

QUALITY PLAN		CUSTOMER: APGENCO				PROJECT : 1X600 MW RAYALSEEMA TPP PH-IV				SPEC. NO : PE-SS-999-100-M016		
		VENDOR:				QP NO. . PE-QP-999-100-M024		REV. 00 DT. 08-09-11		SPEC. TITLE STANDARD SPEC. FOE TWO		
		SHEET 1 OF 7				SYSTEM STEAM SERVICE		ITEM: CAST CARBON STEEL BUTTERFLY VALVE SIZE 1800 MM NB/ CLASS 75B MOTORISED			SECTION - VOLUME	
S.N O.	COMPONENT/ OPERATION	CHARACTERISTICS CHECKED	CAT E- GO RY	TYPE/METH OD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANC E NORMS	FORMAT OF RECORD	AGENCY P W V			REMARKS

1. 1.1	MATERIALS BODY, DISC, SHAFT	1 CHEM. COMPOSITION & MECH. PROPERTIES	MA	1) CHEM. TESTS	ONE PER HEAT	APPD DRG/ TECH SPEC	APPD DRG/ TECH SPEC	TEST CERT.	3/2	2	1	
				2) MECH TESTS	ONE PER HEAT & HEAT TREATM- ENT BATCH 100%	APPD DRG/ TECH SPEC	APPD DRG/ TECH SPEC	TEST CERT.	3/2	2	1	SHAFT MECHANICAL TEST WITNESS BY BIDDER
		2.INTERNAL DEFECTS OF CASTINGS	MA	1. MPI		ASTM E 709	ASME B16.34	NDT REPORT	3/2	2	1	MPI ON 100% AREA (ACCESSIBLE)
		3. SUB-SURFACE DEFECTS OF SHAFT DIA> 50 MM	CR	UT	100%	ASTM A388	REFER REMARKS**	INSP REPORT	3/2	2	1	**NORMAL BEAM PROBE OF 20 MM/10 AND 2/2.5 MHz SHALL BE USED. USING PROBE THE BACK WALL ECHO SHALL AT 100% FULL SCREEN.HEIGHT(FSH) SOUND AREA.AT THIS SENSITIVITY LE ITEM SHALL BE SCANNED AND ANY D ECHO MORE THAN 20% FSH IS NOT ACCEPTABLE.ALSO ANYWHERE MOR 20% LOSS OF BACK WALL ECHO IS NOT ACCEPTABLE
		4. CASTING DEFECTS	MA	VISUAL	100%	MSS SP55	MSS SP55	--DO--	3/2	2	1	
1.2	CLAMP RING	CHEM., MECH PROPS	MA	1) CHEM. TESTS	ONE PER HEAT	APPD DRG/ TECH SPEC	APPD DRG/ TECH SPEC	TEST CERT.	3/2	2	1	

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		SHEET 3 OF 7		SYSTEM STEAM SERVICE		ITEM: CAST CARBON STEEL BUTTERFLY VALVE SIZE 1800 MM NB/ CLASS 75B MOTORISED			SECTION - VOLUME	
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1.5	OPERATORS												GEAR BOX MANUFACTURER
1.5.1	GEAR OPERATOR												TRANSPOWER, PUNE
	A)GEAR, WORM & SHAFT (BS970Gr.En8)	1. CHEM. COMP. & PHYS PROPERTIES	MA	CHEM & PHYS TEST	1/ BATCH	RELV STD/ DATA SHT/ MFG DRG	RELV STD/ DATA SHT/ MFG DRG	TEST CERT	3/2	2	1		
		2. DIMENSIONS	MA	MEASURE-MENT	100%	RELV STD/ DATA SHT/ MFG DRG	RELV STD/ DATA SHT/ MFG DRG	INSP REPORT	3/2	2	1		
		3. HARDNESS	MA	MEASURE-MENT	100%	RELV STD/ DATA SHT/ MFG DRG	RELV STD/ DATA SHT/ MFG DRG	TEST CERT	3/2	2	1		
	B) TORQUE TEST	1. TORQUE TRANSMITTING	MA	TORQUE TEST AT TWICE THE RATED TORQUE	ONE/ TYPE/ MODEL/ RATING	AWWA C-504/ DATA SHT/ MFG DRG.	AWWA C-504/DATA SHT/ MFG DRG.	INSP REPORT*	3/2	1*	--	* VERIFICATION OF TEST R ON GEAR BOX EARLIER CAR OUT FOR NTPC PROJECT / REPUTED CUSTOMER (SAMI MODEL & RATING)	
		2. DESIGN VERIFICATION	MA	CYCLE TEST AT FULL RATED TORQUE OF GEAR BOX	ONE/ TYPE// MODEL/ RATING	AWWA-C504 (AT FULL RATED TORQUE OF GEAR BOX) / APPD PROCEDURE	CL. 4.5.8.5.9 OF AWWA-C504-2000 / APPD PROCEDURE	INSP REPORT*	3/2	1*	--	* VERIFICATION OF TEST RECORDS ON GEAR BOX EA CARRIED OUT FOR 500 MW PROJECTS/ REPUTED CUST (SAME MODEL, SIZE & RATIN	
1.6	ELECTRICAL ACTUATOR												
		1. TORQUE TESTING & SETTING OF TORQUE SWITCH	MA	}MECH., }ELEC. }TESTS	100%	TECH. SPEC./ APPD. DRG./ DATA SHEET/ IS:9334	TECH. SPEC./ APPD. DRG./ DATA SHEET/ IS:9334	INSP REPORT	3	2	1		

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		SHEET 4 OF 7		SYSTEM STEAM SERVICE		ITEM: CAST CARBON STEEL BUTTERFLY VALVE SIZE 1800 MM NB/ CLASS 75B MOTORISED			SECTION - VOLUME		
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		2. TRAVEL/STROKE	MA	}								
		3. TRAVEL TIME	MA	}								
				}								
				}								
				}								
				}								
				}								
		4. OPERATION OF LIMIT SWITCH	MA	}								
				}								
				}								
				}								
				}								
				}								
		5. MANUAL OPERATION THROUGH HAND WHEEL	MA	}								
				}								
				}								
				}								
				}								
				}								
		6. OPERATION TEST WITH POWER SUPPLY VARIATION ENERGISES TO OPEN/CLOSE	MA	}								
				}								
				}								
				}								
				}								
				}								
		7. IR,HV,IR	MA	}								
				}								
				}								
				}								
				}								
				}								
		8. .DEGREE OF PROTECTION	MA	}								
				}								
				}								
				}								
				}								
				}								
		DESIGN VERIFICATION	MA	TYPE TEST (CYCLE TEST)	1/TYPE	TECH. SPEC./ APPD. DRG./ DATA SHEET/ IS:9334	TECH. SPEC./ APPD. DRG./ DATA SHEET/ IS:9334	3 RD PARTY TEST CERT.	3	-	1	
2.0	INPROCESS CONTROL:- BODY & DISC	1 DIMENSIONS	MA	MEASURE- MENT P.T.	100%	MFG DRG	MFG DRG	INSPN. REPORT INSPN. REPORT	2	--	1	
2.1		2. SURFACE DEFECTS	CR									
2.2	WELDING OVERLAY	WELDING PROCEDURE AND WELDER PERFORMANCE	CR	VISUAL MECH. TESTS	100%	ASME IX	ASME IX	INSPN. REPORT	3/2	--	--	

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	DEPOSIT	QUALIFICATION										
		CLADDING	MA	DEPTH MEASUREM ENT	100%	MFG. DWG	MFG. DWG	TEST REPORT	2	2	1	
			MA	SURFACE DEFECT LPI ON WELD OVERLAY AND ADJACENT AREA	100%	ASTM 165	FREE FROM POROSITY/CRA CK	NDT REPORT	2	2	1	
2.2.1	SEAT RING	1. SUB-SURFACE DEFECTS	MA	RT/UT	100%	ASME B16.34	ASME B16.34	INSPN REPORT	3/2	2	1	
		2. SURFACE DEFECT	MA	LPI	100%	ASTM A165	FREE FROM CRACKS	INSPN REPORT	2	2	1	
2.3	BODY (BUTT WELD ENDS)	SUB-SURFACE DEFECT	CR	MPI	100% ON BW AREA	ASTM A709	ANSI B 16.34 APPENDIX III	INSP REPORT	2	2	1	
		INTERNAL DEFECTS	CR	RT	100% ON BW AREA	ASME SEC V	ASME SEC VIII,DIV-I UW51	RT REPORT				RT(100%) OF BODY INCLUDI ENDS AS PER SL. NO. 1.1 CL NO.2
2.4	SHAFT	1. DIMENSION	MA	MEASURE- MENT	100%	MFG DRG	MFG DRG	LOG BOOK	2	--	--	
3.1	VERIFICATION OF ALL PREVIOUS TESTS AND DOCUMENTS	2.SURFACE DEFECTS VERIFICATION OF RECORDS	MA MA	P.T. ---	100% 100%	ASTME165. TECH SPEC	ANSI B 16.34 APPENDIX III TECH SPEC	INSPN REPORT ---	2 2	2 1	1 1	
3.2	TESTS											

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	(HYDRAULIC)	1. BODY TEST	CR	HYDRO TEST	100%	AWWA C-504/APPD DRG.	NO LEAKAGE	INSP. REPORT	2	1	--	
		2. DISC STRENGTH	CR	HYDRO TEST	100%	AWWA C-504/ APPD.DRG. ILPS-0238 REV 00	NO LEAKAGE AT 10.5 Kg/cm2 ILPS-0238 REV 00	INSP. REPORT	2	1	-	ONE VALVE/SIZE SHALL BE TESTED FOR TWICE THE DE PRESSURE FROM BOTH SID THE VALVE IN ADDITION TO TESTING IN THE NORMAL FL DIRECTON. NO PART OF DIS VALVE SHALL BE PEERMANI DEFORMED/DAMAGED. DISC DEFORMATION IS MEASURE USING DIAL GAUGE AND BO DEFORMATION BY MEASURI TAPE
		3.SEAT LEAKAGE WITH ACTUATOR (BOTH DIRECTION) 4. PERFORMANCE TEST	CR CR	HYDRO/AIR TEST PERFORM- ANCE	100% OPERAT- ING THREE TIMES UNDER NO LOAD/ FLOW CONDITI- ON BOTH MANUAL & THRO- UGH OPERAT- ORS	AWWA C-504/APPD. DRG. AWWA C-504*	NO LEAKAGE SMOOTH OPERATION	INSP. REPORT INSP. REPORT	2 2	1 1	- -	*COMPLETE VALVE ASSEMBLY ALONGWITH ACTUATOR SHALL SHOP OPERATED IN HORIZONTAL/ VERTICAL POSITION 1) UNDER AT NO LOAD (CYCLES) 2) UNDER PRESURE (3 CYCLES IN HORIZONTAL POSITION ONLY FOLLOWING SHALL BE CHECKED - OPERATING & CLOSING - OPERATION OF TORC LIMIT SWITCHES CURRENT DRAWN BY ACTUATORS

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		5. GLAND LEAK TEST (TOP GLAND AND BOTTOM FLANAGES)	CR	HELIUM LEAK TESTS	100%	APPROVED TEST PROCEDURE	APPROVED TEST PROCEDURE	INSP. REPORT	2	1	-	
		6. VACUUM TEST & HELIUM LEAK TEST		VACUUM TEST	100%	APPROVED TEST PROCEDURE	APPROVED TEST PROCEDURE	INSP. REPORT	2	1	--	
		7.PROOF OF DESIGN TEST (LIFE CYCLE TEST)	CR	CYCLE TEST	AS PER AWWA C504 ON ONE SIZE/ TYPE/ SIZE GROUP/ RATING	APPROVED TEST PROCEDURE / AWWA C404		INSP REPORT	2	1	-	VERIFICATION OF TEST RE OF POD TEST ON SAME, MODEL/TYPE/SIZE/RATING CARRIED OUT EARLIER NTP PROJECT/ REPUTED CUSTO
4.0	SHIPPING RELEASE											
4.1	FINAL INSPECTION	1. OVERALL DIMENSION	MA	MEAS.	100%	APPD DRG		INSP REPORT	2	1	-	
		2. DOCUMENTATION REVIEW	MA	REVIEW	100%	APPD DRG/ TECH SPEC		INSP REPORT	2	1	-	
		3. CLEANLINESS	MA	VISUAL	100%	APPD DRG/ TECH SPEC		INSP REPORT	2	1	-	
		4. NAMEPLATE	MA	VIAUAL	100%	APPD DRG/ TECH SPEC		INSP REPORT	2	1	-	
5.0	PAINTING	1. SURFACE PREPARATION 2. UNIFORMITY & THICKNESS	MI MI	VISUAL & MEASURE- MENT	100%	APPROVED DATA SHEET FROM BHEL/ CUTOMER		INSPN REPORT	2	2	1	STEAM WASHABLE PAINT OI INNER SURFACE AS PER BH SPEC AA55151 REV 01
6.0	PACKING	SOUNDNESS	MA	VISUAL	100%	AS PER TECH SPECIFICATION		INSP REPORT	2	2	1	

NOTES:- **CR-** MEANS CRITICAL **MA-** MEANS MAJOR **MI-** MINOR
PT-PENETRATION TEST **UT-** ULTRA SOUND TEST **MPI=** MAGNETIC PARTICAL EXAMINATION
1- BHEL (PURCHASER) **2-** VENDOR (MAIN) **3-** SUB-VENDOR OF VENDOR

ALL MATERIALS SHALL BE AS PER APPROVED DRGS/ DATA SHEET FOR VALVES.

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