

## MODEL QUALITY ASSURANCE PLAN

### Rewinding & Overhauling of Motor of Online Crusher # 2 (480 kW, 6.6 kV, 56.6 Ampere, 743 RPM)

#### Manufacturing Quality Plan

Sl. No.	Component and Operation	Characteristics	Class	Type of Check	Quantum of Check	Reference Document	Acceptance Standard	Agency			Format of Record	D	Remarks
								M	C	B			
1	Raw Material (Copper conductor enameled coating)	a. Dims b. Physical c. Chemical d. Electrical Properties	B B B B	Measurement Mechanical Chemical Electrical	Random Random Random Random	Appd. Specn., old coil. IS 13730-31	Appd. Specn.,  IS 13730-31 +/- 0.03mm		P P P P	W V V V	Mfr's/ Lab TC	√ √ √ √	a. Sample by 'B'-CHP.
2	In process inspection (Stator Coils)	a. Resistance of coil b. Inter turn surge comparison test c. HV test of stator coils slot portion d. Tan delta & capacitance measurement at 20,40,60,80 & 100% of rated voltage e. IR measurement at 2.5KV, before & after HV.	C C C C C	Electrical -do- -do- -do- -do-	100% 100% 100% Random 10% 100%	do- -do- -do- -do- IS 7816	+/-3% 2.5KV withstood  14.2KV withstood for one minute IS 13508  1000 M Ohm Min.		P P P P P	W W W W W	IR IR IR IR IR	√ √ √ √ √	-do- -do- -do- -do- -do-
3	Stator	Ring flux or loop test	C	-do-	100%	Appd. Specn.	Temp. diff. at core not more than 10deg.C		P	W	IR	√	-do-

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4	Stator Winding	a. IR measurement before & after HV slot portion. b. PI value at 2.5KV c. HV test at 14.2KV AC/phase for one min. for complete stator. d. Winding resistance. e. Inductance measurement.	C C C C C	Electrical -do- -do- -do- -do-	100% 100% 100% 100% 100%	IS 7816  IS 7816 IS 325  { Appd. Specn., Mfr's std.	1000 M Ohm Min.  ≥2 Should withstand  { Variation in between phases not more than 3%		P P P P P	W W W W W	IR IR IR IR IR	√ √ √ √ √	25%/Lot by 'B'-CHP. -do- -do- -do- -do-
5	Rotor	a. Ring flux or loop test. b. Shaft measurement/trueness. c. Rotor bar chem. test. d. DP test on replaced rotor bar & brazing area.	C C C C	-do- Visual measurement Chemical NDT	100% 100% 1 Sample /Lot 100%	do-  Appd. Spec./drg.  Appd. Spect. IS440  IS3658/1999	Temp. diff. at core not more than 10deg.C +/-0.02mm.  Appd. Spect. IS440  Free from crack, porosity, lamination.		P P P P	W W V V	IR IR IR IR	√ √ √ √	-do- -do- -do- -do-

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6	Repair/replacement of motor parts (Internal & External)	Repair / replacement of housing.	C	Mechanical Measurement & material test for its composition	100%	Appd. Specn., old housing	Drawing		P	W	IR	√	-do-	
7	Assembly of Motor	Supply & mounting of new bearings (SKF/FAG)	C	Mechanical Measurement	100%	Old Bearing	As per IS.		P	W	P.O.	√	CHP for 100%	
8	Rotor no load run test at full RPM & reduced voltage.	a. Dynamic balancing.	C	Mechanical	100%	IS 11723,Pt 1/ISO 1940	GR 2.5.		P	V	Lab TC	√	CHP for 100%	
		b. Vibration vel. At any direction.	C	Measurement	100%	IS 12075/1986	≤ 1.8 mm/s.		P	W	IR	√		
		c. Noise.	C	Measurement	100%	IS 12065/1987	No abnormal sound & 85Db.A max.		P	W	IR	√		-do-
		d. Current bal. measurement.	C	Measurement	100%	IS 325, Mfr's. std.	Current variation within 5% in between lines.		P	W	IR	√		-do-
9	Painting	2 Coats of red oxide, 2 coats syn. Enamel paint, grey.	A	Visual	100%	Appd. Specn, Mfr's std.	.		P		IR			

**Legends: P-Perform, W- Witness, V- Verify, M- Manufacturer, C-Contractor, B-BPSCL/BSL, IR-Inspection report, Class A- Minor, B- Major, C- Critical, D- Controlled copy, √-copy to be submitted to BPSCL, CHP- Customer Hold Point, NDT-Non destructive test.**

**Polarization Index Test (PI value)= It is the ratio between insulation resistance (IR) i.e. megger value for 10 min. to insulation resistance for 1 min.**