

Supplier's LOGO	Supplier's Name and Address		Quality Plan for SS Small Grid Flats(2.9t x20W) and Main Grid Flats(2.9t x60W)					Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171 P.O No: To be filled by Supplier				
			Item : SS Small& Main Grid Flats (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator		QP No.: To be filled by Supplier Rev.No.: To be filled by Supplier Date: To be filled by Supplier Page No: 1 of 4							
Sl. No	Component & Operations	Characteristics	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Agency			Remarks
									M	B	N	
1.	2.	3.	4.	5.	6.	7.	8.	D*	9. **			10.
1.0 Raw Material :												
1.1	Steel Melting : :To be filled by Supplier	Temperature	Record Verification	100%	PC-M-963/01 MPP: To be submitted	TC	√	P	R	R	---	
1.2	Ladle Analysis	Chemistry	Chemical analysis	1/Melt	PC-M-963/01 MPP: To be submitted	TC	√	P	--	--	---	
1.3	Semi Product (Slab) casting	Free from defects	Visual/Record verification	100%	MPP: To be submitted	RD	--	P	--	--	---	
2.0 In process Controls :												
2.1	Drawing Process (Cold/hot drawing)	drawing process	Record verification	100%	PC-M-963/01 MPP: To be submitted	RD	---	P	---	---	---	
2.2	Marking after Drawing	Identifications	Verification and Visual	100%	PC-M-963 Rev 01	RD	--	P	--	---	---	
2.3	Heat Treatment (Solution Annealing)	R.O.H , Soaking Temp & Time, R.O.C	Review of HT Chart	100%	PC-M-963 Rev 01 HT Plan: To be submitted	TC	√	P	W	R	Chart shall be signed at the start and End of Heat treatment and submitted along with TC	
						LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: SUPPLIER B: BHEL, N: NPCIL/TPI P: PERFORM R: REVIEW W: WITNESS AND H: HOLD TC: TEST CERTIFICATE RD: RECORD						
Prepared		Reviewed & Approved		Reviewed & Approved		Reviewed & Approved						
SUPPLIER'S NAME: To be filled				BHEL		NPCIL						


24/12/18
(N. K. R.)

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2.4	Identification of Test coupon and Cutting	Location and orientation	Visual & Measurement	100%	PC-M-963/01 MPP & MSTP: To be submitted	RD	√	P	H	H	---	
2.5	Mechanical descaling of Flats (if required)	Surface Inspection , Free from Visual Defects	Visual	100%	PC-M-963/01 Free from Visual Defects	RD	√	P	---	R	Surface Should be smooth and free of scales	
2.6	Trimming of edges , Grinding , Cutting to length & width	Trimming , grinding	Visual	100%	PC-M-963/01 Drg/PO No: To be filled	RD	--	P	--	R	---	
2.7	Pickling and Passivation of Flats	Completeness	Visual & passivity check	100%	PC-M-963/01 MPP: To be submitted	TC	√	P	R	R	---	
2.8	Final Dimensional check of Flats	Dimensions	Measurement	5% (Note-5)	Drg No No: 3-93-170-05304/00	TC	√	P	W	W	---	
2.9	Surface Finish Check	Surface Finish	Measurement	5 % (Note-5)	PC-M-963/01 Ra ≤ 0.8 microns	TC	√	P	W	W	Roughness measurement diagram shall be included in TC.	
2.10	Straightness check	Straightness	Measurement	5 % (Note-5)	PC-M-960 Rev 01 Drg No No: 3-93-170-05304/00	TC	√	P	W	W	---	
2.11	Cleanliness check	Cleanliness	Visual	5 % (Note-5)	PC-M-960 Rev 01	TC	√	P	R	R	Note-2	
2.12	Specimens preparation	Dimensions	Measurement	100%	MSTP: To be submitted PC:M:963 Rev 01	RD	--	P	--	--	---	
2.13	Dimension of Specimens	Dimensions	Measurement	100%	MSTP: To be submitted PC:M:963 Rev 01	TC	√	P	R	R	---	
2.14	Mechanical and Metallurgical Tests :											

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Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	


 24/02/18
 (NITM.N.O.R)

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2.15	Product analysis	Chemistry	Chemical analysis	1 / Heat treatmen t Batch	PC-M-963 Rev 01 MSTP: To be submitted EN10028-7	TC	√	P	W	W	Residual copper content shall not be more than 0.3%
2.16	Tensile at RT	Tensile Strength, Yield Strength (0.2% offset), % Elongation	Destructive Test	1 / Heat treatmen t Batch	PC-M-963 Rev 01 MSTP: To be submitted EN10028-7 ASTM A 370	TC	√	P	W	W	---
2.17	Tensile at 350° C	Tensile Strength, Yield Strength (0.2% offset)	Destructive Test	1 / Heat treatmen t Batch	PC-M-963 Rev 01 MSTP: To be submitted EN10028-7 ASTM A 370	TC	√	P	W	W	---
2.18	Corrosion Test (before sensitization)	Inter Granular Corrosion	IGC Test	1 / Heat treatmen t Batch	PC-M-963 Rev 01 ASTM A 262 Practice-E MSTP: To be submitted	TC	√	P	W	W	---
2.19	Corrosion Test (after sensitization)	Inter Granular Corrosion	IGC Test	1 / Heat treatmen t Batch	PC-M-963 Rev 01 ASTM A 262 Practice-E MSTP: To be submitted	TC	√	P	W	W	Sensitization-650° x 30 Minutes
2.20	Macrographic Test	Free from defects	Macrographic Test at 10X	1 / Heat treatmen t Batch	PC-M-963 Rev 01 MSTP: To be submitted	TC	√	P	W	R	Note-3
3.0	Final Inspection										
3.1	Visual Inspection of Flats	Free from visual defects	Verification and Visual	100%	PC-M-963 Rev 01	TC	√	P	R	R	Note-3

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Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	



 24/01/18
 (NITANW. OR)

Suppli er's LOGO	Supplier's Name and Address		Quality Plan for SS Small Grid Flats(2.9tx20W) and Main Grid Flats(2.9t x60W)						Project: GHAVP 1& 2 W.O : D157 to D160-001-1-93-171 P.O No: To be filled by Supplier			
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3.2	Marking	SI No, Heat Number, Material designation, Supply condition, Inspectors Seal, Manufactures name , P.O Number.	Verification and Visual	100%	PC-M-963 Rev 01	TC	√	P	R	R	---	
3.3	Mix up Test	Positive Material Identification	PMI Test	5% randomly	PC-M-963 Rev 01	TC	√	P	R	R	---	
3.4	Certification and Documentation Control	Order compliance	Certificate compilation	100%	PC-M-963 Rev 01	TC	√	P	R	R	---	
3.5	Documents (Test Certificates) shall be sent to BHEL/Trichy prior to dispatch. Dispatch clearance will be given after Acceptance of Test Certificates by BHEL&NPCIL)					RD	--	P	H	H	---	
3.6	Packing & Shipment	Packing	Visual	100%	PC-M-963 Rev 01	---	--	P	--	---	---	

Note:

1. MSTP (Material Sampling Plan) , MPP(Manufacturing Process plan), Heat Treatment Plan shall be submitted by Supplier and the same will be subjected to both BHEL&NPCIL approval.
2. The external surface of the flats shall be clean and free from every type of contamination or impurity such as grease , oil , remnants of drying materials , decomposition products , cleaning medium etc. The flats shall also be free from ferritic and other external surface impurities.
3. Tears and other material breakage as well as macroscopic visible inclusions are not permissible.
4. The supplier shall send one test flat of full length for each heat treated batch with clear identification to the particular lot along with flats.
5. Supplier shall ensure 100% . BHEL & NPCIL/TPI shall check 5% of Flats .

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 24/01/18
 (MITHUN K. R.)