

Plant MRPL Mangalore	Client MRPL	Contract Code WSS for PFCC Flue Gas	Document ID 6723-IEX-G00-EC-0001-A209	Contract No. 66-6723	
					
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Indicative Inspection and Test Plan(IITP) for Rubber or PTFE/PFA Lined Butterfly & Diaphragm Valves

The tests indicated are general minimum requirements of LSTK Contractor. All Tests, as applicable, have to be performed as specified in the Order, Order Attachments, Codes,LSTK Contractor Specifications, Licensor's Specifications and Standards. In case of discrepancies between the 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			
							Vendor	LSTK Contractor	TPIA	PMC/ Owner
QAP approval							Endorse	Prepare	A	A
1	Raw material	Forgings, Castings for Body, Bonnet, Disc and Fasteners	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, bend test, NDE (RT, DP, MT, Hardness as applicable) etc. IGC B (for castings) /E with micro test, 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	Machined Components	Chemical, mechanical properties, etc.	Order Specification, Relevant ASTM Std. & Approved drawing.	Order Specification, Relevant ASTM Std. & Approved drawing	Manufacturer's test certificate	R	R	R	--
			Visual & dimension	Drawing	Drawing	Inspection report	H	--	--	--
			Visual, dimension & performance	Drawing & MSS-SP-55, ASME B16.34	Drawing & MSS-SP-55, ASME B16.34	Inspection report	H	--	---	--

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3	Final inspection	Strip test (1% of offered qty.)	Visual	Drawing, order specification	Drawing, order specification	Inspection report	H	H	H	--
		Rubber/ PTFE/ PFA lining properties	Adhesion, mechanical testing of Rubber	Applicable Specification/ Order specification	Applicable Specification/ Order specification	Inspection report	H	R	R	--
		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	Measurement	Approved drwg. & specification	Approved drwg. & specification	Inspection report	H	H*	H*	--
		Pressure test (shell, high pressure closure & low pressure closure tests) & Functional Test	Leak tightness	Applicable testing std./approved drawing.	Applicable testing std./approved drawing..	Inspection report	H (100%)	H*	H*	--
		Helium and cryogenic test as applicable	Conformance to requirements	Drawing, order specification	Drawing, order specification	Test report	H	H-100%	H-100%	--

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4	Inspection before despatch	(1) Spark test (2) (Hardness test for Rubber lined valves)	Visual	Applicable Specification/ Order specification,	Applicable Specification/ Order specification,	Inspection report	H	H*	H*	--
		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, per size, per visit)	--
		Marking details	Visual	Approved drawing	Approved drawing	Inspection report	H	100% H	100% H	--
		Surface preparation & painting, marking, pickling and passivation	Paint DFT, shade, marking etc.	Applicable std., Order specification	Applicable std., Order specification	Inspection report	H	H	H	--
		100% Stamping by LSTK Contractor & TPIA and Issue of Inspection Release Note	Review of Documents (including Fire Safe test certificates, etc., as 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's std.	Order specification, manufacturer's std.	Internal records, packing slip	H	W	R	--

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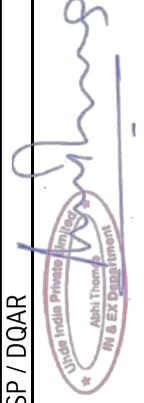
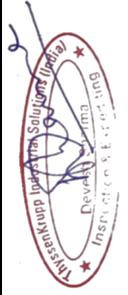
5	Inspection documentation & Issue of IRN	Valve Test reports, Material Test Certificates	Review of Documents	100%	As per Applicable Material & Order Specifications	Conformance to Codes & Order Specification	IRN, MTC With back up reports	P	H	H
6	Final documentation & Despatch Clearance	Compilation of final documents	Verification for completeness	Purchase Order, specification	Purchase Order, specification	Dossier	R	h	--	R

Notes -

- LSTK contractor to prepare final QAP based on this IITP, Applicable specifications, standards and codes and submit to PMC for final approval Testing/acceptance standard shall be as per Order Specification , approved drawing, applicable testing standards, viz. EN 12266 part 1 or 2, API 598, etc. 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. Fire safe valves shall be as per Process requirement.
 - *Quantity of check shall be 100% by Vendor & 10%(per Tag, per size, per visit) by LSTK Contractor & TPIA.
 - Helium test for valves shall be in line with EDB-0006.
 - Seat tests are to be carried out from both directions (Exception-unidirectional valves)
 - Statutory requirement and inspection by Statutory Authority, if applicable, the same shall be met. IBR requirements as per EDB 0006 shall be met.
 - LSTK Contractor 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.
- 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 & MR0175 & EDB-0006.
- 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.
- Hydro test Water quality shall be as potable for CS and LAS. For SS material Chloride shall be 20 ppm max

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

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



Digitaly signed by Syam S
Signature of Nettiparambath
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