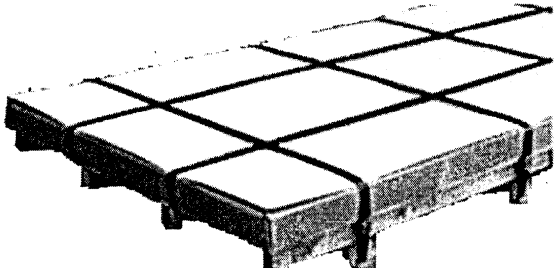


 Ranipet	TECHNICAL DELIVERY CONDITION FOR UNS N 10276 SHEET/ PLATE AS PER ASTM B575 FOR FGD APPLICATION	DOC No:	TDC: RTS: 006
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1.0	Scope														
1.1	This TDC specifies the requirements for the delivery of UNS N10276 sheets/plates conforming to ASTM B575 and to the latest edition.														
1.2	The size and Quantity shall be as specified in the Enquiry/ Purchase order.														
1.3	Sheet/ plate is classified as per ASTM B575 standard. Sheet- Thk less than 4.76mm and Plate- Thk 4.76mm and more														
2.0	Chemical composition and process														
2.1	Alloy N10276 as per Table-1 of ASTM B575														
2.2	Cold or Hot rolling to achieve desired thickness. Plate/Sheet to be solution annealed and descaled after rolling.														
3.0	Dimensional tolerances														
3.1	The plates shall be supplied to the dimensions specified in the enquiry/PO. Enquiry/PO shall state the following 1) Length and width of plate. 2) Thickness The following dimensional tolerances shall apply <table border="1" data-bbox="391 869 1509 1406"> <tr> <td>a) Thickness tolerances</td><td>As per ASTM B906 Table A2.1 / Table A2.2 as per applicable</td></tr> <tr> <td>b) Length & Width tolerances</td><td>As per ASTM B906 Table A2.3 / Table A2.4 based on method used to cut the sheet.</td></tr> <tr> <td>c) Straightness</td><td>As per clause 8.5 of ASTM B575 (edgewise curvature-depth of chord-of sheet shall not exceed 0.04mm multiplied by the length in cm)</td></tr> <tr> <td>d) Squareness</td><td>As per clause 8.6 of ASTM B575 (Angle between adjacent sides shall be 90 +/- 0.15°)</td></tr> <tr> <td>e) Flatness</td><td>As per clause 8.7 of ASTM B575 (Commercially flat)</td></tr> <tr> <td>f) Finish</td><td>Finish shall be as per clause 13.1.1 (No. 1 finish) for Plate and clause 11.1.1 (No. 1 finish) for Hot rolled sheet and clause 11.1.2 (No.2D finish) for cold rolled sheet of ASTM B906.</td></tr> <tr> <td>g) Density</td><td>Density as per clause 8.1 of ASTM B575.</td></tr> </table>	a) Thickness tolerances	As per ASTM B906 Table A2.1 / Table A2.2 as per applicable	b) Length & Width tolerances	As per ASTM B906 Table A2.3 / Table A2.4 based on method used to cut the sheet.	c) Straightness	As per clause 8.5 of ASTM B575 (edgewise curvature-depth of chord-of sheet shall not exceed 0.04mm multiplied by the length in cm)	d) Squareness	As per clause 8.6 of ASTM B575 (Angle between adjacent sides shall be 90 +/- 0.15°)	e) Flatness	As per clause 8.7 of ASTM B575 (Commercially flat)	f) Finish	Finish shall be as per clause 13.1.1 (No. 1 finish) for Plate and clause 11.1.1 (No. 1 finish) for Hot rolled sheet and clause 11.1.2 (No.2D finish) for cold rolled sheet of ASTM B906.	g) Density	Density as per clause 8.1 of ASTM B575.
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g) Density	Density as per clause 8.1 of ASTM B575.														
4.0	Heat Treatment														
4.1	Unless otherwise specified, the sheets and plates shall be supplied in heat- treated condition.														
5.0	Mechanical Test														
5.1	Test samples shall be selected and prepared as per ASTM B906. Number of tests and re-tests shall be carried out as per ASTM B906. <table border="1" data-bbox="391 1572 1509 1848"> <tr> <td>a) Tensile test</td><td>Tension test method shall be as per ASTM E8 & acceptance norms are as per B575 Table 2, (i)Tensile strength 690MPa min. (ii) Yield 283MPa min. (iii) Elongation 40% min.</td></tr> <tr> <td>b) Hardness</td><td>Hardness on finished plate shall be as per ASTM E18 & its value shall be 100 HRB (Max). Vendor to specify</td></tr> <tr> <td>c) Grain size test (only for sheet and strip)</td><td>Grain size test shall be as per ASTM E112 and its value shall be as per Table 3 of ASTM B575 as applicable.</td></tr> </table>	a) Tensile test	Tension test method shall be as per ASTM E8 & acceptance norms are as per B575 Table 2, (i)Tensile strength 690MPa min. (ii) Yield 283MPa min. (iii) Elongation 40% min.	b) Hardness	Hardness on finished plate shall be as per ASTM E18 & its value shall be 100 HRB (Max). Vendor to specify	c) Grain size test (only for sheet and strip)	Grain size test shall be as per ASTM E112 and its value shall be as per Table 3 of ASTM B575 as applicable.								
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6.0	Freedom from defects														
6.1	The material shall be clean, smooth, sound and free from injurious defects.														
6.2	All plates shall be free from harmful defects like cracks, lamination. The edges of plates shall be slit without fish tails and kinks. The plates should not contain any weld seam. The surface shall be free from scales, rust, pitting, wrinkles														
6.3	Repair on finished plate is prohibited and shall not be accepted.														

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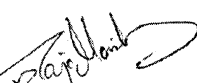
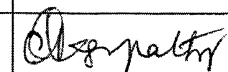
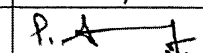
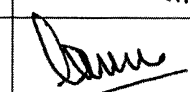
7.0	Inspection at Supplier's works
7.1	BHEL's representative shall have free access at all times until work on contract of BHEL is being performed, to all parts of the manufacturer's works. The supplier shall offer BHEL's representative all reasonable facilities without any financial implication to satisfy the latter that the material is being furnished in accordance with this specification.
8.0	Packing and Marking
8.1	The material shall be separated by size and prepared for shipment in such a manner as to ensure acceptance by common carrier transportation and to afford protection from the normal hazards of transportation by sea. Packing shall be of sea worthy packing. Each package shall be suitably marked with the following details. A metal label shall be securely attached to each package and shall bear the following information: 1. N 10276 plates as per ASTM B575 2. BHEL PO no: 3. Consignment and Identification No. 4. Size, number and Weight 5. Supplier's name
8.2	Marking on the face of plate: Marking on the plate lengthwise on one face as per clause 22 of ASTM B906.
8.3	Marking over the plate/sheet: Each sheet shall be identified by Tag & also permanent marking on each bundle of sheet on the packed crate.
8.4	The bundle/crate shall be rigid enough to withstand the packed weight.
8.5	Each bundle shall weigh approximately 2MT.
8.6	Images of packing (For reference only):  
9.0	Dispatch
9.1	It is the responsibility of the supplier to ensure that no damage occurs during transit.
10.0	Inspection and Certification
10.1	All tests shall be complied as per the specification for each heat and dimensional reports containing all elements of cl.3.0 to 5.0 shall be furnished for our verification. Despatch clearance will be issued after verification of reports and is mandatory before effecting despatch to BHEL stores.
10.2	The test certificates shall be furnished with the following details legibly in English language only 1. BHEL reference a) BHEL PO no b) N 10276 plates as per ASTM B575 2. Supplier's reference: a) Supplier's name b) Test certificate no c) Specification & grade with applicable year of code d) PO quantity & size e) Melt number

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	f) Quantity and Weight g) Identification marks h) Process of manufacture 3. Test results: a) Chemistry (melt wise) b) Material test certificates c) Heat treatment Batch no and details d) Mechanical properties e) Dimensional report
11.0	End use
11.1	These are intended for Wet-dry interface zone in Absorber
12.0	Rejection and replacement
12.1	In the event of any sheet/plate proving defective in the course of rolling (forming), machining, testing, assembly or erection, such plates shall be rejected notwithstanding, any previous certification of satisfactory testing and/or inspection.
12.2	The supplier shall undertake to replace the rejected plates/sheets at his own cost and the rejected plates shall be sent back to the supplier after fulfilling the commercial terms and conditions.

RECORD OF REVISIONS

REV. NO	Clause revised	Details of revision	Date
00	--	Original issue	20.05.2019

Prepared by	Reviewed by		Signature	Approved by
	Department	Name and Desig. (Shri/ S)		
 Rajamanickam.M Dy. Mgr/ QA	ENGG (FGD)	Kumuda Ballav Padhi DGM/ EDC- AQCS		 K.C. Gandhi Parimalam DGM / QA
	PURCHASE	V. Ragupathy SM/ Purchase		
	MATERIAL PLANNING	P. Annamalai Sr. Mgr/ MPL		
	QC/Proc.	R. Kesavan DGM/ QC- Proc		
Issued by Quality Assurance				