

**TELANGANA POWER GENERATION CORPORATION LIMITED**

(A Govt. Of Telangana Undertaking)

Vidyut Soudha, Hyderabad - 500082.

Phone: 040 - 23499261

Fax: 040 - 23499263.

From:

The Chief Engineer
Thermal Projects Construction,
TSGENCO, 3rd Floor, A-Block,
VidyutSoudha, Khairathabad
Hyderabad-500 082.
cetpctgenco@gmail.com

To:

M/s BHEL/BAP,
Ranipet,Vellore (Dist),
Tamil Nadu-632 406
Ph: 9848265808.
E-mail: mmahesh@bhel.in

Kind Attention: Sri M Mahesh,Dy. Manager(Commercial)**Lr.No.CE/TPC/SE-3/EME-11/YTPS(5X800MW)/QAP/D.No.12/19,Dt:02.02.19**

Sir,

Sub: TSGENCO – YTPS (5X800MW) – Approval of QAP for LT Motor of ESP & FAN application
submitted by M/s BHEL/BAP, Ranipet - Reg.

- Ref: 1) M/s BHEL Letter ref: BAP:COMML:LT Motor of ESP & Fan:Rev-00, Date:29.11.2018
2) TSGENCO Email dt 05.12.2018
3) M/s BHEL Letter ref: BAP:COMML:LT Motor QP:Rev:01, Date: 05.01.2019
4) M/s TCE Email dt: 22.01.2019

Please refer to the mail cited (3) wherein the revised QAP for LT Motor of ESP & FAN
application was submitted for approval.

Sl. No.	BHEL Reference No.	Title	Rev.
1	QP:R827:ELE:003	QAP for LT Motor of ESP & Fan application	01

The above Quality Plan furnished by M/s BHEL/BAP, Ranipet is herewith reviewed and approved. Approved copy of the above Quality Plan is enclosed herewith for taking further necessary action at your end.

However, approval of the above Quality Plan does not absolve the responsibility of supplying the above equipment to the specifications and relevant standards and to ensure satisfactory performance of the above equipment as per the terms of the contract.

It is requested to upload the approved QAP in PEDM Portal.

Encl: As Above.

Yours faithfully

CHIEF ENGINEER/TPC**Copy communicated to:**

- 1) Chief Engineer/Construction/YTPS Site/Damaracherla/Nalgonda Dist.
- 2) DE/Tech to Director/Projects/TSGENCO/Vidyut Soudha/Hyderabad.
- 3) Sri Y.A.Srinivas Rao, BHEL/PMG Camp Office, Vidyut Soudha, Hyderabad.
- 4) M/s Tata Consulting Engineers Limited, 73/1, Sheriff Centre, St. Marks road, Bangalore-560 001.
- 5) M/s TCE /Room No.323 /Site Office/Vidyut Soudha/Hyderabad



QUALITY PLAN FOR LT MOTOR Of ESP & FAN Application for
YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE
(Customer No: R827, R828, R829, R830, R831, R4L4)

REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:R827:ELE:003	01	11 12 2018

TITLE : Quality Plan for LT Motor of ESP & FAN application

PROJECT : YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE

SIGNATURE

PREPARED BY : CH.ANILSINGH DY.ENGINEER/QA

Ch. Anil Singh

REVIEWED : S.SHEELA DY.MANAGER/QA

S. Sheela

APPROVED BY : K.C GANDHI PARIMALAM DGM/QA

K.C. Gandhi

ISSUED & CONTROLLED BY : QUALITY ASSURANCE
BHEL, RANIPET - 632 406.

DOCUMENT STATUS

☐

INFORMATION COPY

☐

CONTROL COPY

✓ It is a control copy only if the mark against the control copy is in other than black colour. Otherwise it will be an uncontrolled copy. Check for current revision.

ISSUED TO:

CONTROL COPY NO :

P. S. S. S. S.

Chief Engineer
Thermal Projects Construction
TSGENCO, Vidyut Soudha,
Khairatabad, Hyd-500 082.



**QUALITY PLAN FOR LT MOTOR Of ESP & FAN Application for
YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE
(Customer No: R827, R828, R829, R830, R831, R4L4)**

REF. NO.	REVISION NO.	EFFECTIVE DATE
QP:R827:ELE:003	01	11 12 2018

RECORD OF REVISION

REV. NO	EFFECTIVE DATE	REMARKS
00	27 11 2018	Original Issue
01	11 12 2018	Revised based on the customer comments received vide email dated 05 12 2018.

Chief Engineer
Thermal Projects Construction
TSGENCO, Vidyut Soudha,
Khairatabad, Hyd-500 052.

		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.		QUALITY ASSURANCE PLAN FOR LT Motor of ESP & FAN application			PROJECT: YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE (Cust No: R827, R828, R829, R830, R831, R4L4)		QP:R827:ELE:003 REV. NO: 01 DATE: 11 12 2018 Page 3 of 12				
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	
									M	B	C		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	

1.1	Enamelled round copper conductor (Dual coated)M M	1.Overall diameter	Major	Mechanical	1 sample/lot	IS 13730 1993 Part 13 BHEL Spec & Apprd Datasheet --do--	IEC 60317-0-1 2008 BHEL Spec & Apprd Datasheet --do--	Plant format	P	V		
		2.Bare conductor diameter	Major	Mechanical	1 sample/lot			Plant format	P	V		
		3.Increase in diameter	Major	Mechanical	1 sample/lot			Plant format	P	V		
		4. Peel test (above 1mm dia.)	Major	Mechanical	1 sample/lot			Plant format	P	V		
		5.Mandrel winding test	Major	Mechanical	1 sample/lot			Plant format	P	V		
		6. Jerk test (upto 1mm dia.)	Major	Mechanical	1 sample/lot			Plant format	P	V		
		7.Resistance to abrasion	Major	Mechanical	1 sample/lot			Plant format	P	V		
		8.BDV Test	Major	Electrical	1 sample/lot			Plant format	P	V		
		9.Electrical resistance	Major	Electrical	1 sample/lot			Plant format	P	V		
		10.heat shock	Major	Electrical	1 sample/lot			Plant format	P	V		
		11.Elongation	Major	Mechanical	1 sample/lot			Plant format	P	V		


 Chief Engineer
 Thermal Projects Construct
 TSGENCO, Vidyut South
 Khairatabad, Hyd-500 082.

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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

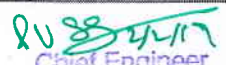
1.2	INSULATION MATERIAL:	1.Thickness & width	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Plant format	P	V		
		2.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Plant format	P	V		
		3. BDV at elevated temp.in air.	Major	Electrical	1 sample/lot	--do--	--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	Impregnation varnish	1.BDV test	Major	Electrical	1 sample/lot	--do--	--do--	Plant format	P	V		
		2.Density	Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V		
		3.Viscosity	Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V		
		4.Non volatile matter	Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V		
		5.Drying time	Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V		
		6.Resoftening	Major	Thermal	1 sample/lot	--do--	--do--	Plant format	P	V		
		7. Compatibility with thinner% min.	Major	Physical	1 sample/lot	--do--	--do--	Plant format	P	V		


Chief Engineer

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TSGENCO, Vidyut Soudha,
Khairatabad, Hyd-500 082.

 Ranipet		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.		QUALITY ASSURANCE PLAN FOR LT Motor of ESP & FAN application			PROJECT: YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE (Cust No: R827, R828, R829, R830, R831, R4L4)		QP:R827:ELE:003 REV. NO: 01 DATE: 11 12 2018 Page 5 of 12			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
									M	B	C	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

1.4	Motor Shaft Material	8.Reaction of varnish with copper	Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V		
		9.Stability of varnish in an open vessel	Major	Chemical	1 sample/lot	--do--	--do--	Plant format	P	V		
		10.Self life	Major	Visual	1 sample/lot	--do--	--do--	Plant format	P	V		
		1.Chemical composition	Major	Chemical	1 sample/lot	--do--	--do--	Supplier TC	P	V		
		2.Yield strength	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Supplier TC	P	V		
		3.Tensile strength	Major	Mechanical	1 sample/lot	--do--	--do--	Supplier TC	P	V		
		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		
1.5	Stamping Steel	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		


Chief Engineer
Thermal Projects Constr
TSGENCO, Vidyut Sol
Maintained Unit-500

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Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

1.6	Aluminum Ingots	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		
1.7	Casting: Body& End shields	1.Chemical Composition	Major	Chemical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Supplier TC	P	V		
		1.Grade of casting	Major	Chemical	1 sample/lot	--do--	--do--	Supplier TC	P	V		
		2.Surface defects	Major	Visual	100%	--do--	--do--	Inspection record	P	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		
1.8	FAN(Cast Iron)	5.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Inspection record	P	V		
		2.Protective paint	Major	Visual	100%	--do--	--do--	Inspection record	P	V		
1.9	Terminal Box & Covers	1.Dimensions	Major	Mechanical	1 sample/lot	--do--	--do--	Insp. Report	P	V		

[Signature]
Chief Engineer

Thermal Projects Construction
TSGENCO, Vidyut Soudha,
Khairatabad, Hyd-500 082.

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SL No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE- RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
									M	B	C	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

2.0	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		
									P	V		
2.1	Earthing bolts & Nuts with washer Paints	Dimensions	Major	Measurement	100%	--do--	--do--	Inspection report	P	V		
		1.Viscosity at 32C	Major	Mechanical	1 sample/lot	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Insp. record	P	V		
		2.Drying time	Major	Visual	1 sample/lot	--do--	--do--	Supplier TC	P	V		
		3. Dry film property	Major	Visual	1 sample/lot	--do--	--do--	Supplier TC	P	V		
2.2	Gasket	1.Dimensions	Major	Meas.	As per IS / Plant std.	--do--	--do--	Insp. report / Supplier Tc	P	V		
		2.Neoprene test	Major	Physical	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P	V		
		3.Hardness	Major	Mechanical	As per IS / Plant std.	--do--	--do--	Insp. report / Supplier Tc	P	V		
		4.Ageing test	Major	Physical	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P	V		
		5.Tensile	Major	Measurement	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P	V		
2.3	Terminal Block	6.Elongation	Major	Measurement	As per IS / Plant std.	--do--	--do--	Insp. Report / Supplier Tc	P	V		
		1.Dimensions	Major	Measurement	Plant std.	--do--	--do--	Insp. Report /	P	V		
		2.Proof voltage test	Major	Electrical	Plant std.	--do--	--do--	Insp. Report /	P	V		


 Chief Engineer
 Thermal Projects Construct
 TSGENCO, Vidyut Soudha,
 Khairatabad. Hyd-500 012

 BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.		QUALITY ASSURANCE PLAN FOR LT Motor of ESP & FAN application				PROJECT: YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE (Cust No: R827, R828, R829, R830, R831, R4L4)			QP:R827:ELE:003 REV. NO: 01 DATE: 11 12 2018 Page 8 of 12			
Ranipet		CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS								M	B	C	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

II												
INPROCESS INSPECTION:												
2.4	Machined Cast iron body	1.Blow holes/cracks	Major	Visual	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Insp. Record	P	V		
		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		
2.5	Machined End shields	1.Blow holes/cracks	Major	Visual	100%	--do--	--do--	Insp. Record	P	V		
		2.Dimensions	Major	Mechanical	100%	--do--	--do--	Insp. Report	P	V		
2.6	Balancing(Rotor & Fan)	1.Permissible unbalance	Major	Visual	1 sample	--do--	--do--	Insp. Report	P	V	V	
2.7	Stator core	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		
		3. Rigidity of core.	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V		
2.8	Die cast Rotor	1.Core length	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V		
		2.Blow holes	Major	Visual	100%	--do--	--do--	Insp. Record	P	V		
2.9	Impregnation	1.Dip & bake cycles as per OA requirement	Major	Process parameter	100%	--do--	--do--	Insp. Record	P	V		
3.0	Rotor machining	1.Rotor OD	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V		
		2.Balancing	Major	Mechanical	100%	--do--	--do--	Insp. Record	P	V		

Chief Engineer

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TSGENCO, Vidyut Soudha
Khairatabad, Hyd-Gen Co.

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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

3.1	Space Heater(if applicable)	1. Insulation resistance 2. H.V. Test 3. Resistance 4. Wattage test	Major Major Major Major	Electrical Electrical Electrical Electrical	100% 100% 100% 100%	--do-- --do-- --do-- --do--	--do-- --do-- --do-- --do--	Insp. Record Insp. Record Insp. Record Insp. Record	P P P P	V V V V		
3.2	Final Assembly	1. Completeness 2. Runout in case of flanged motors 3. Mounting dimension	Major Major Major	Visual Mechanical Mechanical	100% 100% 100%	--do-- --do-- --do--	--do-- --do-- --do--	Insp. Record Insp. Record Insp. Record	P P P	V V V		
III	FINAL INSPECTION AND TESTING:											
3.3	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	Major Major Major Major Major Major	Electrical Electrical Electrical Electrical Electrical Electrical	100% 100% 100% 100% 100% 100%	BHEL Spec & Apprd Datasheet --do-- --do-- --do-- --do-- --do--	BHEL Spec & Apprd Datasheet --do-- --do-- --do-- --do-- --do--	Insp. Record Insp. Record Insp. Record Insp. Record Insp. Record Insp. Record	P P P P P P	W W W W W W	W W W W W W	


Chief Engineer
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TSGENCO, Vidyut Soud
Khairatabad, Hyd-500 082.

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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

3.4	Type Test	7.1 Two successive Starts from cold Condition	Major	Electrical	100%	--do--	--do--	Insp. Record	P	W	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.
		7.2 Three equally spread starts pre hour.	Major	Electrical	100%	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	Insp. Record	P	W	W	
		7.3 Two hot restart from hot condition.	Major	Electrical	100%	--do--	--do--	Test Record	P	W	W	
		8.Vibration test	Major	Mechanical	100%	--do--	--do--	Test report	P	W	W	
		9.Name plate verification	Major	Visual	100%	--do--	--do--	Test report	P	W	W	
		10.Paint shade, thickness& adhesion	Major	Vis/Meas	100%	--do--	Apprd Drawing	Insp. Record	P	W	W	
		11.Moutings & Overall dimensions	Major	Vis/Meas.	100%	--do--	--do--	Insp. Record	P	W	W	
		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	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	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	V	


Chief Engineer

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TSGENCO, Vidyut Soudha,
Khairatabad, Hyd-500 001

 Ranipet		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.		QUALITY ASSURANCE PLAN FOR LT Motor of ESP & FAN application			PROJECT: YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE (Cust No: R827, R828, R829, R830, R831, R4L4)			QP:R827:ELE:003 REV. NO: 01 DATE: 11 12 2018 Page 11 of 12			
Sl. No.	COMPONENT / ASSEMBLY / OPERATION/TESTS	CHARACTE - RISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE STANDARD	FORMAT OF REC	AGENCY			REMARKS	
									M	B	C		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	

		4. Locked rotor reading of voltage, current and power input at a suitable Reduced voltage	Major	Electrical	1 motor in a batch	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	TC	P	V	V	To determine Efficiency, power factor & slip
		5. Full load test to determine efficiency power factor and slip	Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		6. Temperature rise test.	Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		7. Momentary overload test	Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		8. Insulation resistance test	Major	Electrical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		9. High voltage test	Major	Mechanical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		10. Test for vibration severity of motor	Major	Mechanical	1 motor in a batch	--do--	--do--	TC	P	V	V	
		11. Test of noise levels of motor	Major	Visual	1 motor in a batch	--do--	--do--	TC	P	V	V	
		12. Over speed test	Major	Mechanical	1 motor in each frame size	BHEL Spec & Apprd Datasheet	BHEL Spec & Apprd Datasheet	TC	P	V	V	

[Signature]
Chief Engineer

Thermal Projects Constructi.
TSGENCO, Vidyut Souda
Khairatabad, Hyd-500 002.

बी एच ई एल  Ranipet		BHARAT HEAVY ELECTRICALS LTD BOILER AUXILIARIES PLANT, RANIPET – 632 406.		QUALITY ASSURANCE PLAN FOR LT Motor of ESP & FAN application			PROJECT: YADADRI TPS 5 X 800MW, TSGENCO, EPC PACKAGE (Cust No: R827, R828, R829, R830, R831, R4L4)		QP:R827:ELE:003 REV. NO: 01 DATE: 11 12 2018 Page 12 of 12			
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1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.

3.5	Preservation and Packing	13. Degree of Protection Tests	Major	Visual	100%	--do--	--do--	TC	P	V	V	
		1.Completeness	Major	Review	100%	--do--	--do--	TC	P	V	V	
		2.Mounting & over all Dimensions	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	V	
		3. Painting(label)	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	V	
		4. Motors located on rubber mats.	Major	Visual	100%	--do--	--do--	Insp. Record	P	V	V	
		5. Motors covered with polythene sheets.	Major	Visual	100%	-do--	-do--	Insp. Record	P	V	V	
		6. Packing	Major	Visual	100%	-do--	-do--	Insp. Record	P	V	V	

Note:

1) Vendor shall submit raw material test certificates and internal test report for Enameled copper conductor, INSULATION MATERIALS, Impregnation varnish, Motor Shaft Material, Stamping Steel, Aluminum Ingots, yoke (Casting Body & End shields), Terminal Box & Covers, Bearings (SKF or FAG), Gasket, Terminal Block during inspection to BHEL/BHEL AIA for review and acceptance.

2) Vendor shall also submit INPROCESS INSPECTION report for Machined Cast iron body, Machined End shields, Balancing (Rotor & Fan), Hydraulic Pressure Testing, Stator core, Die cast Rotor, Impregnation, Rotor machining, Space Heater (if applicable) and Final Assembly during inspection to BHEL/BHEL AIA for review and acceptance.

3) Identical design type test report shall be submitted to BHEL/BHEL TPI agency/Customer/Customer Consultant 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/BHEL TPI agency/Customer/Customer Consultant.

4) Type test clearance from BHEL/BHEL TPI agency/Customer/Customer Consultant to be obtained during Inspection at vendor works

Legends: TC = Test Certificates : Drg = Drawing : IR = Insulation Resistance : BOM = Bill of Material HV = High Voltage P= Perform/ V=verification/ Review of TC/Test Report W = Witness

M: Manufacturer B=Contractor/BHEL /TPI agency C=Customer/Customer Consultant.


 Chief Engineer
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