









Plant MRPL Mangalore		Client MRPL	Contract Code WSS for PFCC Flue Gas		Document ID 6723-IEX-G00-EC-0001-A207		Contract No. 66-6723				
<div></div>		Indicative Inspection and Test Plan(IITP) for Ball valves Soft (Resilient) Seated						<div></div>			
The tests indicated are general minimum requirements of tkIS India. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes, tkIS India Specifications, Licensor's Specifications and Standards. In case of discrepancies between the Indicative Inspection Test Plan and the workshop documents Approved / Reviewed by LSTK Contractor, the latter shall apply. The Manufacturer shall be responsible for the required Tests to be performed and for the Inspector to be invited in due time to witness the Tests. The Manufacturer shall try to perform as many individual Tests as possible on same day, provided that the fabrication process permits such a procedure											
Sr. No.	Component / Operation	Stage Description	Characteristics	Reference Std.	Acceptance Std.	Format of Record	Inspection by				
							Vendor	LSTK Contractor	TPIA	PMC /	
							Endorse	Prepare	A	A	
1	Raw material	Forgings, Castings for Body, Ball, Stem & End piece	Visual	MSS-SP-55, ASME B16.34, Material Specification	MSS-SP-55, ASME B16.34, Material Specification	Inspection report	H	--	--	--	
			Dimensions	Drawing	Drawing	Inspection report	H	--	--	--	
			Steel making process, heat treatment, Chemical, mechanical properties, NDE (RT, DP, MT, bend test, Hardness as applicable etc. IGC – B/E for SS material	Order Specification, Relevant ASTM Std. &Approved drawing	Order Specification, Relevant ASTM Std. &Approved drawing.	Foundry test certificate. RT – Film review	R	R	R	--	
2	In process	Seat, body gasket and Fasteners.	Steel making process, heat treatment, Chemical, mechanical properties, bend test, NDE DP, MT, Hardness as applicable etc. IGC – B/E for SS material	Order Specification, Relevant ASTM Std.	Order Specification, Relevant ASTM Std.	Manufacturer's test certificate	R	R	R	--	
			Visual & dimensions	Drawing & MSS-SP-55	Drawing & MSS-SP-55	Inspection report	H	--	--	--	

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							Vendor	LSTK Contractor	TPIA	PMC/ Owner
3	Final inspection	Visual	Workmanship/Finish	MSS-SP-55, ASME B16.34, Material Specification	MSS-SP-55, ASME B16.34, Material Specification	Inspection report	H	100% H	100% H	--
		Dimensions	Workmanship / Finish	Approved drawing.	Approved drawing.	Inspection report	H	H*	H*	--
		Pressure test (shell, high pressure closure & low pressure closure tests) & Functional Test	Leak tightness, Water Cl2 content <20 ppm for SS and Portable water for others.	Applicable testing std./approved drawing.	Applicable testing std./approved drawing.	Inspection report	H (100%)	H*	H*	--
		D.P. test on butt weld & socket weld ends / welds	Visual	ASTM E 165	ASME Sec. VIII Div. 1 Appendix 8	Inspection report	H	H*	H*	--
		Radiography (if applicable)	Defects	ASME B 16.34	ASME B 16.34, Appendix I, ASTM E 446	Radiography report	R	R (Review of films)	R (Film review))	--
		Radiography of Butt weld for end connections ( if applicable)	weld Defects	ASME Sec V, ASME VIII Div1	ASME Sec VIII Div. 1, UW51.	Radiography report	R	R (Review of films)	R (Review of films)	--
		PMI test, as applicable	Conformance to requirements for materials and welds	Drawing, order specification	Drawing, order specification	Test report	H (100%)	H-10% ( Per tag, per size, per visit)	H-10% ( Per tag /size / visit)	--

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Sr. No.	Component / Operation	Stage Description	Characteristics	Reference Std.	Acceptance Std.	Format of Record	Inspection		
						Vendor	LSTK Contractor	TPIA	PMC/ Owner
4	Inspection before despatch	Helium test as applicable	Conformance to requirements	Drawing, order specification	Drawing, order specification	Test report	H	H (100%)	H (100%)
		Marking details	Visual	Approved drawing.	Approved drawing.	Inspection report	H	100% H	100% H
		Strip test (1% of offered qty.)	Visual	Drawing, order specification	Drawing, order specification	Inspection report	H	H	H
		Surface preparation & painting, marking and colour coding	Paint DFT, shade, colour code etc.	Applicable std., Order specification	Applicable std., Order specification	Inspection report	H	H	H
		Pickling passivation for SS valves.	Visual	Applicable std., specification	Applicable std., order specification	Inspection report	H	H	H
5	Inspection documentation & Issue of Inspection of Release Note	100% Stamping by LSTK Contractor &TPIA and Issue of Inspection Release Note	Review of Documents (including Fire Safe test certificates, etc., if applicable)	Drawings, order specification, API 607/API6FA std.	Drawings, order specification, API 607/API6FA std.	Inspection report & test certificates	H	H	H
		Packing	Visual	Order specification, manufacturer std.	Order specification, manufacturer std.	Internal records, packing slip	H	W	R
5	Inspection documentation & Issue of Inspection of Release Note	Valve Test reports, 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
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							Vendor	LSTK Contractor	TPIA
6	Final documentation & Despatch Clearance	Compilation of final documents	Verification for completeness	Purchase Order	Purchase Order, Order specification	Dossier	R	H	--
Notes									
<div><div>1. LSTK contractor to prepare final QAP based on this IITP, Applicable specifications, standards and codes and submit to PMC for final approval</div><div>2. Testing/acceptance standard shall be as per Order Specification , approved drawing , applicable testing standards, viz. EN 12266 part 1 or 2, API 598, etc.</div><div>3. For C.S. valves with butt weld or socket weld ends, Carbon equivalent shall not be greater than that specified in Order specification.</div><div>4. Vendor shall weld end nipples at both the ends before assembly. WPS/PQR shall be submitted for LSTK Contractor, TPIA review for all welds including Bypass welds. Bypass valve shall be tested as per the requirements of main valve.</div><div>5. *Quantity of check shall be 100% by Vendor &amp; 10%(per Tag, per size, per visit) by LSTK Contractor.</div><div>6. Helium test for valves shall be in line with EDB-0006. The selected valves shall be 100% tested.</div><div>7. Seat tests are to be carried out from both directions (Exception-unidirectional valves).</div><div>8. Fire safe valves shall be as per Process requirement.</div><div>9. LSTK Contractor may increase percentage of inspection up to 100% if any rejection or non- conformity is observed during sampling inspection or past experience with Vendor.</div><div>10. In addition to the requirements of IITP, all requirements of Purchase order, material specification, Order specification and Order Technical requirements (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 &amp; MR0175 &amp; EDB-0006.</div><div>11. 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.</div><div>12. Hydro test Water quality shall be as potable for CS and LAS. For SS material Chloride shall be 20 ppm max</div></div>									
Legends: W - Witness, R - Review, H – Hold, A-Approval									
Devesh Sharma		Abhi Thomas / T.V. Sundar							
Prepared by: LE		Checked by: SSP / DQAR							
				Syam N.S.		Syam S		Neliparambil	
				Approved by: HDP					