



MANUFACTURER'S NAME AND ADDRESS:
BHARAT HEAVY ELECTRICALS LIMITED,
PIPLANI, BHOPAL - 462 022

STANDARD MANUFACTURING QUALITY PLAN

PROJECT:
PACKAGE: ELECTROMECHANICAL

ITEM: MACHINING OF FRANCIS RUNNER / IMPELLER BLADE
SUB-SYSTEM: TURBINE/ PUMP & AUXILIARIES

OP NO.: QA/HT/2013
REV. NO.: 01
DATE: 18/09/2020
PAGE: 01 OF 01

ENQUIRY / PO NO.:
MAIN-SUPPLIER: BHEL, BHOPAL

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REF. DDC.	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			REMARKS
					M	C / B				M	C	B	
1.	1.	2.	3.	4.	5.	6.	7.	8.	9.	D*	**	10.	11.
1. CHECKING OF CHORD													
1.1	Checking of chord at corners of the blade		Major	Measurement	100%	100%	Drawing /BHEL Observation sheet	QCR	V	P	W	W	
2. PROFILE CHECKING													
2.1	Longitudinal & transverse profile checking at suction & pressure side		Major	Measurement	100%	100%	Drawing /BHEL Observation sheet	QCR	V	P	W	W	
2.2	Inlet & Outlet profile checking		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
2.3	Inlet & Outlet nose profile checking		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
2.4	Internal reports of Profile checking		Major	Measurement	100%	100%	-do-	IR	V	P	W	V	Refer foot-note 1
2.5	Measurement of edge to edge dimensions & diagonals		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
3.	Inlet & outlet angle check		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
4.	Thickness check at identified sections		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
5.	Waviness check		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
6.	Surface Finish Check		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
7.	Weld edge preparation check		Major	Measurement	100%	100%	-do-	QCR	V	P	W	W	
8.	Weight of individual blade		Minor	Measurement	100%	100%	-do-	QCR	V	P	W	V	
9.	Identification & Packaging		Major	Visual	100%	100%	Purchase Order / BHEL drawing	COC	V	P	W	W	
<div>LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (✓) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: MANUFACTURER/SUB-SUPPLIER C: SUPPLIER/ SUPPLIER NOMINATED INSPECTION AGENCY, B:BHEL/ P: PERFORM W: WITNESS AND V: VERIFICATION IR:INSPECTION REPORT QCR-QC REPORT TC-TEST CERTIFICATE RR- REVIEW OF RECORD COC: CERTIFICATE OF COMPLIANCE</div> <div>ACCEPTED BY</div> <div>(VENDOR'S QC REPRESENTATIVE)</div>													

- Internal report on compliance shall be furnished by vendor for verification in which observations are recorded on machine during profile machining, while keeping both side templates to ensure machining dimension accuracy of blade while the blades are on the machine.
- Marking/ Reference is to be provided by vendor for profile checking by template.
- Rev-01 (Clause 2.5 added, Title: Words 'Impeller' & 'Pump' added with runner & Turbine respectively)