

Plant MRPL Mangalore	Client MRPL	Contract Code WSS for PFCC Flue Gas	Document ID 6723-IEX-G00-EC-0001-A210	Contract No. 66-6723	
		Indicative Inspection and Test Plan for Butterfly Valves -Soft Seated (Loose Sleeve)			

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		
							Vendor	LSTK Contractor	TPIA

	QAP Approval						Endorse	Prepare	A	A
1	Raw material	Castings for Body, Disc	Visual	MSS-SP-55, ASME B16.34, Material Specification	MSS-SP-55, ASME B16.34, Material Specification	Inspection report	H	--	--	--
			Dimensions Steel making process, heat treatment, Chemical, mechanical properties, Bend test, DE (RT, DP, MT, Hardness as applicable) etc. IGC B (for casting) / E with micro test for SS material	Drawing	Drawing	H	--	--	--	
2	In process	Fasteners	Heat treatment, Chemical, mechanical properties, etc.	Order Specification, Relevant ASTM Std. & Approved drawing	Order Specification, Relevant ASTM Std. & Approved drawing	Inspection report	R	R	R	--
			Visual & dimension	Drawing	Drawing	H	--	--	--	
		Hydro test for Body without sleeve	Applicable testing std.	Applicable testing std.	H	R	R	R	--	

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							Vendor	LSTK Contractor	TPIA	PMC/ Owner
3	Final inspection	Visual, dimension & performance	Visual, measurement & smooth operation	Drawing & MSS-SP-55	Drawing & MSS-SP-55	Inspection report	H	--	--	--
		Visual	Workmanship / Finish	MSS-SP-55, Material Specification	MSS-SP-55, Material Specification	Inspection report	H	100% H	100% H	--
		Dimensions	Measurement	Approved drawing. & MSS-SP-55	Approved drawing. & MSS-SP-55	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	H*	H*	--
		Helium and cryogenic test as applicable	Conformance to requirements	Drawing, order specification	Drawing, order specification	Test report	H	H-100%	H-100%	--
		Radiography test (if applicable)	Defects	ASME B 16.34, ASTM E 446	ASME B 16.34 , App I, ASTM E 446	Radiography report	R	R (Review of RT films)	R (Review of RT films)	--
		PMI check, 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)	--

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4	Inspection before despatch	Strip test (1% of offered qty.)	Visual	Drawing, order specification	Drawing, order specification	Inspection report	H	H	H	--
		Marking details	Visual	Approved drg.	Approved drwg.	Inspection report	H	H	H	--
		Surface preparation & painting, pickling and passivation	Paint DFT, shade, pickling and passivation, marking etc.	Applicable std., specification	Applicable std., specification	Inspection report	H	W	W	--
5	Inspection documentation & Issue of IRN	100% Stamping by LSTK Contractor & TPIA and Issue of Inspection Release Note	Review of Documents	Drawings, order specification, .	Drawings, order specification	Inspection report	H	H	H	--
		Packing	Visual	Order Specification, manufacturer's std.	specification, manufacturer's std.	Internal records, packing slip	H	W	R	--
6	Final documentation & Despatch Clearance	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	R
6		Compilation of final documents	Verification for completeness	Purchase Order	Purchase Order, tkIS India specification	Dossier	R	R	--	H

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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.
- *Quantity of check shall be 100% by Vendor & 10%(per Tag, per size, per visit) by LSTK Contractor and 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).
- 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.
- Statutory requirement and inspection by Statutory Authority, if applicable, the same shall be fulfilled. 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 past experience with Manufacturer /Vendor.
- Fire safe valves shall be as per Process requirement.
- 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 Tomas / T.V. Sundar	Syam N. S.
Prepared by: LE	Checked by: SSP / DQAR	Approved by: HOD

