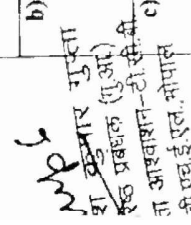


Sr. No.	Components/ Operation & Description or Test	Type of check	Quantum of check/ Sampling With basis	Reference Document for Testing	Acceptance Norms	Format of records	Applicable Codes					Remarks
							1	2	3	4	5	
	BHEL BHOPAL	Customer	Vendor Code	Item	QP. No.:	Rev. No.	Rev. Date	Valid from	Valid up to	Page		
	POWERGRID	23E2 D2	H.T CAPACITOR (SERIES&SHUNT)	CAB 111	04	14.07.2011	01.07.2011	30.06.2014	1			

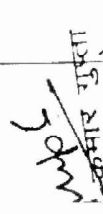
L1	STAINLESS STEEL SHEET				CMTC				E				Surveillance check by PowerGrid for review of BHEL records/Mfr. TC
L1.1.	Visual & Dimensional checks	One sample per lot for each size	BHEL Specn. CPE/PS/8018/04 /Electrical specn. / POWERGRID Specn.	CMTC	B	K	P	W	N				
	a) Visual check	--DO--	Free from defects No. damage.		B	K	P	W	N			--DO--	
	b) Thickness	--DO--	CPE/PS/8018/04 /		B	K	P	W	N			--DO--	
	c) Width	--DO--	CPE/PS/8018/04 /		B	K	P	W	N			--DO--	
	d) Length	--DO--	--DO--		B	K	P	W	N			--DO--	
	e) Straightness (Camber)	--DO--	--DO--		B	K	P	W	N			--DO--	
	f) Flatness	--DO--	--DO--		B	K	P	W	N			--DO--	
L1.2	Check for												
	a) Chemical composition	--DO--	--DO--		B	K	P	W	N			--DO--	
	b) Mechanical properties.	--DO--	--DO--		B	K	P	W	N			--DO--	
	c) Surface finish	--DO--	--DO--		B	K	P	W	N			--DO--	
L2	HAZY POLYPROPYLENE FILM								E				
L2.1	Visual & Dimensional checks			CMTC	B	K	P	W	N				
a)	Visual check & classification of rolls for thickness balancing (To be done during element winding stage when rolls are unpacked)	IS:2500 AQL= 4% Lot Sample Size 2 to 90 3 91 to 280 13 281 to 500 20	BHEL Specn. BP22861 / BHEL Electrical specn. POWERGRID Specn. No. damage		B	K	P	W	N			Surveillance check by PowerGrid for review of BHEL records/Mfr. TC	
b)	Width	One sample	--DO-- Film Width Tol. Upto 150 +0.75mm >150 +1.50mm		B	K	P	W	N			--DO--	
c)	Thickness by weight method	One sample per lot for each size.	--DO-- Tol. ± 6%		B	K	P	W	N			--DO--	



MANUFACTURING QUALITY PLAN

Sr. No.	Components/ Operation & Description or Test	Type of check	Quantum of check/ Sampling With basis	Reference Document for Testing	Acceptance Norms	Format of records	Applicable Codes						Remarks
							1	2	3	4	5	6	
	BHEL BHOPAL	Customer	Vendor Code	Item	QP. No.:	Rev. No.	Rev. Date	Valid from	Valid up to	Page			
	POWERGRID	23E2 D2	H.T CAPACITOR (SERIES&SHUNT)	CAB 111	04	14.07.2011	01.07.2011	30.06.2014	2				

d)	Camber				-DO - Max. 3mm for 1.5 meter length		B	K	P	W		N	-DO-
1.2.2	Check for -												
a)	Shrinkage			One sample per lot for each size.	-DO - 4% Max in MD (Machine Direction) 1.5% Max in CMD (Cross Machine Direction) at 100 deg. C+ -2deg. C for 10 minutes		B	K	P	W		N	-DO-
b)	Space Factor			One sample per lot for each size.	BHEL Specn. BP22851 / BHEL Electrical specn. / POWERGRID Specn. Below 10 micron: 6 to 10% Above 10 micron: 7 to 13%		B	K	P	W		N	Surveillance check by Power Grid for review of BHEL records/Mfr. TC
c)	Tensile Strength			-DO -	-DO - 110 N/mm ² min. In MD & CMD 140 N/mm ²		B	K	P	W		N	-DO-
d)	MD to CMD ratio of Tensile Strength			-DO -	-DO - 0.4 to 1.20		B	K	P	W		N	-DO-
e)	Elongation at break			-DO -	-DO - 40% min.		B	K	P	W		N	-DO-
f)	Electrical Properties - Dielectric strength (AC OR DC)			One sample per lot for each size.	BDV(AC) Thickness (micron) 9 to 15 16 to 18 315 BDV (DC) Thickness 9 to 11 400 12 & above 525		B	K	P	W		N	Surveillance check by Power Grid for review of BHEL records/Mfr. TC
	Volume Resistivity (Type test)			One sample for each size. Once in 5 yrs. for every supplier	-DO - 1 x 10 ¹⁶ ohm cm Min.		B	K	P	W		N	-DO-


 Mr. Prakash (G.A.)
 आश्वासन-टी.सी.डी.
 एच.ई.एल. भोपाल



MANUFACTURING QUALITY PLAN

BHEL BHOPAL		Customer	Vendor Code	Item	QP.No.:	Rev. No.	Rev. Date	Valid from	Valid up to	Page			
		POWERGRID	23E2 D2	H.T CAPACITOR (SERIES&SHUNT)	CAB 111	04	14.07.2011	01.07.2011	30.06.2014	3			
Sr. No.	Components/ Operation & Description or Test	Type of check	Quantum of check/ Sampling With basis	Reference Document for Testing	Acceptance Norms	Format of records	Applicable Codes						Remarks
							1	2	3	4	5	6	
b)	Dielectric Constant at 50 Hz (Type test)		-DO -	-DO -	-DO - 2.2 to 2.3							N	Surveillance check by Power Grid for review of BHEL records/Mfr. TC
i)	Power Factor: at 100 deg. C at 50 Hz (Type test)		-DO -	-DO -	-DO - 0.09% max							N	-DO-
j)	Material Identification (Type test)		-DO -	-DO -	-DO - Should be polypropylene							N	-DO-
1.3	ALUMINIUM FOIL HIGH PURITY					CMTc							
1.3.1	Visual & dimensional checks									E			
a)	Visual checks -		Lot Sample size 2 to 90 - 5 91 to 280 - 13 281 to 500 - 20	BHEL specn. BP12399 POWERGRID Specn. No. damage								N	Surveillance check by PowerGrid for review of BHEL records/Mfr. TC
b)	Width		--DO--	+0.4 mm								N	-DO-
c)	Thickness		One sample per lot for each size.	--DO-- + 10% of normal thickness								N	-DO-
1.3.2	Check for -												
a)	Chemical composition i)Aluminum ii)Total impurities including iron & silicon		One sample per lot for each size.	BHEL spec. BP12399 POWERGRID Specn. 99.35% Min (Al) 0.65% max. (balance)								N	Surveillance check by Power Grid for review of BHEL records/Mfr. TC

