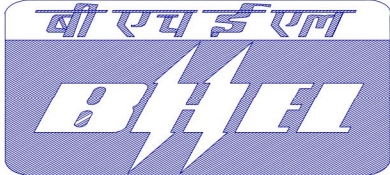
 PROJECT ENGINEERING & SYSTEM DIVISION		STANDARD MANUFACTURING QUALITY PLAN							QP. NO.:PESD/QA/FLANGE/01/ 18-19				
		PRODUCT:FLANGE				BHEL SPEC: AS PER P.O			REV NO: 00		DATE: 22-02-2019		
									PAGE 1 OF 3				
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY			REMARKS
										P	W	V	
1.0	RAW MATERIALS & BOUGHT OUT ITEMS												
1.1	Raw materials (ingots, billets etc.)	Material identification	Major	Verificati on of TC	100%	BHEL specification	BHEL specification	MTC	√	2	--	1	
2.0	INPROCESS INSPECTION												
2.1	Flanges	Heat Treatment	Major	Heat treatment cycle	100%	HT Graph	BHEL Specification	HT Chart/ TC	√	2	--	1	
2.2		Product Analysis	Major	Chemical analysis	One sample per heat	BHEL Specification	BHEL Specification	Lab Report	√	2	--	1	
2.3		Mechanical properties	Major	UTS,Ya & % Elongatio n	One sample per heat	BHEL Specification	BHEL Specification	Lab Report	√	2	--	1	
2.4		Mechanical Properties	Major	Hardness test	Two sample per heat	BHEL Specification	BHEL Specification	Lab Report	√	2	--	1	
2.5		DP test on butt weld edges	Major	Surface checking	100%	Lab report	No defect	TC	√	2	--	1	
3.0	FINAL INSPECTION & TESTING												
3.1	Flanges	Dimension, facing & visual examination, Surface roughness125 to 250 AARH	Major	Dimensio nal and visual	100%	BHEL Specification/ Approved drawing/ IBR	BHEL Specification/Ap proved drawing/ IBR	Inspection report	√	2	1	--	10% shall be witnessed by "1"
3.2		IBR Certificate*	Critical	TC Review	100%			IBR Certificate	√	2		1	*If applicable
3.3		Surface cleaning marking & stamping	Major	Measurm ent	100%			Inspection report	√	2	1	--	

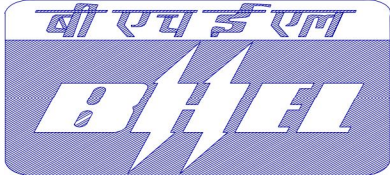
LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL (OR BHEL NOMINATED INSPECTION AGENCY) & 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY  BHEL QA SIGNATURE & STAMP	APPROVED BY CUSTOMER'S SIGNATURE & STAMP
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	PRODUCT:FLANGE					BHEL SPEC: AS PER P.O			REV NO: 00		DATE: 22-02-2019	
									PAGE 2 OF 3			

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										P	W	V	
3.4		IGC test	Major	IGC test	Highest thickness & highest carbon/HT lot	ASTM E 262 PRACTICE E	ASTM E 262 PRACTICE E	Lab report	√	2		1	Refer Note-7
3.5		PMI*	Critical	PMI test	10%	ASTM E 572	ASTM E 572	TC	√	2	1		*If applicable
3.6		Galvanization# (Uniformity, mass of zinc coating Thickness of Coating)	Major	Measure ment	100%	IS 4736	IS 4736	TC/ITR	√	2	1		# if applicable

4.0	PRESERVATION & PACKING												
		Painting (Shade, DFT, Marking)#	Major	Visual	Random	BHEL Spec/Approve d drawing/data sheet	BHEL Spec/Approved drawing/data sheet	TC	√	2	1		
4.1		Packing*	Major	Visual	Random	BHEL Spec/Approve d drawing/data sheet	BHEL Spec/Approved drawing/data sheet	Packing List	√	2		1	Refer Note-4

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		PRODUCT:FLANGE						BHEL SPEC: AS PER P.O						PAGE 3 OF 3	
SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	*	AGENCY			REMARKS		
									D	P	W	V			

Notes:-

1. This MQP should be read along with specification, approved drawings & approved datasheet. (Latest revisions to be considered as per PO).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements, which shall be notified, have to be fulfilled by the vendor at the time of execution of order.
4. Seaworthy packing shall be **witnessed** BHEL/BHEL nominated inspection agency for overseas project.
5. End Customer/Consultant inspection if any shall be intimated during quality plan approval.
6. **NACE requirement:** For items coming under **NACE category**, all tests, reports, MTC and certificates shall be submitted as per **NACE MR0103** requirements.
7. IGC test for austenitic stainless steel shall be conducted in a NABL approved lab as follows : IGC practice" E " with acceptance criteria of "No crack observed from 20X magnification and microstructure to be observed at 250X magnification to ensure absence of any crack/fissure. Photograph of microstructure shall be submitted for records.Two samples shall be drawn from each solution annealing lot,,one correspond to highest carbon and other corresponding to highest thickness.

Abbreviations:-

MTC	-	Material Test certificate	WPS	-	Welding Procedure Specification
IBR	-	Indian Boiler Regulations	PQR	-	Procedure Qualification Record
DFT	-	Dry Film Thickness	WPQ	-	Welder Performance Qualification
TC	-	Test Certificate	NDE	-	Non Destructive Examination
IS	-	Indian Standards	UTS	-	Ultimate Tensile Strength
Appd.			YS	-	Yield Strength
Dwg.	-	Approved Drawing	EL.	-	Elongation
PMI	-	Positive Material Identification	OD	-	Outer Diameter
G.I	-	Galvanized Iron	ID	-	Internal Diameter

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