ERECTION OF STEEL STRUCTURE - INSPECTION AND TEST PLAN

EN 1090-2:xxxx

JOB	Erection of Structural Steel Components	ITP 00	Date : xxxxxx	Rev No. 00

	CONTROL AND EXAMINATION ACTIVITIES	TO BE INSPECTED BY			QUALITY RECORD	REFERENCE DOCUMENTS	ACCEPTANCE CRITERIA
		M	QA	C			
1. 0	***DOCUMENTATION BEFORE ERECTION WORKS***						
1. 1	**Project, Technical Specification Review**	X	X	R	Technical Specification	EN 1090-2 Technical Specification xxx	Review of project technical specification and erection drawings and Evaluation of the related standards
1. 2	**Material Test Certificate Check and Material Test Reports**	X	X	R	Material Test Certificates	EN 1993-1,EN 10025,EN 10210 Technical Specification xxx	Fasteners must have DIN 6914 , DIN 6915 , DIN 6916 ,DIN 6918 standards and will be of minimum 8.8 quality. Pipe materials minimum ASTM A500 Gr. B shall conform to EN 10219 class S355 equivalent.
1. 3	**Submittal of Drawings (General Arrangement Marking Plans, Foundation Plans, Erection Drawings)**	X	X	R	General Arrangement Marking Plans, Foundation Plans, Erection Drawings	EN 1090-2 Clause 9.6 Erection and Work at Site, Clause 9.6.1 Erection Drawings	EN 1090-2 Clause 9 Erection
1. 4	**Submittal of Method Statement for Erection, Lifting Plans**	X	X	R	Method Statement for Erection, Lifting Plans	EN 1090-2 Clause 9.3.2 Constructor's Erection Method	EN 1090-2 Clause 9 Erection
2. 0	***ERECTION WORKS AT SITE***						
2. 1	**Handling and Storage of Structural Steel Materials on Site**	X	PR	R	Procedure for Restoration of Structural Steel Materials	EN 1090-2 Clause 9.6.3 Handling and Storage on Site	EN 1090-2 Clause 9 Erection
2. 2	**Installation of Anchorages**	X	PR	R	Topographic Survey Records of Anchorages	EN 1090-2 Clause 9.5 Supports, Anchors and Bearings Clause 9.5.6 Anchors EN 1090-2 Clause 11.3 Functional Tolerances, Annex B.3 Functional Erection Tolerances (Class 2 for Permitted Deviations)	EN 1090-2 Clause 9 Erection
2. 3	**Erection - Fit-up and Alignment**	X	X	SW	Topographic Survey Records of Structure	EN 1090-2 Clause 9.6.5.3 Fit-up and Alignment Project Technical Specification	EN 1090-2 Clause 9 Erection Securing shims after installation by welding
3. 0	***DIMENSIONAL ACCURACY OF STEEL STRUCTURE AFTER ERECTION***						
3. 1	**Topographic Surveys of Steel Structure after Erection (Geometrical Position of Connection Nodes)**	X	PR	R	Topographic Survey Records of Structure	EN 1090-2 Clause 9.4 Survey, Clause 12.7.3 Survey of Geometrical Position of Connection Nodes EN 1090-2 Clause 11.3 Functional Tolerances, Annex B.3 Functional Erection Tolerances (Class 2 for Permitted Deviations)	EN 1090-2 Clause 9 Erection
4. 0	***SITE BOLTING***						
4. 1	**Tightening of Preloaded Bolt Assemblies in acc. with Torque Method**	X	W	W	---	EN 1090-2 Clause 8.5 Tightening of Preloaded Bolts, Clause 8.5.3 Torque Method	Tightening of preloaded bolts will be carried out as per EN 1090-2 Clause 8.5.1 Tightening of Preloaded Bolts - General and Clause 8.5.3 Torque Method
4. 2	**Inspection of Preloaded Bolt Assemblies (Torque Method)**	X	PR	R	Tightening Control Reports of Preloaded Bolt Assemblies	EN 1090-2 Clause 12.5.2 Inspection and Testing of Preloaded Bolted Connections	The tightening procedure for preloaded assemblies will be provided. Inspection of preloaded bolt assemblies during and after tightening will be carried out as per EN 1090-2 Clause 12.5.2.4 Torque of all preloaded bolts will be checked. At the start of tightening, Identification of assembly bolt lot locations and checking the bolt tightening procedure for each bolt group are required (EN 1090-2 Table 25) The torque wrench used for the inspections shall be correctly calibrated and have an accuracy of ± 4 %.
5. 0	***BEFORE WELDING***						
5. 1	**Preparation of Welding Plans**	X	PR	R	Welding Plans	EN 1090-2 Erection Drawings, Weld Detail Drawings	EN 1090-2 - 7.2.2 Content of a Welding Plan
5. 2	**Review of Welding Procedure Specification (WPS)**	X	X	R	WPS	EN 1090-2 Erection Drawings, Weld Detail Drawings	EN 1090-2 - 7.4.1 Table 12 - 13, EN ISO 15609 Qualified WPS documents are required for the execution of tack welds.
5. 3	**Review of Welder Qualification Certificates (WQC)**	X	X	R	WQC	WPS	EN 1090-2 - 7.4.2, EN ISO 9606-1, EN ISO 14732
5. 4	**Review of NDT Operator Qualification Certificates**	X	X	R	NDT Operator Qualification Certificates	EN 1090-2, EN ISO 9712	EN ISO 9712 Level II (VT, MT, PT, UT)
6. 0	***DURING WELDING***						
6. 1	*Joint Preparation*	X	X	SW	---	WPS	EN 1090-2 - 7.5.1 Joint Preparation, EN ISO 9692-1, EN ISO 9692-2 Weld joint preparations will conform to the sketches given in WPSs
6. 2	**Usage of Welding Consumables**	X	X	SW	---	WPS	EN 1090-2 - 7.5.2 Storage and Handling of Welding Consumables
6. 3	**Pre-Heating (if required)**	X	X	SW	---	WPS	EN 1090-2 - 7.5.5 Preheating EN ISO 13916, EN 1011-2
6. 4	**Butt & Fillet Welds - Application of WPS**	X	X	SW	---	EN 15609, WPS	EN 1090-2 - Clause 7.5.8, 7.5.9 and 7.5.16 Execution of Welding
7. 0	***AFTER WELDING***						
7. 1	**Visual Examination of Welds**	X	PR	R	NDT Report	EN 1090-2, EN ISO 17637	EN ISO 5817 - Quality Level B **Frequency : 100 % of weld joints**
7. 2	**Ultrasonic Test, Butt Joints and T Joints for $t_p \geq 8mm$**	X	PR	R	NDT Report	EN 1090-2, EN ISO 17640 Testing Level B (UT)	EN ISO 11666 Acceptance Level 2 **Frequency : 25 % of butt welds ,partial penetration and T-Joint connections**
7. 3	**Magnetic Particle / Penetrant Test, Fillet Welds**	X	PR	R	NDT Report	EN 1090-2, EN ISO 17638 (MT), EN ISO 3452-1 (PT)	EN ISO 23278 Level 2X **Frequency : 25% of fillet welds**

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7. 4	**NDT After Weld Repairs**	X	PR	R	NDT Report	EN 1090-2, EN ISO 17637 (VT), EN ISO 17638 (MT), EN ISO 3452-1 (PT), EN ISO 17640 Level B (UT)	EN ISO 5817 - Quality Level B EN ISO 23278 Level 2X (MT), EN ISO 23277 Level 2X (PT), EN ISO 11666 Level 2 (UT) Frequency : 100 % of repaired weld joints
7. 5	**Dimension Control**	X	PR	R	Dimension Control Report	EN 1090-2 Annex B.2 Functional Manufacturing Tolerances Technical Specifications 4.1.2 Tolerance	**Technical Specifications 4.1.2 Tolerance +2 mm ,-1 mm**
8. 0	***CHECK BEFORE AND AFTER FIT-UP***						
8. 1	*Check for the Node pieces*	X	X	SW	---	Technical Drawings	**Check for the chamfered bolt holes of node pieces and bolt shafts of casting node pieces**
8. 2	*Check for the Member pieces*	X	X	SW	---	Technical Drawings	**Check for the unpainted contact surfaces of member pieces**
9. 0	***TOUCH UP PAINT APPLICATION***						
9. 1	**Review of Anticorrosion protection system (For Paint Touch-up - Repair - Applications)**	X	X	R	Method Statement (MS) for Corrosion Protection	EN 1090-2 Annex F, EN 12944	Technical description of the paint system and other technical datasheets of paint chemicals, prepared by Paint Manufacturer, will be submitted to the Client for approval. Corrosivity Category: EN 12944-5 C3
9. 2	**Steel Structure - Paint Application (For Paint Touch-up - Repair - Applications)**	X	PR	R	Paint Control Report	EN 1090-2 Annex F EN ISO 12944-5 (Protective paint systems), EN ISO 12944-7 (Execution and supervision of paint work)	if necessary, sandblasting before paint touch-up SSPC-SP 6/NACE-3, ISO 8501 1-1: 1988 (E) (SIS 05 59 00) Sa-2 standards can be applied (Commercial Blast Cleaning). Paint touch-up process must have project requirement conditions as specified technical specification.
10. 0	***PREPARATION OF QUALITY DOCUMENTATION***						
10. 1	**Review of Quality Documentation for Erection Works at Site**	X	X	R	Erection Quality Records	EN 1090-2, Project ITP, Technical Specifications	EN 1090-2, Project ITP, Technical Specifications

M : Contractor 's **Manufacturing Department**	**X** : **Under its responsibility**	**H : Hold Point**
QA : Contractor 's Quality Department	**PR : Report to be prepared.**	**W : Witness Point**
C : Customer	**R : Document Review**	**SW : Spot Witness**

	Prepared by	*MANUFACTURER*	CUSTOMER - APPROVAL
Name	[CTI CERT Technical Team]		
Date			
Signature			