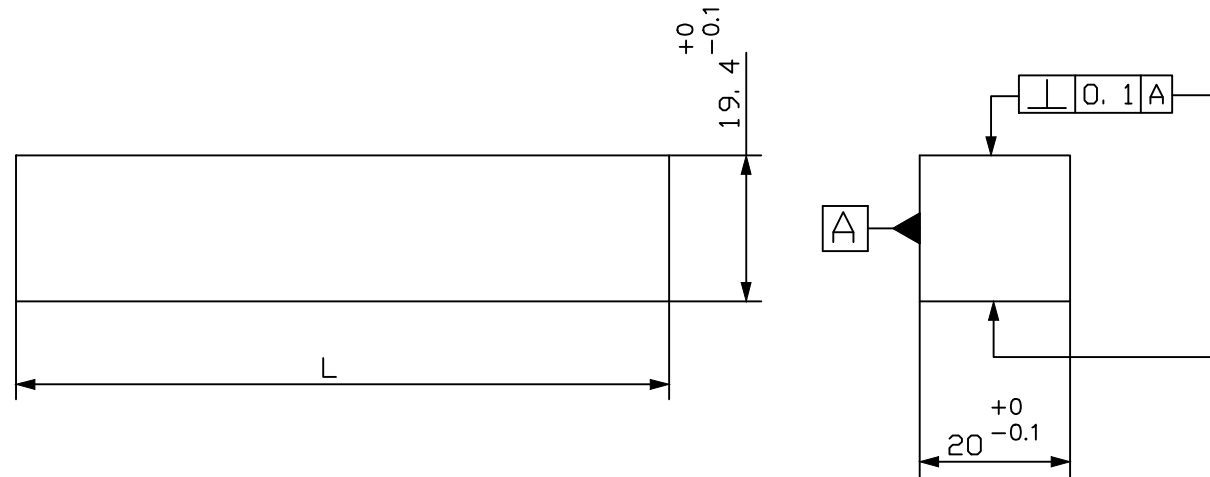


APPLICABLE SPECIFICATION : PC-M-964



NOTES: -




1. DIMENSIONS, TOLERANCES & SURFACE FINISH INDICATED MAY BE ACHIEVED EITHER BY ROLLING OR MACHINING.
2. APPLICABLE SPECIFICATION : PC-M-964 WITH AMENDMENTS IF ANY.
3. MATERIAL SPECIFICATION : DIN EN 10028-2: 1.5415(16Mo3) OR EQUIVALENT
4. THE SURFACE OF THE COMPONENT SHALL BE PROTECTED BY A PEELABLE PLASTIC COATING WHICH CAN BE EASILY REMOVED.
5. SURFACE FINISH, IF NOT SPECIFIED, SHALL BE $\sqrt{3.2}$ OR BETTER.

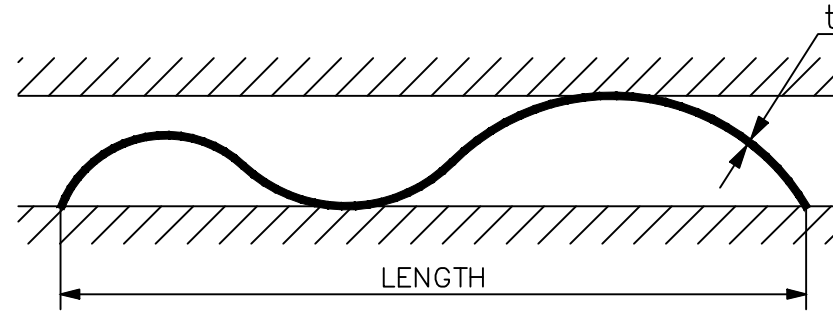
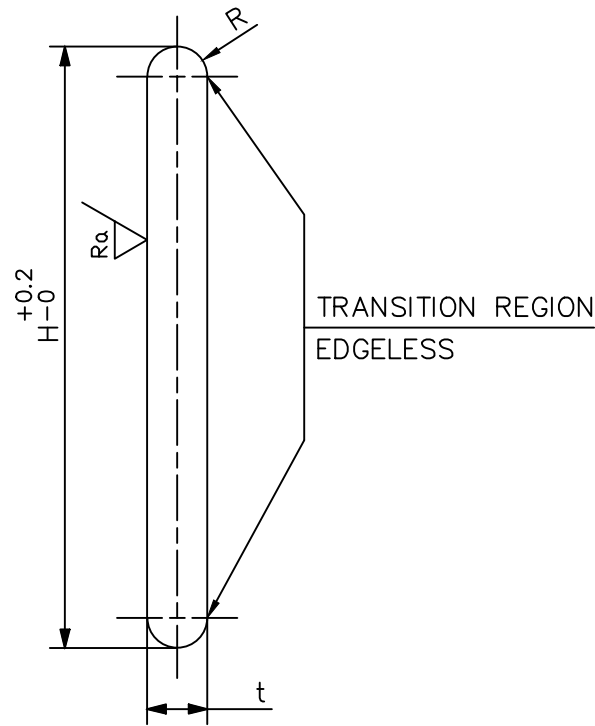
TOLERANCE IF NOT SPECIFIED SHALL BE AS BELOW (REFER IS 2102-m)

LINEAR				ANGULAR	
0.5 TO 3	± 0.1	400 TO 1000	± 0.8	0 TO 10	± 1°
3 TO 6	± 0.1	1000 TO 2000	± 1.2	10 TO 50	± 30'
6 TO 30	± 0.2	2000 TO 4000	± 2.0	50 TO 120	± 20'
30 TO 120	± 0.3	-	-	120 TO 400	± 10'
120 TO 400	± 0.5	-	-	OVER 400	± 5'

REV	DATE	ALTERED :
		CHD&APPD :

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		700MWe STEAM GENERATOR W.O.No.D167-001-1-93-172-FLEET					
 05-229/D	Bharat Heavy Electricals Ltd		DRN	NAME NKK	SIGNATURE	DATE	NO. OF VAR
	UNIT: HIGH PRESSURE BOILER PLANT		CHD	MAK/EARUN		050821	
	TIRUCHIRAPALLI - 620014		APPD	M.A		060821	
DEPT NC	GRADE OF UNTOL DIM C/M/F	SCALE 1:1	WEIGHT (Kg)	REF TO ASSY / OLD DWG		ITEM NO	No OF ITEMS
CODE 150							
TITLE			CARD CODE	DRAWING NO :			REV
MANUFACTURING FORM TOLERANCES FOR PROFILE OF GRID SPACERS			U 01	3-93-172-05578			00



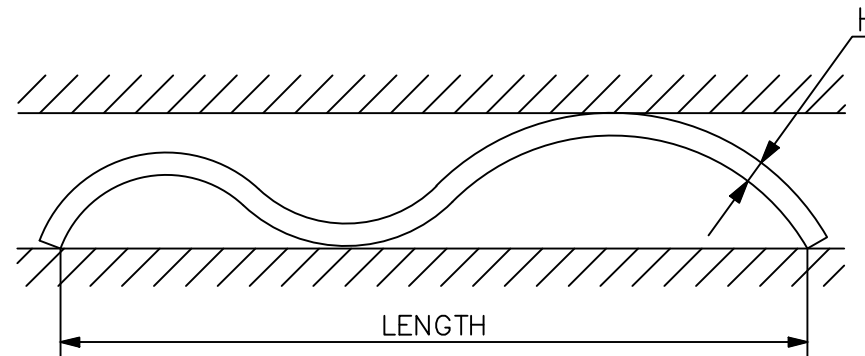
2. WAVINESS AND TORSION

* WAVINESS RELATED TO ANY MEASURED LENGTH (≥ 250) = 1/1000 OF MEASURED LENGTH

* TORSION RELATED TO ANY MEASURED LENGTH (≥ 250) = 0.3/1000 OF MEASURED LENGTH

TOLERANCE ON THICKNESS

t	TOLERANCE ON t	H	R
2.0	± 0.05	20.0	1.0
1.5	$+0$ -0.05	10.0	0.75
3.5	± 0.05	21.0	1.75



3. STRAIGHTNESS

* STRAIGHTNESS RELATED TO ANY MEASURED LENGTH (≥ 250) = 1/1000 OF MEASURED LENGTH

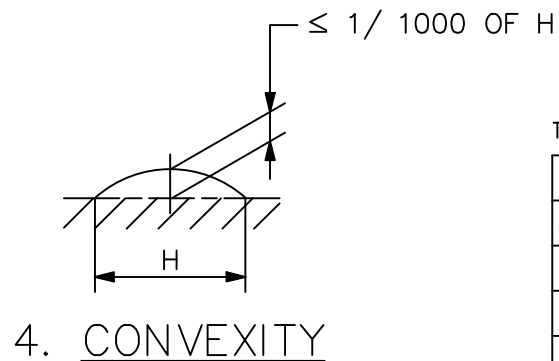
1. PROFILE AND SURFACE FINISH

* $R_a \leq 0.8 \mu\text{m}$ FOR AREAS OF ANY TYPE OF SURFACE
HOWEVER,

* $R_a \leq 1.25 \mu\text{m}$ FOR AREAS WITH TYPE OF SURFACE CONFORMING TO BIP-3 (U) OR BIP-4 (U) REFER DIN-4761

3. STRAIGHTNESS

* STRAIGHTNESS RELATED TO ANY MEASURED LENGTH (≥ 250) = 1/1000 OF MEASURED LENGTH



1. PROFILE AND SURFACE FINISH

* $R_a \leq 0.8 \mu\text{m}$ FOR AREAS OF ANY TYPE OF SURFACE
HOWEVER,

* $R_a \leq 1.25 \mu\text{m}$ FOR AREAS WITH TYPE OF SURFACE CONFORMING TO BIP-3 (U) OR BIP-4 (U) REFER DIN-4761

3. STRAIGHTNESS

* STRAIGHTNESS RELATED TO ANY MEASURED LENGTH (≥ 250) = 1/1000 OF MEASURED LENGTH

TOLERANCE IF NOT SPECIFIED SHALL BE AS BELOW (REFER IS 2102-n)

LINEAR				ANGULAR	
0.5 TO 3	± 0.1	400 TO 1000	± 0.8	0 TO 10	$\pm 1^\circ$
3 TO 6	± 0.1	1000 TO 2000	± 1.2	10 TO 50	$\pm 30'$
6 TO 30	± 0.2	2000 TO 4000	± 2.0	50 TO 120	$\pm 20'$
30 TO 120	± 0.3	-	-	120 TO 400	$\pm 10'$
120 TO 400	± 0.5	-	-	OVER 400	$\pm 5'$

CAUTION: The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company.

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		700MWe STEAM GENERATOR W.O.No.D167-001-1-93-172-FLEET (Customer Drg.: 700FLEET/33111/4166/DD/REV.00)					
	Bharat Heavy Electricals Ltd		DRN	NAME NKK	SIGNATURE	DATE	NO. OF VAR
	UNIT: HIGH PRESSURE BOILER PLANT		CHD	MAK/EARUN		050821	
	TIRUCHIRAPALLI - 620014		APPD	M.A		070821	
DEPT NC	GRADE OF UNTOL DIM C/M/F	SCALE NTS	WEIGHT (Kg)	REF TO ASSY / OLD DWG		ITEM NO	NO OF ITEMS
CODE 150							
TITLE			CARD CODE	DRAWING NO :			REV
FORM TOLERANCES FOR PROFILE BAR (SA-32)			U 01	3-93-172-05581			00



BHEL
Tenders

Government eProcurement System

Tender Details

Date : 03-Mar-2022 11:46 AM



Basic Details

Organisation Chain	Bharat Heavy Electricals Limited BHEL Trichy MM/RM		
Tender Reference Number	1502200005		
Tender ID	2022_BHEL_9001_1		
Tender Type	Open Tender	Form of contract	Supply
Tender Category	Goods	No. of Covers	2
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	Yes
Payment Mode	Not Applicable	Is Multi Currency Allowed For BOQ	Yes
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Drawing-3-93-172-05578-0-0
		.pdf	Drawing-3-93-172-05581-0-0
		.pdf	Non-Disclosure-Agreement
		.pdf	NPCIL-Specification-pc-m-961
		.pdf	NPCIL-Specification-pc-m-963
		.pdf	NPCIL-Specification-PC-M-964
		.pdf	PRESIGNED-IP
		.pdf	QP-16Mo3-Spacer-Flats
		.pdf	QP-SS-Central-Bar-Top-and-Bottom-Plate
		.pdf	QP-SS-Flats-for-Corrugated-Strips-Central-vertical-Strip-U-Support
		.pdf	QP-SS-Small-Grid-Flats-Main-Grid-Flats
		.pdf	Sample-format-of-QAP
		.pdf	Tender-Terms-and-conditions-AnnexureB
2	Finance	.xls	BOQ

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee	No		

EMD Fee Details

EMD Amount in ₹	0.00	EMD through BG/ ST or EMD Exemption Allowed	No
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BHEL
Tenders

EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Nil	EMD Payable At	Nil

[Click to view modification history](#)

Foreign Currency BOQ Details

S.No	Currency	Conversion rate in ₹
1	US Dollar	NA
2	European Euro	NA
3	Japanese Yen	NA

Work / Item(s)

Title	Manufacture testing and supply of 16Mo3 SS grid flats				
Work Description	Manufacture testing and supply of 16Mo3 SS grid flats				
Pre Qualification Details	Applicable				
Independent External Monitor/ Remarks	Applicable				
Show Tender Value in Public Domain	No				
Tender Value in ₹	10,00,00,000	Product Category	Metals - Ferrous	Sub category	SS grid flats
Contract Type	Tender	Bid Validity(Days)	180	Period Of Work(Days)	310
Location	BHEL Trichy Tubes stores ward 29	Pincode	620014	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	NIC portal
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	03-Mar-2022 12:00 PM	Bid Opening Date	31-Mar-2022 04:00 PM
Document Download / Sale Start Date	03-Mar-2022 12:00 PM	Document Download / Sale End Date	31-Mar-2022 11:00 AM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	03-Mar-2022 12:00 PM	Bid Submission End Date	31-Mar-2022 11:00 AM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	Tender terms and conditions	1031.70
	2	Tendernotice_2.pdf	NDA	53.74
	3	Tendernotice_3.pdf	Integrity pact Pre signed	3138.14
	4	Tendernotice_4.pdf	Drawing-3-93-172-05578-0-0	98.76
	5	Tendernotice_5.pdf	Drawing-3-93-172-05581-0-0	179.20
	6	Tendernotice_6.pdf	NPCIL-Specification-pc-m-961	339.08
	7	Tendernotice_7.pdf	NPCIL-Specification-pc-m-963	327.49
	8	Tendernotice_8.pdf	NPCIL-Specification-PC-M-964	578.61
	9	Tendernotice_9.pdf	QP-16Mo3-Spacer-Flats	792.08
	10	Tendernotice_10.pdf	QP-SS-Central-Bar-Top-and-Bottom-Plate	448.90
	11	Tendernotice_11.pdf	QP-SS-Flats-for-Corrugated-Strips-Central-vertical-Strip-U-Support	432.27
	12	Tendernotice_12.pdf	QP-SS-Small-Grid-Flats-Main-Grid-Flats	427.34
	13	Tendernotice_13.pdf	Sample-format-of-QAP	182.87

Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	BOQ	BOQ_9473.xls	Price bid	473.00

Bid Openers List

S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	bhaskarnath@bhel.in	Bhaskarnath Biswas	BHASKAR NATH BISWAS
2.	thambi@bhel.in	M Thambidurai	M THAMBIDURAI
3.	visvanathan@bhel.in	Visvanathan S	S VISVANATHAN
4.	ramk@bhel.in	Ramanathan K	RAMANATHAN K

GeMARPTS Details

GeMARPTS ID	GN2DUN3PTN68
Description	16Mo3 SS GRID FLAT
Report Initiated On	02-Mar-2022
Valid Until	01-Apr-2022

Tender Properties


Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Show Bids Details	Yes
BoQ Comparative Chart model	Normal	BoQ Compative chart decimal places	2
BoQ Comparative Chart Rank Type	L	Form Based BoQ	No

Tender Inviting Authority

Name	Dy Manager/ Purchase
Address	BHEL Trichy

Tender Creator Details

Created By	Bhaskarnath Biswas
Designation	DY. ENGINEER
Created Date	03-Mar-2022 11:09 AM

 BHEL - TRICHY	THIRD PARTY NON-DISCLOSURE AGREEMENT	Doc.No. : ISMS-04/TP/011	
		Ver. No: 3.0	Rev. No: 00
		Date : 27 - 10 - 14	

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Trichy on contract is confidential and that the nature of the business of the BHEL, Trichy is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Trichy Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Trichy all documents and property of BHEL, Trichy, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Trichy 's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Trichy and are reasonable given the nature of the business carried on by the BHEL, Trichy I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature

NUCLEAR POWER CORPORATION OF INDIA LTD.
(A Government of India Enterprise)

SPECIFICATION NO. : PC – M – 961

REVISION NO. :	0	1						
DATE OF ISSUE (MONTH/YEAR) :	June, 2013	Feb 2014						
TOTAL NO. OF PAGES (Including Cover Sheet) :	9	9						

TECHNICAL SPECIFICATION

FOR

**STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC.
FOR GENERAL APPLICATION**

REF. USI NO. : 33111

	NAME	Designation	SIGNATURE	DATE
PREPARED BY	R.K.Gupta	ACE	Sd/-	21/6/2013
	Braham Prakash	ACE	Sd/-	25/6/2013
CHECKED BY	P.B.Rshikesan	ACE	Sd/-	25/6/2013
	D.Ganesh	ACE	Sd/-	28/6/2013
	M.R.S.Saxena	ACE	Sd/-	28/6/2013
REVIEWED BY	S.N.Kamath	CE	Sd/-	28/6/2013
	M.K.Sharma	CE	Sd/-	03/7/2013
APPROVED BY	U.C.Muktibodh	ED (Engg.)	Sd/-	01/10/2013

(For Revisions see Revision Control Sheet)

File Name :
Floppy No.:

(i)

REVISION CONTROL SHEET

DOCUMENT TYPE: TECHNICAL SPECIFICATION

NO. : PC – M – 961


TITLE: TECHNICAL SPECIFICATION FOR STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION

REV. NO. & DATE	DESCRIPTION OF REVISION	PREPARED BY	CHECKED BY	REVIEWED BY	APPROVED BY
0 June, 2013	Original (Pages : 9)	Sd/- R.K.Gupta Sd/- Braham Prakash	Sd/- P.B.Rshikesan Sd/- D.Ganesh Sd/- M.R.S.Saxena	Sd/- S.N.Kamath Sd/- M.K.Sharma	Sd/- U.C. Muktibodh
1 Feb, 2014	Rev 1 (Pages : 9) General Revision & Cobalt content on primary side material added.	<i>R.K.Gupta</i> R.K.Gupta <i>Braham Prakash</i> Braham Prakash	<i>P.B.Rshikesan</i> P.B.Rshikesan <i>D.Ganesh</i> D.Ganesh <i>M.R.S.Saxena</i> M.R.S.Saxena	<i>S.N.Kamath</i> S.N.Kamath M.K.Sharma <i>M.K.Sharma</i> M.K.Sharma	<i>U.C. Muktibodh</i> U.C. Muktibodh

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 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	TECHNICAL SPECIFICATION	Page No. : 1 of 5
STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION		Rev. No. : 0

1.0 SCOPE


This specification establishes the technical requirements for the material, manufacture, inspection, examination, testing and supply of stainless steel plates, flats, forgings, bars, tubes, etc. for general application. The requirements stated herein are additional technical requirements over DIN EN 10028-7 (Plates/Flats) DIN EN 10088-3 (Rods/ Bars), DIN EN 10216-5 (Tubes) for the supply of material number 1.4550/1.4571.

This specification is applicable for 700MWe projects beyond RAPP-7, 8.

2.0 CONTENTS

The requirements of this Specification are presented under the following headings:

<u>Description</u>	<u>Section</u>
Scope	1.0
Contents	2.0
Steel Melting	3.0
Supply Condition	4.0
Chemical Composition	5.0
Mechanical Properties	6.0
Corrosion Test	7.0
Non-Destructive Examination	8.0
Dimensional Check and Visual Examination	9.0
Mix up Test	10.0
Repairs	11.0
Quality Surveillance	12.0
Test Reports and Certificates	13.0
Marking and Identification	14.0
Packing and Shipment	15.0

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	Page No. : 2 of 5
	<u>TECHNICAL SPECIFICATION</u>	
	STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION	Rev. No. : 0

3.0 STEEL MELTING

The steel shall be melted in an electric furnaces, vacuum degassed and fully killed


4.0 SUPPLY CONDITION

The supply condition of each material/product form shall be specified in the Tender document / Purchase order. However, following supply conditions for each of the product form is envisaged.

- a) Plates upto 4 mm: 2D, Cold rolled, solution annealed, pickled & passivated.
- b) Plates above 4mm: 1D, Hot rolled, Solution annealed, pickled & passivated.
- c) Flats: Cold rolled, Solution annealed, pickled and passivated and 2G condition ie. Ground finished on both the sides. Flats shall be ground smooth and the surface finish shall be Ra less than or equal to 0.8 microns. Surface finish measurement shall be reported with a roughness measurement diagram.
- d) Rods : Either, Cold formed, solution annealed, descaled, pickled and mechanically smoothed with surface condition conforming to symbol 2G, OR Hot formed, solution annealed, descaled, pickled and prepared by machining with surface condition confirming to symbol 1G.
- e) Tubes (Material no 1.4571): Cold finished, solution annealed and pickled with metallicly bright surface condition conforming to symbol CFG as per test category 2. Surface roughness shall be 3.2 microns (CLA) for both internal & external surfaces. Tubes (Material No. 1.4550) : Hot finished, solution annealed, descaled, pickled, with metallicly clean surface condition conforming to symbol HFD as per Test category 2.

5.0 CHEMICAL COMPOSITION

Both ladle and product analysis shall be carried out & meet the requirement of relevant material specifications mentioned in clause 1.0 above. Residual copper content shall not be more than 0.3 %, as per product analysis. The cobalt content in the SS materials being used on primary side of Steam Generator shall not exceed 0.03%.

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	TECHNICAL SPECIFICATION	Page No. : 3 of 5
STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION		Rev. No. : 0

6.0 MECHANICAL PROPERTIES

Mechanical tests at ambient temperature and high temperature tensile test at 350°C shall be carried out from each heat treated batch and shall conform to the requirements of relevant material specification. Apart from this any other mandatory tests required as per the relevant material specification shall also be carried out. For bars over 100 mm in diameter, the impact and tensile specimens shall be taken in transverse direction.

7.0 CORROSION TEST

The materials shall pass Intergranular corrosion resistance test conducted as per ASTM A 262 Practice E with preceding heat treatment at 650 °C / 30 minutes.

8.0 NON-DESTRUCTIVE EXAMINATION

8.1 Ultrasonic Examination :

Plates with thickness 6mm and above, Tubes, Rods shall be ultrasonically examined to cover 100% of the volume in accordance with the respective product specifications.


Plates with thickness 6mm and above shall be subjected to straight beam & angle beam examination in transverse direction on both the surfaces to cover 100% of the volume.

The forgings shall be examined in accordance with Para 9.1 of PC-M-960

8.2 Liquid Penetrant Examination :

All forgings in finished shape & both the surfaces of plates of thickness 20mm & above shall be examined by liquid penetrant method in accordance with ASTM-E-165 with following additional requirements.

- a) Penetrants, developers and cleaning agents containing more than 25 ppm each of Sulfur and Halogens shall not be used.
- b) Application of penetrant and developer from aerosol type of spray cans is preferred.
- c) The temperature of the area examined shall not be lower than 10 °C.

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	<u>TECHNICAL SPECIFICATION</u>	Page No. : 4 of 5
STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION		Rev. No. : 0

d) All traces of penetrant and developer shall be removed after completion of the examination.

8.2.1 Acceptance Standard :

Indications of any shape and size are unacceptable.

8.3 Hydrostatic Test :

Each tube shall be subjected to Hydrostatic test as per the requirement of DIN EN-10216-5

9.0 **DIMENSIONAL CHECK AND VISUAL EXAMINATION**

Each material shall be visually examined and checked for dimensional requirements as per Purchase Order.

10.0 **MIX-UP TEST**

Every material shall be tested to detect any inadvertent mix-up.

11.0 **REPAIRS**


Repair is generally not permitted. Slight surface defects may be smoothly ground and blended without impairing the minimum wall thickness. No other repairs shall be carried out without prior approval of the Purchaser.

12.0 **QUALITY SURVEILLANCE**

All material shall be subjected to quality surveillance by the Purchaser or his authorized agency during manufacturer. The material shall not be supplied until the shipping release is given by the Purchaser or his authorized agency.

13.0 **TEST REPORTS / CERTIFICATES**

Five (5) copies of all test reports / certificates shall be sent to the purchaser immediately after completion of tests / inspection, prior to the shipment of the material. One set of test reports / certificates shall be dispatched along with the material. Following reports shall be submitted:

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	<u>TECHNICAL SPECIFICATION</u>	Page No. : 5 of 5
STAINLESS STEEL PLATES, FLATS, FORGINGS, BARS, TUBES, ETC. FOR GENERAL APPLICATION		Rev. No. : 0

- (a) Chemical Analysis (Ladle and Product).
- (b) Heat treatment details (heat treatment charts) shall be sent after completion of the contract.
- (c) Results of mechanical properties.
- (d) Intergranular corrosion test report.
- (e) Visual and dimensional test reports.
- (f) Surface roughness measurement diagram for flats as required.
- (g) Result of micrograph and grain size.
- (h) Hardness values.
- (i) Ultrasonic examination and liquid penetrant examination reports.
- (j) Hydrostatic test report.

Final documentation containing all the above shall also be submitted in soft form (pdf format) with proper indexing

14.0 **MARKING AND IDENTIFICATION**

Each product shall be marked with the following information:

- (a) Heat number.
- (b) Direction of rolling (for plates).
- (c) Material designation.
- (d) Supply condition.
- (e) Manufacturer's name.
- (f) Inspection agency / Purchaser's seal.
- (g) Purchase order number.

15.0 **PACKING AND SHIPMENT** :

The materials shall be packed suitably with adequate bracing and blocking to withstand transshipment and tropical storage for two years. The packages shall be released for shipment only after inspection and issue of "shipping release" by the Purchaser or his authorized agency. Each box shall contain the test certificates in respect of the material contained. Details of items packed including material specification, Purchase order number and destination shall be clearly marked on packages.



NUCLEAR POWER CORPORATION OF INDIA LTD.
(A Government of India Enterprise)

SPECIFICATION NO. : PC - M - 964

REVISION NO. :

0							
October, 2013							
26							

DATE OF ISSUE
(MONTH/YEAR)

TOTAL NO. OF PAGES
(Including Cover Sheet)

TECHNICAL SPECIFICATION

**FOR
QUENCHED & TEMPERED LOW ALLOY STEEL PLATES**

REF. USI NO. : 33111

	NAME	Designation	SIGNATURE	DATE
PREPARED BY	Ajit Kumar Shit	Sr. EE	<i>Ajit</i>	01/10/13
	Braham Prakash	ACE	<i>Braham Prakash</i>	01.10.2013
CHECKED BY	P.B.Rshikesan	ACE	<i>P/B</i>	1/10/13
	D.Ganesh	ACE	<i>D.Ganesh</i>	1/10/13
	M.R.S.Saxena	ACE	<i>M.R.S.</i>	1/10/13
REVIEWED BY	S.N.Kamath	CE	<i>S.N.Kamath</i>	01/10/13
	M.K.Sharma	CE	<i>M.K.Sharma</i>	01/10/13
APPROVED BY	U.C.Muktibodh	ED (Engg.)	<i>U.C.Muktibodh</i>	01/10/2013

(i)

File Name : PC - M - 964
Floppy No.:

REVISION CONTROL SHEET

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TITLE: TECHNICAL SPECIFICATION FOR QUENCHED &
TEMPERED LOW ALLOY STEEL PLATES

REV. NO. & DATE	DESCRIPTION OF REVISION	PREPARED BY	CHECKED BY	REVIEWED BY	APPROVED BY
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1.0 SCOPE

This specification establishes the minimum requirements for low alloy steel rolled plates used in the construction of Heat Exchangers and welded pressure vessels of highest quality standards.


The plates are required to be made out of fine grained, fully killed and vacuum de gassed low alloy steel equivalent to German material designation 20MnMoNi55 grade with modified chemical composition .The manufacturing process adopted shall ensure cleanliness of the highest order, superior fracture toughness and weldability.

This specification is applicable for 700MWe projects beyond RAPP 7&8.

2.0 CONTENTS

The requirements of this Specification are presented under the following headings:

<u>Description</u>	<u>Section</u>
Scope	1.0
Contents	2.0
Applicable Codes and Standards	3.0
Process of Manufacture	4.0
Chemical Composition	5.0
Heat Treatment	6.0
Mechanical Properties	7.0
Test coupons and extent of tests	8.0
Non Destructive Examination	9.0
Repairs	10.0
Procedures, Plans, Reports and Documentation	11.0
Quality Surveillance	12.0
Marking and Identification	13.0

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 2 of 22
	TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES	Rev. No. : 0

Reports	14.0
Packing & Shipment	15.0
Extent of Tests	Table -1
Low Alloy Steel Plates 16 Mo3	Annexure -1
Simulated Heat Treatment Diagram	Fig. 1
Plate Layout	Fig. 2
STC & RTC Test Coupons – Head (Below 70 mm Thick)	Fig. 3
STC & RTC Test Coupons – Head (70 mm Thick & Above)	Fig. 4
STC & RTC Test Coupons – Foot (Below 70 mm Thick)	Fig. 5
STC & RTC Test Coupons – Foot (70 mm Thick & Above)	Fig. 6


3.0

APPLICABLE CODES AND STANDARDS

The following codes and standards of the issue in effect on the date of issuing the tender document shall form part of this specification. The bidder shall indicate issue no. and dates of applicable documents which forms the basis of his quotation.

In case of conflict between the codes/ standards listed below and this specification, generally this specification will govern. The supplier must obtain necessary clarification from the Purchaser in such cases else the interpretation of Purchaser will be final and binding.

- i) ASME Section II – Part A – Ferrous materials
- ii) ASME Section III – Division 1 – Sub section NB
- iii) ASME Section V – Non destructive examination
- iv) ASTM - Relevant standards

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	TECHNICAL SPECIFICATION FOR <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	Page No. : 3 of 22 Rev. No. : 0

4.0 PROCESS OF MANUFACTURE

4.1 Melting

The steel shall be made by basic electric process and shall be vacuum degassed to remove objectionable gases particularly Hydrogen. Vacuum system should be of sufficient capacity to affect a blank-off pressure which is sufficiently low for considerably long duration.

4.2 Grain Size


Grain size shall be measured as per ASTM-E-112 and shall be 6 or finer. This grain size and microstructure shall be determined on specimens obtained from simulated heat treated test coupons as indicated in enclosed Figures-3 to 6.

The micrographs for assessing the microstructure shall be made at a magnification allowing unambiguous assessment (as a rule x 200).

5.0 CHEMICAL COMPOSITION

The chemical composition for analysis shall be as follows:

Element	Weight Percentage
C	0.17 – 0.23
Mn	1.20 – 1.50
Si	0.15 – 0.30
MO	0.40 – 0.55 (1)
Ni	0.50 – 0.80
Cr	0.20 Max
Cu	0.12 Max (1)
V	0.02 Max.
Al (Total)	0.010 – 0.040
Sn	0.011 Max. (1)
As	0.015 Max.

 पनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	Page No. : 4 of 22
	<u>TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES</u>	Rev. No. : 0

Sb	0.007 Max
P	0.010 Max. (1)
S	0.008 Max. (1)
N ₂ (Total)	0.013 (1)
H ₂	1 ppm Max.
O ₂	20 ppm Max.

The above chemical composition slightly differs from DIN 20 Mn No Ni 55 grade. Subject to the approval of the purchaser, minor deviations may be permitted provided all other requirements of the specifications are met. In the likelihood of the above limits being exceeded, the guaranteed maximum values shall be highlighted in the technical bid itself for purchaser's consideration.

Note : 1 – If these figures are exceeded at check analysis levels of upto P < 0.015%, S < 0.015%, Mo < 0.63%, Cu < 0.18%, Sn < 0.016% and N (Total) < 0.015%, the inspection agency shall determine until further notice whether heat affected zone simulation tests and, where applicable, tangential section examinations are required. The acceptance then will be dependent on the review of test results.

If intermediate annealing at 550°C is planned in the course of further processing, the permissibility of this annealing temperature shall be demonstrated in the course of the aforementioned tests/ examinations. Extent and implementation of testing shall be agreed upon with the purchaser.

Analysis is to be carried out as per ASTM-A20. Chemical analysis shall be submitted to purchaser for approval. The supplier shall submit ladle and product analysis. Specimens for product analysis shall be taken from simulated heat treated test coupons indicated in figures 3 to 6.

6.0 **HEAT TREATMENT**

- 6.1 All plates to specification 20 Mn Mo Ni 55 shall be supplied in quenched and tempered condition. The plates shall be heated to a temperature which produces an austenitic structure and then quenched in a suitable liquid medium ensuring uniform cooling. The tempering temperature shall be between 650 to 680°C. The

measured highest temperature during stress relief heat treatment shall not be higher than the measured lowest temperature during tempering.
 The uniformity of temperature during any of the heat treatment shall be proved by continuous temperature recording by calibrated temperature recording instruments with the help of adequate number of thermocouples attached to the plates.

6.2 Simulated Heat Treatment (SHT)

The simulated heat treatment (SHT) is intended to simulate the heating cycles which the actual component may experience during the course of fabrication. Such heat treatment is given to some of the test coupons called Simulated Heat Treated Test Coupons (STC). Heating and cooling rates shall be as indicated in figure below:

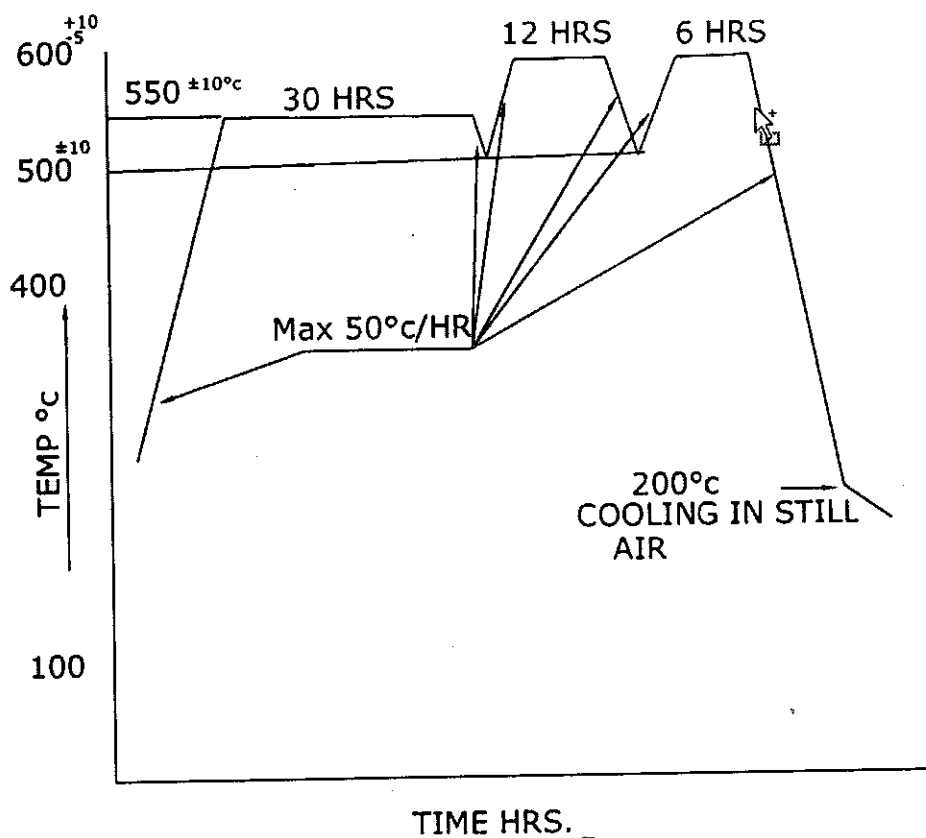



FIG.-1

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES	Page No. : 6 of 22 Rev. No. : 0

The specimens from the simulated heat treated coupons when tested, shall exhibit the mechanical test values to the requirements of para 7.0.

7.0 MECHANICAL PROPERTIES

7.1 The mechanical tests shall be conducted as per ASME SA-20 and ASME SA-370 (DIN 50115, DIN 50125 & DIN EN 10002-1). Following minimum requirements shall be met with both in quenched and tempered (RTC) and simulated heat treated condition (STC).

Minima pertaining to mechanical properties at room temperature and 350°C shall be as follows:

Test Temperature	Mechanical Properties	Unit	Thickness	
			< 125	125 – 300 mm
RT i.e. Room Temp. to be mentioned by Supplier	R _m (tr, n)	(N/mm ²)	570-670	560-660
	R _{PO.2} (tr, n)	(N/mm ²)	430	390
	A ₅ (tr, n)	(%)	18	18
	Z (tr, n)	(%)	45	45
350°C	R _m (tr, n)	(N/mm ²)	510	490
	R _{PO.2} (tr, n)	(N/mm ²)	363	343
	A ₅ (tr, n)	(%)	14	14
	Z (tr, n)		To be reported	

tr = Transverse i.e. perpendicular to direction of rolling (along width)

n = Normal i.e. in the direction of thickness

A₅ = % Elongation on 5d (in 50 mm minimum gauge length)

Z = % reduction in area

R_{PO.2} = Yield strength (0.2% offset)


R_m = Tensile strength

Maximum permissible difference of tensile strengths between head and foot is 60 N/mm² upto 10 M length and 70 N/mm², for greater than 10 M length but not more than 70 N/mm² between any two points.

7.2 Notch Toughness

7.2.1 Nil Ductility Transition Temperature (T-NDT)

The nil ductility transition temperature as determined by drop weight test in accordance with ASTM-E-208 shall not be higher than -15°C.

 एनपीसीआइएन NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 7 of 22
	<u>TECHNICAL SPECIFICATION FOR</u> <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	Rev. No. : 0

In case, T-NDT has already been established for this type of material produced under similar conditions, complete details of the material production and test procedure and results will be reported which shall be subject to approval by the purchaser.

7.2.2 Reference Nil Ductility Transition Temperature R-TNDT

Three ISO-V transverse specimens will be tested at +18°C for certification of R-TNDT. The minimum absorbed energy and lateral expansion shall not be less than 68 J and 0.9 mm respectively for any of the specimens. The percent shear fracture shall be reported.

7.2.3 Transverse and through thickness ISO-V test specimens will exhibit the following minimum values at -15°C.

- i) Average of three (3) specimens 41 J.
- ii) Lowest single value 34 J.

7.2.4 CV – Impact Curve


Charpy V-notch impact strength Vs temperature curves shall be established. Tests shall be conducted at least at six different temperatures including -15°C and +18°C to fully define upper and lower energy shelves. The upper energy shelf shall have 100% shear fracture and lower energy shelf a maximum of 10% shear fracture. The test reports shall include absorbed energy, percent shear fracture and lateral expansion, plotted against temperature. The upper shelf energy shall be more than 100 J. The absorbed energy and lateral expansion values at +18°C and -15°C shall meet the requirements of 7.2.2 and 7.2.3.

7.3 Bend Test

Bend tests shall be carried out on specimens taken from STC coupons as shown in Table -1 and sketches 3 to 6. The outer surface of the bend specimen (tension side) shall be the as rolled surface of the plate. The specimens shall withstand being bent cold through 180° without cracking on the outside of the bend portion. The mandrel diameter shall be as per ASME SA-20.

7.4 Hardness Test

Hardness of each rolled plate shall be measured after tempering, along and perpendicular to the rolling direction and also over the thickness. Hardness shall

 एनपीसीआरईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT TECHNICAL SPECIFICATION FOR <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	Page No. : 8 of 22 Rev. No. : 0

be measured at every 200 mm along and perpendicular to the rolling direction and at every 75 mm across the thickness. However, minimum 3 hardness reading shall be taken in the thickness direction.

7.5 Sulfur Print Test

Sulfur print test shall be taken at the head and foot of the plate over the cross section in case the sulfur content exceeds 0.008%. in both Heat & Check analysis. The length covered shall be at least 500 mm.

8.0 TEST COUPONS AND EXTENT OF TESTS

8.1 Categories of Test Coupons

Compliance of the material with the specification requirements shall be checked on various categories of test coupons described below:

- i) Raw Material Test Coupons (RTC) : Test coupons obtained from the quenched and tempered plates.
- ii) Simulated Heat Treated Test Coupons (STC) : Test coupons obtained from the quenched and tempered plates and subjected to simulated heat treatment as described in Section 6.2.

8.2 Test Coupons Locations

Test coupons shall be taken from two opposite ends (Head and Foot) of each rolled plate at least 1't' away from nearest rolled edge, transverse to the rolling direction presuming that the main deformation direction lies in the head-foot direction.

In case the main deformation direction does not lie in the head-foot direction, longitudinal specimens are to be additionally tested.

Test coupons shall be removed after the final tempering of the plate.


Each test coupon shall be divided into two (STC and RTC).

Refer Figure-2 to 6 for locations of test coupons.

8.3 Test Specimen Locations

The test coupons shall be taken in such a way that the specimens shall have their longitudinal axis at least $\frac{1}{4}$ 't' from a rolled surface and with the mid length of the specimen at least 't' from any heat treated edge.

In the case of foot test coupons, additional test coupons shall be taken from just below the rolled surface and mid thickness ($\frac{1}{2}$ t). Bend test specimens from

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 9 of 22
	<u>TECHNICAL SPECIFICATION FOR</u> <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	Rev. No. : 0

head and foot test coupons shall be taken such that the bend test specimen retains the top or bottom rolled surface.

8.4 Specimen Direction

The mechanical properties are to be established along the following three mutually perpendicular directions:

- i) Longitudinal - Parallel to the rolling direction
- ii) Transverse - Transverse to the rolling direction
- iii) Normal - Through thickness direction

8.5 Chemical Analysis

Chemical Analysis shall be carried out in accordance with ASTM E-30 and ASTM E-350. For product analysis, samples from each STC shall be analyzed.

8.6 Mechanical Tests

The extent of tests required is included in the enclosed table 1.

9.0 NON DESTRUCTIVE EXAMINATION

9.1 Magnetic Particle Examination

Each plate after final machining shall be examined by magnetic particle method on both surfaces and on all edges in accordance with ASME Section III, Para NB-2545. The acceptance standard shall be as per para NB-2545.3. The materials shall be demagnetised after the test.

9.2 Ultrasonic Examination

All the plates shall be ultrasonically tested by straight beam method in accordance with SA-578, "Specification for straight beam Ultrasonic Examination of plain and clad steel plates for special application".

The test shall be carried out after final tempering.

9.2.1 Extent of Examination

Scanning shall be continuous over 100% volume of plate.

9.2.2 Examination Technique

9.2.2.1 Probes

Examination shall be carried out by using straight beam probes of frequency 2 to 4 MHz.

In case, other types of probes or different frequencies are employed, prior approval of purchaser will be required. The probe size shall be 25 mm to 28 mm in diameter or 25 mm square.

9.2.2.2 Calibration

The examination equipment shall be calibrated on a flawless section of the plate. At least the second back echo shall reach full CRT screen height.

9.2.2.3 Flaw Size Determination

The size of flaws longer than probe diameter shall be determined by half-value method.

In case of flaws smaller than probe diameter DGS method shall be employed.

9.2.2.4 Recording of Indications

Flaw indications greater than or equal to that from 6 mm dia flat bottom hole reference standard shall be recorded.

9.2.3 Acceptance Standards


9.2.3.1 The maximum permissible flaw size shall not be more than 100 mm². However, the maximum permissible length and number of flaw indications shall be restricted to the following, depending upon the plate thickness.

	<u>Max. Permissible length</u>	<u>Max. Permissible frequency</u>
t < 10 mm	10 mm	2 per m ²
t = 10 to 20 mm	20 mm	“
t = 20 to 40 mm	25 mm	“
t = 40 to 60 mm	30 mm	“
t = 60 to 120 mm	40 mm	“
t = 120 to 250 mm	40 mm	4 per m ²
t > 250 mm	40 mm	6 per m ²

Where t = Plate thickness as specified in tender document.

9.3 Angle Beam Ultrasonic Examination

All plates shall be examined by Angle Beam Ultrasonic Examination as per SA-577 “Standard

 नवीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 11 of 22
	TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES	Rev. No. : 0

Specification for Ultrasonic Examination of Steel Plates” and as supplemented by NB-2532.2 of ASME section III NB. The examination shall cover 100% volume of each plate. The acceptance shall be as per NB-2532.2.

9.4 Dimensional Check

Each plate shall be checked for length, width and thickness after the final tempering. The thickness shall be measured on grid lines of 300 mm x 300 mm. The actual dimensions shall be recorded. Measurement method shall be specified. The tolerances shall be as per ASTM A-20 unless otherwise specified.

10.0 REPAIRS


Repair is generally not permitted. Minor surface defects (< 2 mm depth) may be smoothly ground and blended without impairing the minimum wall thickness. No other repairs shall be carried out without prior approval of the purchaser or his authorized inspection agency.

Plans for all repairs requiring heat treatment shall be submitted to the Purchaser or his authorized inspection agency for review and approval, prior to taking up the job. Repairs involving welding are prohibited. All non-conformities shall be recorded and reported to the Purchaser to determine their disposal.

11.0 PROCEDURES, PLANS, REPORTS AND DOCUMENTATION

The following procedures and plans shall be submitted for purchaser’s approval in six copies each before start of manufacture.

- a) Manufacturing plan indicating the sequence of operations, testing, and ‘witness’ and ‘hold’ points. ‘Witness’ point signifies that the manufacturer will intimate date of actual performance of that activity to the Purchaser sufficiently in advance so that Purchaser can witness the performance of the activity. However, in case Purchaser is not present, the manufacturer can proceed with the job. Hold point is similar to witness except that in case of Hold Point the manufacturer cannot proceed with the activity unless Purchaser is present or has given written waiver to proceed without his presence.
- b) Heat treatment plan.

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	
	TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES	Page No. : 12 of 22 Rev. No. : 0

- c) Material testing and sampling plan with sketches showing various specimens.
- d) Non-destructive examination procedures
- e) Quality assurance plan

12.0 QUALITY SURVEILLANCE


The plates shall be subjected to quality surveillance by the Purchaser or his authorized agency during manufacture.

A schedule for sampling and testing shall be submitted to the Purchaser for review and approval. The test specimens shall be taken only after they are identified and stamped by Purchaser or his authorized inspection agency.

The Purchaser or his authorized inspection agency will witness the tests at various stages as indicated below. These stages shall be clearly identified in the manufacturing plan to be submitted by the supplier.

A minimum of 15 days notice shall be given by the supplier before each stage of testing/ examination and identified as witness or hold points in MSP or QAP. These may include the following:

- a) Heat treatment
- b) Identification of test coupons
- c) Simulated heat treatment on STC coupons
- d) Transfer of stamping on specimens
- e) Mechanical tests on specimens from STC and RTC.
- f) Hardness test
- g) Sulfur print test
- h) Magnetic particle examination
- i) Ultrasonic examination
- j) Dimensional check
- k) Final marking and stamping of plates

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	Page No. : 13 of 22
<u>TECHNICAL SPECIFICATION FOR</u> <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>		Rev. No. : 0

l) Documentation review and stamping

The plates shall be shipped only after issue of shipping release by the Purchaser/ his authorized agency.

13.0 MARKING AND IDENTIFICATION

13.1 Identification

The following shall be stamped on each plate at approximately 600 mm from head and foot


- a) Direction of rolling – Head and Foot
- b) Heat number / Melt number
- c) Plate number
- d) Specification
- e) Supply condition
- f) Manufacturer's name
- g) Inspection authority / purchaser seal

Stamping shall be done using round-nosed steel die stamps. The identification shall be encircled by using halogen and sulfur free paints for easy location. Test coupons shall also bear the above identifications.

13.2 Marking

The following shall be legally marked using halogen and sulfur free paint on each plate before dispatch.

- a) Purchaser order number
- b) Material specification and grade
- c) Size
- d) Destination
- e) Supply condition

 एनपीसीआइएन NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 14 of 22
	<u>TECHNICAL SPECIFICATION FOR</u> <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	Rev. No. : 0

14.0 REPORTS

The following reports shall be submitted to the purchaser in ten copies (10) each. The reports shall be submitted in bound volume.

- a) Chemical analysis – ladle and product.
- b) Mechanical test report.
- c) CV impact curve.
- d) Non-destructive examination report.
- e) Heat treatment charts.
- f) Visual and dimensional inspection report.
- g) Sulfur prints.
- h) Hardness survey report.

Four copies of above reports shall be sent to the purchaser immediately on completion of tests/ inspection, prior to shipment of material. One set each shall be dispatched along with material for each unit. Final documentation containing all the above shall also be submitted in soft form (pdf format) with proper indexing.

15.0 PACKING AND SHIPMENT

Before shipment, suitable easily removable rust preventive coating shall be applied on the plates to ensure sea-worthiness and tropical storage for two years. The plates shall be suitably crated to prevent the surfaces of the plates coming in contact with any foreign objects. If the plates are stacked together they shall be separated by hard bound or craft paper to prevent surface to surface contact. Material of each unit requirement will be packed separately.

The supplier shall submit the preservation and packing plan (including no. of boxes and identification tags) for Purchaser's approval.



 पनवीसी आर्कएनएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	Page No. : 15 of 22	TECHNICAL SPECIFICATION FOR
	QUENCHED & TEMPERED	Rev. No. : 0
	LOW ALLOY STEEL PLATES	

TABLE - 1

EXTENT OF TESTS

S. No.	Description	Direction	Head		Foot		Remarks
			STC	RTC	STC	RTC	
1	Tensile at RT (See Note : 1)	tr	1	1	1*	1	* For plate thk. > 70 mm, the no. of coupons shall be 3
		n	1	3	1	3	
2	Tensile at 350° C (See Note : 1)	tr	1	-	1*	-	-do-
		n	1	-	1	-	
3	Impact at -15°C	n	3	-	3	-	
4.	Impact curve (-15°C, 18°C & 4 other temperatures)	tr	6 x 3 at ¼ t	-	6 x 3 at ¼ t 6 x 3 at ½ t 6 x 3 at ¾ t		-
5	Drop weight test	tr	2	-	2	-	Specimen P-2
6	Bend test	tr	2	-	2	-	
7	Grain size and micro-examination		2 (1 feritic grain + 1 austenitic grain)	1	6 (3 feritic grain + 3 austenitic grain)	3	Micro examination to be carried out both on longitudinal and transverse directions of each specimen from STC Coupons. (See Fig. 3 to 6)
8	Product analysis		1		3 (1 each at ¼ t, ½ t and ¾ t)		From STC Coupons. (See Fig. 3 to 6)
9	Hardness and sulfur print tests						As specified in text
10	U.T. and M.P.I.						-do-

Note : 1. For plates 19 mm and under, test specimens shall be full thickness of plate

	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	Page No. : 16 of 22	
	<u>TECHNICAL SPECIFICATION FOR</u> <u>QUENCHED & TEMPERED</u> <u>LOW ALLOY STEEL PLATES</u>	
	Rev. No. : 0	

ANNEXURE – 1 : LOW ALLOY STEEL PLATES – 16 Mo 3

1.0 SCOPE

This Annexure covers the technical requirements for the supply of low alloy steel plates conforming to DIN EN 10028-2 (latest edition) - Material no. 1.5415 or its equivalent.

The general requirements of delivery as per ASME SA-20 shall also apply. In case of conflicting requirements, more stringent requirements shall govern.

2.0 STEEL MELTING

The steel shall be fully killed and of fine grain. It shall be melted in an electric furnace and vacuum degassed.

3.0 HEAT TREATMENT

The plates shall be supplied in the normalized condition.

4.0 CHEMICAL COMPOSITION

Both ladle and product analysis shall be performed and the composition shall conform to that specified in DIN EN 10028-2 (latest edition) for Material no. 1.5415 with the exception that N₂ content shall not exceed 0.009%.

Both ladle and product analysis shall be recorded and reported to the Purchaser.


5.0 MECHANICAL TESTS

The test specimens for mechanical tests shall be taken transverse to the rolling direction. The test results shall meet the requirements of DIN EN 10028-2 (latest edition) for Material no. 1.5415 in totality.

5.1 Tests shall be carried out to check yield point at elevated temperature (350°C) for each plate.

5.2 Notched bar impact test at 20°C on ISO-V samples according to DIN 50115 shall be carried out for each plate.

5.3 Bend test shall be performed in accordance with ASME SA-20. The specimen shall be bent cold through 180° without cracking on the outside of the bent portion.

 एनपीसीआरएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	Page No. : 17 of 22	Rev. No. : 0
TECHNICAL SPECIFICATION FOR QUENCHED & TEMPERED LOW ALLOY STEEL PLATES		

ANNEXURE – 1 : LOW ALLOY STEEL PLATES – 16 Mo 3 – CONTD...

- 5.4 In addition to the transverse tensile tests, plates of thickness 70 mm and above shall also be subjected to “through thickness” tensile tests at room temperature. Three tensile specimens each shall be tested from the middle width at the top and bottom end of each rolled plate after the final heat treatment. The through thickness tensile properties shall also meet the minimum specified values for the plate material.
- 6.0 **NON DESTRUCTIVE EXAMINATION**
Magnetic particle examination and ultrasonic examination shall be carried out on each plate as per Clauses 9.1 and 9.2 of PC-M-964.
- 7.0 **DIMENSIONAL CHECK**
Thickness shall be measured on each plate by ultrasonic means. Length and width of each plate shall also be measured.
- 8.0 **REPAIRS**
No repairs are generally permitted. However, minor surface defects (< 2 mm depth) can be removed by means of grinding provided the minimum thickness requirements are met.
- 9.0 **PROCEDURE, PLANS AND DOCUMENTATION**
Refer Para 11 of PC-M-964.
- 10.0 **QUALITY SURVEILLANCE**
As per Clause Nos. 12 of PC-M-964.
- 11.0 **MARKING AND IDENTIFICATION**
As per Clause Nos. 13.0 of PC-M-964.
- 12.0 **REPORTS**
Refer Para 14 of PC-M-964.
- 13.0 **PACKING AND SHIPMENT**
Refer Para 15 of PC-M-964

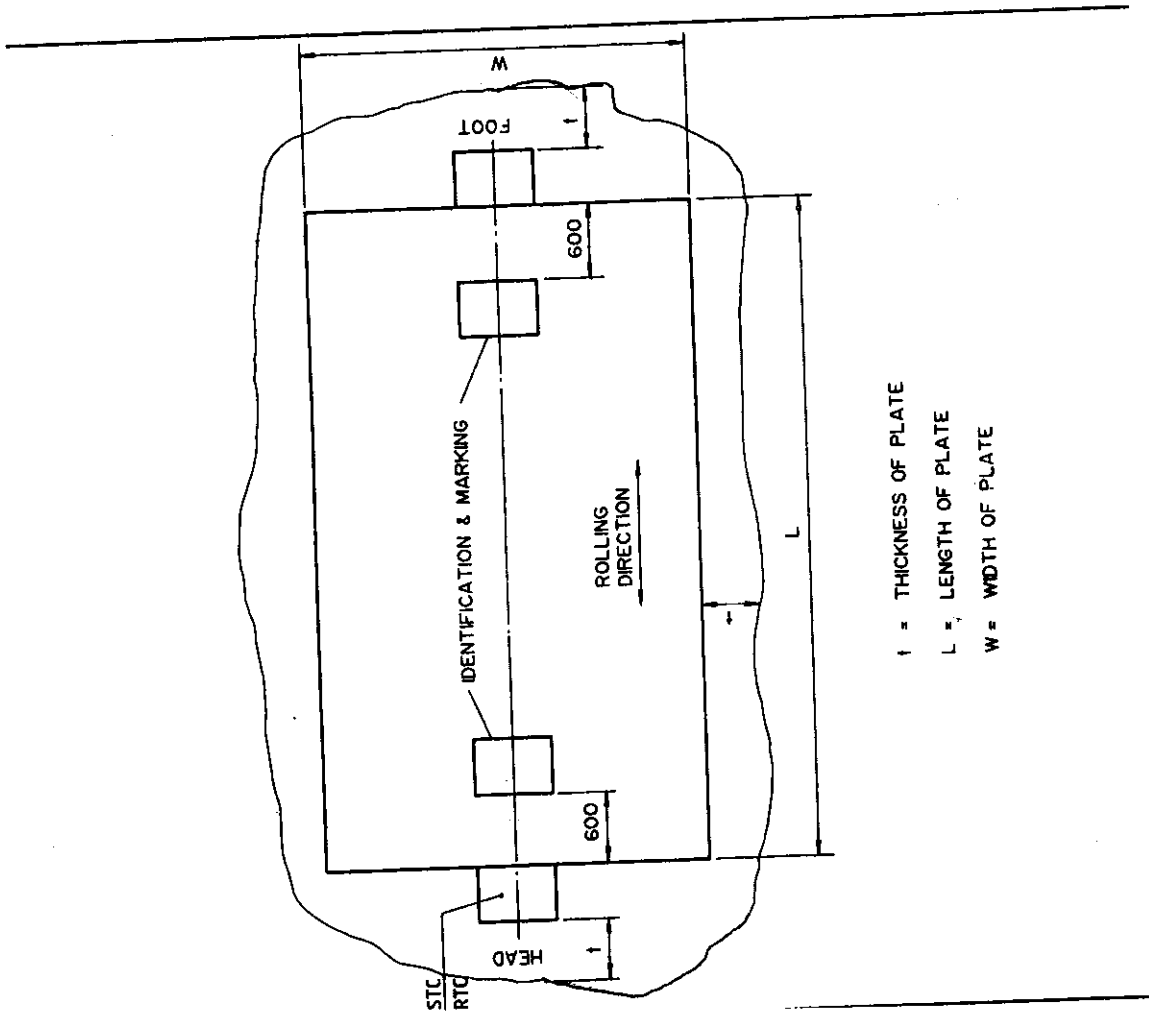


FIGURE - 2



**TECHNICAL SPECIFICATION FOR
QUENCHED & TEMPERED
LOW ALLOY STEEL PLATES**

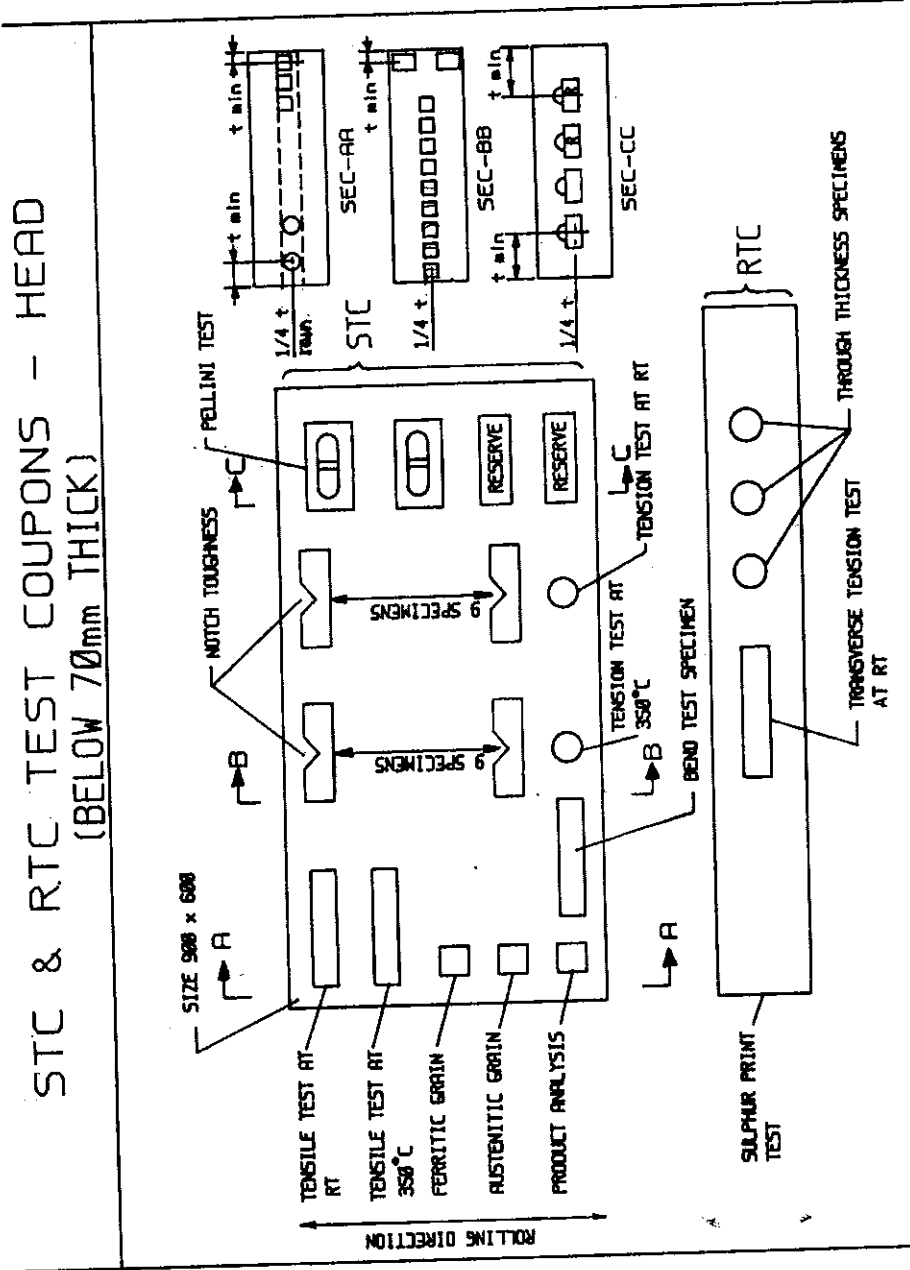


FIGURE - 3



TECHNICAL SPECIFICATION FOR
QUENCHED & TEMPERED
LOW ALLOY STEEL PLATES

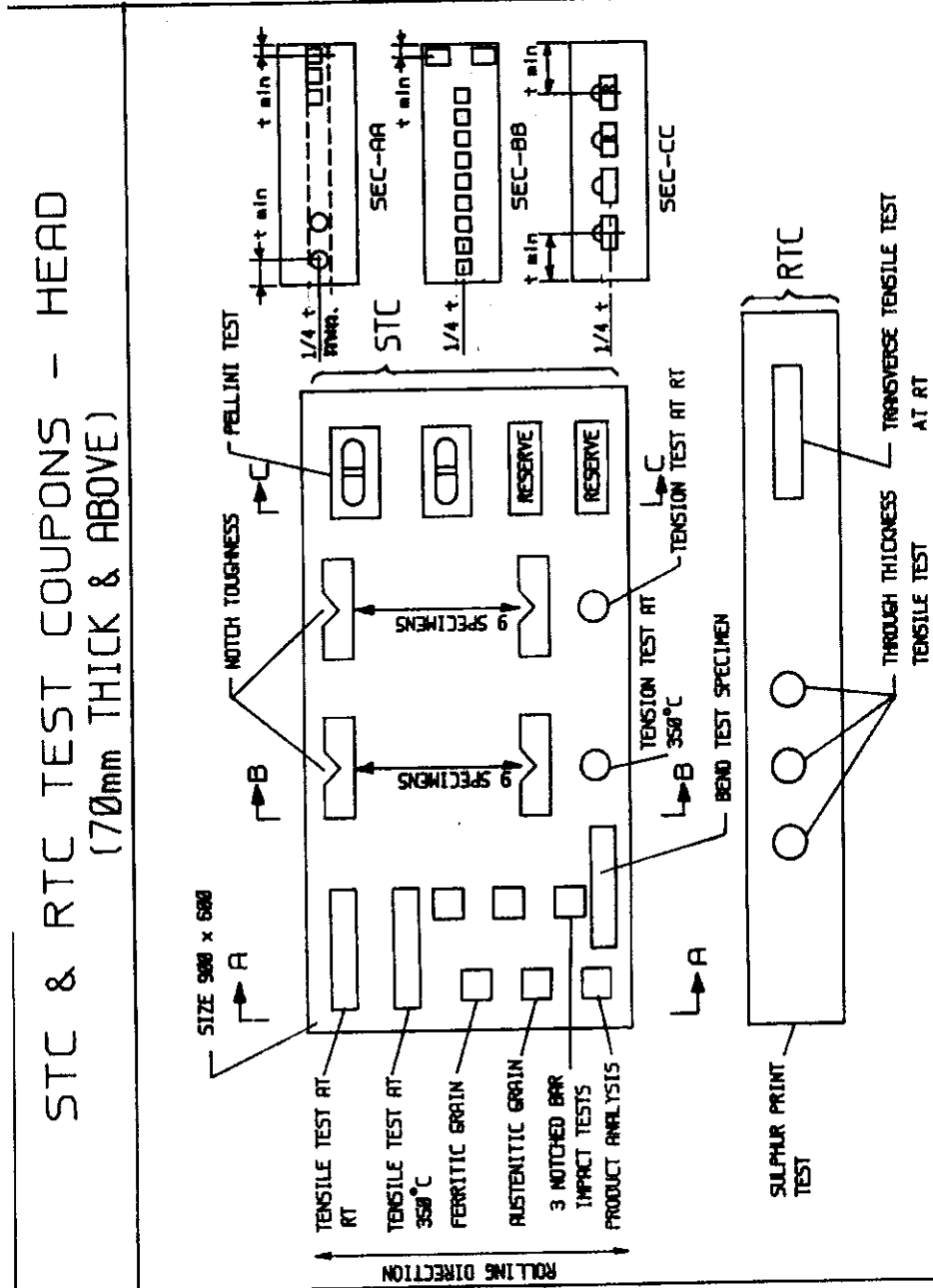


FIGURE - 4



**TECHNICAL SPECIFICATION FOR
QUENCHED & TEMPERED
LOW ALLOY STEEL PLATES**

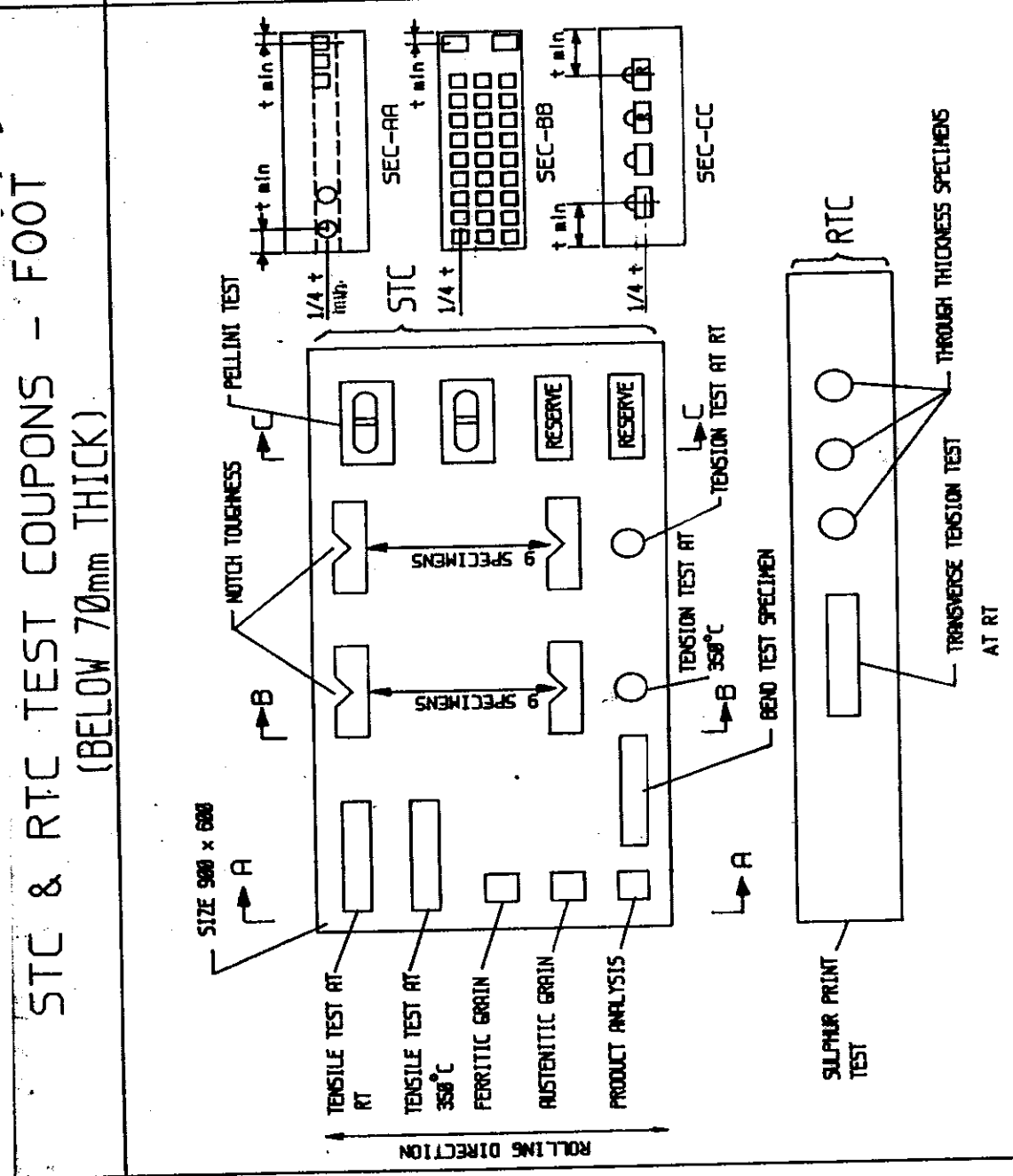


FIGURE - 5



**TECHNICAL SPECIFICATION FOR
 QUENCHED & TEMPERED
 LOW ALLOY STEEL PLATES**

**STC & RTC TEST COUPONS - FOOT
 (70mm THICK & ABOVE)**

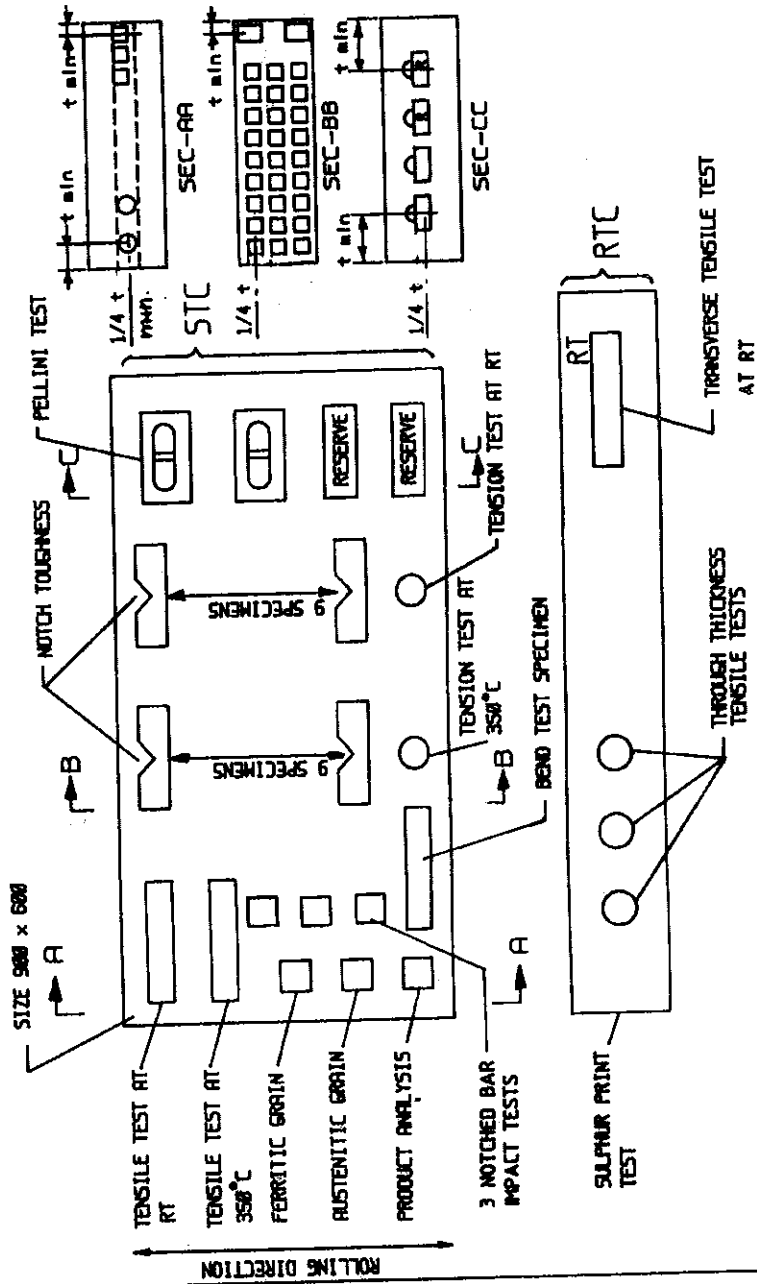


FIGURE - 6

NUCLEAR POWER CORPORATION OF INDIA LTD.
(A Government of India Enterprise)

SPECIFICATION NO. : PC – M – 963

REVISION NO. :

DATE OF ISSUE
(MONTH/YEAR) :

TOTAL NO. OF PAGES
(Including Cover Sheet) :

0	1						
Sept 2013	Feb 2014						
10	10						

TECHNICAL SPECIFICATION

FOR

**STAINLESS STEEL FLATS FOR GRIDS FOR
700 MWe PROJECT STEAM GENERATORS**

REF. USI NO. : 33111

	NAME	Designation	SIGNATURE	DATE
PREPARED BY	R.K.Gupta	ACE	Sd/-	11/09/2013
	Braham Prakash	ACE	Sd/-	11/09/2013
CHECKED BY	P.B.Rshikesan	ACE	Sd/-	12/09/2013
	D.Ganesh	ACE	Sd/-	12/09/2013
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REVIEWED BY	S.N.Kamath	CE	Sd/-	12/09/2013
	M.K.Sharma	CE	Sd/-	12/09/2013
APPROVED BY	U.C.Muktibodh	ED (Engg.)	Sd/-	14/09/2013

(For Revisions see Revision Control Sheet)

File Name : CD No.:

(i)
REVISION CONTROL SHEET


DOCUMENT TYPE : TECHNICAL SPECIFICATION
 NO. : PC – M – 963
 TITLE : TECHNICAL SPECIFICATION FOR
 STAINLESS STEEL FLATS FOR GRIDS FOR
 700 MWe PROJECT STEAM GENERATORS

REV. NO. & DATE	DESCRIPTION OF REVISION	PREPARED BY	CHECKED BY	REVIEWED BY	APPROVED BY
0 Sept 2013	Original (Pages : 10)	Sd/- R.K.Gupta Sd/- Braham Prakash	Sd/- P.B.Rshikesan Sd/- D.Ganesh Sd/- M.R.S.Saxena	Sd/- S.N.Kamath Sd/- M.K.Sharma	Sd/- U.C. Muktibodh
1 Feb 2014	General revision & Residual copper content added at page no 2 clause no 4	<i>R.K.Gupta</i> 13/2/14 R.K.Gupta <i>Braham Prakash</i> 05/02/14 Braham Prakash	<i>P.B.Rshikesan</i> 5/2/14 P.B.Rshikesan <i>D.Ganesh</i> 7/2/14 D.Ganesh <i>M.R.S.Saxena</i> 7/2/14 M.R.S.Saxena	<i>S.N.Kamath</i> 10/2/14 S.N.Kamath <i>M.K.Sharma</i> 14/02/14 M.K.Sharma	<i>U.C. Muktibodh</i> 12-02-2014 U.C. Muktibodh

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 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	<u>TECHNICAL SPECIFICATION</u>	Page No. : 1 of 6
STAINLESS STEEL FLATS FOR GRIDS FOR 700 MWe PROJECT STEAM GENERATORS		Rev. No. : 1

1.0 SCOPE


This specification establishes the technical requirements for the material, manufacture, inspection, examination, testing and supply of stainless steel flats to material designation No. 1.4550 according to DIN EN 10028-7 with supply condition m (o). All requirements given herein are the minimum requirements. Alternate equivalent material may be considered provided it is demonstrated that the above mentioned minimum requirements are met.

This specification is applicable for Steam Generators of 700MWe projects beyond RAPP-7, 8.

2.0 CONTENTS

The requirements of this Specification are presented under the following headings:

<u>Description</u>	<u>Section</u>
Scope	1.0
Contents	2.0
Process of Manufacture	3.0
Chemical Composition	4.0
Heat Treatment	5.0
Mechanical Properties	6.0
Corrosion Test	7.0
Roughness	8.0
Cleanliness	9.0
Straightness	10.0
General	11.0
Test Material	12.0
Dimensional Check	13.0
Procedures and Plans	14.0

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	<u>TECHNICAL SPECIFICATION</u>	Page No. : 2 of 6
	STAINLESS STEEL FLATS FOR GRIDS FOR 700 MWe PROJECT STEAM GENERATORS	Rev. No. : 1

Quality Surveillance	15.0
Marking	16.0
Test Reports / Certificates	17.0
Packing and Shipment	18.0

Figure – 1 : Grid Flats

3.0 **PROCESS OF MANUFACTURE**

The flats are made by cold/hot drawing. Subsequently they are to be solution annealed, ground, pickled and passivated. The flats are to be straight without any warping or twisting. Tolerances indicated in the figure-1 of this specification are to be strictly adhered to.

4.0 **CHEMICAL COMPOSITION**

The chemical composition shall be as per DIN EN 10028-7 material no. 1.4550. Residual copper content shall not be more than 0.3%, as per product analysis.

5.0 **HEAT TREATMENT**

All the flats shall be solution annealed according to DIN EN 10028-7.

6.0 **MECHANICAL PROPERTIES**


The mechanical requirements are as per DIN EN 10028-7 material No. 1.4550. Unless otherwise specified, the tests shall be carried out as per ASTM A-370.

7.0 **CORROSION TEST**

Intergranular corrosion test shall be carried out on samples from each heat treated batch as per ASTM A-262 Case E with preceding sensitizing heat treatment at 650°C for 30 minutes.

8.0 **ROUGHNESS**

The flats shall be ground smoothly and the surface finish shall be $Ra \leq 0.8 \mu m$. The surface finish measurement shall be supported with a roughness measurement diagram.

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT	
	Page No. : 3 of 6	
	<u>TECHNICAL SPECIFICATION</u>	
	STAINLESS STEEL FLATS FOR GRIDS FOR 700 MWe PROJECT STEAM GENERATORS	Rev. No. : 1

9.0 CLEANLINESS

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.

10.0 STRAIGHTNESS

The individual flats shall be straight without any bow or weaviness. The maximum permissible bow and distortion are indicated in Figure-1.

11.0 GENERAL

Tears and other material breakages as well as macroscopic visible inclusions are not permissible.

12.0 TEST MATERIAL

Each heat treated batch shall be tested at the supplier's works. The supplier shall send one test flat of full length for each heat treated batch with clear identification to the particular lot along with the flats.

13.0 DIMENSIONAL CHECK


Each flat shall be visually examined & checked for dimensional conformity with Figure-1.

14.0 PROCEDURES AND PLANS

The following procedures and plans shall be submitted to the purchaser for review and approval in six copies each prior to start of manufacture.

- a) Manufacturing plan indicating the sequence of operations, testing, witness and hold points. Witness point signifies that the manufacturer will intimate date of actual performance of that activity to the purchaser sufficiently in advance so that purchaser can witness the performance of the activity.

However, in case purchaser is not present, the manufacturer can proceed with the job.

 एनपीसीआइएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD ATOMIC POWER PROJECT	Page No. : 4 of 6
	<u>TECHNICAL SPECIFICATION</u> STAINLESS STEEL FLATS FOR GRIDS FOR 700 MWe PROJECT STEAM GENERATORS	Rev. No. : 1

Hold point is similar to witness point except that in case of Hold Point the manufacturer can not proceed with the activity unless purchaser is present or has given written waiver to proceed without his presence.

- b) Heat treatment plan.
- c) Mechanical test procedures.
- d) Quality assurance plan.
- e) Surface treatment procedure.
- f) Intergranular corrosion test procedure.

15.0 **QUALITY SURVEILLANCE**

All material shall be subjected to quality surveillance by the Purchaser or his authorized agency during manufacture. The material shall not be supplied until the shipping release is given by the Purchaser or his authorized agency.


16.0 **MARKING**

16.1 The following shall be legibly marked on each flat by a vibro etcher.

- a) Heat No. / Melt No.
- b) Material specification and grade.
- c) Size and weight.
- d) Supply conditions.
- e) Inspection agency / Purchaser's seal.
- f) Manufacturer's name.

16.2 The following shall be legibly marked on each box before shipment.

- a) Purchase order number.
- b) Material specification
- c) Melt No.
- d) Heat treated lot number.
- e) Number of pieces.
- f) Dimensions.

 एनपीसीआईएल NPCIL	NUCLEAR POWER CORPORATION OF INDIA LTD	
	ATOMIC POWER PROJECT <u>TECHNICAL SPECIFICATION</u>	Page No. : 5 of 6
	STAINLESS STEEL FLATS FOR GRIDS FOR 700 MWe PROJECT STEAM GENERATORS	Rev. No. : 1

g) Destination.

17.0 TEST REPORTS / CERTIFICATES

Four (4) copies of all test reports / certificates shall be sent to the Purchaser immediately after completion of tests / inspection, prior to shipment of material. One set of test reports / certificates shall be dispatched along with the material for each unit. The reports shall be submitted in bound volume.

The following reports shall be submitted.

- a) Chemical analysis.
- b) Mechanical test reports.
- c) Heat treatment charts.
- d) Intergranular corrosion test report.
- e) Visual and dimensional inspection report.
- f) Roughness measurement report with diagram.

Final documentation containing all the above shall also be submitted in soft form (pdf format) with proper indexing

18.0 PACKING AND SHIPMENT

The flats shall be packed in boxes according to uniform length and same heat treated lots. The individual flat shall be completely covered by plastic sheets and shall be separated from each other by suitable intermediate inserts made of paper or wood. The boxes shall contain moisture absorbents to prevent any ingress of moisture. The packing shall be worthy for sea transport. Adequate supports and bracings shall be provided to ensure that the flats do not bend or distort during handling & transportation. Materials for each unit shall be packed separately.

The supplier shall submit a packing specification/procedure to the Purchaser for review and approval prior to packing and shipment.



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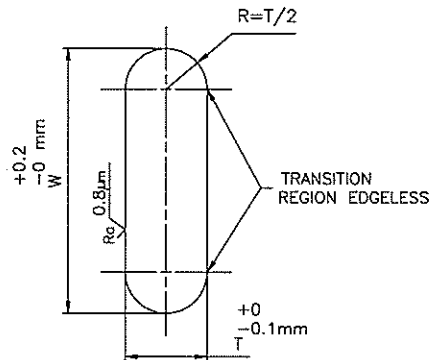
TECHNICAL SPECIFICATION

**STAINLESS STEEL FLATS FOR GRIDS FOR
700 MWe PROJECT STEAM GENERATORS**

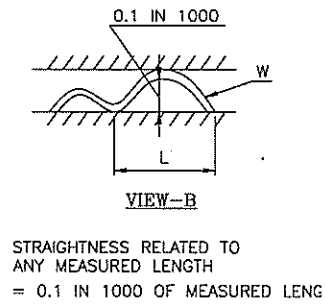
Page No. : 6 of 6

Rev. No. : 1

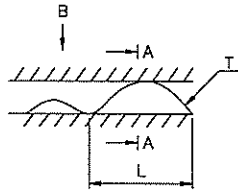
1.PROFILE AND SURFACE



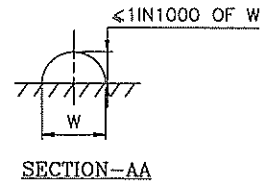
3.STRAIGHTNESS



2.WAVINESS AND TWISTING



4.CONVEXITY



WAVINESS RELATED TO ANY MEASURED LENGTH (L) (>250mm)=0.1 IN 1000(MAX) OF MEASURED LENGTH.

TWISTING RELATED TO ANY MEASURED LENGTH (L) (>250mm)=0.3 IN 1000(MAX) OF MEASURED LENGTH

W=WIDTH OF STRIP

T=NOMINAL THICKNESS OF STRIP.

GRID FLATS

FIGURE-1

INTEGRITY PACT**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

ENQUIRY NO: 1502200005 for Manufacture, Testing and Supply of 16 Mo3 SS GRID PLATS

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions:

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to

demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.

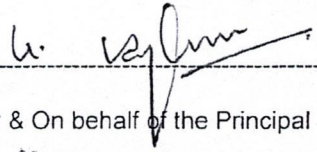
Section 9 - Pact Duration

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.



 For & On behalf of the Principal

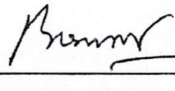
 For & On behalf of the Bidder/
 Contractor

K. UDAYA KUMAR
 Deputy Manager
 MM / RM / Planning / ~~Procurement~~ Purchase / Tube.
 Materials Management / FB
 BHEL, TRICHY - 620 014.

(Office Seal)

Place: Trichy

Date: 03/03/2022

Witness: 

Witness: _____

(Name & Address) _____
BHASKARNATH BISWAS
 Dy. Engineer
 MM/Purchase/Tubes
 BHEL, TRICHY - 620014

(Name & Address) _____

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for 16Mo3 Spacer Flats (Size:19.4 mm thick x20 mm width)			QP No: GQP/SG/FLEET/03 Rev 00 Project: Fleet Mode SGs.
		Item : 16Mo3 Spacer Flats Sub-system: Steam Generator Size: 19.4t x20w mm(Length as specified in P.O)	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the 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	D*	M	B	N	
1.	2.	3.	4.	5.	6.	7.	8.	D*	9. **			10.
1.0	Raw Material :											
1.1	Steel Melting: Melting in electric arc furnace Vacuum Degassing	Temperature	Record Verification	100%	PC-M-964 Rev 0 Annexure-1, DIN EN 10028-2/10273 & MPP	TC	√	P	R	R	Steel shall be fully killed and fine grain.	
		Chemistry	Ladle analysis	1/ Melt	PC- M-964 Rev 0 Annexure-1 DIN EN10028-2/10273	TC	√	P	R	R	N ₂ ≤0.009%	
1.2	Semi Product (Slab/Bar/Billet/Rounds etc)	Free from defects	Visual/Record verification	100%	MPP	RD	--	P	--	--	--	
2.0	In process Controls :											
2.1	Rolling Process / Drawing Process	Rolling/Drawing Process	Record verification	100%	PC- M-964 Rev 0 Annexure-1 & MPP	--	--	P	--	--	--	
2.2	Marking after Rolling/ Drawing	Identifications	Verification and Visual	100%	PC- M-964 Rev 0 Annexure-1 & MPP	--	--	P	--	--	--	
2.3	Heat Treatment (Normalization)	Soaking Temp & Time	Review of HT Chart	100%	PC- M-964 Rev 0 Annexure-1 & HTP	TC	√	P	R	R	HT Chart shall be submitted along with TC	
2.4	Identification of Test coupon, Stamping & cutting of coupon	Location and orientation	Visual & Measurement	100%	PC- M-964 Rev 0 Annexure-1, MPP & MSTP	RD		P	H	H	---	

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

Mishra
12/04/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for 16Mo3 Spacer Flats (Size:19.4 mm thick x20 mm width)								QP No: GQP/SG/FLEET/03 Rev 00 Project: Fleet Mode SGs.	
		Item : 16Mo3 Spacer Flats Sub-system: Steam Generator Size: 19.4t x20w mm(Length as specified in P.O)	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the supplier Page No: 2 of 4								

2.5	Specimens preparation with stamp transfer from test coupons	Dimensions	Visual & Measurement	100%	PC- M-964 Rev 0 Annexure-1 MPP & MSTP	TC	√	P	H	H	---
2.6	Mechanical descaling (if required)	Surface Inspection , Free from Visual Defects	Visual	100%	PC- M-964 Rev 0 Annexure-1 Free from Visual Defects	---	---	P	---	--	Surface Should be smooth and free of scales
2.7	Visual Inspection	Free from visual defects	Verification and Visual	100%	PC- M-964 Rev 0 Annexure-1	TC	√	P	H	H	---
2.8	Magnetic Particle Examination	Surface and shallow sub surface defects	MPI	100%	PC- M-964 Rev 0 Annexure-1 & MPI Procedure	TC	√	P	H	H	To be demagnetized after test
2.9	Ultrasonic Inspection	Internal soundness	Ultrasonic Test	100%	PC- M-964 Rev 0 Annexure-1 & UT Procedure	TC	√	P	H	H	Surface shall be cleaned after USI.
2.10	Final Dimensional check	Dimensions	Measurement	100%	P.O & Drg No:3-93-172-05578/00	TC	√	P	W (10% of P.O Qty)	H	---
		Thickness	Ultrasonic measurement	100%							At random locations on each Flat
3.0 Mechanical and Metallurgical Tests :											
3.1	Product analysis	Chemistry	Chemical analysis	1/Melt	PC- M-964 Rev 0 Annexure-1, MSTP	TC	√	P	H	H	---
3.2	Tensile at RT	Tensile Strength, Yield Strength*, % Elongation	Destructive Test	1/Melt/ HT Batch	PC- M-964 Rev 0 Annexure-1, EN ISO 6892-1,Note-1 Cl.v & MSTP	TC	√	P	H	H	---
3.3	Tensile at 350° C	0.2% proof strength	Destructive Test	1/Melt/ HT Batch	PC- M-964 Rev 0 Annexure-1, EN ISO 6892-2 & MSTP	TC	√	P	H	H	---

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

M.P.S.
12/04/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for 16Mo3 Spacer Flats (Size:19.4 mm thick x20 mm width)				QP No: GQP/SG/FLEET/03				
		Item : 16Mo3 Spacer Flats	Sub-system: Steam Generator			Rev 00				
		Size: 19.4t x20w mm(Length as specified in P.O)	QP No.: To be Filled by the supplier		Date: To be Filled by the supplier					
			Rev.No.: To be Filled by the supplier		Page No:3 of 4					
					Project: Fleet Mode SGs.					

3.4	Impact Test at +20°C	absorbed energy	Destructive Test	1set (3No) /Melt/ HT Batch	PC- M-964 Rev 0 Annexure-1, EN ISO 148-1 & MSTP	TC	√	P	H	H	---
3.5	Bend Test	Yield property	Destructive Test	1/Melt/ HT Batch	PC- M-964 Rev 0 Annexure-1, ASME SEC II SA-20 & & MSTP	TC	√	P	H	H	----
4.0	Final Inspection										
4.1	Marking	SI No, Heat Number, Material designation, Supply condition, Inspectors Seal, Manufacturer's name , P.O Number, Direction of Rolling /Drawing	Verification and Visual	100%	PC- M-964 Rev 0 Annexure-1	TC	√	P	H	H	---
4.2	Mix up Test	Positive Material Identification	PMI Test	100%	PC- M-964 Rev 0 Annexure-1	TC	√	P	R	H	---
4.3	Certification and Documentation Control	Order compliance	Certificate compilation	100%	PC- M-964 Rev 0 Annexure-1 EN 10204 3.2	TC	√	P	H	H	Dispatch clearance will be given after Acceptance of Final documentation by BHEL&NPCIL
4.4	Packing & Shipment	Packing	Visual	100%	PC- M-964 Rev 0 Annexure-1	---	--	P	--	--	---

				LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION.
				** M: SUPPLIER B: BHEL, N: NPCIL/TP
				P: PERFORM R: REVIEW W: WITNESS AND H: HOLD
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	TC:TEST CERTIFICATE RD: RECORD
				MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

M.P.R
12/02/2022


SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for 16Mo3 Spacer Flats (Size:19.4 mm thick x20 mm width)		QP No: GQP/SG/FLEET/03 Rev 00 Project: Fleet Mode SGs.
		Item : 16Mo3 Spacer Flats Sub-system: Steam Generator Size: 19.4t x20w mm(Length as specified in P.O)	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the supplier Page No.4 of 4	


Note 1:


- Normalization Heat Treatment shall be performed either on the rolled plates before final machining or on the initial rolled semi product which will subsequently undergo further forming operations to final shape (without machining), if required.
- Calibration certificates of recorders, thermocouples and controllers shall be submitted for review. Heat treatment shall be carried out in calibrated furnaces only
- Stage wise inspection documents shall be concluded/completed with signature of all Inspection agencies before taking up and presenting the next stage for Inspection.
- Where ever the version is not indicated, latest version shall be referred for the standards referenced in this document.
- # - QAP Clause 3.2, If the upper yield strength(ReH) is not obtained, this shall be replaced by determining 0.2% P.S (Rp0.2) and 10Mpa lower min value applies.
- Calibrated instruments shall be used during inspection, Examination and testing.

BHEL

- Prepared - - Reviewed - - Approved -


 12/01/2022
 [NISHIN - O.R.]


 12/02/2022
 [M. SHYAM SUNDAR]


 12/2/2022
 [S. LAKSHMI]

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Central Bar(6 mm thick) and Top& Bottom Plate(6 mm Thick)					QP No:GQP/SG/FLEET/05 Rev 00 Project: Fleet Mode SGs.			
		Item : SS Central Bar and Top & Bottom Plate (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator		QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 1 of 3						

SI. 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 Route (AOD/VOD)	Furnace, Process, Fully killed steel	Record Verification	100%	PC-M-963/01, MPP	TC	√	P	R	R		---
1.2	Ladle Analysis	Chemistry	Review of TC	1/Melt	PC-M-963/01, EN 10028-7	TC	√	P	R	R		---
1.3	Semi-Finished Product	Dimension & Free from defects	Measurement/ Visual check	1/Batch (Dimension) 100% (Visual)	EN 10028-7/EN 10278	RD	--	P	--	--		Dimension check using micrometer
2.0	In process Controls :											
2.1	Rolling – Pre shaping	Dimension check	Profile shape check	1/ Batch	PC-M-963/01, EN 10028-7, MPP	RD	---	P	---	---		---
2.2	Drawing – Hot/Cold	Dimension & Shape check	Profile shape, Micrometer	Start & End of Each HTB	PC-M-963/01, EN 10028-7, MPP	RD	--	P	--	---		
2.3	Final Heat Treatment (Solution Annealing)	R.O.H , Soaking Temp & Time, R.O.C	Review of HT Chart	Continuous Recording	PC-M-963 Rev 01, HTP	TC	√	P	W	R		HT chart shall be submitted
2.4	Mechanical Descaling of Flats (if required)	Surface Inspection, Free from Visual defects	Visual	100%	PC-M-963/01 Free from visual Defects							
2.5	Identification of Test coupon and Cutting	Location and orientation	Visual & Measurement	1/Heat/HTB	PC-M-963/01, MPP & MSTP	RD	√	P	H	H		Note 1 (ii)
2.6	Cutting to Final Length	Dimension	Measurement	Start & End of each Length group of Bar	PC-M-963/01	RD	--	P	--	---		
2.7	Final Straightening	Straightness	Measurement	100%	PC-M-963/01 Fig 1	TC	√	P	W	W		

					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 MPP: MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP: MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL		

M. S. K.
12/10/2020

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Central Bar(6 mm thick) and Top& Bottom Plate(6 mm Thick)								QP No.:GQP/SG/FLEET/05 Rev 00 Project: Fleet Mode SGs.	
		Item : SS Central Bar and Top & Bottom Plate (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator		QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 2 of 3							
2.8	Pickling & Passivation	Pickling & Passivation	Pickling & Passivation	100%	PC-M-963/01, Pickling and Passivation Procedure:	---	---	P	---	---	----
2.9	Passivity Check	Passivity check	Passivity check	1/Melt/HT Batch Each HTB	PC-M-963/01, Pickling and Passivation Procedure	TC	√	P	W	W	
2.10	Final Dimension check	Dimensions (Thk Length, Width), Straightness , Waviness, Twisting, Convexity etc	Tape, Micrometer, etc	100%	As per P.O & PC-M-963/01	TC	√	P	W	W	
2.11	Cleanliness check	Cleanliness free from defects	Visual	100%	PC-M-963/01	TC	√	P	R	R	Note 1 (i)
2.12	Surface Finish Check	Surface Finish	Measurement (Roughness gauge)	Start & End of each Length group of Bar	PC-M-963/01 Ra ≤ 0.8 microns	TC	√	P	W	W	Roughness measurement diagram shall be included in TC.
2.13	Marking	Identification	Verification and Visual	100%	PC-M-963 Rev 01 Clause 14, MPP	TC	√	P	W	W	
2.14	Packing control	Packing	Visual	100%	PC-M-963 Rev 01	---	--	P	--	---	
2.15	Certification control	Order compliance	TC compilation	100%	PC-M-963 Rev 01	TC	√	P	R	R	EN 10204 3.2
2.16	Shipping Clearance	Acceptance of TC	TC Clearance		PC-M-963 Rev 01	TC	√	P	H	H	
3.0	Mechanical and Metallurgical Tests :										
3.1	Product analysis	Chemistry	Chemical analysis	1 / Heat	PC-M-963 Rev 01, MSTP, DIN EN10028-7	TC	√	P	W	W	Cu < 0.3%

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

M.P. Singh
12/02/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Central Bar(6 mm thick) and Top& Bottom Plate(6 mm Thick)								QP No:QPP/SG/FLEET/05 Rev 00 Project: Fleet Mode SGs.	
		Item : SS Central Bar and Top & Bottom Plate (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator	QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 3 of 3								
3.2	Tensile at RT	Tensile Strength, % Elongation, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-963 Rev 01 MSTP, DIN EN 10028-7, EN ISO 6892-1	TC	√	P	W	W	If coil is being used then quantum shall be 1/Heat/Coil/HTB
3.3	Tensile at 350° C	Tensile Strength, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-963 Rev 01, MSTP, DIN EN 10028-7, EN ISO 6892-2	TC	√	P	W	W	---
3.4	Corrosion Test (before sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-963 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	---
3.5	Corrosion Test (after sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-963 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	Sensitization-650° x 30 Minutes

Note 1:

- 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.
- 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.
- Stage wise inspection documents shall be concluded/completed with signature of all Inspection agencies before taking up & presenting the next stage for Inspection.
- Where ever the version is not indicated, latest version shall be referred for the standards referenced in this document.
- Calibration certificates of recorders, thermocouples and controllers shall be submitted for review. Heat treatment shall be carried out in calibrated furnaces only
- Calibrated instruments shall be used during inspection, Examination and testing.

BHEL

- Prepared - *M. P. S.* 12/02/2022 [NITHIN-O.R.]

- Reviewed - *M. Shyam* 12/02/2022 [M. SHYAM SUNDAR]

- Approved - *S. Lakshmi* 12/02/2022 [S. LAKSHMI]

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

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Rolled Flats(DIN EN 10028-7:1.4550)						QP No:GQP/SG/FLEET/06 Rev 00 Project: Fleet Mode SGs.				
		Item : Flats for Corrugated Strips(1.5 mm thick),Central Vertical Strips(2 mm thick) & U supports (3.5 mm thick) Sub-system: Steam Generator			QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 1 of 3							
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 Route (AOD/VOD)	Furnace, Process, Fully killed steel	Record Verification	100%	PC-M-961 Rev 01, MPP	TC	√	P	R	R	---	
1.2	Ladle Analysis	Chemistry	Review of TC	1/Melt	PC-M-961 Rev 01,EN10028-7	TC	√	P	R	R	---	
1.3	Semi-Finished Product	Dimension & Free from defects	Measurement/ Visual check	1/Batch (Dimension) 100% (Visual)	EN 10028-7/EN 10278	RD	--	P	--	--	Dimension check using micrometer	
2.0 In process Controls :												
2.1	Rolling – Pre shaping	Dimension check	Profile shape check	1/ Batch	PC-M-961 Rev 01, EN 10028-7, MPP	RD	---	P	---	---	---	
2.2	Drawing – Hot/Cold	Dimension & Shape check	Profile shape, Micrometer	Start & End of Each HTB	PC-M-961 Rev 01, EN 10028-7, MPP	RD	--	P	--	---		
2.3	Final Heat Treatment (Solution Annealing)	R.O.H , Soaking Temp & Time, R.O.C	Review of HT Chart	Continuous Recording	PC-M-961 Rev 01, HTP	TC	√	P	W	R	HT chart shall be submitted	
2.4	Mechanical Descaling of Flats (if required)	Surface Inspection, Free from Visual defects	Visual	100%	PC-M-961 Rev 01 Free from visual Defects							
2.5	Identification of Test coupon and Cutting	Location and orientation	Visual & Measurement	1/Heat/HTB	PC-M-961 Rev 01, MPP & MSTP	RD	√	P	H	H	Note 1 (ii)	
2.6	Cutting to Final Length	Dimension	Measurement	Start & End of each Length group of Bar	PC-M-961 Rev 01	RD	--	P	--	---		
2.7	Final Straightening	Straightness	Measurement	100%	Drg: 3-93-172-05581 Rev 00	TC	√	P	W	W		
						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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN						
Prepared		Reviewed & Approved		Reviewed & Approved		Reviewed & Approved						
SUPPLIER'S NAME: To be filled		BHEL		NPCIL								

Handwritten signature and date:
12/02/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Rolled Flats(DIN EN 10028-7:1.4550)						QP No:GQP/SG/FLEET/06 Rev 00 Project: Fleet Mode SGs.			
		Item : Flats for Corrugated Strips(1.5 mm thick),Central Vertical Strips(2 mm thick) & U supports (3.5 mm thick) Sub-system: Steam Generator	QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 2 of 3								
2.8	Pickling & Passivation	Pickling & Passivation	Pickling & Passivation	100%	PC-M-961 Rev 01, Pickling and Passivation Procedure:	---	---	P	---	---	----
2.9	Passivity Check	Passivity check	Passivity check	1/Melt/HT Batch Each HTB	PC-M-961 Rev 01, Pickling and Passivation Procedure	TC	√	P	W	W	
2.10	Final Dimension check	Dimensions (Thk Length, Width), Straightness , Waviness, Twisting, Convexity etc	Tape, Micrometer, etc	100%	Drg: 3-93-172-05581 Rev 00	TC	√	P	W	W	
2.11	Cleanliness check	Cleanliness free from defects	Visual	100%	PC-M-961 Rev 01	TC	√	P	R	R	Note 1 (i)
2.12	Surface Finish Check	Surface Finish	Measurement (Roughness gauge)	Start & End of each Length group of Bar	PC-M-961 Rev 01 Ra ≤ 0.8 microns	TC	√	P	W	W	Roughness measurement diagram shall be included in TC.
2.13	Material Mix up test	Contaminants	Elements	100%	PC-M-961 Rev 01	TC	√	P	W	W	
2.14	Marking	Identification	Verification and Visual	100%	PC-M-961 Rev 01 Clause 14, MPP	TC	√	P	W	W	
2.15	Packing control	Packing	Visual	100%	PC-M-961 Rev 01	---	--	P	--	---	
2.16	Certification control	Order compliance	TC compilation	100%	PC-M-961 Rev 01	TC	√	P	R	R	EN 10204 3.2
2.17	Shipping Clearance	Acceptance of TC	TC Clearance		PC-M-961 Rev 01	TC	√	P	H	H	
3.0 Mechanical and Metallurgical Tests :											
3.1	Product analysis	Chemistry	Chemical analysis	1 / Heat	PC-M-961 Rev 01, MSTP, DIN EN10028-7	TC	√	P	W	W	Cu < 0.3%

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

N. A. P. 12/2/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Rolled Flats(DIN EN 10028-7:1.4550)									
		Item : Flats for Corrugated Strips(1.5 mm thick),Central Vertical Strips(2 mm thick) & U supports (3.5 mm thick) Sub-system: Steam Generator			QP No.: To be filled by the supplier Rev.No.: To be filled by the supplier Date: To be filled by the supplier Page No: 3 of 3			QP No:GQP/SG/FLEET/06 Rev 00 Project: Fleet Mode SGs.			
3.2	Tensile at RT	Tensile Strength, % Elongation, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-961 Rev 01 MSTP, DIN EN 10028-7, EN ISO 6892-1	TC	√	P	W	W	If coil is being used then quantum shall be 1/Heat/Coil/HTB
3.3	Tensile at 350° C	Tensile Strength, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-961 Rev 01, MSTP, DIN EN 10028-7, EN ISO 6892-2	TC	√	P	W	W	---
3.4	Corrosion Test (before sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-961 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	---
3.5	Corrosion Test (after sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-961 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	Sensitization-650° x 30 Minutes

Note 1:

- 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.
- 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.
- Stage wise inspection documents shall be concluded/completed with signature of all Inspection agencies before taking up & presenting the next stage for Inspection.
- Where ever the version is not indicated, latest version shall be referred for the standards referenced in this document.
- Calibration certificates of recorders, thermocouples and controllers shall be submitted for review. Heat treatment shall be carried out in calibrated furnaces only
- Calibrated instruments shall be used during inspection, Examination and testing.

- Proposed -
M. P. K. S.
12/02/2022
[NITHIN O.R.]

BHEL
- Reviewed -
M. Shyam
12/02/2022
[M. SHYAM SUNDAR]

- Approved -
S. Lakshmi
12/2/2022
[S. LAKSHMI]

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP - HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Small Grid Flats(2.9tx20W) and Main Grid Flats(2.9t x60W)		
		Item : SS Small& Main Grid Flats (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the supplier Page No: 1 of 3	QP No: GQP/SG/FLEET/04 Rev 00 Project: Fleet Mode SGs.

Sl. No	Component & Operations	Characteristics	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Agency			Remarks
								D*	M	B	N	
1.	2.	3.	4.	5.	6.	7.	8.	D*	9. **			10.
1.0 Raw Material :												
1.1	Steel Melting Route	Furnace, Process, Fully killed steel	Record Verification	100%	PC-M-963/01, MPP	TC	√	P	R	R		---
1.2	Ladle Analysis	Chemistry	Review of TC	1/Melt	PC-M-963/01, EN 10028-7	TC	√	P	R	R		---
1.3	Semi-Finished Product	Dimension & Free from defects	Measurement/ Visual check	100%	MPP	RD	--	P	--	--		---
2.0 In process Controls :												
2.1	Rolling – Pre shaping	Dimension check	Profile shape check	1/ Batch	PC-M-963/01, EN 10028-7, MPP	RD	---	P	---	---		---
2.2	Drawing – Hot/Cold	Dimension & Shape check	Profile shape, Micrometer	Start & End of Each HTB	PC-M-963/01, EN 10028-7, MPP	RD	--	P	--	---		
2.3	Final Heat Treatment (Solution Annealing)	R.O.H , Soaking Temp & Time, R.O.C	Review of HT Chart	Continuous Recording	PC-M-963 Rev 01, HTP	TC	√	P	W	R		HT chart shall be submitted
2.4	Mechanical Descaling of Flats (if required)	Surface Inspection, Free from Visual defects	Visual	100%	PC-M-963/01 Free from visual Defects							
2.5	Identification of Test coupon and Cutting	Location and orientation	Visual & Measurement	1/Heat/HTB	PC-M-963/01, MPP & MSTP	RD	√	P	H	H		One test flat of full length with clear identification to HTB
2.6	Cutting to Final Length	Dimension	Measurement	Start & End of each Length group of Bar	PC-M-963/01	RD	--	P	--	---		

				LEGEND: * RECORDS, IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY SUPPLIER IN QA DOCUMENTATION. ** M: SUPPLIER B: BHEL, N: NPCIL/TP1 P: PERFORM R: REVIEW W: WITNESS AND H: HOLD TC: TEST CERTIFICATE RD: RECORD MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

N. G. B.
12 Feb 2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Small Grid Flats(2.9tx20W) and Main Grid Flats(2.9t x60W)				QP No: GQP/SG/FLEET/04 Rev 00 Project: Fleet Mode SGs.					
		Item : SS Small& Main Grid Flats (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the supplier Page No: 2 of 3								

2.7	Final Straightening	Straightness	Measurement	100%	PC-M-963/01 Fig 1	TC	√	P	W	W	
2.8	Pickling & Passivation	Pickling & Passivation	Pickling & Passivation	100%	PC-M-963/01, Pickling and Passivation Procedure:	---	---	P	---	---	----
2.9	Passivity Check	Passivity check	Passivity check	1/Melt/HT Batch Each HTB	PC-M-963/01, Pickling and Passivation Procedure	TC	√	P	W	W	
2.10	Final Dimension check	Dimensions (Thk Length, Width), Straightness , Waviness, Twisting, Convexity etc	Tape, Micrometer, etc	100%	As per P.O & PC-M-963/01	TC	√	P	W	W	
2.11	Cleanliness check	Cleanliness free from defects	Visual	100%	PC-M-963/01	TC	√	P	R	R	Note 1 (i)
2.12	Surface Finish Check	Surface Finish	Measurement (Roughness gauge)	Start & End of each Length group of Bar	PC-M-963/01 Ra ≤ 0.8 microns	TC	√	P	W	W	Roughness measurement diagram shall be included in TC.
2.13	Marking	Identification	Verification and Visual	100%	PC-M-963 Rev 01 Clause 16, MPP	TC	√	P	W	W	
2.14	Packing control	Packing	Visual	100%	PC-M-963 Rev 01	---	--	P	--	---	Packing procedure approval
2.15	Certification control	Order compliance	TC compilation	100%	PC-M-963 Rev 01	TC	√	P	R	R	EN 10204 3.2
2.16	Shipping Clearance	Acceptance of TC	TC Clearance		PC-M-963 Rev 01	TC	√	P	H	H	
3.0 Mechanical and Metallurgical Tests											
3.1	Product analysis	Chemistry	Chemical analysis	1 / Heat	PC-M-963 Rev 01, MSTP, DIN EN10028-7	TC	√	P	W	W	Cu < 0.3%

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN							
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved								
SUPPLIER'S NAME: To be filled		BHEL	NPCIL								

Handwritten signature and date:
12/5/2022

SUPPLIER'S LOGO	Supplier's Name and Address	Quality Plan for SS Small Grid Flats(2.9tx20W) and Main Grid Flats(2.9t x60W)			
		Item : SS Small& Main Grid Flats (DIN EN 10028-7 ,1.4550) Sub-system: Steam Generator	QP No.: To be Filled by the supplier Rev.No.: To be Filled by the supplier Date: To be Filled by the supplier PageNo: 3 of 3		QP No: GQP/SG/FLEET/04 Rev 00 Project: Fleet Mode SGs.

3.2	Tensile at RT	Tensile Strength, % Elongation, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-963 Rev 01 MSTP, DIN EN 10028-7, EN ISO 6892-1	TC	√	P	W	W	If coil is being used then quantum shall be 1/Heat/Coil/HTB
3.3	Tensile at 350° C	Tensile Strength, Yield Strength (0.2% & 1%)	Destructive Test	1/Heat/HTB	PC-M-963 Rev 01, MSTP, DIN EN 10028-7, EN ISO 6892-2	TC	√	P	W	W	---
3.4	Corrosion Test (before sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-963 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	---
3.5	Corrosion Test (after sensitization)	Inter Granular Corrosion	IGC Test	1/Heat/HTB	PC-M-963 Rev 01 ASTM A 262 Practice-E, MSTP	TC	√	P	W	W	Sensitization-650° x 30 Minutes

Note 1:

- 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.
- 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.
- Stage wise inspection documents shall be concluded/completed with signature of all Inspection agencies before taking up & presenting the next stage for Inspection.
- Where ever the version is not indicated, latest version shall be referred for the standards referenced in this document.
- Calibration certificates of recorders, thermocouples and controllers shall be submitted for review. Heat treatment shall be carried out in calibrated furnaces only
- Calibrated instruments shall be used during inspection, Examination and testing.

- Prepared -
NAB
12/02/2022
[NITHIN O R]

BHEL
- Reviewed -
M. Shyam Sundar
12/02/2022
[M. SHYAM SUNDAR]

- Approved
S. Lakshmi
12/2/2022
[S. LAKSHMI]

				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 MPP-MANUFACTURING PROCESS PLAN ; HTP – HEAT TREATMENT PLAN ; MSTP-MATERIAL SAMPLING AND TESTING PLAN
Prepared	Reviewed & Approved	Reviewed & Approved	Reviewed & Approved	
SUPPLIER'S NAME: To be filled		BHEL	NPCIL	

SAMPLE FORMAT OF QAP

P.O. NO: (MAIN CONTRACTOR/SUB-VENDOR AS APPLICABLE)		QUALITY ASSURANCE PLAN				QAP NO: NPCIL/PROJECT/USI/ITEM/SL. NO.			
		ITEM:				REV. NO. DATE:			
DATE:		SAFETY CLASS:		QS GRADE:					
		PROJECT				NAME OF PACKAGE:			
				PO NO : (NPCIL)		NPCIL QA REF. NO.:			
NAME OF PACKAGE CONTRACTOR / MAIN VENDOR AND ADDRESS					NAME OF VENDOR / SUB-VENDOR AND ADDRESS				
SR.NO.	DATA SHEET/VSS NO./DRG NO.	BRIEF DESCRIPTION OF ITEM	DESIGN CODE/ SPEC. NO.	FOR MAIN CONTRACTOR'S VENDOR				AFFIX STAMP OF VENDOR / SUB-VENDOR	
					PREPARED BY	CHECKED/ REVIEWED BY	APPROVED BY		
				SIGNATURE					
				NAME					
				DATE					
FOR PACKAGE / MAIN CONTRACTOR			AFFIX STAMP OF PACKAGE CONTRACTOR		FOR NPCIL				
	CHECKED BY	REVIEWED BY	APPROVED BY		CHECKED BY	REVIEWED BY	APPROVED BY		
SIGNATURE				SIGNATURE					
NAME				NAME					
DATE				DATE					

QAP REVISION CONTROL SHEET

SL No	Description of Revision	No of Pages	Revision No. with date
1	New issue	No of pages + Nos of control sheet	0 Date

GENERAL NOTES

1. Heat treatment shall be carried out in calibrated furnaces only.
2. Calibrated instruments shall be used during inspection, examination and testing.
3. NPCIL approved chemicals shall only be used for liquid penetrant examination.
4. Non-destructive examinations & evaluation shall be carried out by personnel qualified to minimum Level-II of ISNT or ASNT
5. After completion of each stage, all concerned persons shall sign the QAP against each stage inspection. The original QAP shall be kept with vendor till the final stage is completed and signed by all concerned. This document shall also be one of the basis for issuing the Shipping Release. The final signed QAP shall be part of History Docket.

BHARAT HEAVY ELECTRICALS LIMITED

MM/RM/PURCHASE/TUBES
BHEL / TRICHY-620 014.

ANNEXURE-B
1502200005

Enquiry Terms & Conditions for Supply of Small Grid Flats and Main Grid Flats. Corrugated Strips, Central Vertical Strips and U Bend Support. Central Bar and Top & Bottom Plate.

Note: This Annexure has to be mandatorily filled & signed by the manufacturer (or) mill and submitted along with Technical bid.

Any deviation to the below mentioned terms shall be stated specifically in the comments column for each term and also in case of acceptance to our terms, it will be construed that the whole term is understood and agreed in totality without any deviation. (If otherwise mentioned).

SI No	BHEL Requirements	Supplier Comments
01.	<p><u>Restrictions for Procurement from a country sharing its land border with India</u></p> <p>For this procurement, Public procurement order dated 23.07.2020 regarding restrictions under rule 144 (xi) of general financial rules 2017 and clarification dt 08.02.2021 from DoE is applicable. In case of subsequent Orders issued, the same shall be applicable even if issued after issue of this NIT.</p>	
02.	<p><u>Preference to Make in India:</u></p> <p>For this procurement, the local content to categorize a supplier as a class I local supplier/class II local supplier /Non-local supplier and purchase preference to class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent Orders issued by the respective Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of part II bids against this NIT.</p>	
03.	<p><u>Special Provisions for Micro and Small Enterprises (MSE) bidders registered as per MSME act:</u></p> <p>(Subject to participating MSE vendors meeting the tender requirements of BHEL)</p> <ul style="list-style-type: none">➤ As per Gazette Notification no. S.O. 2119(E) dated 26.06.2020 issued by Ministry of MSME applicable/existing Micro and small suppliers are requested to get registered with Udyam Registration portal and share us the Udyam registration no. along with Udyam registration certificate.➤ 25% of the tendered quantity is earmarked for MSE suppliers in this tender, subject to participating MSE Vendors should meet the tender requirements of BHEL. In case MSE vendor participating in the tender quotes within the price band of L1 + 15%, they will be allowed to supply the portion of the requirement subject to acceptance of L1 price by MSE vendor. In case of more than one such MSE vendor within the "L1+15% price band", the supply shall be shared proportionately.➤ In the event of Non MSE supplier becoming L1 and MSE supplier quotes within the price band of L1+15% and it is not possible to split the tendered quantity on account of reasons like customer contract requirement/technical requirements, then 100% of the quantity will be offered to MSE suppliers subject to acceptance of L1 price by MSE supplier.➤ Counter offering of L1 rate will not be made with any MSE vendor whose quoted rate is more than the price band of L1+15%.➤ Payment to MSE vendor will be as per the applicable provisions of the MSMED Act 2006.➤ If L1 offer is from a Micro / Small enterprise, the 25% earmarking provision is not applicable.➤ Out of the 25% tendered quantity reserved for MSE suppliers, 6.25% shall be earmarked for procurement from MSE owned by SC/ST entrepreneurs. Apart from this 3% shall be earmarked for procurement from MSE owned by Women entrepreneurs.➤ In case of any change in the MSE status of the bidder, it shall be the responsibility of the bidder to notify the change as a part of the bid document. If at a later date it comes to the knowledge of BHEL, that the change in the status has not been intimated by the bidder and the order is obtained under the premise of an MSE then BHEL would cancel the pending order against this tender and take necessary steps for	

	<p>suspension of the business dealing with the bidder as per the procurement policy of BHEL.</p> <p>➤ MSE suppliers can avail the intended benefits only if they submit along with the offer, Valid EM-II certificate along with CA certificate or valid NSIC certificate or UAM certificate along with attested copy of a CA certificate applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. Documents should be notarized or attested by a Gazetted officer. However, credentials of all MSE suppliers will be verified before considering the intended benefits for MSE suppliers at the time of tender evaluation. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.</p>	
04	<p><u>TECHNICAL DELIVERY CONDITIONS / PRE-QUALIFICATION REQUIREMENTS:</u></p> <p>A. SPECIAL CONDITIONS (Technical Qualification requirements)</p> <ol style="list-style-type: none"> 1. End Use and End User Certificates will not be provided by BHEL. 2. Supply of Small Grid Flats and Main Grid Flats (PR item 10 to 460) shall be as per DIN EN 10028-7:1.4550 and NPCIL technical specification PC-M-963 Rev.01. Supplier to confirm. 3. Supply of Corrugated Strips, Central Vertical Strips and U Bend Supports (PR item 470 to 790) shall be as per DIN EN 10028-7:1.4550, drawing. No 3-93-172-05581/Rev.00 and NPCIL technical specification PC-M-961 Rev.01. Supplier to confirm. 4. Supply of Central Bar and Top & Bottom Plate (PR item 810 to 820) as per DIN EN 10028-7:1.4550 and NPCIL technical specification PC M 963 Rev.01. Supplier to confirm. 5. Supply of Spacer material (PR item 800) shall be as per DIN EN 10028-2/10273-16Mo3, Drawing no. 3-93-172-05578/Rev.00 and NPCIL technical specification PC-M-964 Rev.00 Annexure-1. Supplier to confirm. 6. Supplier to confirm the Steel Melting process for the items under PC-M-961 Rev.01 as follows: <ol style="list-style-type: none"> i)Melted in electric furnaces ii)Vacuum degassed/AOD iii)Fully killed 7. Supplier to give clause by clause confirmation for all clauses mentioned in NPCIL technical specification PC-M-961 Rev.01, PC-M-963 Rev.01 and PC-M-964 Rev.00 Annexure-1. Deviations shall be mentioned in the offer itself. 8. For offer acceptance suppliers should have the capability and experience to produce the indented items as per the quality standards mentioned in the respective drawings and NPCIL technical specifications. Supplier should have supplied the indented items for nuclear application / Nuclear Power Corporation of India Limited / any other nuclear power station. 9. As a documentary proof of supplier's experience in manufacturing the indented items, unpriced P.O Copy, Signed Test Certificates (Signed by Customer/TPI) of previous supplies with details of Customer, Third Party Inspection Agency etc. & shipping release document/dispatch clearance by customer or TPI/Supply Invoice Copy/Bill of lading/Delivery challan shall be submitted along with offer. 10. The Supplier who doesn't comply to the requirements mentioned in clause nos. 8 & 9 will not be 	

considered for evaluation.

11. The supplier shall ensure to strictly follow the complete process of manufacturing till achieving the final requirements including dimensions as per its respective drawing and TDC referred against the PR items. Supplier shall not further sub-contract any portion or part thereof the work assigned to them. However, in exceptional cases, the Supplier may further sub contract a part of the work with due approval from BHEL & NPCIL. Supplier shall furnish the details of sub-contracting activities if any in detail during bidding stage itself along with the offer. Final decision will be based on BHEL & NPCIL's acceptance.
12. The Supplier shall submit the offer for all the items since all the items indicated in the PR is proposed to be procured from the same Supplier as a package.
13. Supplier shall submit their QA Manual/Quality Manual for review and acceptance by BHEL.
14. Supplier has to comply with the Generic Quality Plans enclosed with the indent.
 - i) 16Mo3 Spacer Flat: GQP/SG/FLEET/03 Rev 00
 - ii) SS Small Grid Flats and Main Grid Flats: GQP/SG/FLEET/04 Rev 00
 - iii) SS Corrugated Strips, Central Vertical Strips and U Bend Supports: GQP/SG/FLEET/05 Rev 00
 - iv) SS Central Bar and Top & Bottom Plate: GQP/SG/FLEET/06 Rev 00
15. Quantity given in the indent may increase or decrease and will depend on the requirements of BHEL & NPCIL. Quantity being procured will be finalized before price bid opening.
16. Due to stringent quality requirements, offers from traders/dealers/distributors/stockist shall not be entertained and will not be considered for evaluation.
17. Offers received will be evaluated by BHEL and NPCIL. Final acceptance of the offers will be based on NPCIL recommendation.
18. Supplier has to submit Quality documents (QAP-Quality Assurance Plan, MPP-Manufacturing Process Plan, HTP-Heat Treatment Plan, MSTP-Material Sampling and Testing Plan) and related test procedures, NDE procedures and Technique sheets etc as per QAP for approval by BHEL & NPCIL.
19. Supplier shall submit Quality Assurance Plan in the format mentioned in the attached Annexure-1 only and the content shall be in line with Generic Quality Plans (GQP/SG/FLEET/03 Rev 00, GQP/SG/FLEET/04 Rev 00, GQP/SG/FLEET/05 Rev 00 & GQP/SG/FLEET/03 Rev 00). The actual production of material is permitted only after approval of Quality documents (Quality Assurance Plan (QAP), Manufacturing Process Plan (MPP). etc.,) and test procedures by BHEL and NPCIL.
20. Inspection agency for imports are "BHEL" & "NPCIL or third party inspection (TPI) agency approved by NPCIL". Inspection charges for third party inspection are to be quoted separately.
21. Inspection agency for indigenous supply are "BHEL" and "NPCIL".
22. BHEL & NPCIL or its authorized agency shall have the rights to assess the supplier's or their sub-contractor's premises at all reasonable times and to the extent necessary to assess compliance with the provisions of the said programme and this TDC/Specification.
23. Chemical composition and mechanical tests shall be carried out in labs certified as per ISO/IEC 17025 or NABL / Government approved labs.
24. Supplier shall submit Test Certificates of indented items after completion of manufacturing for

	<p>review by BHEL & NPCIL. Dispatch clearance will be given after acceptance of the test certificates by BHEL & NPCIL.</p> <p>25. Flats shall have the material identification details etched on the surface at any one end, by any suitable method.</p> <p>26. Supplier shall submit three sets of documents containing (i) Test Certificates and respective test reports (ii.) copies of the approved quality documents, records and test procedures, (iii.) NCRs/DCRs and (iv.) Drawing etc in bound volume along with the supply of the indented items. The supplier shall be responsible for preparation and issue of all certificates, reports and documents which shall be certified by “BHEL” & “NPCIL/TPI”. Such certified final documents shall form part of history docket and shall be supplied in bound volumes (3 copies) with proper identification. Final documentation shall also be submitted in soft form (pdf format) with proper indexing.</p> <p>27. Quantity tolerance acceptable in total weight is ‘+1 %’ and ‘-0 %’.</p> <p>28. Supplier shall submit both technical & commercial bid confirming to all the above applicable points as given in this annexure.</p> <p>B. SPECIAL CONDITIONS(Financial Soundness)</p> <p>1. Import suppliers shall submit latest report from any reputed third party business rating agency like Dun &Bradstreet, Credit reform etc.</p> <p>2. Indigenous supplier shall submit audited copies of annual reports (Balance Sheet), Profit & Loss statement for the last three years (or from the date of incorporation whichever is less) and GST Certificate.</p> <p>This Special Conditions (Financial Soundness) along with Special Conditions (Technical Qualification requirements) together will form the Pre-Qualification requirements</p>	
05	<p>Offer Submission:</p> <ul style="list-style-type: none"> ➤ This Tender is hosted in EPS portal & offer to be submitted through EPS portal only. You are requested to submit your 2 parts offer before due date & time of the enquiry through NIC (https://eprocurebhel.co.in) only. ➤ Offer is to be submitted in TWO part bids system (Technical bid + Price bid) in the E-Procurement NIC PORTAL (https://eprocurebhel.co.in) ONLY. ➤ Scanned copy of the filled Annexure-B, Tender documents etc., shall be uploaded in the EPS portal. ➤ At its option, BHEL may consider extending the due date/s for the tender openings. Sufficient notice would be given by BHEL for such extensions and it will be published as corrigendum in following websites, https://eprocurebhel.co.in http://www.bhel.com/tender/ ➤ Acceptance of offer will be subject to existing customer approval 	
06	<p>Authorization for participation in EPS portal through DSC: E-Tender. Participation requirements:</p> <p>Either Principal or authorized agent shall register their Digital Signature Certificate (DSC) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION). Suppliers are advised to go through the FAQ available in the web portal (https://eprocurebhel.co.in). DSC shall be registered for the authorized person and all transaction done using that DSC against our tenders shall be taken as valid communication and shall be binding on principal/agent and is valid legally.</p>	

	<p>For foreign Principal In case of Principal (being foreigner), they may apply for DSC through Indian embassy at their country and can register with us for participating in E-tenders. Details of the applicable procedure is available in the webpage http://www.cca.gov.in/cca/.</p> <p>For Indian agent In case of agents participating/registering their DSC (of authorized person), it will be at the sole authorization of principal to their agents to participate on their behalf and all transactions done using that DSC against our tenders shall be known as valid communication and shall binding on principal and is legally valid.</p>	
07.	<p>Reverse Auction BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) for this tender. RA shall be conducted among the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.</p>	
08	<p>Validity: Offer/Price validity of 60 days is required from the Price bid opening date. The rates quoted shall remain firm throughout the execution of the contract/till the full quantum ordered is supplied. Price Variation Clause (PVC) is not acceptable and offer with PVC shall be rejected.</p>	
09	<p>Delivery: The offer shall clearly indicate delivery period in fixed number of weeks/Months from the date of Purchase Order.</p>	
10	<p>IMPORT Vendors - Terms of Delivery:</p> <ul style="list-style-type: none"> • Import vendors to submit offers on CFR (Cost & Freight), Chennai port (LILO – Liner in Liner Out) basis. • Port of loading should be indicated without fail. • Port of discharge should be Chennai. 	
	<ul style="list-style-type: none"> • The preferred shipment mode “Containerized Cargo or Break Bulk” shall be specified clearly in the offer. 	
	<p>FOR CFR INCO TERMS – CONTAINERIZED CARGO</p> <p>a) For CFR terms, moved through CONTAINERS (Suppliers should clearly specify this in their offer) it would be presumed by BHEL that the freight charges quoted is on LILO (LINER IN LINER OUT) basis including extra charges, if any, like Container Imbalance Charges, Trade Imbalance charges or any other charges payable to the Liner. No other charges other than the quoted Freight rate will be paid by BHEL excepting applicable Terminal Handling Charges, Container cleaning Charges, DO charges to Shipping Liner at Discharge Port. 14 FREE DAYS FOR Container detention shall be provided.</p> <p>b) In case of shipment through Containers on CFR basis, the BL should bear the endorsement that “14 free days for Container Detention is applicable”.</p> <p>BREAKBULK CARGO:</p> <p>a) For CFR terms, moved through BREAK BULK BASIS (Suppliers should clearly specify this in their offer) it would be presumed by BHEL that the freight charges quoted is on LILO (LINER IN LINER OUT) basis.</p> <p>b) The materials will be Custom cleared from Port itself.</p> <p>INFORMATION TO IMPORT SUPPLIERS:</p> <p>A) Indian Customs imposed a penalty on late filing of Bill of Entries (Air/Sea Shipments) by the importer. Bill of Entry is Required to be Filed Latest by the End of Day Preceding the Day (including Holidays) of Arrival of the Vessel for sea shipments and by the end of same day on arrival of air shipment. Penalty for not filing Bill of Entry within the specified time period is Rs.5000/- per day (for Initial 03 days) & Rs.10000/- per day (thereafter).</p> <p>a) The vendor should furnish the Non-Negotiable Documents (Air Way Bill/Bill of Lading, Commercial Invoice, Packing List, and Certificate of Origin) either by email or post/courier to BHEL well before the landing of cargo at final port of discharge.</p> <p>a) Vendor will be held responsible for the penalty arises against the late filing of Bill Of entry due to:</p> <ol style="list-style-type: none"> a. Non availability of Non-Negotiable Documents (NNDs) before the cargo arrival b. Discrepancy in documents c. Short landing of Consignments (For shipments on CFR/CPT/CIF/CIP – Chennai Port) 	

	<p>B) All the shipments for the contracts (POs) finalized on CFR -Chennai Port basis</p> <ul style="list-style-type: none"> (i) Delivery Orders involving multiple agencies like liners/freight forwarders are not allowed. There must be a single agency office at the final discharge Port (Chennai) for issuing the Delivery Order to BHEL. (ii) The detention/demurrage charges arising due to the nomination of containers under single BL to different/ multiple CFS by the liner will be deducted from Vendor's bills only. (iii) The detention/demurrage charges arise due to the delay in collection of Delivery Orders from multiple agencies of liner/freight forwarder also whose offices are not at available Chennai, the same amount will be deducted from Vendor's bills only. (iv) Apart from the normal charges like Terminal Handling Charges, Container cleaning Charges, Delivery Order Charges at final port of discharge no other charges will be borne by BHEL. (v) The liner/freight forwarders should be properly communicated by the Vendor for not to claim such charges for issuing Delivery Order. If the liner/freight forwarder claims such charges in their invoices, the same amount will be deducted from the Vendor bills without any prior intimation in order to avoid the delay in Customs clearance. The likely additional/hidden costs or charges are: <ul style="list-style-type: none"> a. CIC - Container Imbalance Charges/Surcharges b. EIC - Equipment Imbalance Charge/Surcharges c. CAF - Container/Currency Adjustment Factor d. BAF - Bunker adjustment Factor e. RDS - Rupee Depreciation Surcharge f. CDS - Currency Depreciation Surcharge g. PCS - Port Congestion Surcharge h. LSS - Low Sulphur Surcharge i. Devanning Charges 	
11	<p>Quoted currency. Supplier Shall indicate the quoted currency. If there is any discrepancy in the terms quoted in techno-commercial bid and price bid, the terms as per the techno-commercial bid (part-1) shall hold good and the commercial term quoted in Price bid (Part-II) shall not be considered.</p>	
12	<p>Transport Conditions for Import: The Original Documents (Bill of Lading, Invoice, Packing List, Certificate of Origin & Test Certificate) shall reach BHEL well in advance before the vessel arrival. The soft copies of the above shall be forwarded to BHEL immediately after shipment.</p> <ul style="list-style-type: none"> a) 14 FREE DAYS for Container detention at final port of destination shall be provided and the same to be endorsed in the Bill of Lading. If there is no free day or less than 14 free days provided by the supplier, the actual cost incurred towards detention charges due to non-availability of above said free days will be recovered from the supplier Invoice. b) In the event of delayed submission of documents/ non-submission of documents by the supplier as per the mutually agreed terms, an amount up to 5% of the invoice value will be retained towards detention/ demurrage & other charges and the difference if any between actual charges and recovery will be settled separately through supplementary invoice. c) In such cases, the Supplier shall authorize the Steamer / Shipping agent / transporter to freely release the consignment to BHEL by providing a "Surrender Bill of Lading". d) Otherwise, No-objection Certificate shall be issued to the Liner, authorizing BHEL to get the Delivery Order without producing the Original Bill of Lading. e) This is required to ensure avoidance of detention/ demurrage at Chennai Sea-port that may arise in case of delayed presentation of documents by the Seller. 	

13	<p><u>Indigenous vendors – Terms of delivery:</u></p> <ul style="list-style-type: none"> • Bidders should submit their offer on FOR Destination -BHEL Stores, Trichy basis. The quote should be inclusive of all charges, including testing, packing & forwarding, inspection, Insurance etc. (Ex-Works offers will not be considered). • The soft copies of the Invoice, LR copy and/or E-way bill as the case may be & Test certificates shall be forwarded to BHEL immediately after dispatch. 	
14	<p><u>Goods and Service Tax (GST)</u></p> <p><u>Indigenous suppliers:</u></p> <ul style="list-style-type: none"> • Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST. • Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc. • All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code). • Invoices will be processed only upon completion of statutory requirement and further subject to following: <ul style="list-style-type: none"> o Vendor declaring such invoice in Form GST ANX-1 o Receipt of Goods or Services and Tax invoice by BHEL • As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on despatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2). • In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL. • In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor • In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor. • Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor. • Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number. • GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor 	

	<p>accepting the TDS deduction in the GST portal, will be issued to the vendor.</p> <ul style="list-style-type: none"> • GST CREDIT: Suppliers are advised to get registered to GSTN portal. Tenderer under "GST credit" shall be preferred. <p>Import Suppliers: Supplier shall mention the HSN code of each item quoted by them in the offer. The HSN shall be mentioned in the Invoice also for each item without fail.</p> <p>Since GST is implemented, the taxes & duties will prevail as per the government notification/ guidelines. Our Provisional GST registration no. is 33AAACB4146P2ZL. However, it will be mandatory to confirm from BHEL for this mentioned GST no. Suppliers may quote their GST no with valid proof in the quotation. Also before quoting of tender it is suggested to consider all the factors in line with GST guidelines for input tax credit to arrive ranking of quoted suppliers.</p>	
15	<p>Acceptance of materials supplied:</p> <p>The supply shall strictly as per the specifications in the tender /purchase order.</p> <p>Delivery of the ordered items as per the delivery terms in the Purchase Order does not automatically constitute acceptance of the delivered items. The acceptance of the materials will be based on the QC parameters mentioned separately in the tender</p> <p>The acceptance or otherwise of the delivered items will be separately communicated to the supplier by BHEL either through B2B portal or through e mail within 120 days from the delivery of items or delivery of the required test certificates /other documents whichever is later.</p> <p>In case of rejection of the delivered items, either part or full, the vendor shall replace the rejected items as per the specification in the Purchase order/tender at their cost within specified days/months of communication of rejection to the supplier.</p> <p>In case of rejection of the delivered items, either part or full, if the supplier fails to replace the rejected items within the specified days/months of communication of the rejection, the same shall be treated as failure to execute the contract and actions as per the Guidelines for Suspension of Business Dealings with Suppliers /Contractors available in the webpage: http://www.bhel.com/vender_registration/vender.php. would be taken against such supplier.</p>	
16	<p>Payment terms:</p> <p>Indigenous: BHEL Payment term is 100% direct EFT payment after 60 days from the date of receipt and acceptance of materials.</p> <p>Import: BHEL Payment term is 100% payment on CAD basis after 60 days from the date of receipt of documents, specified in PO, at BHEL bank. Respective bank charges to respective account.</p> <p>If supplier insists for LC, only Usance LC with 60 days' credit will be opened one month prior to material readiness, further loading @ 1.5% on the offered value will be considered. Hence supplier shall intimate the material readiness accordingly along with MTC copies for opening of L.C. LC validity period will be 90 days and for any extension, applicable charges will be to supplier's account.</p> <p>New Suppliers: For new suppliers not registered with BHEL, Trichy for the product, Payment shall be made 60 days after acceptance of materials. In case of foreign supplier, first lot of mutually agreed quantity shall be supplied with payment as CAD basis after 60 days from the date of receipt & acceptance of material. If insisted for LC, after acceptance of first lot, only Usance LC with 60 days' credit will be opened one month prior to material readiness.</p> <p>Not Applicable: Offers with payment terms as Advance Payment.</p>	

17	<p>Liquidated Damage (Indigenous & Imports):</p> <ol style="list-style-type: none"> 1. Time is the essence of the contract. 2. The ordered items shall be delivered as per the delivery period mentioned in the Purchase Order. 3. In case the supplier supplies the ordered items beyond the delivery period specified, Liquidated Damages -LD - as detailed below shall be will be levied from the supplier without prejudice to any other relief /compensation available to BHEL, Tiruchirapalli under any other condition of the contract/applicable legal provisions. <ol style="list-style-type: none"> 1. LD shall be 0.5% of the undelivered portion per week or part thereof subject to a maximum of 10% of the total order value. 2. Any deviation from the above LD clause, loading will be applied to the extent to which it is not agreed by the bidder (at offered value). 3. Indigenous: For “FOR Delivery terms”, Lorry way bill date will be taken for LD calculation for cases where E way bill is not mandatory. Wherever E Way Bill is involved, the date of commencement of movement of vehicle as reflected in E way Bill [the ‘Valid from’ date in the E way Bill] will be taken for LD calculation. 4. Import: For CFR terms, BL date will be considered for LD calculation. 	
18	<p><u>Warranty:</u></p> <p>Supplier to accept warranty against manufacturing defect and non -compliance with technical specifications in the enquiry for “18 months from dispatch or 12 months from commissioning, whichever is earlier”.</p> <p>Supplier shall replace defective material free of cost (inclusive of all Testing, Inspection, TPI, Service charges etc.) up to destination within two months from defect notification date.</p>	
19	<p><u>Risk Purchase clause:</u></p> <ol style="list-style-type: none"> a) In the event of any successful Tenderer's failure to fulfil any of the tender / Contract obligations including supply of whole or any part of the ordered items as per Contract / Agreement, BHEL has the right to terminate the contract and purchase from elsewhere ,at the risk and cost of the defaulted supplier, either the whole of the goods or any part which the supplier has failed to deliver or dispatch within the time stipulated in the contract or if the same were not available, the best and nearest available substitute thereof. The supplier shall be liable for the additional expenditure/difference in Cost, if any, including consequential losses which BHEL may sustain by reason of risk purchase in addition to the applicable LD as per the Purchase order/contract. b) The decision of BHEL with regard to the additional expenditure / difference in cost and consequential losses incurred by BHEL shall be final and binding on the supplier. c) The amount recoverable under risk purchase shall be recovered from the defaulted supplier in all or any of the following manners: <ol style="list-style-type: none"> i) from dues available in the form of Bills payable to defaulted supplier, SD, BGs against the same contract. ii) from the dues payable to defaulted supplier against other contracts in the same Region/Unit /any other region/unit iii) In-case recoveries are not possible with any of the above available options, Legal action shall be initiated for recovery against defaulted supplier. 	
20	<p><u>Set-off Clause:</u> BHEL shall have the right to recover any money, which in the sole opinion of BHEL is due from the Contractor, from any money due to the Contractor under this Contract or any other contract or from the Security Deposit & bank Guarantee’s ,if any, furnished by the Contractor under this Contract or any other contract.</p>	
21	<p><u>Non-Disclosure Agreement(NDA):</u></p> <p>The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).</p>	
22	<p><u>Patent Right</u></p> <p>The supplier shall, at all times, indemnify and keep indemnified the purchaser, free of cost, against all claims which may arise in respect of goods & services to be provided by the supplier under the contract for infringement of any intellectual property rights or any other right protected by patent, registration of designs or trademarks. In the event of any such claim in respect of alleged breach of patent, registered designs, trademarks etc. being made against the purchaser, the purchaser shall notify the supplier of the same and the supplier shall,</p>	

	at his own expenses take care of the same for settlement without any liability to the purchaser.	
23	PARTICULARS TO BE FURNISHED BY FOREIGN VENDORS FOR EVALUATION OF BIDS WITH CUSTOMS DUTY BENEFIT	VENDOR COMMENTS
	A. Whether PTA/ CEPA or any other agreement/treaty between respective Governments/Countries exists and the same is applicable for your supplies w.r.t this Enquired Items/tender.	YES / NO
	B. If yes, mention the Concessional Customs Duty (Such Duty Benefits)	%
	C. Documentary proof for the applicable Concessional Customs Duty (eg. PTA/ CEPA or other agreement) shall be submitted along with the Part-1 bid.	SUBMITTED/NOT SUBMITTED
	D. Relevant documents and details to avail the above concessional duty benefits by BHEL shall be submitted by the supplier along with dispatch documents	CONFIRMED/NOT CONFIRMED
	E. In the event of seller failing to provide appropriate documents along with dispatch documents for purchasers to avail disclosed concessional duty benefits in India, financial loss, so incurred, will be to the seller's account.	CONFIRMED/NOT CONFIRMED
	Note: Evaluation of the Price bids will be based on the above details only and unless mentioned/furnished by the vendor, Customs Duty benefit will not be applied for evaluation purposes.	
24	<p><u>Role of Agents</u></p> <p>a. BHEL strongly discourages the engagement of Agents by foreign principals, to deal with BHEL, in BHEL's tenders.</p> <p>b. In case of foreign suppliers representing through their Indian/foreign agents, agency agreement should be submitted, else offer is liable for rejection. Agency agreement requirements attached as separate file and full compliance to it shall be ensured while submitting the same.</p> <p>c. BHEL, due to business reasons would ban, would have banned Indian agents from dealing with BHEL. Any foreign principal who engages such a banned agent, or an employee of the banned agency, or any other person connected with the banned agency, at any time during the tender proceedings, would be disqualified from the tender proceedings. The decision of BHEL in this regard shall be final and be binding on the OEM. Hence in their own interests, prospective tenderers may check with BHEL. The list of banned firms is available on BHEL website www.bhel.com.</p> <p>Vendors/ principals proposing to deal with BHEL by engaging and through an Indian Agent does so at their own risk. BHEL shall in no way be responsible for any consequences that may arise to the foreign principal on account of the antecedents / actions of their Indian agent.</p>	
25	<p><u>Agency Commission:</u></p> <ul style="list-style-type: none"> ➤ If overseas principal has any tie-up with any third party/ agents, it should be declared while submitting offers. ➤ In respect of offers from overseas suppliers, agency commission, if any, payable to their agents in India, shall invariably be shown separately in the Performa invoice and this will be paid by BHEL in India, in Indian rupees, on satisfactory completion of the contract. ➤ Copies of current agency agreement / authorization letter in respect of agency commission shall be furnished along with offer. <p>For calculation of rupee equivalent agency commission, exchange rate as prevailing on the date of order will be taken.</p>	
26	<p><u>Evaluation Criteria:</u></p> <p>The Evaluation Currency for this tender shall be "INR". The offers of vendors will be evaluated on total landed cost to BHEL, Trichy. The evaluation process is as detailed below:</p> <p><u>Indigenous:</u></p> <p>Total Landed cost = FOR Rate in INR (A) + Applicable Taxes (B) + Loading for payment term & LD (C) – Applicable input tax credit (D)</p> <p>A. Indigenous vendors submit offers on Free on Road (FOR), Trichy in INR.</p> <p>B. GST and any other charges quoted by indigenous vendors will be added to the base price.</p> <p>C. Loading for payment terms & non-acceptance of Liquidated Damages (LD) will be added to the FOR value for arriving the landed rate.</p>	

	<p>D. However, input credit is availed for GST (SGST, CGST/IGST), hence the same is excluded for arriving at the landed cost.</p> <p><u>Import:</u></p> <p>Total Landed cost = CFR Rate in INR (A) + Applicable Duties (B) + Incidental Charges (C) + Loading for payment term & LD (D)</p> <p>A. Import vendors to submit offers on CFR (Cost & Freight), Chennai port (LIFO – Liner In Liner Out) basis in foreign currency, which will be converted to INR by multiplying with the Exchange rate (SBI TT Selling rate) as on the technical bid opening date.</p> <p>B. Customs duty, Safe guard duty and antidumping duty as applicable will be added to the INR price. Current applicable custom duty for tendered Project item is NIL. However, any change in custom duty structure on the date of import will be applicable.</p> <p>C. Incidental charges of 2.805% will be added to the CFR Value. The incidental charge is inclusive of Insurance, port handling charges, & freight charges for movement from Chennai port to BHEL, Trichy.</p> <p>D. Loading for payment terms & Non-acceptance of Liquidated Damages (LD) will be added to the CFR value for arriving at the landed cost.</p> <p>Note: “In the course of evaluation, if more than one bidder happens to occupy L1 status, effective L1 will be decided by soliciting discounts from the respective L1 bidders. In case more than one bidder happens to occupy the L1 status even after soliciting discounts, the L1 bidder shall be decided by a toss/draw of lots, in the presence of the respective L1 bidders or their representatives. Ranking will be done accordingly. BHEL decision in such situations shall be final and binding”.</p>	
27	<p><u>General condition:</u></p> <p>a) Bids including all enclosures and supporting documents like catalogues, pamphlets, etc., shall be submitted / uploaded in ENGLISH language only. If the documents submitted have other than English language, translation of the same shall be provided for evaluation.</p> <p>b) Mill TCs should be provided along with dispatch of Flats. Two sets of original and one copy of all such TCs are to be provided to BHEL, Trichy.</p> <p>c) Acceptance of Test Certificates by BHEL before dispatch is must.</p> <p>d) We require the shipment of the tubes to be as per the dates mentioned against the individual items in the enquiry.</p> <p>e) Multiple PO may also be placed considering the applicable duty structure of the respective requirement/Qty.</p> <p>f) Confirmation for partial ordering to be indicated in the offer itself.</p> <p>g) No revision of prices will be entertained after the tenders are opened.</p> <p>h) For the evaluation purposes, exchange rate (TT selling rate of SBI) as on schedule date of tender opening (Part I, i.e technical bid, in case of two part bid) shall be considered.</p> <p>i) BHEL will consider the ranking after the loading is applied as referred above wherever deviations are observed.</p> <p>j) Lowest price received against BHEL tenders need not be the technically acceptable one and in that case, BHEL reserves the right not to consider the same.</p> <p>k) BHEL reserves the right to negotiate L I rate or re-float the tender opened if L1 price is not the lowest acceptable price to them inter-alia other reasons.</p> <p>1) In the event of our customer order covering this tender being cancelled / placed on hold / otherwise modified, BHEL would be constrained to accordingly cancel / hold / modify the tender / your purchase order at any stage of execution.</p> <p>m) Offer will be evaluated based on Landed cost to BHEL- Trichy on individual line item basis only.</p> <p>n) Vendor should physically weigh the materials before stuffing them into container and incorporate the same in BL and</p>	

<p>packing slip</p> <p>o) Offers for part quantities on item level basis are not acceptable to BHEL. While tenderers can quote for some or all the tendered items, no supplier shall quote for partial quantity of any given enquiry item. Such partial offer would not be considered in the enquiry for that item.</p> <p>p) No payment will be made for the excess quantity.</p> <p>q) Offer should be submitted only as per the Unit of Measurement (UOM) specified in the enquiry.</p> <p>r) The offers of the bidders who are on the banned list as also the offer of bidders who engage the services of the banned firms, shall be rejected. The list of banned firms is available on the BHEL website -www.bhel.com.</p> <p>s) All documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder.</p> <p>t) This Tender is hosted in EPS portal & offer to be submitted through EPS portal only. You are requested to submit your 2 parts offer before due date & time of the enquiry through NIC (https://eprocurebhel.co.in) only.</p> <p>SEALED COVER BIDS / E-MAILS / FAX / MANUAL OFFERS WILL NOT BE ACCEPTED.</p>	
<p>28 <u>Fraud Prevention Policy</u> “The bidder along with its associate/collaborators/sub-contractors /consultants/service providers shall strictly adhere to BHEL Fraud prevention policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about fraud or suspected fraud as soon as it comes to their notice.”</p>	
<p>29 <u>Suspension of Business Dealings with Suppliers/Contractors:</u> The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the suspended vendors /principals/agents, shall be rejected. The list of suspended vendors is available on BHEL web site www.bhel.com.</p> <p>Integrity commitment, performance of the contract and punitive action thereof:</p> <p>Commitment by BHEL BHEL commits to take all measures necessary to prevent corruption in connection with the tender process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.</p> <p>Commitment by Bidder/ Supplier/ Contractor</p> <ul style="list-style-type: none"> • The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India. • The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL. • The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL. <p>If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in any act, including but not limited to, mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the price or tampers the tendering process or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per the Guidelines for suspension of business dealings available in the webpage: http://www.bhel.com/vender_registration/vender.php. and/or under applicable legal provisions.</p>	
<p>30 <u>Cartel Formation:</u> The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.</p>	

31 Integrity Pact (IP):

(a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

IEM	Email
Shri Arun Chandra Verma, IPS (Retd.)	acverma1@gmail.com
Shri Virendra Bahadur Singh, IPS (Retd.)	vbsinghips@gmail.com

(b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

(c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below: Details of contact person(s):

(1)	(2)
Name: K. Udayakumar / DM	Name: Bhaskarnath Biswas / DE
Deptt: MM/Purchase/Tubes	Deptt: MM/Purchase/Tubes
Address: 4th Floor, 24 Building, HPBP, BHEL, Trichy- 620014	Address: 4th Floor, 24 Building HPBP, BHEL, Trichy-620014
Email: dhanabals @ bhel.in	Email: bhaskarnath@bhel.in
Phone: 0431-257-5730	Phone: 0431-257-7958

32 Resolution of Disputes:

The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the contract/tender which the Parties are unable to settle mutually), arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof.

Notes:

1. No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators.
2. Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Annexure 1 to this Enquiry Terms and conditions for supply of seamless Tubes.

The Annexure 1 together with its appendices will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in these Enquiry Terms and conditions for supply of seamless Tubes.

Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract ; or , in any manner touching upon the Contract, then, either Party may , by a notice in writing to other Party refer such dispute or difference to sole arbitration of an arbitrator appointed as per the Arbitration and Conciliation Act, 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force .

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties.

Subject as aforesaid, the provision of Arbitration & Conciliation Act 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this

	<p>clause.</p> <p>The seat of arbitration shall be Trichy, Tamil Nadu, India</p> <p>The cost of arbitration shall be borne as per the award of the Arbitrator.</p> <p>Subject to arbitration in terms of clause above, the Courts at Trichy, Tamil Nadu, India shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.</p> <p>Notwithstanding the existence or any dispute or difference and/or reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of its obligation under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.</p> <p><u>In Case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:</u></p> <p>In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/Port Trusts <i>inter se</i> and also between CPSEs and Government Departments/Organizations (Excluding disputes concerning Railways, Income Tax, Customs & Excise Departments, such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4(1)/2013 – DPE (GM)/FTS-1835 dated 22-05-2018.</p>
33	<p><u>In the event of Force Majeure:</u></p> <p>a. Notwithstanding the provisions contained in other clauses, the supplier shall not be liable for imposition of any such sanction so long the delay and/or failure of the supplier in fulfilling its obligations under the contract is the result of an event of Force Majeure. For purposes of this clause, Force Majeure means an event beyond the control of the supplier and not involving the supplier's fault or negligence and which is not foreseeable and not brought about at the instance of the party claiming to be affected by such event and which has caused the non – performance or delay in performance. Such events may include, but are not restricted to, wars or revolutions, hostility, acts of public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes excluding by its employees, lockouts excluding by its management, freight embargoes and Acts of GOD.</p> <p>b. If a Force Majeure situation arises, the supplier shall promptly notify the Purchaser/Consignee in writing of such conditions and the cause thereof within twenty-one days of occurrence of such event. Unless otherwise directed by the Purchaser/Consignee in writing, the supplier shall continue to perform its obligations under the contract as far as reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.</p> <p>c. If the performance in whole or in part or any obligation under this contract is prevented or delayed by any reason of Force Majeure for a period exceeding sixty days, either party may at its option terminate the contract without any financial repercussion on either side.</p> <p>d. In case due to a Force Majeure event the Purchaser/Consignee is unable to fulfil its contractual commitment and responsibility, the Purchaser/Consignee will notify the supplier accordingly and subsequent actions taken on similar lines described in above sub-paragraphs.</p>
34	<p><u>Execution of the order:</u></p> <p>a. BHEL will have the option to pre-inspect the materials at Supplier's works by BHEL's own inspector or by third party agency appointed by BHEL or BHEL's end customer/s.</p> <p>b. If the inspection fails, the vendor shall offer the material again as per ordered terms and specifications for further inspection.</p> <p>c. The mere act of the pre-dispatch inspection (PDI) does not absolve the Supplier from giving the specifications as agreed upon in the Purchase Order.</p> <p>d. In the case of overseas suppliers Inspection call for carrying out the inspection shall be given 30 days before the scheduled contract delivery date. The Inspection date/s given by the Supplier shall be on firm basis. For local Suppliers the Notice period of Inspection shall be 10 working days.</p> <p>e. In the event of any short supply, it shall be the responsibility of the supplier to deliver such short supplied/ missing items on Free-of-Cost basis at BHEL stores, including customs clearances at Indian Ports in the case of foreign suppliers.</p>
35	<p><u>Caution:</u></p> <ul style="list-style-type: none"> The suppliers are severely cautioned to note that the price bid document accepts the price in figures only. It does not allow the supplier to write the value by words. Therefore, all care shall be exercised by the supplier while filling in the figures. Once the price bid is opened no option is available for the supplier to retract the offer under any grounds. If a supplier, for any reason whatsoever approaches BHEL with a request for change in the price, it would be treated as going back on the offer submitted. In such cases, action would be initiated by BHEL for suspending further business dealings with such suppliers as per policy of BHEL which prevails at that point of time.

	<ul style="list-style-type: none"> The language in the tender documents downloaded by the Bidders shall at no point of time be changed, altered or modified in any manner by the Tenderer. If such changes are made by any tenderer, it shall be considered as tampering with BHEL's terms and the offer shall be summarily rejected, whenever it is noticed by BHEL. Such Bidders would be disqualified from the Bidding Process and their offers would be forfeited / Bank Guarantees invoked. They would also not be allowed to participate in future tenders of BHEL.
36	Enclosures: <ul style="list-style-type: none"> a) All concerned Drawings and the NPCIL technical specifications as stated above in Pre-qualification requirements clause b) NDA Format c) Pre signed Integrity Pact
	<p style="text-align: center;"><u>SIGNED BY MANUFACTURER / MILL</u></p> <p>Name of Mill: Designation / Department: Seal & Signature</p>

Annexure-1 to Enquiry terms and conditions

BRIEF PROCEDURE FOR CONDUCT OF CONCILIATION PROCEEDINGS

1. The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided herein:
2. The party desirous of resorting to Conciliation shall send an invitation/notice in writing to the other party to conciliate specifying all points of Disputes with details of the amount claimed. The party concerned shall not raise any new issue thereafter. Parties shall also not claim any interest on claims/counterclaims from the date of notice invoking Conciliation till the conclusion of the Conciliation proceedings.
3. The party receiving the invitation/notice for Conciliation shall within 30 days of receipt of the notice of Conciliation intimate its consent for Conciliation along with its counter-claims, if any.
4. The Conciliation in a matter involving claim or counter-claim (whichever is higher) up to Rs 5 crores shall be carried out by sole Conciliator nominated by BHEL while in a matter involving claim or counter-claim (whichever is higher) of more than Rs 5 crores. Conciliation shall be carried out by 3 Conciliators nominated by BHEL.
5. The Parties shall be represented by only their duly authorized in-house executives/officers and neither Party shall be represented by a Lawyer.
6. The first meeting of the IEC shall be convened by the IEC by sending appropriate communication/notice to both the parties as soon as possible but not later than 30 days from the date of his/their appointment. The hearings in the Conciliation proceeding shall ordinarily be concluded within two (2) months and, in exceptional cases where parties have expressed willingness to settle the matter or there exists possibility of settlement in the matter, the proceedings may be extended by the IEC by a maximum of further 2 months with the consent of the Parties subject to cogent reasons being recorded in writing.
7. The IEC shall thereafter formulate recommendations for settlement of the Disputes supported by reasons at the earliest but in any case within 15 days from the date of conclusion of the last hearing. The recommendations so formulated along with the reasons shall be furnished by the IEC to both the

Parties at the earliest but in any case within 1 month from the date of conclusion of the last hearing.

8. Response/modifications/suggestions of the Parties on the recommendations of the IEC are to be submitted to the IEC within time limit stipulated by the IEC but not more than 15 days from the date of receipt of the recommendations from the IEC.
9. In the event, upon consideration, further review of the recommendations is considered necessary, whether by BHEL or by the other Party, then, the matter can be remitted back to the IEC with request to reconsider the same in light of the issues projected by either/both the Parties and to submit its recommendations thereon within the following 15 days from the date of remitting of the case by either of the Parties.
10. Upon the recommendations by the Parties, with or without modifications, as considered necessary, the IEC shall be called upon to draw up the Draft Settlement Agreement in terms of the recommendations.
11. When a consensus can be arrived at between the parties only in regard to any one or some of the issues referred for Conciliation the draft Settlement Agreement shall be accordingly formulated in regard to the said Issue(s), and the said Settlement Agreement, if signed, by the parties, shall be valid only for the said issues. As regards the balance issues not settled, the parties may seek to resolve them further as per terms and conditions provided in the contract.
12. In case no settlement can be reached between the parties, the IEC shall by a written declaration, pronounce that the Conciliation between the parties has failed and is accordingly terminated.
13. Unless the Conciliation proceedings are terminated in terms of para 22 (b), (c) & (d) herein below, the IEC shall forward his/its recommendations as to possible terms of settlement within one (1) month from the date of last hearing. The date of first hearing of Conciliation shall be the starting date for calculating the period of 2 months.
14. In case of 3 members IEC, 2 members of IEC present will constitute a valid quorum for IEC and meeting can take place to proceed in the matter after seeking consent from the member who is not available. If necessary, videoconferencing may be arranged for facilitating participation of the

members. However, the IEC recommendations will be signed by all members. Where there is more than one (1) Conciliator, as a general rule they shall act

jointly. In the event of differences between the Members of IEC, the decision/recommendations of the majority of the Members of IEC shall prevail and be construed as the recommendation of the IEC.

15. The Draft Settlement Agreement prepared by the IEC in terms of the consensus arrived at during the Conciliation proceedings between the Parties shall be given by the IEC to both the parties for putting up for approval of their respective Competent Authority.
16. Before submitting the draft settlement agreement to BHEL's Competent Authority viz. the Board Level Committee on Alternative Dispute Resolution (BLCADR) for approval, concurrence of the other party's Competent Authority to the draft settlement agreement shall be obtained by the other party and informed to BHEL within 15 days of receipt of the final draft settlement agreement by it. Upon approval by the Competent Authority, the Settlement Agreement would thereafter be signed by the authorized representatives of both the Parties and authenticated by the members of the IEC.
17. In case the Draft Settlement Agreement is rejected by the Competent Authority of BHEL or the other Party, the Conciliation proceedings would stand terminated.
18. A Settlement Agreement shall contain a statement to the effect that each of the person(s) signing thereto (i) is fully authorized by the respective Party(ies) he/she represents, (ii) has fully understood the contents of the same and (iii) is signing on the same out of complete freewill and consent, without any pressure, undue influence.
19. The Settlement Agreement shall thereafter have the same legal status and effect as an arbitration award on agreed terms on the substance of the dispute rendered by an arbitral tribunal passed under section 30 of the Arbitration and Conciliation Act, 1996.
20. Acceptance of the Draft Settlement Agreement/recommendations of the Conciliator and/or signing of the Settlement Agreement by BHEL shall however, be subject to withdrawal/closure of any arbitral and/or judicial proceedings initiated by the concerned Party in regard to such settled issues.

21. Unless otherwise provided for in the agreement, contract or the Memorandum of Understanding, as the case may be, in the event of likelihood of prolonged absence of the Conciliator or any member of IEC, for any reason/incapacity, the Competent Authority/Head of Unit/Division/Region/Business Group of BHEL may substitute the Conciliator or such member at any stage of the proceedings. Upon appointment of the substitute Conciliator(s), such reconstituted IEC may, with the consent of the Parties, proceed with further Conciliation into the matter either de-novo or from the stage already reached by the previous IEC before the substitution.
22. The proceedings of Conciliation under this Scheme may be terminated as follows:
- On the date of signing of the Settlement agreement by the Parties; or,
 - By a written declaration of the IEC, after consultation with the parties, to the effect that further efforts at conciliation are no longer justified, on the date of the declaration; or,
 - By a written declaration of the Parties addressed to the IEC to the effect that the Conciliation proceedings are terminated, on the date of the declaration; or,
 - By a written declaration of a Party to the other Party and the IEC, if appointed, to the effect that the Conciliation proceedings are terminated, on the date of the declaration.
 - On rejection of the Draft Settlement Agreement by the Competent Authority of BHEL or the other Party.
23. The Conciliator(s) shall be entitled to following fees and facilities:

Sl No	Particulars	Amount
1	Sitting fees	Each Member shall be paid a Lump Sum fee of Rs 75,000/- for the whole case payable in terms of paragraph No. 27 herein below.
2	Towards drafting of settlement agreement	In cases involving claim and/or counterclaim of up to Rs 5crores. Rs 50,000/- (Sole Conciliator)

Sl No	Particulars	Amount
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		<p>In cases involving claim and/or counterclaim of exceeding Rs 5 crores but less than Rs 10 crores. Rs 75,000 (per Conciliator) In cases involving claim and/or counter-claim of more than Rs 10 crores.</p> <p>Rs 1,00,000/- (per Conciliator) Note: The aforesaid fees for the drafting of the Settlement Agreement shall be paid on Signing of the Settlement Agreement after approval of the Competent Authority or Rejection of the proposed Settlement Agreement by the Competent Authority of BHEL.</p>
3	Secretarial expenses	<p>Rs 10,000/- (one time) for the whole case for Conciliation by a Sole Member IEC.</p> <p>Where Conciliation is by multi member Conciliators Rs 30,000/- (one time)- to be paid to the IEC</p>
4	<p>Travel and transportation and stay at outstation</p> <p>i) Retired Senior Officials of other Public Sector Undertakings (pay scale wise equivalent to or more than E-8 level of BHEL)</p>	<p>As per entitlement of the equivalent officer (pay scale wise) in BHEL.</p>

	Others	As per the extant entitlement of whole time Functional Directors in BHEL.
Sl No	Particulars	Amount
		Ordinarily, the IEC Member(s) would be entitled to travel by air Economy Class.
5	Venue for meeting	Unless otherwise agreed in the agreement, contract or the Memorandum of Understanding, as the case may be, the venue/seat of proceedings shall be the location of the concerned Unit / Division / Region / Business Group of BHEL. Without prejudice to the seat/venue of the Conciliation being at the location of concerned BHEL Unit / Division / Region / Business Group, the IEC after consulting the Parties may decide to hold the proceedings at any other place/venue to facilitate the proceedings. Unless, Parties agree to conduct Conciliation at BHEL premises, the venue is to be arranged by either Party alternately.

24. The parties will bear their own costs including cost of presenting their cases/evidence/witness(es)/expert(s) on their behalf. The parties agree to rely upon documentary evidence in support of their claims and not to bring any oral evidence in IEC proceedings.
25. If any witness(es) or expert(s) is/are, with the consent of the parties, called upon to appear at the instance of the IEC in connection with the matter, then, the costs towards such witness(es)/expert(s) shall be determined by the IEC with the consent of the Parties and the cost so determined shall be borne equally by the Parties.

26. The other expenditures/costs in connection with the Conciliation proceedings as well as the IEC's fees and expenses shall be shared by the Parties equally.
27. Out of the lump sum fees of Rs 75,000/- for Sitting Fees, 50% shall be payable after the first meeting of the IEC and the remaining 50% of the Sitting Fees shall be payable only after termination of the conciliation proceedings in terms of para 22 hereinabove.
28. The travelling, transportation and stay at outstation shall be arranged by concerned Unit as per entitlements as per Serial No. 3 of the Table at para 23 above, and in case such arrangements are not made by the BHEL Unit, the same shall be reimbursed to the IEC on actuals limited to their entitlement as per Serial No. 4 of the Table at Para 23 above against supporting documents. The IEC Member(s) shall submit necessary invoice for claiming the fees/reimbursements.
29. The Parties shall keep confidential all matters relating to the conciliation proceedings. Confidentiality shall extend also to the settlement agreement, except where its disclosure is necessary for purposes of its implementation and enforcement or as required by or under a law or as per directions of a Court/Governmental authority/ regulatory body, as the case may be.
30. The Parties shall not rely upon or introduce as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the Disputes that is the subject of the Conciliation proceedings:
- a. Views expressed or suggestions made by the other party in respect of a possible settlement of the Disputes;
 - b. admissions made by the other party in the course of the Conciliator proceedings;
 - c. proposals made by the Conciliator;
 - d. The fact that the other Party had indicated his willingness to accept a proposal for settlement made by the Conciliator.
31. The Parties shall not present the Conciliator(s) as witness in any Alternative Dispute Resolution or Judicial proceedings in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.
32. None of the Conciliators shall act as an arbitrator or as a representative or counsel of a Party in any arbitral or judicial proceeding in respect of a Disputes that is/was the subject of that particular Conciliation proceeding.

33. The Parties shall not initiate, during the Conciliation proceedings, any arbitral or judicial proceedings in respect of a Disputes that is the subject matter of the Conciliation proceedings except that a Party may initiate arbitral or judicial proceedings where, in his opinion, such proceedings are necessary for preserving his rights including for preventing expiry of period of limitation. Unless terminated as per the provisions of this Scheme, the Conciliation proceedings shall continue notwithstanding the commencement of the arbitral or judicial proceedings and the arbitral or judicial proceedings shall be primarily for the purpose of preserving rights including preventing expiry of period of limitation.

34. The official language of Conciliation proceedings under this Scheme shall be English unless the Parties agree to some other language.

**FORMAT FOR SEEKING CONSENT FOR REFERRING THE DISPUTES
TO CONCILIATION THROUGH IEC**

To,

M/s. (Stakeholder's name)

**Sub: Resolution of the Disputes through conciliation by Independent
Expert Committee (IEC).**

Ref: Contract No/MoU/Agreement/LOI/LOA& date _____.

Sir,

With reference to above referred Contract/MoU/Agreement/LOI/LOA, you have raised certain Disputes/claims. Vide your letter dated____ you have requested BHEL to refer the Disputes/claims to IEC for Conciliation.

We are enclosing herewith Format (3) for giving consent and the terms and conditions of BHEL Conciliation Scheme, 2018 governing conciliation through IEC. You are requested to give your unconditional consent to the said terms and conditions of the Scheme by returning the same duly sealed and signed on each page. On receipt of your consent, matter will be put to the Competent Authority for consideration and decision.

Please note that BHEL has also certain claims against you (if applicable). BHEL reserves its right to agree or not to agree conciliation of the said disputes through BHEL and this letter is being issued without prejudice to BHEL's rights and contentions available under the contract and law.

Yours faithfully,

Representative of BHEL
Appendix II

**FORMAT FOR GIVING CONSENT BY
CONTRACTOR/VENDOR/CUSTOMER/COLLABORATOR/CONSORTIUM PARTNERS FOR REFERRING THE DISPUTES TO CONCILIATION
THROUGH IEC**

To,

BHEL

.....

Sub: Resolution of Disputes through Conciliation by Independent Expert Committee (IEC).

Ref: Contract/MoU/Agreement/LOI/LOA No & date____

With reference to above referred contract, our following bills/invoices/claims submitted to BHEL are still unpaid giving rise to Disputes:

SL. no.	Claim Description	Bill submitted to BHEL (no. and date)	Amount of the bill/claim	Amount received from BHEL	Outstanding Amount

Accordingly we request you to kindly refer the Disputes in respect of above claims to IEC for Conciliation.

We hereby agree and give our unconditional consent to the terms and conditions of BHEL Conciliation Scheme, 2018 governing conciliation through IEC. We have signed the same on each page and enclosed it for your consideration.

Yours faithfully,

(Signature with stamp)

**Authorized Representative of Contractor
Name, with designation
Date**

**STATEMENT OF CLAIMS/COUNTER CLAIMS TO BE SUBMITTED TO
THE IEC BY BOTH THE PARTIES**

1. Chronology of the Disputes
2. Brief of the Contract/MoU/Agreement/LOI/LOA
3. Brief history of the Disputes:
4. Issues:
5. Details of Clam(s)/Counter Claim(s):

SI. No.	Description of claim(s)/Counter Claim	Amount (in INR)Or currency applicable in the contract	Relevant contract clause

6. Basis/Ground of claim(s)/counter claim(s) (along with relevant clause of contract)

Note– *The Statement of Claims/Counter Claims may ideally be restricted to maximum limit of 20 pages. Relevant documents may be compiled and submitted along with the statement of Claims/Counter Claims. The statement of Claims/Counter Claims is to be submitted to all IEC members and to the other party by post as well as by email.*