

## **STANDARD MANUFACTURING QUALITY PLAN**

<b>CODE</b> : SMQP/1	<b>REVISION NO</b> : 01
<b>PRODUCT</b> : TRANSMISSION TOWERS	<b>PAGE ISSUE NO</b> : 01
<b>ITEM</b> : TOWER ACCESSORIES	<b>PAGE NO</b> : 01 of 03
<b>SECTION</b> : FINAL INSPECTION & TESTING	<b>DATE OF ISSUE</b> : 06.08.2008

S. No.	Component/ operation & description of test	Sampling plan	Ref. Doc. & Acceptance norm	Testing Agency	Remarks
1.0	<b><u>RAW MATERIALS</u></b>				
1.1	<b><u>Structural Steel (MS &amp; HT)</u></b> (Angles, Plates, Pipes & Bars)				
1.1.1	Visual check for surface finish	Min. of 5% of total lot	Customer Specs. or equiv. International Standards	EPC	Ref.AITE/MAQP/01
1.1.2	Physical properties	One sample per 400 MT or as per Customer's Requirement.	Customer Specs. or equiv. International Standards	Supplier's works/ or Third party Testing lab	Verification of Mill Test Certificates of main producers
1.1.3	Chemical properties	One sample per 400 MT or as per Customer's requirement.	Customer Specs. or equiv. International Standards	Supplier's works/ or third party Testing lab	Verification of Mill Test Certificates of main producers
1.1.4	Dimensional checks & Sectional Tolerances	Min. of 5% of total lot	Customer Specs. or equiv. International Standards	EPC	Ref. AITE/MAQP/01
1.2	<b><u>Hardware</u></b>				
1.2.1	Visual Check	5% of total lot	Based on P.O. or ASTM A325 or equivalent Std.	EPC	Review of records at the time of final inspection
1.2.2	Dimensional & Thread pitch Check	1% of total lot	Based on P.O. or ASTM A325 or equivalent Std.	EPC	Verification of Certificates issued by the manufacturer
1.2.3	Fitment	1% of total lot	Customer's Spec.	EPC	
2.0	<b><u>INPROCESS INSPECTION</u></b>				
2.1	<b><u>Fabrication</u></b>				
2.1.1	Marking, Stamping and Cropping (Cutting)	1 <sup>st</sup> piece and every 50 <sup>th</sup> piece	Customer's Spec./ Dwgs. & Stds.  Stamping letter size 10 or 16mm	EPC	Ref. EPC AITE/MAQP/01 and As per Client's requirement

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2.1.2	Punching/ Drilling	1 <sup>st</sup> piece and random basis	Customer's requirements/ Standards.	EPC	Tolerance is allowed provided it does not functionally have any adverse affect  - do -
2.1.3	Notching	1 <sup>st</sup> piece and random basis	Customer's requirements/ Standards Tolerance +5mm on lengths of cut	EPC	
2.1.4	Heel Cutting	1 <sup>st</sup> piece and random basis	As per drawing/Std. Tolerance +5mm on lengths of cut	EPC	
2.1.5	Bending	1 <sup>st</sup> piece and random basis	As per drawing	EPC	
2.1.6	Welding a).Fillet size	1 <sup>st</sup> piece and random basis	Customer's Specs./ Approved drawings & Welding Procedure Specn/ Welding Stds.	EPC	
	b).Visual examination	100%	-do-	EPC	Review of records at the time of final inspection
	c).Dye Penetration Test	Random basis	-do-	EPC or Third party insp.	
				EPC	
2.1.7	Final Inspection of fabricated Parts	Random basis	Verify:- - parameters from 2.1.1 to 2.1.5 - Straightness of members - Holes & edges to be free from burrs - Complete planned qty. availability	EPC	
2.2	<b>Prototype/ Model Assembly</b>	One structure of each type	Approved Dwg. Bill of Materials Interchangeability of bolted members to be verified		BOM to be finalized on approval of prototype structure. Individual part nos. to be specified on the final drawing.

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3	<b>Galvanizing</b>		Galvanizing should be done only at reputed/ reliable Units.	Galvanizing is a Farmed out operation.	
3.1	Surface Preparation				
	a) Sand blasting (in case of large members) or	Random basis	Visual inspection: Loose particles not Permitted		
	b) Pickling (in case of small members)	(farmed out)	Acid pickling and Chromatisation		
3.2	Dipping (Galvanizing)	(farmed out)	ASTM: A 123 or other applicable International Stds.		All inspections related Galvanizing to be performed by the Vendor and certificate to be issued for compliance with requirements.
3.3	Receipt inspection after Galvanizing				
	a) Visual inspection	Random 2%	No brittle coatings. Uniform coatings.		
	b) Coating thickness	Random basis	Steel (>5mm) > 85μ Threaded parts > 43μ Or per ASTM: A123 or other applicable Internatl Standards		Verification of Vendor's certificate for conformance with International Stds.
	c) Adhesion Test	Random basis	As per ASTM: A123 or other equivalent		
4.0	<b>FINAL INSPECTION</b>				
	a) Identification Marks	Random basis	Approved drawings or as agreed with the customer.		* For exports: Small cleats, gussets, hardware to be packed & strapped separately
	b) Dimensional/ Visual	Random basis	Approved drawings/ Specs.		
	c) Packing/ Bundling	Random basis	As per Client's Requirements or AITE/ MAQP/ 01. Packing List		* Wt. of each bundle or pallet could be between 600-2000kg * Equal length items can be bundled together
	d) Quantity checks	100%			