Annexure- A

Sl No.	Item Description	QUALITY PLAN		Thickness of material (MM)	QTY (MT)	Unit Covered
1	Aluminum Sheet (In coil form) as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018	SQP:ESP:292 Rev 02 dt 11.05.2020		0.711	2873	BAP, HPBP & PC Chennai
2				0.914	433	
3				1.00	427	
4				1.20	1258	
5				1.60	349	
6	Aluminum Sheet as per **PY52064 Rev.01 & IS: 737 GR 31000 H6 or ASTM B209 Alloy 3003 H16**	QP No: PE&SD/ QA/ MP/ 002 Rev 01		0.711	26	PE&SD
7				1.22	8	
8	Aluminum Sheet as per TEP:BAP:AL:SHEET dated 08.05.2018 Equivalent **PE&SD Spec: PY52270 Rev.01 & IS: 737 GR 19000 H2 or ASTM B209 Alloy 1060 H16**	QP No: PE&SD/ QA/ MP/ 002 Rev 01		0.711	45	
9				1.22	14	
10	Aluminum Sheet (In coil form) as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and as per IS:737 Gr.19000-H2 or ASTM B-209-1060 temper H14	18 SWG	SQP:ESP:292 Rev 02 dt 11.05.2020	1.219	590	PEM Noida
11		20 SWG		0.914	170	
12		22 SWG		0.711	18	
13	Aluminum Sheet (In coil	20 SWG	SQP:ESP:292			

We hereby confirm supply shall be in line with above technical and quality requirement.

Supplier's Seal and sign

	form) as per Technical Specification No:		Rev 02 dt 11.05.2020	0.914	65	
14	TEP:BAP:AL:SHEET dated 08.05.2018 Marine Grade conforming to IS: 737 Gr. 52000 or equivalent grade	22 SWG		0.711	27	
15	Aluminum Alloy Sheet as per as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and BIS-737-2008 (Gr 19500 H8), Width from 600 to 1200 mm in coil form**- Hot Rolled**	BHE/RU/QC/QAP/AL_RM Rev 00 dt 30.09.2015		0.10 to 1.00	15	BHEL RUDRAPUR
16	Aluminum Alloy Sheet as per as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and as per BIS-737-2008 (Gr 31000 H2), width from 1219 to 1500mm and cut length from 1400 to 4788mm **- Hot Rolled**			1.01 to 5.00	600	
17	Aluminum Alloy plate as per as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and as per BIS5082-1998 (Gr 19501 H1), width			5.01 to 10.00	300	

We hereby confirm supply shall be in line with above technical and quality requirement.

Supplier's Seal and sign

	from 1060 to 1500mm and cut length from 2430 to 5440 mm **- Hot Rolled**				
18	Aluminum Alloy Plates as per as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and per BIS-5082-1998 (Gr 19501 H1), Width from 474 to 1545mm and cut length 2500 to 3140mm **- Hot Rolled**		10.01 to 20.00	300	
19	Aluminum Alloy Plate as per as per Technical Specification No: TEP:BAP:AL:SHEET dated 08.05.2018 and as per BIS-5082 (Gr 19501 H1), Width from 750 to 1067mm cut length from 2300 to 3140mm **- Hot Rolled**		20.01 to 36.00	85	
GRAND TOTAL				7603 (MT)	

QUALITY REQUIREMENTS:

4.1	QAP	QAP mentioned in annexure-A shall be followed by Supplier
4.2	INSPECTION BEFORE DESPATCH	Will be done at vendor's Works before Dispatch by BHEL / BHEL's Authorized Inspection Agency AIA / BHEL's customer / Customer appointed Inspection Agency
4.3	TEST CERTIFICATE	Required for Mechanical and Chemical properties.

We hereby confirm supply shall be in line with above technical and quality requirement.

Supplier's Seal and sign

4.4	TEST REPORT / INSPECTION REPORT	Must be submitted along with BHEL Inspection reports in triplicate to BHEL

Any Deviation to technical/ quality/ Commercial requirement to be filled below, in case no deviation kindly mention as NIL deviation.

(Special Note# Deviation specified other than below filled SDDR will not be considered)

SPECIFICATION DEVIATION DISPOSITION REPORT (SDDR)					
Specn			Item		
Enq. No & Date					
Vendor Name					
SPECN					
Page	Clause	Details Of Deviation With Reason		Disposition By BHEL	
		NIL			
Signature Of Vendor				Reviewed By	
" AGREED DEVIATION " if any to be incorporated in the PO in the event of order.				APPROVED BY	

We hereby confirm supply shall be in line with above technical and quality requirement.

Supplier's Seal and sign

ALUMINIUM CLADDING SHEETS (IS 737: GR 19000)

ORDERING SPECIFICATION

1.0 GENERAL

1.1 This specification covers the requirements for supply of Aluminium sheet for using it as cladding or protective covering over Thermal insulation.

2.0 CODES AND STANDARDS:

2.1 Manufacturing, physical & chemical properties, inspection and testing of Aluminium sheets to be supplied under this specification shall conform to the latest edition of the following codes and standards.

2.2 **IS:737** Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes / **ASTM B209** Standard Specification for Aluminium and Aluminium-Alloy Sheet and Plate.

2.3 **IS:504** Methods of chemical analysis of aluminium and its alloys / **ASTM E34.**

2.4 **IS:1608** Metallic materials - Tensile testing at ambient temperature / **ASTM-B209 Table 2**.

2.5 **IS:2676** Dimensions for wrought aluminium and aluminium alloys, sheet and strip/**ANSI H 35.2**.

2.6 **IS:5052** Aluminium and its alloys - Temper designations. / **ANSI H35.1.**

3.0 MATERIAL REQUIREMENTS:

3.1 FORM:
The aluminium sheets to be supplied shall be in coil form and with **Mill Finish.**

3.2 FREEDOM FROM DEFECTS:
The material shall be sound and free from harmful defects for the intended application.

3.3 DESIGNATION AND CONDITION:
The designation and the condition of the material shall be in line with
IS: 737 GR 19000 H2 or ASTM B209 Alloy 1060 H16.

3.4 CHEMICAL COMPOSITION:
The material when analysed as per IS 504 or any other instrumental/chemical method shall conform to the requirements as given in **Table 1 of IS: 737 / Table 1 of ASTM B209.**

3.5 MECHANICAL PROPERTIES:

3.5.1 TENSILE TEST
The material when tested in accordance with **IS: 1608 / ASTM B209** shall conform to the values given in **Table 2 of IS: 737 / Table 2 of ASTM B209.**

3.5.2 BEND TEST
When tested in accordance with the method prescribed in **IS: 737 / ASTM B209**, the outer surface of the bend shall not show any visible crack.

4.0 DIMENSIONS AND TOLERANCES:

4.1 The width of the aluminium sheet shall be **900 to 1500 mm**. (uniform for the entire lot of supply).

4.2 Standard thicknesses of the aluminium sheet will be **0.19, 0.56, 0.71, 0.91, 1.00, 1.2, 1.6 mm**. (The exact requirement of thickness and the quantity (weight in MT) will be indicated specifically in the Purchase Orders).

4.3 Tolerances on width & sheet thickness shall be as per **IS: 2676 / ASTM B209**.

4.4 Quantity tolerance for cladding sheets shall be **+/- 10%**.

5.0 INSPECTION AND TESTING:

5.1 The material sampling shall be done as given in IS: 737 / ASTM B209.

5.2 The material to be supplied under this specification shall be of tested quality. Inspection and testing of Aluminium sheets shall be carried out as per the requirements of IS: 737 / ASTM B209. Manufacturer's test certificate indicating all the chemical composition and mechanical properties shall be furnished.

5.3 All test certificates shall be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results, Material Dispatch Clearance Certificate (MDCC) will be issued.

5.4 Scope of inspection shall be as called for in QA plan enclosed.
Inspection agency shall be BHEL / BHEL TPIA as per enquiry document

6.0 PACKING AND MARKING:

6.1 The material will have to be packed in polythene-lined hessian and covered with metallic sheets. Wooden saddle supports for each coil to be provided and finally the coils needs to be strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport. The edges of the coils to be reinforced with metallic circular rings to avoid damage while handling.

6.2 Each package shall contain only one size of material.

6.3 Each package / coil shall be suitably marked with a tag for identification as given below: (legibly written - preferably at two locations for easy identification):

a) BHEL's Purchase order number
b) Project Name
c) Name of the manufacturer & Country of Origin
d) Material grade & condition
e) Sheet thickness
f) Weight of the contents

VARIANT TABLE:

Var No	Item Description	BHEL Material Code
01	AL CLADDING (IS737: GR 19000) 0.71MM THK	PY9752270018
02	AL CLADDING (IS737: GR 19000) 1.22MM THK	PY9752270026

RECORD OF REVISIONS:

Rev No	Date	Revision Detail	Revised by	Approved by
00	26.02.2019	FIRST ISSUE	IMRAN	SRIKANTH G
01	02.06.2022	CL 3.3 & 5.4 UPDATED	IMRAN	SRIKANTH G

Technical clarification

Hx2 temper is to be considered for Marine grade (Gr. 52000).

1087769/2022/BAP-9750_MECH

	TITLE	SPECIFICATION No: TEP:BAP:AL:SHEET
BHEL	STANDARD TECHNICAL SPECIFICATION FOR ALUMINIUM CLADDING SHEETS	VOLUME
		SECTION
		REV. NO. 00 / DATE: 08.05.2018
		SHEET 1 OF 2

1.00.00 GENERAL

This specification covers the requirements for supply of Aluminium sheet for using it as cladding or protective covering over Thermal insulation.

2.00.00 CODES & STANDARDS

2.01.01 Manufacturing, physical & chemical properties, inspection and testing of Aluminium sheets to be supplied under this specification shall conform to the latest edition of the following codes and standards.

2.01.02 **IS:737 (latest revision)** Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes / **ASTM B209 (latest revision)** Standard Specification for Aluminium and Aluminium-Alloy Sheet and Plate.

2.01.03 **IS:504 (latest revision)** Methods of chemical analysis of aluminium and its alloys / **ASTM E34 (latest revision).**

2.01.04 **IS:1608 (latest revision)** Metallic materials - Tensile testing at ambient temperature / **ASTM-B209 (latest revision) Table 2.**

2.01.05 **IS:2676 (latest revision)** Dimensions for wrought aluminium and aluminium alloys, sheet and strip/**ANSI H 35.2 (latest revision).**

2.01.06 **IS:5052 (latest revision)** Aluminium and its alloys - Temper designations. / **ANSI H35.1 (latest revision).**

3.00.00 MATERIAL REQUIREMENTS:

3.01.00 FORM

The aluminium sheets to be supplied shall be in coil form and with **Mill Finish.**

3.02.00 FREEDOM FROM DEFECTS

The material shall be sound and free from harmful defects for the intended application.

3.03.00 DESIGNATION AND CONDITION

The designation and the condition of the material shall be in line with **IS:737 Gr. 19000 H2 (AA1200H14/AA1100H14) (latest revision) or ASTM B209 – 1060 Temper H-14(latest revision).**

3.03.01 For 2X660MW Udangudi project, material shall be Marine Grade conforming to IS: 737 Gr. 52000 or equivalent grade .

3.04.00 CHEMICAL COMPOSITION

The material when analyzed as per **IS 504 (latest revision)** or any other instrumental/chemical method shall conform to the requirements as given in **Table 1 of IS:737 (latest revision) / Table 1 of ASTM B209 (latest revision).**

3.05.00 MECHANICAL PROPERTIES

3.05.01 TENSILE TEST

The material when tested in accordance with **IS:1608 (latest revision)/ ASTM B209 (latest revision)** shall conform to the values given in **Table 2 of IS:737 (latest revision) / Table 2 of ASTM B209 (latest revision).**

I.D.B. RAJU 22/05/18
Dy. Manager / Engineering
BHEL / Piping Centre,
T. Nagar, Chennai-600 017.

PREPARED	CHECKED	APPROVED
08/05/'18 (Adarsh Verma)	08/05/'18 (M.V. Mahank)	C Ganesh

3.05.02 BEND TEST

When tested in accordance with the method prescribed in **IS:737 (latest revision)/ ASTM B209 (latest revision)**, the outer surface of the bend shall not show any visible crack.

4.00.00 DIMENSION AND TOLERANCES

4.01.00 The width of the aluminium sheet shall be **900 to 1500** mm. (uniform for the entire lot of supply). BHEL will confirm the same in the Purchase Orders.

4.02.00 Standard thicknesses of the aluminium sheet will be **0.415, 0.56, 0.71, 0.91, 1.00, 1.22, 1.6 mm.** (The exact requirement of thickness and the quantity (weight in MT) will be indicated specifically in the Purchase Orders).

4.03.00 Tolerances on width & sheet thickness shall be as per **IS:2676 (latest revision) / ASTM B209 (latest revision).**

5.00.00 INSPECTION AND TESTING

5.01.00 The material sampling shall be done as given in **IS:737 (latest revision)/ ASTM B209 (latest revision).**

5.02.00 The material to be supplied under this specification shall be of tested quality. Inspection and testing of Aluminium sheets shall be carried out as per the requirements of **IS:737 (latest revision) / ASTM B209 (latest revision).** Manufacturer's test certificate indicating all the chemical composition and mechanical properties shall be furnished.

5.03.00 All test certificates shall be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results, Material Despatch Clearance Certificate (MDCC) will be issued.

6.00.00 PACKING AND MARKING

6.01.00 The material will have to be packed in polythene-lined hessian and covered with metallic sheets. Wooden saddle supports for each coil to be provided and finally the coils needs to be strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport. ***The edges of the coils (Both ID and OD) to be reinforced with metallic circular rings to avoid damage while handling. For First time supplies – packing drawing to be approved by BHEL prior to manufacture.***

6.02.00 Each package shall contain only one size of material.

6.03.00 Each package / coil shall be suitably marked with a tag for identification as given below: (legibly written - preferably at two locations for easy identification).

a) BHEL's Purchase order number
b) Project Name
c) Name of the manufacturer & Country of Origin
d) Material grade & condition
e) Sheet thickness
f) Weight of the contents

I.D.B. RAJU 22/05/18
Dy. Manager / Engineering
BHEL / Piping Centre,
T. Nagar, Chennai-600 017.

PREPARED	CHECKED	APPROVED
08/05/18 (Alankar Verma)	08/05/18 (M. K. Mahak)	

ALUMINIUM CLADDING SHEETS (IS 737: GR 19000)

ORDERING SPECIFICATION

1.0 GENERAL

1.1 This specification covers the requirements for supply of Aluminium sheet for using it as cladding or protective covering over Thermal insulation.

2.0 CODES AND STANDARDS:

2.1 Manufacturing, physical & chemical properties, inspection and testing of Aluminium sheets to be supplied under this specification shall conform to the latest edition of the following codes and standards.

2.2 **IS:737** Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes / **ASTM B209** Standard Specification for Aluminium and Aluminium-Alloy Sheet and Plate.

2.3 **IS:504** Methods of chemical analysis of aluminium and its alloys / **ASTM E34.**

2.4 **IS:1608** Metallic materials - Tensile testing at ambient temperature / **ASTM-B209 Table 2**.

2.5 **IS:2676** Dimensions for wrought aluminium and aluminium alloys, sheet and strip/**ANSI H 35.2**.

2.6 **IS:5052** Aluminium and its alloys - Temper designations. / **ANSI H35.1.**

3.0 MATERIAL REQUIREMENTS:

3.1 FORM:
The aluminium sheets to be supplied shall be in coil form and with **Mill Finish.**

3.2 FREEDOM FROM DEFECTS:
The material shall be sound and free from harmful defects for the intended application.

3.3 DESIGNATION AND CONDITION:
The designation and the condition of the material shall be in line with
IS: 737 GR 19000 H2 or ASTM B209 Alloy 3003 H16.

3.4 CHEMICAL COMPOSITION:
The material when analysed as per IS 504 or any other instrumental/chemical method shall conform to the requirements as given in **Table 1 of IS: 737 / Table 1 of ASTM B209.**

3.5 MECHANICAL PROPERTIES:

3.5.1 TENSILE TEST
The material when tested in accordance with **IS: 1608 / ASTM B209** shall conform to the values given in **Table 2 of IS: 737 / Table 2 of ASTM B209.**

3.5.2 BEND TEST
When tested in accordance with the method prescribed in **IS: 737 / ASTM B209**, the outer surface of the bend shall not show any visible crack.

4.0 DIMENSIONS AND TOLERANCES:

4.1 The width of the aluminium sheet shall be **900 to 1500 mm**. (uniform for the entire lot of supply).

4.2 Standard thicknesses of the aluminium sheet will be **0.19, 0.56, 0.71, 0.91, 1.00, 1.2, 1.6 mm**. (The exact requirement of thickness and the quantity (weight in MT) will be indicated specifically in the Purchase Orders).

4.3 Tolerances on width & sheet thickness shall be as per **IS: 2676 / ASTM B209**.

4.4 Quantity tolerance for cladding sheets shall be **+/- 10%**.

5.0 INSPECTION AND TESTING:

5.1 The material sampling shall be done as given in IS: 737 / ASTM B209.

5.2 The material to be supplied under this specification shall be of tested quality. Inspection and testing of Aluminium sheets shall be carried out as per the requirements of IS: 737 / ASTM B209. Manufacturer's test certificate indicating all the chemical composition and mechanical properties shall be furnished.

5.3 All test certificates shall be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results, Material Despatch Clearance Certificate (MDCC) will be issued.

5.4 Scope of inspection shall be as called for in QA plan enclosed (QP No: SQP/MP/551-A).
Inspection agency shall be BHEL / Lloyds / others as per enquiry document.

6.0 PACKING AND MARKING:

6.1 The material will have to be packed in polythene-lined hessian and covered with metallic sheets. Wooden saddle supports for each coil to be provided and finally the coils needs to be strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport. The edges of the coils to be reinforced with metallic circular rings to avoid damage while handling.

6.2 Each package shall contain only one size of material.

6.3 Each package / coil shall be suitably marked with a tag for identification as given below: (legibly written - preferably at two locations for easy identification):

a) BHEL's Purchase order number
b) Project Name
c) Name of the manufacturer & Country of Origin
d) Material grade & condition
e) Sheet thickness
f) Weight of the contents

VARIANT TABLE:

Var No	Item Description	BHEL Material Code
01	AL CLADDING (IS737: GR 19000) 0.71MM THK	
02	AL CLADDING (IS737: GR 19000) 1.22MM THK	

RECORD OF REVISIONS:

Rev No	Date	Revision Detail	Revised by	Approved by
00	26.02.2019	FIRST ISSUE	IMRAN	SRIKANTH G

ALUMINIUM CLADDING SHEETS (IS 737: GR 31000)

ORDERING SPECIFICATION

1.0 GENERAL

1.1 This specification covers the requirements for supply of Aluminium sheet for using it as cladding or protective covering over Thermal insulation.

2.0 CODES AND STANDARDS:

2.1 Manufacturing, physical & chemical properties, inspection and testing of Aluminium sheets to be supplied under this specification shall conform to the latest edition of the following codes and standards.

2.2 **IS:737** Specification for wrought aluminium and aluminium alloy sheet and strip for general engineering purposes / **ASTM B209** Standard Specification for Aluminium and Aluminium-Alloy Sheet and Plate.

2.3 **IS:504** Methods of chemical analysis of aluminium and its alloys / **ASTM E34.**

2.4 **IS:1608** Metallic materials - Tensile testing at ambient temperature / **ASTM-B209 Table 2**.

2.5 **IS:2676** Dimensions for wrought aluminium and aluminium alloys, sheet and strip/ **ANSI H 35.2**.

2.6 **IS:5052** Aluminium and its alloys - Temper designations./ **ANSI H35.1.**

3.0 MATERIAL REQUIREMENTS:

3.1 FORM:
The aluminium sheets to be supplied shall be in coil form and with **Mill Finish.**

3.2 FREEDOM FROM DEFECTS:
The material shall be sound and free from harmful defects for the intended application.

3.3 DESIGNATION AND CONDITION:
The designation and the condition of the material shall be in line with
IS: 737 GR 31000 H6 or ASTM B209 Alloy 3003 H16.

3.4 CHEMICAL COMPOSITION:
The material when analysed as per IS 504 or any other instrumental/ chemical method shall conform to the requirements as given in **Table 1 of IS: 737** / **Table 1 of ASTM B209.**

3.5 MECHANICAL PROPERTIES:

3.5.1 TENSILE TEST
The material when tested in accordance with **IS: 1608** / **ASTM B209** shall conform to the values given in **Table 2 of IS: 737** / **Table 2 of ASTM B209.**

3.5.2 BEND TEST
When tested in accordance with the method prescribed in **IS: 737** / **ASTM B209**, the outer surface of the bend shall not show any visible crack.

4.0 DIMENSIONS AND TOLERANCES:

4.1 The width of the aluminium sheet shall be **900 to 1500 mm**. (uniform for the entire lot of supply).

4.2 Standard thicknesses of the aluminium sheet will be **0.19, 0.56, 0.71, 0.91, 1.00, 1.22, 1.6 mm**. (The exact requirement of thickness and the quantity (weight in MT) will be indicated specifically in the Purchase Orders).

4.3 Tolerances on width & sheet thickness shall be as per **IS: 2676** / **ASTM B209**.

4.4 Quantity tolerance for cladding sheets shall be **+/- 10%**.

5.0 INSPECTION AND TESTING:

5.1 The material sampling shall be done as given in IS: 737 / ASTM B209.

5.2 The material to be supplied under this specification shall be of tested quality. Inspection and testing of Aluminium sheets shall be carried out as per the requirements of IS: 737 / ASTM B209. Manufacturer's test certificate indicating all the chemical composition and mechanical properties shall be furnished.

5.3 All test certificates shall be submitted in ORIGINAL for BHEL / CUSTOMER review and based on the satisfactory test results, Material Despatch Clearance Certificate (MDCC) will be issued.

5.4 Scope of inspection shall be as called for in QA plan enclosed (QP No: SQP/MP/551-A).
Inspection agency shall be BHEL / Lloyds / others as per enquiry document.

6.0 PACKING AND MARKING:

6.1 The material will have to be packed in polythene-lined hessian and covered with metallic sheets. Wooden saddle supports for each coil to be provided and finally the coils needs to be strapped with metallic bands suitably. Material shall be packed in such a manner so as to prevent damage in ordinary handling & transport. The edges of the coils to be reinforced with metallic circular rings to avoid damage while handling.

6.2 Each package shall contain only one size of material.

6.3 Each package / coil shall be suitably marked with a tag for identification as given below: (legibly written - preferably at two locations for easy identification):

a) BHEL's Purchase order number
b) Project Name
c) Name of the manufacturer & Country of Origin
d) Material grade & condition
e) Sheet thickness
f) Weight of the contents

VARIANT TABLE:

Var No	Item Description	BHEL Material Code
01	AL CLADDING (IS737: GR 31000) 0.71MM THK	PY9752064019
02	AL CLADDING (IS737: GR 31000) 1.22MM THK	PY9752064027
03	AL CLADDING (IS737: GR 31000) 0.91MM THK	PY9752064035

RECORD OF REVISIONS:

Rev No	Date	Revision Detail	Revised by	Approved by
00	19.03.2015	FIRST ISSUE	G PARAMESH	VVSS SUNDAR
01	30.09.2016	CLAUSE NO 3.3, 4.2 & 4.4 UPDATED. ASTM B209-10 REPLACED WITH ASTM B209. VARIANT TABLE UPDATED.	UDAY KUMAR V	SRIKANTH G

1087769/2022/BAP-9750_MECH

Annexure-A :: REQUISITION FOR ANNUAL FRAMEWORK AGREEMENT FOR AL SHEETS & PLATES
Tenure :- 1st June 2022 to 31st May 2023 (as proposed by BAP Ranipet)

SL NO	DESCRIPTION OF MATERIAL	DETAILED DESCRIPTION	EXPECTED REQUIREMENT (MT)
1	Aluminium Alloy Sheet	**Thckness Slab (0.1 to 1 MM)**	15
		BIS-737- 2008 (Gr 19500 H8)	
		Width from 600 to 1200 mm in coil form	
		Hot Rolled	
2	Aluminium Alloy Sheet	**Thckness Slab (1.01 to 5 MM)**	600
		BIS-737- 2008 (Gr 31000 H2)	
		Width 1219 to 1500 MM	
		Cut length 1400 to 4788 MM	
		Hot Rolled	
3	Aluminium Alloy Plate	**Thckness Slab (5.01 to 10 MM)**	300
		BIS-5082- 1998 (Gr 19501 H1)	
		Width 1060 to 1500 MM	
		Cut length 2430 to 5440 MM	
		Hot Rolled	
4	Aluminium Alloy Plate	**Thckness Slab (10.01 to 20 MM)**	300
		BIS-5082-1998 (Gr 19501 H1)	
		Width 474 to 1545 MM	
		Cut length 2500 to 3140 MM	
		Hot Rolled	
5	Aluminium Alloy Plate	**Thckness Slab (20.01 to 36 MM)**	85
		BIS-5082-1998 (Gr 19501 H1)	
		Width 750 to 1067 MM	
		Cut length 2300 to 3140 MM	
		Hot Rolled	
		Total Requisition Quantity (MT)=	**1300**

16.11.21

16-11-2021

Annexure-B :: SECTION DETAILS FOR AL SHEETS & PLATES

Sl No.	Material Description	Aluminium Section Details	Alloy Grade
1	Aluminium Alloy Sheet as per BIS-737- 2008 (Gr 19500 H8), Width from 600 to 1200 mm in coil form	Foil 0.46x914 in Coil form	19500 H8
2	Aluminium Alloy Sheet as per BIS-737- 2008 (Gr 31000 H2), Width from 1219 to 1500 mm and Cut length from 1400 to 4788 mm	Sheet 2x1219x4650	31000 H2
		Sheet 3.15x1219x3188	31000 H2
		Sheet 3.15x1219x3587	31000 H2
		Sheet 3.15x1219x3993	31000 H2
		Sheet 3.15x1219x4788	31000 H2
		Sheet 4.78X1219X1400	31000 H2
		Sheet 4.78X1219X1430	31000 H2
		Sheet 4.78X1219X1620	31000 H2
		Sheet 4.78X1219X1650	31000 H2
		Sheet 4.78x1219x2121	31000 H2
		Sheet 4.78x1219x2152	31000 H2
		Sheet 4.78x1219x2436	31000 H2
		Sheet 4.78x1219x2466	31000 H2
		Sheet 4.78x1219x2515	31000 H2
		Sheet 4.78x1219x2550	31000 H2
		Sheet 4.78x1219x2737	31000 H2
		Sheet 4.78x1219x2767	31000 H2
3	Aluminium Alloy Plate as per BIS-5082- 1998 (Gr 19501 H1), Width from 1060 to 1500 mm and Cut length from 2430 to 5440 mm	Plate 6.35X1219X2430	19501 H1
		Plate 6.35X1219X2732	19501 H1
		Plate 6.35x1219x2772	19501 H1
		Plate 6.35x1219x3121	19501 H1
		Plate 6.35x1219x3162	19501 H1
		Plate 6.35x1219x3342	19501 H1
		Plate 6.35x1219x3362	19501 H1
		Plate 6.35x1219x3382	19501 H1
		Plate 6.35x1219x3397	19501 H1
		Plate 6.35X1219X3750	19501 H1
		Plate 6.35X1219X3790	19501 H1
		Plate 6.35X1219X3850	19501 H1
		Plate 8X1219X3118	19501 H1
		Plate 8X1219X3167	19501 H1
		Plate 8X1219X3337	19501 H1
		Plate 8X1219X3387	19501 H1
		Plate 8X1219X4738	19501 H1
		Plate 8X1219X4688	19501 H1
		Plate 8X1219X5002	19501 H1
		Plate 8X1219X5052	19501 H1
		Plate 9X1219X5313	19501 H1
		Plate 9X1219X5370	19501 H1
		Plate 9X1219X5440	19501 H1
		Plate 10x1060x4500	19501 H1
4	Aluminium Alloy Plate as per BIS-5082-1998 (Gr 19501 H1), Width from 474 to 1545 mm and Cut length from 2500 to 3140 mm	Plate 12.7X1067X3140	19501 H1
		Plate 15x1545x2500	19501 H1
		Plate 15X634X2500	19501 H1
		Plate 15x712x2500	19501 H1
		Plate 16X474X2500	19501 H1
		Plate 16X757X2500	19501 H1
		Plate 16X632X2500	19501 H1
		Plate 16X1182x2500	19501 H1
		Plate 16X1067X3140	19501 H1
		Plate 20X1067X3140	19501 H1
5	Aluminium Alloy Plate as per BIS-5082-1998 (Gr 19501 H1), Width from 750 to 1067 mm and Cut length from 2300 to 3140 mm	Plate 25X1067X3140	19501 H1
		Plate 36X750X2300	19501 H1

Note:- Further sections shall be added as per requirement of project(s).

16.11.21

16-11-2021.

	QUALITY ASSURANCE PLAN	QAP NO: BHE/RU/QC/QAP/AL_RM
		REV: 00
	ALUMINIUM ALLOY SHEETS AND PLATES	DATE: 30.09.15

SL. NO.	COMPONENT	CHARACTERISTICS	CATEGORY	METHDD OF CHECK	EXTENT OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS	AGENCY			REMARKS
									P	W	R	
1.0	RAW MATERIAL											
1.1	Aluminium Sheets & Plates	a) Dimensions (thickness)	Major	Measurement	1 sample/batch	BHEL Spec.	IS : 2676 / 2677	TR	3	2/1	-	
		b) Surface finish	Minor	Visual	100 %	IS : 5082 / IS : 737	IS : 5082 / IS : 737	TR	3	-	2/1	
		c) Bend Test (if applicable)	Major	Mechanical	1 sample/batch			TR	3/4*	2/1	-	Witness of random 5 samples / lot by BHEL/TPIA
		d) Tensile Strength	Major	Mechanical	1 sample/batch			TR	3/4*	2/1	-	
		e) % Elongation	Major	Mechanical	1 sample/batch			TR	3/4*	2/1	-	
		f) Chemical composition	Major	Chemical	1 sample/batch			TR	3/4*	2/1	-	
		g) Electrical Conductivity at 20° C (if applicable as per IS)	Critical	Electrical	1 sample/batch			TR	3/4*	2/1	-	

ABBREVIATIONS:

R= REVIEWED BY

P= PERFORMED BY

W= WITNESS BY

FORMAT OF RECORDS:

TR= TEST REPORT/CERTIFICATE

REFERENCE:

IS= INDIAN STANDARD

AGENCY:

1= BHEL

2= BHEL'S THIRD PARTY INSPECTION AGENCY (TPIA)

3= MANUFACTURER

4= NABL APPROVED EXTERNAL LABORATORY

NOTE: IN CASE OF INSPECTION WAIVER BY BHEL, MANUFACTURER WILL SUBMIT TEST CERTIFICATES FOR '*' MARKED CHARACTERISTICS, CONDUCTED AT CERTIFIED EXTERNAL LABORATORIES.

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	BHEL – Ranipet - 632 406, India. Quality Assurance Department QWI Type: Standard Quality Plan	DOC No: SQP:ESP:292 Rev:02 Effective Date: 11/05/2020 Page: 1 of 2
	Title: Plain Aluminum Cladding Sheet	

Applicability: Tick (√) suitable below listed product(s) to which this QWI is applicable.										
APH/GGH	CHM	DES	ECI	ESP	FAN	FGD	FIL	G & D	WEG	GEN
				√						√

Prepared By Quality Assurance	GOPA KUMAR K S	[signature] 11/05/20

Reviewed by	Signature
Engineering	[signature] 11/05/2020 (Mahendra Kumar Nahak)
MM / Material Planning (S. DHAKSHNAMOORTHY)	S. [signature] 11/05/20.
Quality Control / Procurement (K. KOVARTHANAN)	K. Kovartt 11/5/20.

Rev No	Date	Approved by	Signature
02	11/05/2020	VENKANNA RUPANI DM/QA	R. [signature] 11/05/2020

Record of Revisions

Rev No	Date	Clause No(s)	Details of Revision
02	11/05/2020	1.1	BHEL PO & Technical Specification included.
		2.1, 2.2	BHEL PO, strain hardening & HT included.
		3.1, 3.2, 3.3, 3.4, 3.5	BHEL PO & Technical Specification, Chemical testing, strain hardening & HT included along with changes in quantum of check and format of records.
		4.1, 4.2, 4.3	Quantum of check and format of records included.

Legends:
APH: Air Preheater; **GGH**: Gas to Gas Heater; **CHM**: Chimney; **DES**: Desalination;
ECI: Electrical, C & I, **ESP**: Electrostatic Precipitator; **FAN**: Fans;
FGD: Flue Gas Desulphurization; **FIL**: Bag Filter; **G & D**: Gates & Dampers;
WEG: Wind Electric Generator; **GEN**: General.

BHEL	MANUFACTURER'S NAME & ADDRESS: BHEL: RANIPET & APPROVED SUPPLIERS	STANDARD QUALITY PLAN	DOC NO: SQP:ESP:292 REV NO:02
		PRODUCT: Plain Aluminum Cladding Sheet	DATE: 11/05/2020
		SUB-SYSTEM : ESP	PAGE: 2 OF 2

SL. NO	COMPONENT & OPERATIONS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK		REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD		AGENCY			REMARKS
											M	C	N	
1	2	3	4	5	M	C/N	7	8	9	D*	** 10			11
1.0	RAW MATERIALS:													
1.1	Rolling Ingot	Chemical Properties	B	TC Review	1 / Cast or Heat		IS: 737 / ASTM B209	IS: 737 / ASTM B209, BHEL PO & Tech Spec*	MTC/ ALC	√	P	V	-	* BHEL Tech Spec:TEP:BAP :AL:SHEET
2.0	INPROCESS CONTROLS													
2.1	Hot Rolling / Cold Rolling / Slitting	Thickness	A	Measurement	1 / Coil		IS: 2676, IS: 737 / ASTM B209 & BHEL PO		Log / IR	-	P	-	-	
		Length / Width	A	Measurement	1 / Coil					-	P	-	-	
		Surface	B	Visual	1 / Coil		IS: 737 / ASTM B209 & BHEL PO			-	P	-	-	
2.2	Condition	Strain Hardening & Heat Treatment	A	Visual	100%		IS: 737 / ASTM B209 & BHEL PO		HT Chart	-	P	-	-	
3.0	FINAL INSPECTION													
3.1	Finished Coils	Thickness, Length / Width	A	Measurement	100 %	1 / Coil	IS: 2676, IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification		IR	√	P	W #	-	# 10% Random witness for BHEL QC/BHEL Appointed AIA.
3.2		Surface condition and verification of completeness	B	Visual	100 %	1 / Coil	IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification		IR	√	P	W #	-	
3.3		Chemical Properties	A	Testing	1 / Cast or Heat		IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification		MTC / ALC	√	P	W #	-	
3.4		Tensile Properties – UTS, %Elong, Bend	A	Testing	1 / Coil		IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification			√	P	W #	-	
3.5		Condition - Strain Hardening & Heat Treatment	A	Review	100%		IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification		HT Chart	√	P	V	-	
4.0	MARKING, PACKING AND PRESERVATION													
4.1	Marking	Identification along with batch number	B	Visual	100 %	10% Random	IS: 737 / ASTM B209, BHEL PO & BHEL Tech Specification		IR	√	P	V	-	
4.2	Packing	Use of polythene hessasin & covered with metallic sheets	B	Visual	100 %		BHEL PO, Tech Specification & BHEL approved drawing (for first time supplies)		IR	√	P	V	-	
4.3		Reinforcement of edges of coil with metallic rings	B	Visual	100 %		BHEL PO, Tech Specification & BHEL approved drawing (for first time supplies)		IR	√	P	V	-	

Note: 1. Latest editions/versions of the indicated standards & specification shall be used by the suppliers.

LEGEND: * RECORDS IDENTIFIED WITH "TICK" (√) SHALL BE ESSENTIALLY INCLUDED BY THE SUPPLIER IN QA DOCUMENTATION;
** M: MANUFACTURER, C: BHEL QC/BHEL AIA, N: CUSTOMER; P: PERFORM. W: WITNESS, V: VERIFICATION; CLASS: A - CRITICAL; B - MAJOR; C – MINOR;
MTC- Manufacturer's Test Certificate; IR- Inspection/Test Report; COC: Certificate of Compliance; (R): Routine test; (T)/(Ts): Type test.; ALC: NABL Accredited Laboratory Test Certificate

MANUFACTURING QUALITY PLAN

THERMAL INSULATION

(LRB MATTRESS, AL CLADDING ,ANCILLARY MATERIAL)

1087769/2022/BAP-9750_MECH

	MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002	
बी एच ई एल BHEL	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032	PRODUCT:LRB MATTRESS	REV NO: 01 / DATE 16-11-16 PAGE 2 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY W	AGENCY V	REMARKS
1.0	**RAW MATERIALS & BOUGHT OUT ITEMS**												
1.1	Raw Material (Insulation)	Chemical Composition	Major	Chem. Analysis	One Sample/Lot	BHEL Spec / BOQ / Appd. Datasheet		MTC	√	2	-	1	
1.2	GI Wire	Chemical Composition	Major	Chem. Analysis	One Sample/Lot			MTC	√	2	-	1	
1.3		Wire Diameter	Major	Measurement	One Sample/Lot			MTC	√	2	-	1	
1.4		Tensile test, Coating test, Wrapping test, Bend test	Major	Physical tests	One Sample/Lot			MTC	√	2	-	1	
2.0	**INPROCESS INSPECTION**												
2.1	Finished Mattress	Dimensions	Major	Measurement	Each Lot	BHEL Spec / BOQ / Appd. Datasheet		ITR	√	2	2	1	
3.0	**FINAL INSPECTION & TESTING**												
3.1	Finished Mattress	Workmanship, Dimensions	Major	Visual, Measurement	As per Spec / Standards referred	BHEL Spec / BOQ / Appd. Datasheet		IR	√	2	1		
3.2		BOM / BOQ Check	Major	Visual	100%			IR	√	2	1		
3.3		Bulk Density	Major	Measurement	As per Spec / Standards referred			TC / IR	√	2	1		
3.4		Heat Resistant	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

APPROVED BY

BHEL QA SIGNATURE & STAMP

APPROVED BY

CUSTOMER'S SIGNATURE & STAMP

	MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002	
	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032	PRODUCT:LRB MATTRESS	REV NO: 01 / DATE: 16-11-16 PAGE 3 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY W	AGENCY V	REMARKS
3.5	Finished Mattress	Alkalinity	Major	Testing	As per Spec / Standards referred	BHEL Spec/ BOQ / Appd. Datasheet		TC / IR	√	2	1		
3.6		Shot Content	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.7		Recovery After Compression	Major	Testing	As per Spec / Standards referred			TC / IR	√	2	1		
3.8		Moisture Content	Major	Testing	As per Spec / Standards referred			TC / IR	√	2	1		
3.9		Moisture absorption	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.10		Incombustibility	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.11		Thermal Conductivity	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.12		Sulphur Content	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.13		Resistance to Vibration	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	

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	MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002	
	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032	PRODUCT:LRB MATTRESS	REV NO: 01 DATE: 16-11-16 PAGE 4 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY W	AGENCY V	REMARKS
3.14		Resistance to Jolting	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
3.15		Chloride Content	Major	TC Review	As per Spec / Standards referred			TC	√	2	2	1	
4.0	**PRESERVATION & PACKING**												
4.1	Packing# , Marking	Soundness of packing, Marking	Major	Visual	100%	BHEL Spec/ BOQ / Appd. Datasheet		Packing List	√	2	2	1	# Seaworthy packing for Export orders

Notes:-

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet/Specification shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.

Abbreviations:-

MTC	–	Material Test certificate	TC	–	Test Certificate
IR	-	Inspection Report	ITR	-	Internal Test Report
BOM	-	Bill of Material	BOQ	-	Bill of Quantity

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY BHEL QA SIGNATURE & STAMP	APPROVED BY CUSTOMER'S SIGNATURE & STAMP

1087769/2022/BAP-9750_MECH

	STANDARD MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002
बी एच ई एल BHEL	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL-HYD 502032	PRODUCT:AL CLADDING	REV NO 01 DATE:: 16-11-16 PAGE 5 OF 8 DATE:30-05-16

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT & ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY W	AGENCY V	REMARKS
1.0	**RAW MATERIALS & BOUGHT OUT ITEMS**											
1.1	Raw Material	Chemical Properties	Major	Chem. Analysis	One per heat/Melt	BHEL Spec/ Appd. BOQ / Appd. Datasheet	MTC	√	2	2	1	
2.0	**INPROCESS INSPECTION**											
2.1	Al Sheets	Dimensions	Major	Measurement	100%	BHEL Spec/ Appd. BOQ / Appd. Datasheet	ITR	√	2	2	1	
3.0	**FINAL INSPECTION & TESTING**											
3.1	Aluminum Sheets	Visual	Major	Visual	Random	BHEL Spec/ Appd. BOQ / Appd. Datasheet	IR	√	2	1		
3.2		Dimensions	Major	Measurement	As per Spec **		IR	√	2	1		
3.3		BOM / BOQ Check	Major	Visual	100%		IR	√	2	1		
3.4		Mechanical Properties	Major	Mech. Analysis	Each Batch		TC	√	2		1	
4.0	**PRESERVATION & PACKING**											
4.1	Packing# , Marking	Soundness of packing, Marking	Major	Visual	100%	BHEL Spec/ BOQ / Appd. Datasheet	Packing List	√	2	1		

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

APPROVED BY

BHEL QA SIGNATURE & STAMP

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CUSTOMER'S SIGNATURE & STAMP

1087769/2022/BAP-9750_MECH

	STANDARD MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002
	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL-HYD 502032	PRODUCT:AL CLADDING	REV NO 01 DATE: 16-11-16 PAGE 6 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT & ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY V	REMARKS DATE:30-05-16

Notes:-

1. This Standard MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.
4. ** - If Quantum of check is not mentioned in the Specification then 10% of each type is applicable.

Abbreviations:-

MTC	–	Material Test certificate	TC	–	Test Certificate
IR	-	Inspection Report	ITR	-	Internal Test Report
BOM	-	Bill of Material	BOQ	-	Bill of Quantity

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY BHEL QA SIGNATURE & STAMP	APPROVED BY CUSTOMER'S SIGNATURE & STAMP

1087769/2022/BAP-9750_MECH

	STANDARD MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002
	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032	**PRODUCT:ANCILLARIES**	REV NO: 01 DATE: 16-11-16 PAGE 7 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P			DATE:30-05-16
1.0	**RAW MATERIALS & BOUGHT OUT ITEMS**												
1.1	GI Wire	Thickness & Qty	Major	Visual	Random	BHEL Spec	BHEL Spec	MTC/COC	√	2	2	1	
1.2	SS bands	Thickness , Qty &MTC	Major	Visual	Random	BHEL Spec	BHEL Spec	MTC/COC	√	2	2	1	
1.3	MS Flat	Thickness & Qty	Major	Visual	Random	BHEL Spec	BHEL Spec	MTC/COC	√	2	2	1	
1.4	MS Rivet, MS machine bolt & nut, Quick release toggle,	Size & Quantity	Major	Visual	Random	BHEL Spec	BHEL Spec	MTC/COC	√	2	2	1	
1.5	Self tapping screws, S clips	Size	Major	Visual	Random	BHEL Spec	BHEL Spec	MTC/COC	√	2	2	1	
1.6	Ceramic rope, Glass cloth & Glossy poly coated kraft paper	Density, Size & Qty.	Major	Visual	Random	BHEL Spec	BHEL Spec	TC	√	2	2	1	
1.7	Bituminous emulsion mastic, Sealing compound, Primer & Al paint.	Shelf life & Qty.	Major	Visual	Random	BHEL Spec	BHEL Spec	TC/COC	√	2	2	1	
2.0	**INPROCESS INSPECTION**												

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.	APPROVED BY BHEL QA SIGNATURE & STAMP	APPROVED BY CUSTOMER'S SIGNATURE & STAMP

1087769/2022/BAP-9750_MECH

	STANDARD MANUFACTURING QUALITY PLAN	MQP NO.:PE&SD/QA/MP/002
	PROJECT ENGINEERING & SYSTEMS DIVISION BHEL, RC PURAM, HYD-502032	PRODUCT:ANCILLARIES	REV NO: 01 DATE: 16-11-16 PAGE 8 OF 8

SL NO	COMPONENTS	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	* D	AGENCY P	AGENCY W	AGENCY V	REMARKS
2.1	Ancillary Materials	Dimensions#	Major	Measurement	100%	BHEL Spec / BOQ / Appd. Datasheet	BHEL Spec / BOQ / Appd. Datasheet	ITR	√	2	2	1	# where applicable
3.0	**FINAL INSPECTION & TESTING**												
3.1	Ancillary Materials	Visual	Major	Visual	100%	BHEL Spec/ Appd. BOQ / Appd. Datasheet	BHEL Spec / BOQ / Appd. Datasheet	IR	√	2	1		
3.2		BOM / BOQ Check	Major	Visual	100%			IR	√	2	1		
4.0	**PRESERVATION & PACKING**												
4.1	Packing#, Marking	Soundness of packing, Marking	Major	Visual	100%	BHEL Spec/ BOQ / Appd. Datasheet	BHEL Spec/ BOQ / Appd. Datasheet	Packing list	√	2	1		"

Notes:-

1. This Typical MQP should be read along with specification (Latest revision as per PO), approved drawings & approved datasheet (as applicable).
2. Drawing/datasheet shall prevail over quality plan for contradiction if any.
3. Any project/customer specific requirements which shall be notified have to be fulfilled by the vendor at the time of execution of order.

Abbreviations:-

MTC – Material Test certificate
IR - Inspection Report
BOM - Bill of Material
COC - Certificate of Compliance
TC – Test Certificate
ITR - Internal Test Report
BOQ - Bill of Quantity

Revision History:-

Rev No.	Date	Revision Status	Rev No.	Date	Revision Status
0	16-08-2016	Initial Issue	1	16-11-2016	Revised in general.

LEGEND: P: PERFORM, W: WITNESS, V: VERIFICATION. INDICATE 1 FOR BHEL/BHEL NOMINATED INSPECTION AGENCY 2 FOR VENDOR/SUB VENDOR AS APPROPRIATE AGAINST EACH COMPONENT /CHARACTERISTIC UNDER P, W & V COLUMNS. * FOR ITEMS MARKED ✓ (TICK) IN COLUMN 'D', TEST CERTIFICATES SHALL BE SUBMITTED TO BHEL FOR RECORDS.

APPROVED BY

BHEL QA SIGNATURE & STAMP

Signature Not Verified

Digitally signed by CHANDAN KUMAR BHARTI
Date: 2022.07.25 16:04:19 IST
Location: BHEL

APPROVED BY

CUSTOMER'S SIGNATURE & STAMP