) and having validity, the same is applicable for these LT Motor for inspection subject to obtaining ultimate customer MAHAGENCO and its consultant DCPL formal approval in the event of an order. 3. If LT Motor Manufacture / OEM vendor does not have MQP/RQP, they should submit a fresh MQP to BHEL/MAHAGENCO (in BHEL format) for review & approval. (copy attached). 	
03	BHEL / ultimate Customer – MAHAGENO approved vendors	LT Motors are to be procured only from Ultimate Customer - MAHAGENCO approved vendors and no deviation on this specific customer requirement is acceptable.	
04	Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor	<u>LT Motors (below 60 KW) – Inspection Categorization: II</u> All Routine Tests (including Test for noise level and Test for vibration as Routine Tests) and Type tests on LT Motors are to be ensured by OEM vendor & witnessed by BHEL/BHEL AIA (BHEL authorized inspection Agency) at LT Motor manufacturer works including review of Type Test Reports and Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet/drg/spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 / IS 12615/IEC 60034 etc and all the Routine Test and Type Test Reports with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – MAHAGENCO and its consultant DCPL for review and to obtain inspection and dispatch clearance .	

Annexure-I
CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW
(For INDIGENOUS OEM VENDOR ONLY)

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)	CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) -Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)	DOC.NO: BAP/QR/R4U8 /Bhusawal/ LTM/ Agitators: 001 Rev NO.: 00 PAGE : Page 4 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor
<u>ITEM: LT Motors (IE3) Up to 160KW</u>			
04	Inspection Methodology to be adopted at Actual LT Motor Manufacture works by OEM vendor...Contd	<u>From 60KW and up to 160KW – Inspection Categorization: I</u> All Routine(including Test for noise level and Test for vibration as Routine Tests) & Type Tests on LT Motors are to be ensured by OEM Vendor and same shall be offered to BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-MAHAGENCO for inspection & witnessing including review of Degree of Protection Test Reports as per approved MQP /RQP / approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 /IS 12615/ IEC 60034 etc and all the Routine Test Reports , Type test Reports including Degree of protection test report with Inspection report (IR) to be submitted for BHEL/Ultimate Customer – MAHAGENCO and its consultant DCPL for review and to obtain inspection and dispatch clearance. BHEL/ BHEL AIA (BHEL authorized inspection Agency) / Ultimate Customer-MAHAGENCO to witness / perform inspection at LT Motor Supplier works and submit all the inspection documents and routine & Type test reports including Degree of Protection Test Reports (IP 55) as per approved MQP & approved data sheet / drg / spec / as per relevant BIS (Bureau of Indian Standard) - BIS 325 /IS 12615/ IEC 60034 etc. No material shall be dispatched without BHEL / BHEL AIA and Ultimate Customer – MAHAGENCO Inspection and dispatch clearance.	
05	Painting Requirements	Painting requirement like paint shade and painting thickness including no of coats if any are to be ensured by the OEM vendor for these LT Motors as per BHEL/ Ultimate Customer -MAHAGENCO and its consultant DCPL approved data sheet/drg/spec (As applicable).	
06	Packing	Packing shall be as per Specification / Drg. / Data sheet including sea worthy packing if any to avoid any transit & handling damages.	
07	For Inspection call	Inspection call by OEM Vendor for LT Motor inspection at Actual LT Motor Manufacture works to be raised for BHEL/BHEL AIA inspection / Ultimate Customer – MAHAGENCO including for type test witnessing to be ensured / addressed to Mr R Kesavan., DGM (QC-Proc), Mobile no: +91 9443006303., Email id: kesavan@bhel.in and Mr Zeeshan Ali., Sr.Engineer (QC-Proc), Mobile no: +91 9443149691., Email id: kovak@bhel.in including for inspection related activities for immediate response / resolution.	

Annexure-I**CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) Up to 160kW****(For INDIGENOUS OEM VENDOR ONLY)**

PROJECT: MAHAGENCO 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8) MAHAGENCO CONTRACT NO: DG/BSL U-6/2011/T-1/BTG+BoP EPC Contract/Amendment to LOA/No.1974 dtd 31.12.2018 PACKAGE: FGD PACKAGE MAIN CONTRACTOR: BHEL - RANIPET SUB CONTRACTOR (OEM) & ADDRESS: (To be filled by OEM VENDOR)	CONTRACT QUALITY REQUIREMENTS (CQR) for LT MOTORS (IE3) -Up to 160kW used in <u>Agitators for FGD application</u> MAHAGENCO Bhusawal 1 x 660 MW (BHEL W.O no: R4U8)	DOC.NO: BAP/QR/R4U8 /Bhusawal/ LTM/ Agitators: 001 Rev NO.: 00 PAGE : Page 5 of 6 DATE: 07.11.2020	##Enquiry No: ## OEM Supplier Name & Address: ##Offer reference: ##Date: Contact Official Name: Mobile no: Email id:
Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd),, Quality Requirements	##Specific confirmations by the vendor
<u>ITEM: LT Motors (IE3) Up to 160KW</u>			
08	Document Package / Dossier	Specific confirmation for Document Package in the event of an order (3 hard copies + soft copies in PDF file) is to be given containing the following with proper linkages (.) (i) Index Sheet (ii) MQP/RQP (iii) TCs identified by BHEL/MAHAGENCO for record for “CHP” (Customer Hold Point) Verification & Witness “W” portion as given in MQP / RQP / MQP (as applicable). (iv) Final Inspection Report + TC (v) BHEL AIA (BHEL Appointed Inspection Agency) / BHEL report + TC (vi) Ultimate customer MAHAGENCO (Maharashtra State Power Generation Corporation Ltd) CHP (Customer Hold Point) / MDCC (Material Dispatch Clearance Certificate) (vii) Type test reports conducted/submitted with approval with approved data sheet and BOM with actual make used with Customer approved drgs.	
09	Important notes	<u>Inspection Categorization: I</u> Inspection by BHEL/BHEL AIA and also by Ultimate Customer – MAHAGENCO based on MQP/RQP approved and as in sl no:04 <u>Inspection Categorization: II</u> Inspection by Main contractor (BHEL) / BHEL AIA based on Ultimate Customer – MAHAGENCO approved MQP/RQP & based on inspection as in sl no:04	
		Any cost implication for conducting checks / tests including for witnessing of any of the tests at Actual LT Motor Manufacture Works by BHEL / BHEL AIA / Ultimate Customer – MAHAGENCO is in the scope of OEM Supplier only and no extra cost if any will be admissible in the event of an order and also during execution of the contract.	

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Sl. NO.	DESCRIPTION	BHEL and Ultimate Customer - MAHAGENCO (Maharashtra State Power Generation Corporation Ltd), Quality Requirements	##Specific confirmations by the vendor

ITEM: LT Motors (IE3) Up to 160KW

10	Motor details Vendor shall furnish following Motor details for the Agitators applicable for this enquiry. MAHAGENCO Bhusawal 1 x 660 MW – FGD Project :- <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 5%;">S. No</th> <th style="width: 45%;">Agitators</th> <th colspan="3" style="width: 50%;">LT Motor</th> </tr> <tr> <th></th> <th></th> <th style="width: 15%;">Rating (in kW)</th> <th style="width: 15%;">Quantity (in nos)</th> <th style="width: 20%;">Make</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Absorber tank Agitator</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td>Other LT motors involved in the system (if any)</td> <td></td> <td></td> <td></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	S. No	Agitators	LT Motor					Rating (in kW)	Quantity (in nos)	Make	1	Absorber tank Agitator				2	Other LT motors involved in the system (if any)																																																					
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OEM Supplier signature with seal

Necessarily to be filled up & submitted by the OEM vendor at the time of offer itself otherwise the offer may not be considered w.r.t Quality Requirements against LT Motors being BHEL/ ultimate customer – MAHAGENCO (Maharashtra State Power Generation Corporation Limited) specific requirements.

Manufacturer's Logo, if available		MANUFACTURER'S NAME & ADDRESS:		MANUFACTURING QUALITY PLAN					PROJECT: MAHAGENCO BHUSAWAL (1 X 660 MW) FGD PROJECT BHEL PO NO & DATE:				
				PRODUCT: LT MOTORS (UPTO 160 KW) USED IN AGITATORS					MQP NO: REV NO: DATE: DD/MM/YYYY PAGE: 1 OF 1				
Format No				SUB-SYSTEM : FGD PACKAGE									
SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK 6		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
										M	C	N	
1	2	3	4	5	M	C/N	7	8	9	b**	**	10	11

[illegible]

Record of Revisions

Rev No	Date	Clauses revised	Description of Revision

		<p>LEGEND: * RECORDS IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.</p> <p>** M: MANUFACTURER, C: BHEL / BHEL AIA, N: CUSTOMER, P: PERFORM, W: WITNESS, V: VERIFICATION; CLASS: A - CRITICAL; B - MAJOR; C - MINOR; TC- MILL /MANUFACTURER'S TEST CERTIFICATE; IR- INSPECTION REPORT.</p>
PREPARED BY	REVIEWED & APPROVED BY	
MANUFACTURER	MAIN SUPPLIER (BHEL)	
SIGNATURE & SEAL		