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1	2	3	4	5	6	7	8

QUALITY ASSURANCE PLAN

ITEM : MOTOR CONTROL CENTER, POWER CONTROL CENTRE , DISTRIBUTION BOARD, AMF PANEL , LT PANEL ETC.

MATERIAL INSPECTION							
1A	MILD STEEL FOR FABRICATION (SHEET STEEL & CHANNEL CRCA 'O' GRADE)	A) Surface Finish	Major	Visual	IS:513/1973	Krypton Inspection Record	Krypton
		B) Sheet Metal Thickness	- do -	Measurement	Apprd Drgs IS:513/1973	- do -	- do -
		C) Dimensions	- do -	- do -	- do -	- do -	- do -
1B	Busbar Support SMC/ DMC	A) Type Of Support	Major	Visual	As per Application Drgs	Krypton	Krypton
		B) Dimensions	- do -	Measurement	- do -	- do -	- do -
		C) Surface Finish	- do -	Visual	- do -	- do -	- do -
		D) H.V. Test	- do -	Electrical	- do -	- do -	- do -
1C	BUSBAR	A) Size & Cross Section	- do -	Measurement	Apprd. Drwgs & Specifications IS : 5082/ 1897	Krypton Inspection Record	Krypton
	Main Busbar (Ver. & Hor.) Al / Cu	B) Resistivity / Conductivity	- do -	- do -	- do -	- do -	Krypton
	Control Busbar Al/ Cu	C) Tensile Strength	- do -	Mechanical	- do -	- do -	- do -
1D	Hardware						
1	Bolt / Nuts / Plain Washer / Spring Washer	A) Dimensional Conformity	Major	Measurement	IS : 1364/3063	Krypton Inspection Record	Krypton

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		B) Plating : Zinc / Cd	- do -	- do -	- do -	- do -	- do -
1E	Drawout Contact Assembly (Power & Aux. Contacts)	A) Surface Finish	- do -	Visual	- do -	- do -	- do -
		B) Rating Size	- do -	Measurement	- do -	- do -	- do -
1F	Paint	A) Finish (Shade) Viscosity	- do -	Visual	IS : 101/ IS : 5 & Shade no.631	Krypton Inspection Record	Krypton
		B) Routine Test	- do -	- do -	- do -	- do -	- do -
		C) Tape Test	- do -	Putting Tape	- do -	- do -	- do -
1G	Neoprene Rubber Gasket	A) Dimensional Conformity	- do -	- do -	Internal Std.	Krypton Inspection Record	Krypton
1H	Conductor / Wire	A) Verification of Cross Section make, Colour Code , Grade etc.	Major	Physical Verification / Measurement	- do -	- do -	- do -
		B) Thickness of Insulation	- do -	Physical Verification / Measurement	IS : 694	- do -	- do -
1I	Air Ckt Breaker (ACB)	A) Verification of Current rating	Major	Visual	Approved Drg	- do -	- do -
		B) Verification of Voltage Grade	- do -	- do -	- do -	- do -	- do -
		C) Mounting Arrangement & Dimensions	- do -	Measurement	- do -	- do -	- do -
		D) Setting Of Releases	- do -	Electrical	- do -	- do -	- do -

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		E) Voltage Rating of Closing Coil / Shunt / Trip / Under Voltage	- do -	Visual	- do -	- do -	- do -
		F) Anti Pumping / Trip Free Feature	- do -	Electrical	- do -	- do -	- do -
		G) Slow Costing	- do -	- do -	- do -	- do -	- do -
		H) Routine / Type Test	- do -	Electrical / Mechanical	As per IS : 2516	Manufacturer TC	Manufacturer
1J	Terminal for Power & Control	A) Size / Current rating	Major	Visual	Approved Drg.	Krypton Inspection Record	Krypton
		B) Connecting Arrangement	- do -	- do -	- do -	- do -	- do -
1K	Air Break Switch	A) Verification Of Voltage Grade	Major	Verification	IS : 4064 Approved Drg	Krypton Inspection Record	Krypton
		B) Current Rating	- do -	- do -	- do -	- do -	- do -
		C) Operating & Interlocking Arrangement	- do -	- do -	- do -	- do -	- do -
1L	HRC Fuses	A) Verification of Make , current rating, rupturing current	Major	Verification	IS : 9224	Krypton Inspection Record	Krypton
1M	Protective Relays	A) Mounting Detail Setting range Aux. Contact Pos.	Major	Physical verification	Approved Drg	Krypton Inspection Record	Krypton
		B) Operation	Critical	Test	- do -	- do -	- do -

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1 N	Air Break Contactors / Timers / Time switches	A) Mounting Detail & Mechanical operation	Major	Physical verification	Approved Drg / IS : 2959	Krypton Inspection Record	Krypton
		B) Current Rating / Make	- do -	- do -	- do -	- do -	- do -
		C) No. Of Contacts	- do -	- do -	- do -	- do -	- do -
1O	Current Transformer	A) Mounting Detail & Dimensions	Minor	Physical Verification	Approved Drg	Krypton Inspection Record	Krypton
		B) CT Ratio , Class Of Accuracy	Critical	Test	- do -	Manufacturer TC	Manufacturer
1 P	Indicating Instruments(Voltmeter, Ammeter, Frequency, KW, KWH, Meter etc.)	A) Mounting Detail & Dimensions	Minor	Physical Verification	Approved Drg	Manufacturer TC	Manufacturer
		B) Accuracy Class	Major	Visual	Approved drg IS : 1248 IS : 2419	- do -	- do -
		C) Routine / Type Test	Major	Electrical	Approved drg IS : 6875	Manufacturer TC	Manufacturer
1Q	Control Switch	A) Visual	Minor	Physical verification	Approved Drg	Krypton Inspection Record	Krypton
		B) Contact Rating AC / DC	Major	Visual	- do -	- do -	- do -
		C) Operational Test	- do -	Functional test	- do -	- do -	- do -

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1R	Space Heater	A) Mounting Detail	Minor	Visual / Physical inspection	Approved Drg	Krypton Inspection Record	Krypton
		B) Verification of Volt / Watt Rating	Major	TEDT	- do -	- do -	- do -
1S	Indicating Light	A) Verification Of Voltage Grade	Major	Verification	Approved Drg / IS : 4795	Krypton Inspection Record	Krypton
		B) Series Resistance Value / TRF, ratio	- do -	- do -	- do -	- do -	- do -
1T	Voltage Transformer	A) Mounting Detail & Dimensions	Major	Measurement	Manufacturer Std	Krypton Inspection Record	Krypton
		B) PT Ratio, Class of Accuracy	- do -	Visual	- do -	- do -	- do -
		C) Verification of polarity	- do -	Electrical	- do -	- do -	- do -
		D) Routine / Type test	- do -	- do -	- do -	Manufacturer TC	Manufacturer
1U	Thermal Overload Relay	A) Verification of Rating & Contact Arrangement	Major	Electrical	Approved drg	Krypton Inspection Record	Krypton
		B) Current Setting	- do -	- do -	- do -	- do -	- do -
		C) Mounting Arrangement	- do -	- do -	- do -	- do -	- do -
		D) Re Setting arrangement	- do -	- do -	- do -	- do -	- do -

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1V	MCB / MCCB	A) Verification of rating & Make	Major	Electrical	Approved drg	Krypton Inspection Record	Krypton
1W	Push Button	A) Verification of Rating & Contact Arrangement	Major	Electrical	Approved drg	Krypton Inspection Record	Krypton
		B) Mounting Arrangement	- do -	- do -	- do -	- do -	- do -
		C) Operational / Functional	- do -	- do -	- do -	- do -	- do -
	INPROCESS INSPECTION						
2A	PANEL FABRICATION	A) Visual check for weld, dressing, deburing, straightness & dimensional control	Minor	Physical Verification	Internal Std.	Internal Inspection record	Krypton
		B) Checking of Frame with Std. Trolley	- do -	Physical	- do -	- do -	- do -
		C) Checking of Trollies with standard fixtures	- do -	- do -	- do -	- do -	- do -
		D) Dimensions	- do -	Process (Physical check before assembly)	- do -	- do -	- do -
		E) Lifting Facilities	- do -	- do -	- do -	- do -	- do -
		F) Cable Entry	- do -	- do -	- do -	- do -	- do -

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		G) Waviness	- do -	- do -	- do -	- do -	- do -
		H) Gasket Arrangement	- do -	- do -	- do -	- do -	- do -
2B	PRE- TREATMENT / PAINTING	A) Pre- Treatment of sheet steel	Minor	Physical Visual	Internal Std./ IS : 6005	Krypton Inspection Record	Krypton
		B) Final Painting	- do -	- do -	- do -	- do -	- do -
		- Paint Thickness	- do -	Measurement	- do -	- do -	- do -
		- Adhesiveness	- do -	Physical	- do -	- do -	- do -
		- Finish	- do -	Visual	- do -	- do -	- do -
2C	Assembly	A) Alignment of Panel & Busbar	Major	Physical verification	IS : 101	Internal Inspection record	Krypton
		b) Check for Busbar Mounting					
		1) Tightness of Busbar Joints	- do -	Physical test by Torque Wrench	Internal Std.	- do -	- do -
		2) Busbar Mounting on Insulators	- do -	- do -	- do -	- do -	- do -
		3) Busbar jointing Arrangement & Overlapping	- do -	- do -	- do -	- do -	- do -
		4) Busbar bending & Drilling	- do -	- do -	- do -	- do -	- do -
		5) Phase Identification & Clearance	Critical	Physical	- do -	- do -	- do -

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		6) Busbar Sleaving & Colour Bends	Minor	Visual Check	- do -	- do -	- do -
		C) Check for CT Mounting					
		1) Mounting & Adequate Supports of CT	Major	Physical verification	- do -	- do -	- do -
		2) Provision for Shorting link on CT terminal	- do -	- do -	- do -	- do -	- do -
		D) Mechanical Interlocking Arrangement	- do -	Functional check	- do -	- do -	- do -
		E) Check for Arrangement of Gasketing & Sealing by torch test	- do -	test	- do -	- do -	- do -
		F) Arrangement of Components & Terminations	- do -	Physical Verification	- do -	- do -	- do -
		G) Check for Interchangeability	- do -	Functional check	- do -	- do -	- do -
		H) Check for Smooth Movement of Trolley During Withdrawal / Insertion operation	Major	Functional Check	Internal Std	Internal Inspection record	Krypton

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		I) Check Trollies for isolate test service position	- do -	Physical	- do -	- do -	- do -
2D	Wiring	A) Proper Wire Clamping	Minor	Visual	Internal Std	Internal records	Krypton
		B) Continuity & Ferruling as per wiring diagram	- do -	Visual / test	- do -	- do -	- do -
		C) Proper crimping of lugs / connections tightening at terminals & components	- do -	- do -	- do -	- do -	- do -
3A	Final Inspection	A) Verification of Component, Rating, Arrangement as per GA Drg make	Major	Physical Verification	Approved Drg IS : 8625/ IS : 4237/ IS : 2127	Internal records	Krypton
		B) Mounting Arrangement of name plate covers interchangeability of Modules	- do -	- do -	- do -	- do -	- do -
		C) Wiring Cubicle & Ckt. Function test , operation of indicating instruments wiring completeness	- do -	- do -	- do -	- do -	- do -
		D) Continuity test	- do -	Routine test	- do -	- do -	- do -

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		E) HV / IR Test on both Power / Control Ckt	Critical	- do -	- do -	- do -	- do -
		F) Phase Indication	Major	Visual	Approved Drg IS : 8623 / IS : 4237 / IS : 2127	Internal Records	Krypton
		G) Check for Busbar clearance , Tightness pf electrical / mechanical interlock	- do -	Visual / Physical verification of torque wrench	- do -	- do -	- do -
		H) Degree of protection by insertion of thin paper / light test	- do -	Test	- do -	- do -	- do -
		I) Final Painting					
		1) Shade	- do -	Visual	- do -	- do -	- do -
		2) Surface Finish	Minor	- do -	- do -	- do -	- do -
		3) Thickness	Major	Physical Verification	- do -	- do -	- do -
		4) Adhesion	- do -	- do -	- do -	- do -	- do -
		J) Space Heater					
		1) Function	Major	Physical verification	Internal Specs	Inspection Record	Krypton
		2) HV / IR test	- do -	Routine test	- do -	- do -	- do -
		3) Contact Resistance of D/O Components	- do -	Visual	- do -	- do -	- do -
		K) Degree of protection	- do -	Mechanical	- do -	- do -	- do -

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		L) Temp. Rise Test	- do -	Electrical	- do -	Test Certificate	- do -
		M) Short Circuit Test	- do -	Visual	- do -	- do -	- do -