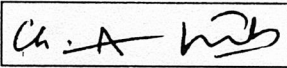
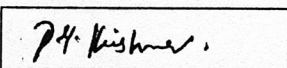
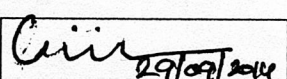


 Ranipet	STANDARD QUALITY PLAN FOR LT MOTOR (from 30KW to 200KW) Of ESP & FAN Application	
REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:E:LTM:813	02	27 09 2014

TITLE : Standard Quality Plan for LT Motor (From 30KW To 200KW)	
SIGNATURE	
PREPARED BY : CH.ANILSINGH /AE1/QA	
REVIEWED : P.YASODA KRISHNA/ENGG/QA	
APPROVED BY : C. SRINIVASAN/DGM/QA	
ISSUED & CONTROLLED BY : QUALITY ASSURANCE BHEL, RANIPET - 632 406.	
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	STANDARD QUALITY PLAN FOR LT MOTOR (from 30KW to 200KW) Of ESP & FAN Application	
REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:E:LTM:813	02	27 09 2014

<u>RECORD OF REVISION</u>		
REV. NO	EFFECTIVE DATE	REMARKS
00	05 02 2003	Original issue-Converted from PRQA to SQP after the review in 30 th PCM on QA-Electrics
01	01 08 2009	Revised based on customer change in requirements like in NTPC vindhyachal and Rihand
02	27 09 2014	Revisit of RQP,MQP and SQP with respect to identical type test requirement

[illegible]

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 4 of 15	
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY REMARKS
1.	2.	3.	4.	5.	6.	7.	8.	9.	10. 11. 12.

1.2	INSULATION MATERIAL:	1.Thickness & width	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Plant format	P	V	
		2.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		3. BDV at elevated temp.in air.	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		4.Tear resistance	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		5.conformation of glass fabric	Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V	
		6.Compatibility with impregnation varnish	Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V	
		7.Thermal ageing	Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V	
		8.IR	Major	Electrical	1 sample/lot	--do--	--do--	Insp.report / Supplier Tc	P	V	
		9.Elongation	Major	Mechanical	1 sample/lot	--do--	--do--	Insp.report / Supplier Tc	P	V	
1.3	VARNISHED FIBER GLASS FIBER SHEET:	1.Bore diameter	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		2.Wall thickness	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		3.Bending before/after ageing	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		4. BDV at room temp. & elevated temp.	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		5. Insulation Resistance	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V	
		6.Stability of coating	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Plant format	P	V	

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP-E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 5 of 15			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY	REMARKS	
									D	M	B
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.

1.4	SYNTHETIC RESIN BONDED GLASS FIBER SHEET	7. Burning test	Major	Chemical	1 sample/lot	Apprd Datasheet --do--	Apprd Datasheet --do--	plant format	P	V	
		8. Glass content	Major	Chemical	1/type	--do--	--do--	Insp. Report/ Supplier Tc	P	V	
		9. Voltage proof test at room temp. & at 155C	Major	Electrical	1/type	--do--	--do--	Insp. Report / Supplier Tc	P	V	
		1. Thickness & width	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		2. Specific gravity	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		3. Water absorption	Major	Chemical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		4. BDV Test	Major	Electrical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		5. Insln Resistance	Major	Electrical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		6. Comparative tracking index	Major	Thermal	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		7. Thermal stability	Major	Thermal	1 sample/lot	--do--	--do--	Supplier TC	P	V	
1.5	Composite of polyamide paper and polyester	8. Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		9. Compression strength	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		1. Thickness	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V	
		2. Tensile strength 3. Elongation	Major Major	Mechanical Mechanical	1 sample/lot 1 sample/lot	--do-- BHEL Spec &	--do-- BHEL Spec &	Plant format	P	V	

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LT:M:813	
REV. NO: 02		DATE: 27 09 2014		Page 6 of 15		AGENCY		REMARKS	
COMPOONENT / ASSEMBLY / OPERATION/TESTS		CHARACTE - RISTICS		CLASS		TYPE OF CHECK		QUANTUM OF CHECK	
3.		4.		5.		7.		8.	
2.		3.		4.		5.		6.	
1.		2.		3.		4.		5.	
10.		11.		12.		13.		14.	
D		M		B		15.		16.	

Sl No.	COMPOONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY	REMARKS
1.6	Impregnation varnish	4.BDV test 5. Temp. stability as received/after folding in 'U' shaped slot liner 6. Visual	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Visual	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Visual	1 sample/lot	--do--	--do--	Plant format	P	V
			Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V
1.7	Motor Shaft Material	1.Chemical composition 2. Yield strength	Major	Chemical	1 sample/lot	--do--	--do--	Supplier TC	P	V
			Major	Mechanical	1 sample/lot	BHEL Spec &	BHEL Spec &	Supplier TC	P	V

 BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 7 of 15					
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY	REMARKS	
1.	2.	3.	4.	5.	6.	7.	8.	9.	D	M	B
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.

1.8	Stamping Steel	3. Tensile strength	Major	Mechanical	1 sample/lot	Apprd Datasheet	Apprd Datasheet	Supplier TC	P	V	EC gr purity: -99.6%
		4. Elongation	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		5. Hardness	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		6. Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		7. Grain size inclusion rating	Major	Mechanical	1 Sample/lot	--do--	--do--	Supplier TC	P	V	
		8. Heat treatment cycle	Major	Thermal	100%	--do--	--do--	Supplier TC	P	V	
		9. Ultrasonic test	Major	NDT	100%	--do--	--do--	Supplier TC	P	V	
		10. Heat treatment cycle	Major	Thermal	100%	--do--	--do--	Supplier TC	P	V	
		1. Specific core loss	Major	Electrical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		2. Magnetisation	Major	Electrical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		3. Insulation resistance	Major	Electrical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		4. Stacking factor	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		5. Ductility	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		6. Thickness of coating	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		7. Visual check (Waviness)	Major	Visual	1 sample/lot	--do--	--do--	Supplier TC	P	V	
		8. Temperature Withstand capacity	Major	Measure	1 sample/lot	--do--	--do--	Supplier TC	P	V	

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application					SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 8 of 15			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.		12.
1.9	Aluminum Ingots	1.Chemical Composition	Major	Chemical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Supplier TC	P		V	
2.0	Casting: Body& End shields	1.Grade of casting 2.Surface defects	Major	Chemical Visual	1 sample/lot 100%	--do-- --do--	--do-- --do--	Supplier TC Inspection record	P P		V V	
		3.Hardness	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P		V	
		4.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P		V	
		5.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V	
2.1	FAN(Cast Iron)	1.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V	
		2.Protective paint	Major	Visual	100%	--do--	--do--	Inspection record	P		V	
2.2	FAN	1.Diameter(ID &OD) 2.Paint,casting defects	Major	Meas. Visual	Sample 100%	--do-- --do--	--do-- --do--	Insp. Report Insp. report	P P		V V	
2.4	Terminal Box & Covers	1.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P		V	
2.5	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	
2.6	Earthing bolts & Nuts with washer	Dimensions	Major	Measurement	100%	--do--	--do--	Inspection report	P		V	

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application					SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 9 of 15			
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									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	
2.7	Paints	1. Viscosity at 32C 2. Drying time 3. Dry film property	Major	Mechanical	1 sample/lot 1 sample/lot 1 sample/lot	BHEL Spec & Apprd Datasheet --do--	BHEL Spec & Apprd Datasheet --do--	Insp. recoed Supplier TC	P		V	
2.8	Gasket	1. Dimensions	Major	Visual	As per IS / Plant std.	--do--	--do--	Insp. report / Supplier Tc	P		V	
		2. Neoprene test	Major	Phy.	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P		V	
		3. Hardness	Major	Mech.	As per IS / Plant std.	--do--	--do--	Insp. report / Supplier Tc	P		V	
		4. Ageing test	Major	Phy.	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P		V	
		5. Tensile	Major	Meas.	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P		V	
Terminal Block		6. Elongation	Major	Meas.	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P		V	
		1. Dimensions	Major	Meas.	Plant std.	--do--	--do--	Insp. Report /	P		V	
		2. Proof voltage test	Major	Elect.	Plant std.	--do--	--do--	Insp. Report /	P		V	

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application					SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 10 of 15							
Ranipet		Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY		REMARKS			
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	D	M	B	11.	12.
II	INPROCESS INSPECTION:			1.Blow holes/cracks	Major	Visual	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Insp. Record		P		V		
2.1	Machined Cast iron body			2.Surface finish	Major	Visual	100%	--do--	--do--	Insp. Record		P		V		
				3.Bore ID and other Dimensions	Major	Mechanical	100%	--do--	--do--	Insp. Record		P		V		
				1.Blow holes/cracks	Major	Visual	100%	--do--	--do--	Insp. Record		P		V		
2.2	Machined End shields			2.Dimensions	Major	Mechanical	100%	--do--	--do--	Insp. Record		P		V		
				1.Permissible unbalance	Major	Visual	1 sample	--do--	--do--	Insp. Report		P		V		
	Balancing(Rotor & Fan)			1.Pressure withstand capacity	Major	Mechanical	100%	--do-- --do--	--do-- --do--	Ledger		P		V		
2.3	Hydraulic Pressure Testing			1.Core length dia	Major	Mechanical	100%	--do--	--do--	Insp. Record		P		V		
				2. Core locking	Major	Visual	100%	--do--	--do--	Insp. Record		P		V		
2.4	Stator core			3. Rigidity of core.	Major	Mechanical	100%	--do--	--do--	Insp. Record		P		V		
				1.Core length	Major	Mechanical	100%	--do--	--do--	Insp. Record		P		V		
				2.Blow holes	Major	Visual	100%	--do--	--do--	Insp. Record		P		V		
2.5	Die cast Rotor			1.Resistance	Major	Electrical	100%	--do--	--do--	Insp. Record		P		V		
				2.H.V. Test	Major	Electrical	100%	--do--	--do--	Insp. Record		P		V		

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 11 of 15						
Ranipet.		Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY REMARKS			
		1.	2.	3.	4.	5.	6.	7.	8.	9.	D	M	B	
2.6		Wound stator(if applicable)	3. Insulation resistance 4. Polarity	Major	Electrical	100%	BHEL Spec & Apprd Datasheet --do--	BHEL Spec & Apprd Datasheet --do--	Insp. Record	Insp. Record	P	V		
2.7		Impregnation	1. Dip & bake cycles as per OA requirement 1. Rotor OD 2. Balancing	Major	Process parameter Mechanical	100%	--do-- --do--	--do-- --do--	Insp. Record Insp. Record	Insp. Record	P	V		
2.8		Rotor machining	1. Insulation resistance 2. H.V. Test 3. Resistance	Major	Mechanical	100%	--do--	--do--	Insp. Record	Insp. Record	P	V		
2.9		Space Heater(if applicable)	4. Wattage test 1. Completeness 2. Runout in case of flanged motors 3. Mounting dimension	Major	Electrical Visual Mechanical	100%	--do-- --do-- --do--	--do-- --do-- --do--	Insp. Record Insp. Record Insp. Record	Insp. Record	P	V		
3.0		Final Assembly		Major	Mechanical	100%	--do--	--do--	Insp. Record	Insp. Record	P	V		

BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application					SQ:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 12 of 15			
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									D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	
III	FINAL INSPECTION AND TESTING:											
3.1	Routine Test	1. Resistance Measurement on winding & space heater 2. Insulation Resistance before/after H.V. Test on winding & space heater 3. H.V. Test on winding & space heater 4. Phase sequence & direction of rotation 5. No load run test 6. Reduced voltage running test 7. Locked rotor test 7.1 Two successive Starts from cold Condition (If possible at Rated load)	Major 									

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813		
Ranipet		COMPONENT / ASSEMBLY / OPERATION/TESTS		CHARACTE - RISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY		REMARKS	
Sl. No.												D	M	B	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.				

3.2	Type Test	7.2 Three equally spread starts pre hour. 7.3 Two hot restart from hot condition. 8. Vibration test 9 Name plate verification 10. Paint shade, thickness & adhesion 11 Mountings & Overall dimensions	Major	Electrical	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Test report	P	W	*Identical design type test report shall be submitted to BHEL/TPI agency during inspection for review and acceptance.. The validity of type test report shall be 5 years from date of release of purchase order. Otherwise vendor has to conduct these test in presence of BHEL/TPI.	
			Major	Electrical	100%	--do--	--do--	Insp. Record	P	W		
			Major	Mechanical	100%	--do--	--do--	Insp. Record	P	W		
			Major	Visual	100%	--do--	--do--	Insp. Record	P	W		
			Major	Vis/Meas	100%	--do--	--do--	Insp. Record	P	W		
			Major	Vis/Meas.	100%	--do--	Apprd Drawing	Insp. Record	P	W		
			Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V		
		1. Measuring of resistance of winding of stator and wound rotor (if applicable)	Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V		
			Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V		
		2. No load test at rated voltage to determine input current , power and speed.	Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V		
			Major	Electrical	1 motor in a batch	--do--	--do--	Insp. Record	P	V		
		3. Open circuit voltage ratio of wound rotor motor (in case slip ring motors	Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V		
			Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V		

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.		STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application				SQP:QP:E:LTM:813 REV. NO: 02 DATE: 27 09 2014 Page 14 of 15			
Sl No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY		REMARKS
									D	M	B
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
		4. Locked rotor reading of voltage, current and power input at a suitable educed voltage	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		5. Full load test to determine efficiency power factor and slip	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	To determine Efficiency, power factor & slip
		6. Temperature rise test.	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		7. Momentary overload test	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		8. Insulation resistance test	Major	Electrical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		9. High voltage test	Major	Mechanical	1 motor in a batch	do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		10. Test for vibration severity of motor	Major	Mechanical	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	
		11. Test of noise levels of moto	Major	Visual	1 motor in a batch	--do--	BHEL Spec & Apprd Datasheet	TC	P	V	

			BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET - 632 406.				STANDARD QUALITY PLAN FOR LT MOTOR (FROM 30KW TO 200KW) Of ESP & FAN Application							SQP:QP:E:LTM:813		
Ranipet														REV. NO: 02		
														DATE: 27 09 2014		
														Page 15 of 15		
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS				
									D	M	B					
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11		12.				

3.3	Preservation and Packing	12. Over speed test	Major	Mechanical	batch 1 motor in each frame size 100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	TC	P	V	
		13. Degree of Protection Tests	Major	Visual		--do--	--do--	TC	P	V	
		1. Completeness	Major	Review	100%	--do--	--do--	Insp. Record	P	V	
		2. Mounting & over all Dimensions	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
		3. Painting(label)	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
		4. Motors located on rubber mats.	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
		5. Motors covered with polythene sheets.	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
		6. Packing	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	
								--do--	P	V	

Legends:

TC = Test Certificates : Drng = Drawing : IR = Insulation Resistance : BOM = Bill of Material HV = High Voltage P = Perform/ V=verification/ Review of TC/Test Report W = Witness CHP=Customer Hold Point M: Manufacturer B=Contractor/BHEL/TPI agency

Note : *Type test clearance from BHEL/TPI to be obtained during Inspection at vendor works.