

Plant MRPL Mangalore	Client MRPL	Contract Code WSS for PFCC Flue Gas	Document ID 6723-JEX-G00-EC-0001-A201	Contract No. 66-6723
	Indicative Inspection and Test Plan(IITP) for Seamless, ERW & EFW Pipes Ordered on Manufacturers			
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Sr. No.	Inspection / Test Stage	Checks	Type of Inspection	Frequency of Check	Reference Document	Acceptance Norm	Format of Record	Inspection By		
								Vendor	LSTK Contractor	TPIA

		Endorse		Prepare		A		A			
A	QAP										
B	Receiving Inspection										
1	Inspection of Coils / Billets / Plates	Steel making process, Mechanical & Chemical Properties	Review of Mechanical & Chemical Properties	One sample per Heat / Coil	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	MTC	P	R	R	-
C	In-Process Inspection / Testing										
1	Welding (For EFW Pipes)	Welding Procedure / Technique / Quality	Review of WPS / PQR / Welder Qualification	100%	ASME Section IX, specification	As per ASME IX, specifications	WPS / PQR/WPQ	P	R	R	-
1A	Ferrite test	Ferrite no test for all austenitic stainless steels	Ferritescope check	100%	Applicable Material & Order Specifications	A Ferrite No. (FN) not less than 3% and not more than 10%	Ferrite no report	P	H	H	-
2	Heat Treatment	As per Code / Order Specification	Heat Treatment Cycle	100%	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Heat Treatment Chart, report	P	R	R	-
3	NDT	Soundness of Pipe	Flux leakage, UT / Eddy Current Test, As applicable.	Applicable Material & Order Specifications	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	NDE Report	P	R	R	-

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4	NDT for EFW	Soundness of Weld	Radiography of Weld, if applicable	Applicable Material & Order Specifications	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Radiography Test Report	P	R- Review of RT Films	R- Review of RT Films	-
5	Hydrostatic Test	Leak Tightness	Visual & Records Review	100%	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Inspection report	P	H- 10%	H- 10%	-
D	Product testing										
1	Test piece identification by LSTK Contractor & TPIA per heat / heat treatment / size	1. Chemical Analysis (2) Max Carbon Equivalent -0.42 for Carbon steel	Review of Chemical properties	Per Heat	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Lab test certificate	P	R	R	-
		2. YS, UTS, EL, R.A, Flatness, Bend Test, IGC B/E Test as applicable	ASTM A370 & A 262	Applicable Material & Order Specifications							
		3. Hardness as applicable	ASTM A370		P	H	H	-			
		4. Impact Test (if Applicable)	ASTM A370								

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E	Final inspection	1. Surface Condition, pickling & passivation for SS pipes	Visual	100%	Applicable Material & Order Specifications	Conformance to Codes & Order Specification	Inspection report	P	100%-H	100%-H	-
		2. Dimension & End Finish BW / PE / Thread	Measurement & check	100% by Vendor				H	10%-H	10%-H	-
		3. Marking, as per Material & order Specification, and Tag No.	Visual	100%				H	100%-H	100%-H	-
		4. Galvanising for galvanized items and hardness check	As per applicable Specification	100% for Coating Thickness & Other tests				P	10%H Coating thick	10%H Coating thick	-
F	PMI as specified in Technical requirements	Alloying Elements for materials and welds	As per Specification	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	PMI Report	P	10% -H	10% -H	-
G	Final Stamping by LSTK Contractor & TPIA	Surface & end protection, packing & Colour Coding	Visual	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	MTC	P	100% H	100% H	-

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H	Inspection documentation & Issue of Inspection Release Note	Material Test Certificate	Review of Documents	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	IRN, MTC With back up reports	P	H	H	R
I	Final documentation & Issue of Despatch Clearance	Manufacturer Test certificates & Issue of Despatch Clearance	Review of Documents	100%	As per Order & Order Specification	Conformance to Order & Order Specification	--	P	H	-	H

Notes -

- LSTK contractor to prepare a final QAP based on this IITP, Applicable specifications, standards and codes and submit to PMC for final approval.
- In addition to the requirements of IITP, all requirements of Purchase order, material specification, Order specification and Order Technical requirements (MRPL Document ID: EDB-0006) for raw material and final product shall be fulfilled. In addition, Material in Hydrogen Service shall comply with the requirements of Annexure F of document EDB-0006. Material in Sour service shall comply with the requirements of NACE MR0103 & MR0175 & EDB-0006.
- Where ever % of inspection is mentioned it is per Tag, Per Size, per visit. For PMI - Per Tag, per heat, per size, per visit.
- Any other tests if specified in order, order specifications, order attachments, like IGC etc., shall be tested and test witnessed by LSTK Contractor & TPIA.
- Statutory requirement and inspection by Statutory Authority, if applicable, the same shall be met.
- LSTK Contractor, TPIA may increase percentage of inspection up to 100% if any rejection or non-conformity is observed during sampling inspection, or based on past experience with vendor.
- Hydro test Water quality shall be as potable for CS and LAS. For SS material Chloride shall be 20 ppm max
- Statutory requirement and inspection by Statutory Authority, if applicable, the same shall be met. IBR requirements for EDB-0006 shall be met. Original IBR Forms shall be submitted.

Legends: W - Witness, R - Review, H - Hold, P-Perform, A- Approval

Devesh Sharma	Abhi Thomas / T. V. Sundar	N. S. Syam
Prepared by: LE	Checked by: SSP / DQAR	Approved by: HDP

Digitaly signed by Syam S
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