


Qus  
Approved by: 

BHARAT HEAVY ELECTRICALS LIMITED  
INSULATOR PLANT, JAGDISHPUR

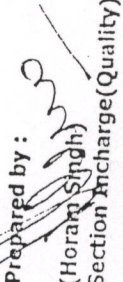
Document No. : QAC : 306  
Section No. : 06  
Sec. Rev. No. : 07  
Sec. Rev. Date : 05.04.07  
Page : 4 of 4

GENERAL QUALITY PLAN FOR INSULATORS

Sl. No.	Component Opn./Stage	Characteristic / Tests	Quantum of check	Type of check	Reference Document	Acceptance Norms	Record Format	Testing Agency	Remarks
6.3.10		Chemical analysis (only for MCI caps)	1 No./Heat	Chemical test	JP:PS:12-0001 /NT	P = 0.15 % max	Vendor Insp- action report	Vendor	
6.4	GALVANISING (CAPS & PINS)								
6.4.1		Visual examination	100% by Vendor and 10 % by BHEL (Min. 50)	Visual examination	JP:TP:012	Free from surface defects	Galvaniser inspection report/QAC:4101	Galvaniser / Quality	Rejected lots may be reoffered after segregation/rework/retest
6.4.2		Gauge Checking	100% by Vendor and 10 % by BHEL (Min. 50)	Gauge check	IS:2486	Conformance to gauges	-Do-	-Do-	Rejected lots may be reoffered after segregation/rework/retest
6.4.3		Uniformity of zinc coating (dip test)	3 Nos./1000 by vendor & BHEL	Chemical test	JP:TP:012 IS:2633	Min. 6 dips for all samples	Galvaniser inspection report QAC:4106	Do	Galvaniser shall submit inspection/test reports
6.4.4		Mass of zinc	3 Nos./1000 by vendor & BHEL	Measurement	IS:6745	Min. 610 gms/m <sup>2</sup>	-Do-	-Do-	
6.4.5		Zinc sieve (Where applicable) (i) Strength (ii) Dimension	5 Nos. per consignment 2 No. / 1000 (Min 5)	Measurement	JP:TP-13/GEN As per drg.	JP:TP-13/GEN Conformance to drg.	Do	Do	

SECURITY CLIPS

Sl. No.	Characteristic / Tests	Quantum of check	Type of check	Reference Document	Acceptance Norms	Record Format	Testing Agency	Remarks
6.5.1	Visual examination	100% by Vendor and As per IEC:372 Part II by BHEL	Visual examination	JP:PS:1100 / MEBNT or 1200/MEBNT	JP:PS:1100/MEBNT or 1200 / MEBNT	Vendor insp- action report QAC:4101	Vendor / Quality	(i) Vendor shall submit inspection/ test reports / mill certificate.
6.5.2	Dimension	10 Nos. / 10000 by Vendor & BHEL	measurement	As per drg.	Conformance to drg.	Do	Do	
6.5.3	Resistance to bending	10 Nos. / 10000 by Vendor & BHEL	Visual examination	IEC 372	IEC 372	Vendor / QAC:4102	Do	
6.5.4	Hardness	10 Nos. / 10000 by Vendor & BHEL	Visual examination metallurgical	JP:PS:1100 / MEBNT or 1200/MEBNT	JP:PS:1100/MEBNT or 1200 / MEBNT	Do	Do	
6.5.5	Chemical analysis (Tin & P for PB)	1 Nos. / consignment	chemical test	IS:2486/IEC372	IS:2486 / IEC 372	Do	Do	
6.5.6	Chemical analysis (for SS)	Each consignment	Record verification	JP:PS:1100 / MEBNT	JP:PS:1100/MEBNT	Vendor insp- action report QAC:4103	Do	
				JP:PS:1200 / MEBNT	JP:PS:1200/MEBNT	Vendor test report/ Mill TC	Do	

Prepared by :   
(Horam Singh)  
Section Incharge(Quality)

POWERGRID CORPORATION OF INDIA LIMITED  
MANUFACTURING QUALITY PLAN

	<b>Manufacturer Name and Address</b> M/S Bharat Heavy Electricals Limited Insulator Plant, Jagdishpur Distt: SULTANPUR (UP) PIN - 227817	<b>Customer</b> POWERGRID	<b>Vendor Code</b> 24 DD 49	<b>ITEM</b> DISC INSULATOR UP TO 210 KN (ALUMINA BODY & QUARTZ BODY)	<b>QP NO. INB151</b> REV. No. P3 Date: 30.01.2013	<b>Valid from</b> : 01.02.2013 <b>Valid Upto</b> : 31.01.2016
--	--	------------------------------	--------------------------------	--	---	--


Section : METAL COMPONENT INSPECTION ( after Galvanising )

Sl. No.	Component / Operation of test	Type of Check	Quantum of Check / Sampling Plan with basis	Reference Document for Testing	Acceptance Norms	Format of Records	Applicable codes						Remarks	
							1	2	3	4	5	6		
2.04	GALVANISING (CAPS & PINS) (From Power Grid Approved Sources)													
(a)	Visual inspection	Visual	100% by Comp. Mfgr. (galvaniser) & IS 2500 (Part 1) AQL 0.65% by EM	BHEL Plant Standard JP:TP:10	Free from flux, ash & gross inclusions, bare black spots, pimples, lumpiness & runs, rust stain, bulky white deposits & blisters	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	N		
(b)	Gauge checking	Physical	100% by Comp. Mfgr. (galvaniser) & IS 2500 (Part 1) AQL 0.65% by EM	BHEL Drawing	Conformance to gauges	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	N		
(c)	Uniformity of Zn Coating	Physical	3 samples / 1000 or part thereof each by Comp. Mfgr. (galvaniser) & BHEL	BHEL Plant Standard JP:TP:10 IS:2633	Withstand 6 successive dips of one minute duration each and reveal no adherent red deposit of copper upon the base metal	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	N		
(d)	Mass of Zn Coating	Physical	3 samples / 1000 or part thereof each by Comp. Mfgr. (galvaniser) & BHEL	IEC:60383 / IS:6745	Min. 610 gms/m <sup>2</sup>	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	N		
(e)	Adhesion Test	Physical	1 sample / 1000 or part thereof each by Comp. Mfgr. (galvaniser) & BHEL	IS:2629 (Cl. 6.4.2)	IS:2629 (Cl. 6.4.2)	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	N		
(f)	Purity of Zinc	Chemical	1 Sample / lot of ingot	Powergrid Specn. IS:209	99.95%	Comp. Mfgr's TC	B	K	P	W	-	N		

clw

30  
CSA  
M. K. S. R.  
Manoj K. S. R.  
Addl. GM (Q.E.C.T)

**POWERGRID CORPORATION OF INDIA LIMITED  
MANUFACTURING QUALITY PLAN**

	<b>Manufacturer Name and Address</b> M/S Bharat Heavy Electricals Limited Insulator Plant, Jagdishpur Distt: SULTANPUR (UP) PIN - 227817	<b>Customer</b> <b>POWERGRID</b>	<b>Vendor Code</b> 24 DD 49	<b>ITEM</b> DISC INSULATOR UP TO 210 KN (ALUMINA BODY & QUARTZ BODY)	QP NO. INB 1 5 1 REV. No. P3 Date : 30.01.2013	Valid from : 01.02.2013 Valid Uplo : 31.01.2016
---	--	-------------------------------------	--------------------------------	--	--	--

**Section : METAL COMPONENT INSPECTION**

Sl. No.	Component / Operation & Description of test	Type of Check	Quantum of Check / Sampling Plan with basis	Reference Document for Testing	Acceptance Norms	Format of Records	Applicable codes						Remarks	
							1	2	3	4	5	6		
2.05	<b>BALL PIN ZINC SLEEVING</b> (If applicable) Untused area of surfaces (Visual Exam of longitudinal section)	Visual	1 sample / 1000 of lot or part thereof each by Comp. Mfgr. (Galvaniser) & BHEL	Power Grid Specn.	Power Grid Specn.	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	E	-	N	
(a)							A	J	S	W	-	-	N	
(b)	Visual inspection for Blow holes on surface, deformation of sleeve, flash on Head and Ball side (longitudinal section)	Visual	1 sample / 1000 of lot or part thereof each by Comp. Mfgr. (Galvaniser) & BHEL	Power Grid Specn.	Satisfactory	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	-	N	
(c)	Dimensional check including thickness	Physical	1 sample / 1000 of lot or part thereof each by Comp. Mfgr. (Galvaniser) & BHEL	Drawing	No deviation	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	-	N	
(d)	Purity of Zinc of the sleeve	Chemical	1 sample per Consignment	Power Grid Specn.	99.8% minimum	Comp. Mfgr's TC	B	K	P	W	-	-	N	
(e)	Foreign Material	Physical	1 sample per lot each by Comp. Mfgr. (Galvaniser) & BHEL	Power Grid Specn.	Free from foreign matt.	Comp. Mfgr's TC	B	K	P	W	-	-	N	
(f)	Load / Mallet test	Physical	1 sample per lot each by Comp. Mfgr. (Galvaniser) & BHEL	Power Grid Specn.	Sleeve should not loosen.	Comp. Mfgr's TC / Equipment Mfgr's TC	B	K	P	W	-	-	N	
							A	J	S	W	-	-	N	

CLW

229 C33  
Manoj Rastogi  
Addl. GM (Q, E, C, T)

**POWERGRID CORPORATION OF INDIA LIMITED**  
**MANUFACTURING QUALITY PLAN**

Sl. No.	Component / Operation & Description of test	Manufacturer Name and Address	Customer	Vendor Code	ITEM	QP NO. IN B 1 5 1 REV. No. P3 Date : 30.01.2013	Valid from : 01.02.2013 Valid Upto : 31.01.2016	Remarks
2.06	<b>SECURITY CLIPS STAINLESS STEEL (SS)</b>	M/S Bharat Heavy Electricals Limited Insulator Plant, Jagdishpur Dist: SULTANPUR (UP) PIN - 227817	<b>POWERGRID</b>	24 DD 49	DISC INSULATOR UP TO 210 KN (ALUMINA BODY & QUARTZ BODY)			
(a)	Visual Inspection a) Surface cracks or inipient cracks b) rough surface (orange peel surface), blisters	IEC:60372 (Table 1, Cl. No. 12) by BHEL	BHEL Plant Standard JP:PS:1100/MEBNT JP:PS:1200/MEBNT	No. of defects - Max. K at AQL-1.5% No. of defects - Max. K at AQL-6.5% (Where K = acceptance number)	Equipment Mfr's TC	A J S W - N	E	
(b)	Verification of dimensions	IEC:60372 (10 nos. per 10000 or part thereof) by BHEL	BHEL Drawing	Conformance to BHEL drawing	Equipment Mfr's TC	A J S W - N		
(c)	Verification of Resistance to Bending	IEC:60372 (10 nos. per 10000 or part thereof) by BHEL	BHEL Plant Standard JP:PS:1100/MEBNT JP:PS:1200/MEBNT	No cracks on flat surface when bent at about 75° from vertical position	Equipment Mfr's TC	A J S W - N		
(d)	Hardness test	IEC:60372 (10 nos. per 10000 or part thereof) by BHEL	BHEL Plant Standard JP:PS:1100/MEBNT JP:PS:1200/MEBNT	Average of 3 measurements on flat surface of each sample > 150 HV	Equipment Mfr's TC	A J S W - N		
(e)	Chemical composition Carbon (C) Silicon (Si) Manganese (Mn) Phosphorous (P) Sulphur (S) Nickel (Ni) Chromium (Cr)	2 No. / lot of 10000	STAINLESS STEEL BHEL Plant Standard JP:PS:1200/MEBNT	0.06% max. 1.0% max. 2.0% max. 0.045% max. 0.03% max. 8.0 to 12.0 % 18 to 20 %	Equipment Mfr's TC	D L V W - N		

CLW

C-20 032  
 Manoj Rastogi  
 Addl. GM (Q.E.C7)