



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291186

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O, BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Date : 22.02.2024

Page 1 of 4

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF- Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 9.000mm x 2800mm x 8000mm

Heat				Plate No	No. of Pcs	Wt. (MT)	Analysis L/P	Chemical Analysis																%B	Nb+V+Ti	Cr+Cu+Mo	Al/N	%CE **
No			%C					%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca							
F40422/17D0		1	1.885	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42				
F40422/17D0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41				
F40422/18B0		1	1.885	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42				
F40422/18B0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41				
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F40422/22B0		1	1.884	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42				
F40422/22B0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41				
Sub Total		5	9.424																									

Mechanical properties:

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-45 05.01.2024

Despatch Advice No: 62457939

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:23:26

Printing Date 22.02.2024 & Time 07:31:49

Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291186

Date : 22.02.2024

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
 C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
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TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

**Supply Condition: FURNACE NORMALIZED
 Deoxidation : Fully Killed**

(EAF - Electric Arc Furnace / BOF - Basis Oxygen Furnace / LRF: Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
 Machine/ RHF Re-Heating Furnace)

				Tensile test			Bend Test	Charpy V-notch impact test @-60 °C (Joules)					Hardness
Heat No	Plate	No.of Pcs.	Wt. MT	Orientation : Transverse.				Orientation : Tr.					Unit
	No			YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg		
F40422/17D0		1	1.885	424	556	44		126	147	137	136.66		
F40422/17D0				397	546	44		187	187	169	181.00		
F40422/18B0		1	1.885	421	559	40		147	122	119	129.33		
F40422/18B0				397	546	44		187	187	169	181.00		
F40422/20B0		1	1.885	422	560	38		116	97	105	106.00		
F40422/20B0				397	546	44		187	187	169	181.00		
F40422/22A0		1	1.885	431	564	40		111	139	141	130.33		
F40422/22A0				397	546	44		187	187	169	181.00		
F40422/22B0		1	1.884	431	564	40		111	139	141	130.33		
F40422/22B0				397	546	44		187	187	169	181.00		

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-45 05.01.2024

Despatch Advice No: 62457939

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

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(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting Machine/ RHF : Re-Heating Furnace)

- minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
 6. Flatness as per ASME SA20
 7. Surface Inspection: EN 10163-2 Class A Subclass 3
 8. Reconditioning / Repair of plates by welding not carried out
 9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
 10. Impact sample size:
 - A. Plate Thickness Greater than 10MM:(10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM:(7.5*10*55)MM
 - C. Plate Thickness Less than or equal to 8MM:(5*10*55)MM.
 11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
 12. Simulation Heat Treatment: SR1
 - Target Loading Temperature(°C) : 400
 - Target Rate of Heating(°C/Hr): 200
 - Soaking Temperature(°C): 610+/-10
 - Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
 - Target Rate of Cooling (°C/Hr): 250
 - Target Unloading Temperature(°C): 400
 13. Yield strength determined by 0.2% offset method
 14. Reduction ratio of cast slab to plate is > 3:1

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-45 05.01.2024
Despatch Advice No: 62457939
Truck/Wagon No. DD01Q9397

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Deoxidation : Fully Killed

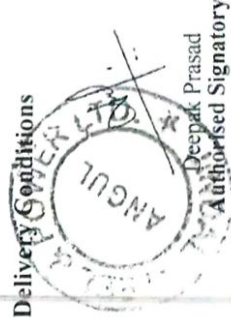
15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
16. Columns under mechanical properties will appear blank, if those tests are not opted for
17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.
18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-45 05.01.2024
Despatch Advice No: 62457939
Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE
Preparation Date : 22.02.2024 07:23:26
Printing Date 22.02.2024 & Time 07:31:49



JINDAL
STEEL & POWER
Invoice Type: TAX INVOICE

Invoice Type Code : INV

Supplier GSTIN No. : 21AAACJ7097D1ZS / State Code : 21

Location of Supplier : Angul

JINDAL STEEL & POWER LIMITED

"PP Building, Jindal Nagar, SH-63, Angul-759111-Odisha-IND

Subject to ANGUL Jurisdiction

Corporate Identification No. : L271051R1979PLC009913

"Under Section 31 CGST Act, 2017 & Rule 46 of CGST Rules, 2017"

IRN No. : 8a8a03a8f1484ab69b68ab64717ce3b2cee20126a0b0d29b9ab123e3761969ad

DUPLICATE FOR TRANSPORTER

PAN No. : AAACJ7097D / IEC No. : 3399000197

Tax Invoice No. : RV6000119741 Date : 22.02.2024

Ref No. : 6207215111 TAN No : BBNJ00280A

Ack No. : 182415568409085 Date : 22.02.2024

Name & Address of Customer (Billed to): GSTIN No. : 29AABCZ1506C1ZN State Code : 29 Pin Code : 560102 Place of Supply : BANGALORE PAN : AABCZ1506C	(34229) ZETWERK MANUFACTURING BUSINESSES PVT LTD ORIENTAL TOWERS, NO 461, 1ST FLOOR, 17TH CROSS, 4TH SECTOR, HSR LAYOUT BANGALORE (Karnataka) (India) PIN-560102	Name & Address of Consignee (Shipped to): GSTIN No. : State Code : 27 Pin Code : 400702 Supply Type : Business to Business Transaction Mode : OUTWARD	(47432) SHARP TANKS & STRUCTURALS PVT. LTD C/O, BHARAT PETROLEUM CORPORATION LIMITED URAN TERMINAL, URAN NAVGHAR INDUSTRIAL ESTATE, BEHIND MSEB GAS TURBINE UNIT, P.B.NO:8 RAIGAD (Maharashtra) (India) PIN-400702
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Purchase Order No. : ZET-KA-JIN27-13	Sale Order / OBD No. : 607754379 / 62457936	Transporter Name : RR ROADWAYS
Purchase Order Date. : 01.08.2023	Place of Delivery : RAIGAD	LR/GR/RR No. & Date : JSPLANG/RR/23-24/060793 & 22.02.2024
Sales Office : Regional of Bangalore	Country/Destination : India / Maharashtra	MV Registration No. : DD01Q9397
Freight Condition :	Mode of Transport : Road	Ewaybill No. / Valid upto : 811383089831 / 03.02.2024

Payer : (34229) ZETWERK MANUFACTURING BUSINESSES PVT LTD Payment Term : LC Usance Incoterms : TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

S. No	Description of Goods	HSN Code(Goods)	Quantity (TO)	Pieces	Bundles	Basic Price / Unit (INR)	Total value (INR)	Discount / Abatement	Taxable Value (INR)	IGST Rate %	Value	Rate %	Value
1	PLATE 16.00 MMX3,000 MM LEN 10 IS2041 R355/ASME SA537 CL-1	7208 51 20	10.800	3	3	86920.00	938736.00		938736.00	18.00	168972.48	0.00	0.00
Total			10.800	3	3		938,736.00		938,736.00	18.00	168,972.48	0.00	0.00
Freight							0.00		0.00		0.00		0.00
Insurance / Others @													
Packing & Forwarding Charges													
Grand Total							938,736.00		938,736.00		168,972.48		0.00

Total Bill Value (In Figures)

1,107,708.00

(The values have been rounded off to the nearest rupees)

Total Bill Value (In Words)

ELEVEN LAKH SEVEN THOUSAND SEVEN HUNDRED EIGHT AND ZERO PAISE ONLY

LC Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023

LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

TC NO: 291188/PCS:3

Certified that particular given above are true & correct and the amount indicated represented the price actually charged & that there is no flow of additional consideration directly or indirectly from buyer

Reverse Charges : No ; Is Service : No ;

LC Details: Drawn Under LC NO. 854010233274-N Dated 05.08.2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR 112, KORAMANGALA INDIA AREA, 5TH BLOCK KORAMANGALA, BANGALORE 560095

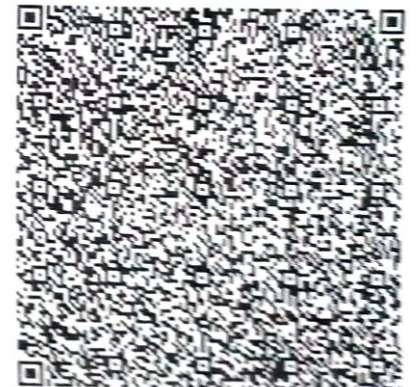
E & O.E.
for JINDAL STEEL & POWER LIMITED
Signature valid

Digitally signed by DS JINDAL STEEL & POWER LTD 2
Date: 2024.02.22 08:08:01 +05:30
50000431-SUSHIL KUMAR MISHRA
Location: ANGUL

AUTHORISED SIGNATORY

Prepared & Checked By

Corporate Office : Jindal Centre, 12 Bhikaji Cama Place, New Delhi - 110 066 , Registered office : O.P.Jindal Marg, Hisar - 125 005 (Haryana)





MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

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Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 10.00mm x 3000mm x 8900mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	LP	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	Al+N	%CE **
F40422/05A0		1	2.224	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
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Sub Total		4	8.896																					

Mechanical properties:

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UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO-ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details Drawn Under LC NO. 854010233283-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK TRADE SERVICES VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457937

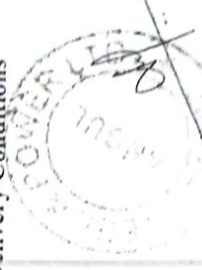
Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

Prepared by: SANGRAM APLATE

Preparation Date : 22.02.2024 07:24:19

Printing Date 22.02.2024 & Time 07:31:59



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Machine: RHF Re-Heating Furnace)

				Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))				Hardness
Heat No	Plate	No. of Pcs.	Wt. MT	Orientation : Transverse.				Orientation : Tr.				Unit
	No			YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg	
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F40422/05D0		1	2.224	415	567	40		133	129	116	126.00	
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Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also conforms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at $900 \pm 20^{\circ}\text{C}$, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
6. Flatness as per ASME SA20

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 SIE1 and found ok

LC Item Desc: PLATES AS PER PO-ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020
LC Details: Drawn Under LC NO: 854010231283-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE
Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023
Despatch Advice No: 62457937
Truck/Wagon No. DD01Q9397



* Gauge Length: 50 MM



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291187

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Date : 22.02.2024

Page 3 of 4

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF : Electric Arc Furnace / BOF : Basic Oxygen Furnace / LRF : Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting Machine/ RHF : Re-Heating Furnace)

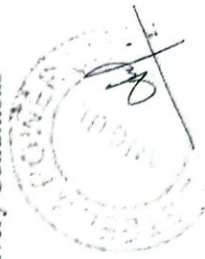
Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
10. Impact sample size:
 - A. Plate Thickness Greater than 10MM:(10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM:(7.5*10*55)MM
 - C. Plate Thickness Less than or equal to 8MM:(5*10*55)MM.
11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
 12. Simulation Heat Treatment: SR1
 - Target Loading Temperature(°C) : 400
 - Target Rate of Heating(°C/Hr): 200
 - Soaking Temperature(°C): 610+/-10
 - Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
 - Target Rate of Cooling (°C/Hr): 250
 - Target Unloading Temperature(°C): 400
 13. Yield strength determined by 0.2% offset method
 14. Reduction ratio of cast slab to plate is > 3:1
 15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
 16. Columns under mechanical properties will appear blank, if those

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc PLATES AS PER PO-ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020
LC Details Drawn Under LC NO. 854010233283-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SIRENITY, 3RD FLR KORAMANGALA, BANGALORE
Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023
Despatch Advice No: 62457937
Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM





JINDAL STEEL & POWER LIMITED
Works: Chhendipada Road, SH- 63, A/Po : Jindal Nagar, Dist : Angul (ODISHA)-759111 INDIA
Email: qclab.pw@jindalsteel.com
Registered Office: Post box No. 6, O.P. Jindal Marg, Hisar (Haryana)
Corporate Office : Jindal Center, 12 Bhikaji Cama Palace, New Delhi -110066 INDIA
Phone No. :-(06761) 254191-93; Fax :-06761 -254141-44



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291187

Date : 22.02.2024

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Page 4 of 4

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF : Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine: RHF - Re-Heating Furnace)

**Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed**

tests are not opted for

17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.

18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions.
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO-ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details: Drawn Under LC NO: 854010233283-N Dated 05.08.2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457937

Truck/Wagon No. DD01Q9397

Prepared by SANGRAM APLATE
Preparation Date :22.02.2024 07:24:19
Printing Date 22.02.2024 & Time 07:31:59

* Gauge Length: 50 MM



JINDAL STEEL & POWER LIMITED

CPP Building, Jindal Nagar, SH-63, Angul-759111-Odisha-IN

Subject to ANGUL Jurisdiction

Corporate Identification No.: L27105HR1979PLC009913

Under Section 31 CGST Act, 2017 & Rule 46 of CGST Rules, 2017

Supplier GSTIN No.: 21AAACJ7097D1ZS / State Code: 21

Location of Supplier: Angul

Name & Address of Customer (Billed to):

GSTIN No.: 29AABCZ1506C1ZN

State Code: 29 Pin Code: 560102

Place of Supply: BANGALORE

PAN: AABCZ1506C

(34229) ZETWERK MANUFACTURING BUSINESSES PVT LTD

LTD 461, 1st FLOOR, NEAR Mc DONALD'S, 4th

SECTOR 17th CROSS ROAD, HSR LAYOUT BANGALORE

BANGALORE (Karnataka) (India) PIN-560102

Name & Address of Consignee (Shipped to):

GSTIN No.:

State Code: 27 Pin Code: 400702

Supply Type: Business to Business

Transaction Mode: OUTWARD

(47432) SHARP TANKS & STRUCTURALS PVT. LTD

C/O, BHARAT PETROLEUM CORPORATION LIMITED

URAN TERMINAL, URAN NAVGHAR INDUSTRIAL

ESTATE, BEHIND MSEB GAS TURBINE UNIT, P. B. NO-8

RAIGAD (Maharashtra) (India) PIN-400702

Purchase Order No.: ZET-KA-JIN27-45

Purchase Order Date: 05.01.2024

Sales Office: Regional of Bangalore

Freight Condition:

Sale Order / OBD No.: 607760234 / 62457939

Place of Delivery: RAIGAD

Country/Destination: India / Maharashtra

Mode of Transport: Road

Transporter Name:

LR/GR/RR No. & Date:

MV Registration No.:

Ewaybill No./Valid upto:

RR ROADWAYS

JSPL/ANG/RR/23-24/060791 & 22.02.2024

DD01Q9397

881388089825 / 03.02.2024

Payer: (34229) ZETWERK MANUFACTURING BUSINESSES PVT LTD

Incoterms: Free on Road

Payment Term: Advance

Basic Price / Unit (INR)

Total value (INR)

Discount / Abatement

Taxable Value (INR)

IGST Rate %

IGST Value

Rate %

Value

S. No

Description of Goods

HSN Code (Goods)

Quantity (TO)

Pieces

Bundles

Basic Price / Unit (INR)

Total value (INR)

Discount / Abatement

Taxable Value (INR)

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IGST Value

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Value

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Quantity (TO)

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Quantity (TO)

Pieces

Bundles

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Total value (INR)

Discount / Abatement

Taxable Value (INR)

IGST Rate %

IGST Value

Rate %

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Quantity (TO)

Pieces

Bundles

Basic Price / Unit (INR)

Total value (INR)

Discount / Abatement

Taxable Value (INR)

IGST Rate %

IGST Value

Rate %

Value

S. No

Description of Goods

HSN Code (Goods)

Quantity (TO)

Pieces



IS 2041



CM/L 0005719579

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
CO. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024
Page 1 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting)
Mechanical R/RF - Re-heating Furnace

Supply Condition: FURNACE NORMALIZED
Desludgation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 10.00mm x 3000mm x 12400mm

Chemical Analysis

Heat No.	Plate No.	No. of Pcs	Wt. Analysis (MT)	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mn	Al+N	%CE **	
G4181509A0		1	3.093	L	0.135	1.50	0.0020	0.012	0.39	0.015	0.256	0.003	0.007		0.043	0.0005	0.047	52	0.0013	0.0003	0.05	0.0185	9.0385	0.40
G4181509B0		1	3.093	L	0.135	1.50	0.0020	0.012	0.39	0.015	0.256	0.003	0.007		0.043	0.0005	0.047	52	0.0013	0.0003	0.05	0.0185	9.0385	0.40
G4181509D0		1	3.093	L	0.135	1.50	0.0020	0.012	0.39	0.015	0.256	0.003	0.007		0.043	0.0005	0.047	52	0.0013	0.0003	0.05	0.0185	9.0385	0.40
G4181511A0		1	3.093	L	0.135	1.50	0.0020	0.012	0.39	0.015	0.256	0.003	0.007		0.043	0.0005	0.047	52	0.0013	0.0003	0.05	0.0185	9.0385	0.40
G4181511B0		1	3.093	L	0.135	1.50	0.0020	0.012	0.39	0.015	0.256	0.003	0.007		0.043	0.0005	0.047	52	0.0013	0.0003	0.05	0.0185	9.0385	0.40
Sub Total		5	15.465																					
Mechanical properties:																								

Mechanical properties:

Heat No	Plate No	No. of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test @-60 °C (Joules)			Hardness
				Orientation : Transverse.				Orientation : Tr.			
				YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg
G4181509A0		1	3.093	420	557	44		155	160	178	164.33
G4181509B0		1	3.093	420	557	44		155	160	178	164.33

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok
Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471504
Truck/Wagon No. MH46BP7177

Prepared by SOUMYA APLATE
Preparation Date : 10.03.2024 06:59:08
Printing Date 10.03.2024 & Time 07:02:42



* Gauge Length: 50MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Deepak Prasad
Authorized Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

Date : 10.03.2024

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
 C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
 TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Page 2 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basis Oxygen Furnace / LRF: Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
 Machine/ RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
 Deoxidation : Fully Killed

				Tensile test			Bend Test	Charpy V-notch impact test @-60 °C (Joules)				Hardness
Heat No	Plate	No.of Pcs.	Wt. MT	Orientation : Transverse.				Orientation : Tr.				
	No			YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg	
* G41815/09D0		1	3.093	420	557	44		155	160	178	164.33	
G41815/11A0		1	3.093	430	562	42		167	174	170	170.33	
G41815/11B0		1	3.093	430	562	42		167	174	170	170.33	

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension -Thickness x Width x Length : 12.00mm x 2500mm x 8000mm

Heat No. Plate No. No. of Pcs. Wt. (MT) Analysis L/P																								
Chemical Analysis																								
%C %Mn %S %P %Si %Cr %Ni %Cu %Ti %V %Nb %Mo %Al N (PPm) %Ca %B Nb+V+Ti Cr+Cu+Mo Al/N %CE **																								
F40975/06E0		1	1.978	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/06F0		1	1.978	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/07A0		1	1.978	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/07D0		1	1.977	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
Sub Total		4	7.911																					
Mechanical properties:																								

Mechanical properties:

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
 UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471504

Truck/Wagon No. MH46BP7177

* Gauge Length: 50MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SOUMYA APLATE
 Preparation Date : 10.03.2024 06:59:08
 Printing Date 10.03.2024 & Time 07:02:42




 Deepak Prasad
 Authorised Signatory

JINDAL STEEL & POWER LIMITED
Works: Chhendipada Road, SH-v, A/Po : Jindal Nagar, Dist : Angul (ODISHA)-759111 INDIA
Registered Office: Post box No. 6, O.P. Jindal Marg, Hissar (Haryana)
Corporate Office: Jindal Center, 12 Bhikaji Cama Palace, New Delhi-110066 INDIA
Phone No.:- (06761) 254191-95; Fax :- 06761-254141-44



IS 2041

CM.L 0005719379

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF: Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting Machine/ RHF : Re-Heating Furnace)

TEST RESULTS

Material Grade : IS2041 B355/ASME SA573 Gr. 1 B355													
Heat No	Plate	No. of Pcs.	Wt. MT	Tensile test		Bend Test	Charpy V-notch impact test (@-60 °C (Joules))	Hardness	Unit	Orientation : Tr.			Avg
				YS (MPa)	UTS (MPa)					%EL *	1	2	
F40975/06E0		1	1.978	430	551	42	234	240	232	235.33			
F40975/06F0		1	1.978	430	551	42	234	240	232	235.33			
F40975/07A0		1	1.978	432	550	44	240	284	248	257.33			
F40975/07D0		1	1.977	432	550	44	240	284	248	257.33			

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension -Thickness x Width x Length : 16.00mm x 3000mm x 10000mm																								
Heat No	Plate No	No.of. Pcs	Wt. (MT)	Analysis L/P	Chemical Analysis																			
					%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (ppm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	Al/N	%CE **
F40975/16B0	1	1	3.884	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
Sub Total					1	3.884																		
Mechanical properties:																								

Mechanical properties:

The above material supplied confirms to the specified dimensions and tolerances as per mutually agreed Technical Delivery Conditions
Ultrasonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok
Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471504
Truck/Wagon No. MH46BP7177
* Gauge Length: 50MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SOUMYA APLATE
Preparation Date : 10.03.2024 06:59:08
Printing Date 10.03.2024 & Time 07:02:42

Deepak Prasad
Authorised Signatory

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

Date: 10.03.2024

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
* C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Page 4 of 6

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

				Tensile test		Bend Test	Charpy V-notch impact test (@-60 °C (Joules)			Hardness
Heat No	Plate	No.of Pcs	Wt. MT	Orientation : Transverse.			Orientation : Tr.			Unit
	No			YS (MPa)	UTS (MPa)	%EL *	1	2	3	Avg
F40975/16B0	1		3.884	423	552	40	214	234	227	225.00

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also conforms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
10. Impact sample size:

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 STEEL and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471504

Truck/Wagon No. MH46BP7177

Prepared by SOUMYA APLATE

Preparation Date : 10.03.2024 06:59:08

Printing Date 10.03.2024 & Time 07:02:42



* Gauge Length: 50MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date: 10.03.2024

Page 5 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF: Ladle Refining Furnace / VD: Vacuum Degassing / CCM: Continuous Casting
Machine/ RHF - Re-Heating Furnace)

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation: Fully Killed

- A. Plate Thickness Greater than 10MM: (10*10*55)MM
- B. Plate Thickness Greater than 8MM to Less than or equal to 10MM: (7.5*10*55)MM
- C. Plate Thickness Less than or equal to 8MM: (5*10*55)MM.
- 11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
- 12. Simulation Heat Treatment: SR1
- Target Loading Temperature (°C): 400
- Target Rate of Heating (°C/Hr): 200
- Soaking Temperature (°C): 610+/-10
- Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
- Target Rate of Cooling (°C/Hr): 250
- Target Unloading Temperature (°C): 400
- 13. Yield strength determined by 0.2% offset method
- 14. Reduction ratio of cast slab to plate is > 3:1
- 15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
- 16. Columns under mechanical properties will appear blank, if those tests are not opted for
- 17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.
- 18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer,

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination: All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471504

Truck/Wagon No. MH46BP7177

* Gauge Length: 50MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date: 07.10.2020

Prepared by SOUMYA APLATE
Preparation Date: 10.03.2024 06:59:08
Printing Date 10.03.2024 & Time 07:02:42



Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293355

To: M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date: 10.03.2024

Page 6 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting
Machine: RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Decarburization: Fully Killed

Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 STEEL and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471504

Truck/Wagon No. MH46BP7177

* Gauge Length: 50MM

*CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SOUMYA APLATE
Preparation Date : 10.03.2024 06:59:08
Printing Date 10.03.2024 & Time 07:02:42

Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date: 10.03.2024

Page 1 of 3

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CML0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 12.00mm x 2500mm x 8000mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	L/P	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	Al/N	%CE **
F40975/09D0		1	1.980	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/09D0				P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
F40975/09E0		1	1.980	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/09E0				P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
Sub Total		2	3.960																					

Mechanical properties:

Heat No		Plate	No.of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))			Hardness
		No			Orientation : Transverse.				Orientation : Tr.			Unit
					Y'S (MPa)	UTS (MPa)	%EL *		1	2	3	Avg
F40975/09D0			1	1.980	426	553	44		200	228	238	222.00
F40975/09D0					409	528	46		290	311	299	300.00
F40975/09E0			1	1.980	426	553	44		200	228	238	222.00

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-IIN27-46 05.01.2024

Despatch Advice No: 62471450

Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42



Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024
Page 2 of 3

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

Supply Condition:FURNACE NORMALIZED										
Deoxidation : Fully Killed										
Machine/ RHF , Re-Heating Furnace)										
EAF - Electric Arc Furnace / BOF - Basis Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting										
Heat No	Plate	No.of Pcs.	Wt. MT	Tensile test		Bend Test	Charpy V-notch impact test (@-60 °C (Joules)			Hardness
				YS (MPa)	UTS (MPa)		Orientation : Transverse.		Orientation : Tr.	
	No				%EL *		1	2	3	Unit
F40975/09E0				409	528	46	290	311	299	300.00
Test Certificate as per EN 10204 T 2.1										

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
10. Impact sample size:
 - A. Plate Thickness Greater than 10MM: (10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM: (7.5*10*55)MM

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 SIE1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471450
Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42
Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To: M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024

Page 3 of 3

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting Machine/ RHF - Re-Heating Furnace)

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

C. Plate Thickness Less than or equal to 8MM: (5*10*55)MM.

11. Mechanical Properties:

1st Row in As supplied condition

2nd Row in After SR-1 Cycle

12. Simulation Heat Treatment: SR1

Target Loading Temperature(°C) : 400

Target Rate of Heating(°C/Hr): 200

Soaking Temperature(°C): 610+/-10

Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)

Target Rate of Cooling (°C/Hr): 250

Target Unloading Temperature(°C): 400

13. Yield strength determined by 0.2% offset method

14. Reduction ratio of cast slab to plate is > 3:1

15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint

16. Columns under mechanical properties will appear blank, if those tests are not opted for

17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.

18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
Ultrasonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471450

Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

* Gauge Length: 30 MM

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42

(Signature)

Deepak Prasad
Authorised Signatory



CM/L 0005719579

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Date : 22.02.2024

Test Certificate No. 0000291188

Page 1 of 4

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 16.00mm x 3000mm x 10000mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	L/P	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	AlN	%CE **
F40422/04A0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04A0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
F40422/04B0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04B0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
* F40422/04D0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04D0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
Sub Total		3	10.800																					

Mechanical properties:

Mechanical properties:											Hardness	
Heat No	Plate No	No.of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))				Unit
				Orientation : Transverse.				Orientation : Lo.				
				YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg	
F40422/04A0		1	3 600	418	565	42		113	131	101	115.00	

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Date : 22.02.2024

Test Certificate No. 0000291188

Page 2 of 4

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting

Machine/ RHF Re-Heating Furnace)

Machine/ RHF Re-Heating Furnace										Hardness	
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing)											
Heat No	Plate No	No. of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))			
				YS (MPa)	Orientation : Transverse.			Orientation : Lo.			
					UTS (MPa)	%EL *		1	2	3	Avg
F40422/04A0				397	546	44		187	187	169	181.00
F40422/04B0		1	3 600	418	565	42		113	131	101	115.00
F40422/04B0				397	546	44		187	187	169	181.00
F40422/04D0		1	3 600	418	565	42		113	131	101	115.00
F40422/04D0				397	546	44		187	187	169	181.00

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20 minimum: 1.4 minutes per mm thickness + 10 minutes
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling



The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291188

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 22.02.2024

Page 3 of 4

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting Machine/ RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

direction.

10. Impact sample size:
 - A. Plate Thickness Greater than 10MM:(10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM:(7.5*10*55)MM
- C. Plate Thickness Less than or equal to 8MM:(5*10*55)MM.
11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
 12. Simulation Heat Treatment: SR1
 - Target Loading Temperature(°C) : 400
 - Target Rate of Heating(°C/Hr): 200
 - Soaking Temperature(°C): 610+/-10
 - Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
 - Target Rate of Cooling (°C/Hr): 250
 - Target Unloading Temperature(°C): 400
 13. Yield strength determined by 0.2% offset method
 14. Reduction ratio of cast slab to plate is > 3:1
 15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
 16. Columns under mechanical properties will appear blank, if those tests are not opted for
 17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

Ultrasonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details: Drawn Under LC NO. B5401023274-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

Prepared by SANGRAM APLATE

Preparation Date :22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09





MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291188

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 22.02.2024

Page 4 of 4

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Mother Id & then the 2 digits specifies the Child Id.

18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size U.T. MT & LTV.

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details: Drawn Under LC NO. 85401023274-N Dated 08 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PL/D/2041/10/2024/015352
Sales order No. : 2110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ20231000251586

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
560102 Bangalore Urban
IN

WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING & INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO. CM/L:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC.. (PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

Cast Analysis (%)

Heat No.	C	Mn	S	P	Si	Al	Cr	Cu	Ni	Ti	V	Nb	Mo	B	N	MAE	CE
Q21878	0.110	1.200	0.0025	0.009	0.348	0.035	0.136	0.103	0.212	0.012	0.005	0.025	0.073	0.0003	0.0056	0.042	0.374

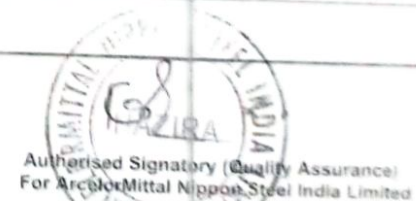
Batch Details

Mechanical Properties

Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
60	24.000	3000	8900	JY1509112N	Q21878	5.207	459	533	31	OK	156	168	160	174	167

Grand Total 5.207

Legend : T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²,
EL: Elongation; HRD: Hardness; GL: Gauge Length; IMP: Impact in Joules; IMPAV: Avg. Impact of full size charpy 2mm V Notch specimen; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent $[C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]$; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF:
Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHF: Reheating Furnace; NA: Not Applicable.


Authorized Signatory (Quality Assurance)
For ArcelorMittal Nippon Steel India Limited

AMNSIL/QAC-PMR/05/F

To, ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THEORIENTAL TOWER,
560102 Bangalore Urban
IN

Note : (1) Test Certificate conforms to EN 10204-3.1 unless otherwise specified.
(2) The Material Supplied conforms to the Standard Rolling and Weight tolerances.
(3) Mechanical properties are certified at room temperature unless otherwise specified.
(4) All Plates meet specified Chemical and Mechanical Properties.
(5) Orientation of Tensile, Bend is transverse and Impact is parallel to the rolling direction unless otherwise specified.
(6) First '6' characters in Plate No denote Mother Plate Number.
(7) Impact specimen size: 05x10x55mm for thickness <8mm, 7.5x10x55mm for thickness ≥8mm to 7.5x10x55mm for thickness ≥8mm to 7.5x10x55mm for thickness ≥8mm, Type of Notch-2mm V.
(8) Deoxidation : Fully killed.
(9) Process Route : HBI/DR1-EAF-LRF-VD-CCM-Plate Rolling.
(10) Final rolling is lengthwise.
(11) Repair by welding not done

(12) Supply Condition

(13) % EL on GL
(14) Bend Diameter
(15) Impact Test Temp
(16) Hardness
(17) Ultrasonic Test

: Furnace Normalized at $910 \pm 10^\circ\text{C}$ with soaking time 1 minute
minimum / mm of plate thickness, cooling in still air.

: 50
: 1.5 T
: -60°C
: BHN
: Found satisfactory, as per EN 14358

(18) Stencilling Details

(19) Steel Die Stamping

(20) All dimensions are in 'mm' unless otherwise specified.



CIN:U27100GJ1976FLC013787

Test Certificate No. : PL/D/2041/10/2024/015353
Sales order No. : 2110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ2023100251586

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
IN
560102 Bangalore Urban



WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING & INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO.CML:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC..(PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

Cast Analysis (%)

Heat No.	C	Mn	S	P	Si	Al	Cr	Cu	Ni	Ti	V	Nb	Mo	B	N	MAE	CE
P22966	0.110	1.366	0.0023	0.008	0.351	0.035	0.120	0.105	0.200	0.012	0.005	0.022	0.073	0.0003	0.0054	0.039	0.398
Q21875	0.112	1.377	0.0020	0.010	0.355	0.035	0.121	0.101	0.202	0.012	0.005	0.023	0.070	0.0002	0.0055	0.040	0.401
Q21876	0.112	1.372	0.0022	0.010	0.358	0.035	0.122	0.120	0.202	0.009	0.005	0.023	0.070	0.0004	0.0056	0.037	0.402
Q21877	0.118	1.383	0.0020	0.010	0.358	0.035	0.123	0.100	0.202	0.012	0.005	0.023	0.070	0.0003	0.0054	0.040	0.409

Batch Details

Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
110	10.000	3000	12400	JY1564211N	P22966	3.107	454	526	33	OK	150	152	174	148	158
110	10.000	3000	12400	JY1554212N	Q21875	3.121	422	524	35	OK	159	164	170	162	165
110	10.000	3000	12400	JY3049212N	Q21876	3.115	427	545	33	OK	161	150	172	170	164
110	10.000	3000	12400	JY1551211N	Q21876	3.122	427	547	34	OK	151	168	180	164	171
110	10.000	3000	12400	JY1517111N	Q21877	3.134	443	520	33	OK	151	176	152	156	161
110	10.000	3000	12400	JY1550212N	Q21877	3.118	443	523	30	OK	160	158	160	162	160

Mechanical Properties

Legend : T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²;
EL: Elongation; HRD: Hardness; GL: Gauge Length; IMP: Impact in Joules; IMPAV: Avg. Impact of full size Charpy 2mm V Notch specimen; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent [C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF:
Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHf: Reheating Furnace; NA: Not Applicable

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PL/D/2041/10/2024/015353
Sales order No. : Z110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ2023100251586

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461,THEORIENTAL TOWER,
560102 Bangalore Urban
IN

WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION&MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING&INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO.CM/L:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC...(PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
110	10.000	3000	12400	JY1558111N	Q21877	3.095	460	521	33	OK	154	150	150	180	160
110	10.000	3000	12400	JY3058212N	Q21877	3.105	435	549	32	OK	157	168	176	168	171

Grand Total 24.917

Legend : T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²;
EL: Elongation; HRD: Hardness; GL: Gauge Length; IMP: Impact in Joules; IMPAV: Avg. Impact of full size charpy 2mm V Notch specimen; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent[C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF:
Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHF: Reheating Furnace; NA: Not Applicable


Authorised Signatory (Quality Assurance)
For ArcelorMittal Nippon Steel India Limited

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PLD-2041/10/2024/015353
Sales order No. : 2110092005
Equivalent Specification : IS 2041R355/SA537CL1
Specification : IS 2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ20231000251886

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
560102 Bangalore Urban
IN

WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS 2041-2009 CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING & INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO. CML-3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC. (PLEASE REFER TO IS 2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

Note : (1) Test Certificate conforms to EN 10204-3.1 unless otherwise specified.
(2) The Material Supplied conforms to the Standard Rolling and Weight tolerances.
(3) Mechanical properties are certified at room temperature unless otherwise specified.
(4) All Plates meet specified Chemical and Mechanical Properties.
(5) Orientation of Tensile, Bend is transverse and Impact is parallel to the rolling direction unless otherwise specified.
(6) First 'G' characters in Plate No denote Mother Plate Number.
(7) Impact specimen size: 05x10x55mm for thickness <8mm, 7.5x10x55mm for thickness ≥8mm to <11mm and 10x10x55mm for thickness ≥11mm, Type of Notch-2mm V.
(8) Deoxidation : Fully killed.
(9) Process Route : HBI/DRI-EAF-LRF-VD-CCM-Plate Rolling.
(10) Final rolling is lengthwise.
(11) Repair by welding not done

(12) Supply Condition : Furnace Normalized at 910±10°C with soaking time 1 minute
(13) % EL on GL : minimum / mm of plate thickness, cooling in still air.
(14) Bend Diameter : 50
(15) Impact Test Temp : 1.5 T
(16) Hardness : -60°C
(17) Ultrasonic Test : BHN
: Found satisfactory as per EN_10160_CLASS_S2E2

(18) Stencilling Details : Plate No., Heat Number, Equivalent Specification, Size, BIS Licence
(19) Steel Die Stamping : No., UT, AMNS India
(20) All dimensions are in 'mm' unless otherwise specified. : Plate No., Heat Number, Equivalent Specification, Size, MTLTV, AMNS India



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293385

To, M/S SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Date : 10.03.2024
Page 1 of 6

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF: Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS 2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 14.00mm x 3000mm x 8900mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	Analysis L/P	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	A/N	%CE **
F40974/11D0		1	3.040	L	0.120	1.51	0.0030	0.014	0.37	0.012	0.251	0.004	0.005		0.047	0.0032	0.030	54	0.0018	0.0004	0.052	0.0192	5.5556	0.39
F40974/11D0				P	0.117	1.53	0.001	0.011	0.40	0.011	0.243	0.006	0.007	0.001	0.049	0.0020	0.034	58	0.0022	0.0004	0.057	0.019	5.8621	0.39
F40974/13B0		1	3.040	L	0.120	1.51	0.0030	0.014	0.37	0.012	0.251	0.004	0.005		0.047	0.0032	0.030	54	0.0018	0.0004	0.052	0.0192	5.5556	0.39
F40974/13B0				P	0.117	1.53	0.001	0.011	0.40	0.011	0.243	0.006	0.007	0.001	0.049	0.0020	0.034	58	0.0022	0.0004	0.057	0.019	5.8621	0.39
F40974/13E0		1	3.040	L	0.120	1.51	0.0030	0.014	0.37	0.012	0.251	0.004	0.005		0.047	0.0032	0.030	54	0.0018	0.0004	0.052	0.0192	5.5556	0.39
F40974/13E0				P	0.117	1.53	0.001	0.011	0.40	0.011	0.243	0.006	0.007	0.001	0.049	0.0020	0.034	58	0.0022	0.0004	0.057	0.019	5.8621	0.39
F40974/15E0		1	3.040	L	0.120	1.51	0.0030	0.014	0.37	0.012	0.251	0.004	0.005		0.047	0.0032	0.030	54	0.0018	0.0004	0.052	0.0192	5.5556	0.39
F40974/15E0				P	0.117	1.53	0.001	0.011	0.40	0.011	0.243	0.006	0.007	0.001	0.049	0.0020	0.034	58	0.0022	0.0004	0.052	0.019	5.8621	0.39
F40974/16A0		1	3.040	L	0.120	1.51	0.0030	0.014	0.37	0.012	0.251	0.004	0.005		0.047	0.0032	0.030	54	0.0018	0.0004	0.052	0.0192	5.5556	0.39
F40974/16A0				P	0.117	1.53	0.001	0.011	0.40	0.011	0.243	0.006	0.007	0.001	0.049	0.0020	0.034	58	0.0022	0.0004	0.052	0.0192	5.5556	0.39
Sub Total		5	15.200																					

Mechanical properties:

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok
Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471435
Truck/Wagon No. RJ01GC9722

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SUMANTA
Preparation Date : 10.03.2024 14:14:35
Printing Date 10.03.2024 & Time 14:24:33





MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293385

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
 C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
 TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024

Page 2 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basis Oxygen Furnace / LRF: Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
 Machine/ RHF : Re-Heating Furnace)

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
 Deoxidation : Fully Killed

Deoxidation : Fully Killed												
Heat No	Plate No	No.of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test @-60 °C (Joules)				Hardness
				Orientation : Transverse.				Orientation : Tr.				
				YS (MPa)	UTS (MPa)	%EL *		1	2	3	Avg	Unit
F40974/11D0		1	3.040	424	548	38		96	84	121	100.33	
F40974/11D0				407	535	42		118	139	124	127.00	
F40974/13B0		1	3.040	415	556	42		101	99	120	106.66	
F40974/13B0				407	535	42		118	139	124	127.00	
F40974/13E0		1	3.040	415	556	42		101	99	120	106.66	
F40974/13E0				407	535	42		118	139	124	127.00	
F40974/15E0		1	3.040	425	560	46		110	109	121	113.33	
F40974/15E0				407	535	42		118	139	124	127.00	
F40974/16A0		1	3.040	401	543	44		115	120	131	122.00	
F40974/16A0				407	535	42		118	139	124	127.00	

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension -Thickness x Width x Length : 16.00mm x 3000mm x 10000mm

Plate Dimension -Thickness x Width x Length : 16.00mm x 3000mm x 10000mm																								
Heat No	Plate No	No.of. Pcs	Wt. (MT)	Analysis L/P	Chemical Analysis																			
					%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb-V-Ti	Cr-Cu-Mo	Al/N	%CE **
F40975/14A0		1	3.900	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.29

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 SIEI and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471435

Truck/Wagon No. RJ01GC9722

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SUMANTA
 Preparation Date : 10.03.2024 14:14:35
 Printing Date 10.03.2024 & Time 14:24:33





MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293385

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024

Page 3 of 6

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF : Electric Arc Furnace / BOF : Basic Oxygen Furnace / LRF : Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting / RHF : Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Plate No	Plate No. of Pcs.	Wt. MT	Tensile test		Bend Test		Charpy V-notch impact test (@-60 °C (Joules))		Hardness	
No			YS (MPa)	UTS (MPa)	%EL *		Orientation : Transverse.	Orientation : Tr.	Unit	
F40975/14A0	1	3.900	475	552	44		1 2 3 Avg			
F40975/14A0			409	528	46		211 224 216 217.00			
F40975/17A0	1	3.900	427	553	40		290 311 299 300.00			
F40975/17A0			409	528	46		233 224 220 225.66			
F40975/17B0	1	3.900	427	553	40		290 311 299 300.00			
F40975/17B0			409	528	46		233 224 220 225.66			
Sub Total	3	11.700					290 311 299 300.00			

Mechanical properties:



The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Prepared by SUMANTA
Preparation Date : 10.03.2024 14:14:35
Printing Date 10.03.2024 & Time 14:24:33

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE
Test Certificate No. 0000293385To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024

Page 4 of 6

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension -Thickness x Width x Length : 18.00mm x 3000mm x 10200mm																									
Heat No		Plate No	No. of Pcs	Wt. (MT)	Analysis L/P	Chemical Analysis																			
						%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+ V+Ti	Cr+Cu+Mo	Al/N	%CE **
			1	4.470	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
					P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
			1	4.470	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
					P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
Sub Total			2	8.940																					
Mechanical properties:																									

Mechanical properties:

Heat No	Plate No	No.of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))	Hardness
				Orientation : Transverse.					
				YS (MPa)	UTS (MPa)	%EL *			
F40975/04B0		1	4.470	427	558	44		Orientation : Tr. 1 2 3 Avg	Unit
F40975/04B0				409	528	46		178 202 212 197.33	
F40975/04D0		1	4.470	427	558	44		290 311 299 300.00	
								178 202 212 197.33	
						</			

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok
Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471435
Truck/Wagon No. RJ01GC9722* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020Prepared by SUMANTA
Preparation Date : 10.03.2024 14:14:35
Printing Date 10.03.2024 & Time 14:24:33

Deepak Prasad

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293385

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date: 10.03.2024
Page 5 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719379 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture: EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting Machine / RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Desoxidation: Fully Killed

Heat No	Plate	No. of Pcs.	Wt. MT	Tensile test		Bend Test	Charpy V-notch impact test (@-60 °C (Joules)			Hardness
				YS (MPa)	UTS (MPa)		Orientation : Transverse.		Orientation : Tr.	
F40975/04D0	No			409	528	46	1	2	3	Avg
							290	311	299	300.00

Test Certificate as per EN 10204 Type 3.1.

Remarks:

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
10. Impact sample size:
A. Plate Thickness Greater than 10MM: (10*10*55)MM
B. Plate Thickness Greater than 8MM to Less than or equal to 10MM: (7.5*10*55)MM

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination: All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471435
Truck/Wagon No. RJ01GCC9722

Prepared by SUMANTA
Preparation Date: 10.03.2024 14:14:35
Printing Date: 10.03.2024 & Time 14:24:33


Authorised Signatory

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date: 07.10.2020



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293385

To, M/S SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024
Page 6 of 6

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

C. Plate Thickness Less than or equal to 8MM:(5*10*55)MM.

11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
 12. Simulation Heat Treatment: SR1
 - Target Loading Temperature(°C) : 400
 - Target Rate of Heating(°C/Hr): 200
 - Soaking Temperature(°C): 610+/-10
 - Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
 - Target Rate of Cooling (°C/Hr): 250
 - Target Unloading Temperature(°C): 400
 13. Yield strength determined by 0.2% offset method
 14. Reduction ratio of cast slab to plate is > 3:1
 15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
 16. Columns under mechanical properties will appear blank, if those tests are not opted for
 17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.
 18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok
Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471435
Truck/Wagon No. RJ01GC9722

Prepared by SUMANTA
Preparation Date : 10.03.2024 14:14:35
Printing Date 10.03.2024 & Time 14:24:33



Deepak Prasad
Authorised Signatory

Invoice Type : TAX INVOICE

Invoice Type Code : INV

Supplier GSTIN No. : 21AAACJ7097D1ZS / State Code : 21

Location of Supplier : Angul

PP Building, Jindal Nagar, SH-63, Angul-759111-Orissa-INDIA

Subject to ANGUL Jurisdiction

Corporate Identification No. : L27165HR1979PLC009913

Under Section 31 CGST Act, 2017 & Rule 46 of CGST Rules, 2017

IRN No. : b05e168591626d4f248b172646c06245d67f0943ee7473b6d6a088577cchad819

Name & Address of Customer (Billed to):

GSTIN No. : 29AABCZ1586C1ZN

State Code : 29 Pin Code : 560102

Place of Supply : BANGALORE

PAN : AABCZ1586C

Purchase Order No. : ZET-KA-JIN27-46

Purchase Order Date.: 05.01.2024

Sales Office : Regional/Bangalore

Freight Condition :

(34229) ZETWERK MANUFACTURING BUSINESSES PVT

LTD 401, 1st FLOOR, NEAR Mc DONALDS, 4th

SECTOR 17th CROSS ROAD, HSR LAYOUT BANGALORE

BANGALORE (Karnataka) (India) PIN-560102

Name & Address of Consignor (Shipped to):

GSTIN No. :

State Code : 27 Pin Code : 400702

Supply Type : Business to Business

Transaction Mode : OUTWARD

Transporter Name :

LR/GR/ROR No. & Date :

MV Registration No. :

Waybill No. Valid upto :

RAJGAD (Maharashtra) India PIN-400702

Payment Term : Advance

Incoterms : Free on Road

Basic Price /

Unit (INR)

Total value

(INR)

Discount /

Adjustment

Taxable Value

(INR)

Rate %

Value

Rate %

Value

Rate %

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Value

Total Bill Value (In Figures)

Total Bill Value (In Words)

THREE LAKH NINETY-ONE THOUSAND FIVE HUNDRED EQUITY ONE AND ZERO PAISE ONLY

T.C. NO.-293380, PCS-2

Certified that particulars given above are true & correct and the amount indicated represented the price actually charged & that there is no flow of additional consideration directly or indirectly from buyer

Reverse Charges : No ; Is Service : No ;

Prepared & Checked By

Corporate Office : Jindal Centre, 12 Bhikaji Cama Place, New Delhi - 110 066, Registered office : O.P. Jindal Marg, Hissar - 125 005 (Haryana)

E & O.E.

JINDAL STEEL & POWER LIMITED
Signature validDigitally signed by JINDAL STEEL & POWER LIMITED
DN: cn=JINDAL STEEL & POWER LIMITED, o=JINDAL STEEL & POWER LIMITED, ou=JINDAL STEEL & POWER LIMITED, email=jindalsteel@jindalsteel.com, c=IN

AUTHORISED SIGNATORY



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date: 10.03.2024

Page 1 of 3

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CML0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 12.00mm x 2500mm x 8000mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	L/P	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	Al/N	%CE **
F40975/09D0		1	1.980	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/09D0				P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
F40975/09E0		1	1.980	L	0.125	1.50	0.0020	0.012	0.38	0.012	0.250	0.004	0.007		0.043	0.0027	0.042	54	0.0013	0.0004	0.05	0.0187	7.7778	0.39
F40975/09E0				P	0.121	1.52	0.001	0.010	0.41	0.010	0.242	0.006	0.009	0.001	0.046	0.0010	0.046	58	0.0017	0.0004	0.056	0.017	7.931	0.39
Sub Total		2	3.960																					

Mechanical properties:

				Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))			Hardness
Heat No	Plate	No.of Pcs.	Wt. MT	Orientation : Transverse.				Orientation : Tr.			Unit
	No			YS (MPa)	UTS (MPa)	%EL *		1	2	3	
F40975/09D0		1	1.980	426	553	44		200	228	238	222.00
F40975/09D0				409	528	46		290	311	299	300.00
F40975/09E0		1	1.980	426	553	44		200	228	238	222.00

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-IIN27-46 05.01.2024

Despatch Advice No: 62471450

Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42



Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024
Page 2 of 3

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting
Machine/ RHF : Re-Heating Furnace)

Supply Condition:FURNACE NORMALIZED Deoxidation : Fully Killed										
Supply Condition: Fully Killed										
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Supply Condition: Fully Killed										
Supply Condition										

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling direction.
10. Impact sample size:
 - A. Plate Thickness Greater than 10MM: (10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM: (7.5*10*55)MM

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024
Despatch Advice No: 62471450
Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM
**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15
REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42



Deepak Prasad
Authorised Signatory



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000293343

To: M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 10.03.2024

Page 3 of 3

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling
(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF- Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting Machine/ RHF - Re-Heating Furnace)

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

C. Plate Thickness Less than or equal to 8MM: (5*10*55)MM.

11. Mechanical Properties:

1st Row in As supplied condition

2nd Row in After SR-1 Cycle

12. Simulation Heat Treatment: SR1

Target Loading Temperature(°C) : 400

Target Rate of Heating(°C/Hr): 200

Soaking Temperature(°C): 610+/-10

Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)

Target Rate of Cooling (°C/Hr): 250

Target Unloading Temperature(°C): 400

13. Yield strength determined by 0.2% offset method

14. Reduction ratio of cast slab to plate is > 3:1

15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint

16. Columns under mechanical properties will appear blank, if those tests are not opted for

17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the Mother Id & then the 2 digits specifies the Child Id.

18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size UT, MT & LTV.

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions
UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 STEEL and found ok

Purchase Order No. & Date: ZET-KA-JIN27-46 05.01.2024

Despatch Advice No: 62471450

Truck/Wagon No. GJ12BY4962

* Gauge Length: 50 MM

**CE=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

REC-PM-TSD-14-37, Rev 01, Eff date : 07.10.2020

* Gauge Length: 30 MM

Prepared by SANGRAM APLATE
Preparation Date : 10.03.2024 04:55:47
Printing Date 10.03.2024 & Time 05:06:42

(Signature)

Deepak Prasad
Authorised Signatory



CM/L 0005719579

MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Date : 22.02.2024

Test Certificate No. 0000291188

Page 1 of 4

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Material Grade : IS2041 R355/ASME SA537 CL-1 Plate Dimension - Thickness x Width x Length : 16.00mm x 3000mm x 10000mm

Chemical Analysis

Heat No	Plate No	No. of Pcs	Wt. (MT)	L/P	%C	%Mn	%S	%P	%Si	%Cr	%Ni	%Cu	%Ti	%V	%Nb	%Mo	%Al	N (PPm)	%Ca	%B	Nb+V+Ti	Cr+Cu+Mo	AlN	%CE **
F40422/04A0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04A0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
F40422/04B0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04B0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
* F40422/04D0		1	3.600	L	0.152	1.50	0.0020	0.014	0.38	0.009	0.256	0.006	0.012	0.001	0.045	0.0010	0.050	51	0.0009	0.0004	0.058	0.016	9.8039	0.42
F40422/04D0				P	0.147	1.52	0.001	0.011	0.40	0.007	0.248	0.007	0.014	0.001	0.043	0.0010	0.048	56	0.0012	0.0004	0.058	0.015	8.5714	0.41
Sub Total		3	10.800																					

Mechanical properties:

Mechanical properties:													
				Tensile test				Bend Test	Charpy V-notch impact test (@-60 °C (Joules))			Hardness	
Heat No	Plate	No.of Pcs.	Wt. MT	Orientation : Transverse.					Orientation : Lo.			Unit	
				YS (MPa)	UTS (MPa)	%EL *			1	2	3		Avg
	No								113	131	101	115.00	
F40422/04A0		1	3.600	418	565	42							

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details Drawn Under LC NO 85401023274-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09

* Gauge Length: 50 MM



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Date : 22.02.2024

Page 2 of 4

Test Certificate No. 0000291188

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD : Vacuum Degassing / CCM : Continuous Casting

Machine/ RHF Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

Machine/ RHF Re-Heating Furnace										Hardness		
Machine/ RHF Re-Heating Furnace / BOF - Basis Oxygen Furnace / LRF- Ladle Refining Furnace / VLF - Vacuum Degassing Furnace												
Heat No	Plate No	No.of Pcs.	Wt. MT	Tensile test			Bend Test	Charpy V-notch impact test (@-60 °C (Joules))				Unit
				YS (MPa)	Orientation : Transverse.			Orientation : Lo.				
					UTS (MPa)	%EL *		1	2	3	Avg	
F40422/04A0				397	546	44		187	187	169	181.00	
F40422/04B0	1		3 600	418	565	42		113	131	101	115.00	
F40422/04B0				397	546	44		187	187	169	181.00	
F40422/04D0	1		3 600	418	565	42		113	131	101	115.00	
F40422/04D0				397	546	44		187	187	169	181.00	

Test Certificate as per EN 10204 Type 3.1.

Remarks :

1. Test Certificate as per EN 10204, 2004 Type 3.1
2. Material mentioned above also confirms to ASME SA537 Class-1
3. TDC reference: JSPL/ANGUL/TDC-004857A; REV 1, Dt. 29.07.2023
4. Supply Condition: Furnace Normalized at 900 ± 20°C, cycle time minimum: 1.4 minutes per mm thickness + 10 minutes
5. Dimensional tolerance: Thickness Tolerance as per ASME SA-20 minimum: 1.4 minutes per mm thickness + 10 minutes
6. Flatness as per ASME SA20
7. Surface Inspection: EN 10163-2 Class A Subclass 3
8. Reconditioning / Repair of plates by welding not carried out
9. Orientation of Sample: Tensile & Impact is Transverse to rolling



The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details: Drawn Under LC NO. 85401023274-N Dated 05.08.2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHINAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Prepared by: SANGRAM APLATE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

Printing Date: 22.02.2024 07:25:05

Time: 07:32:09

* Gauge Length: 50 MM



MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291188

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 22.02.2024

Page 3 of 4

It is certified that the material described below fully confirms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM - Continuous Casting Machine/ RHF - Re-Heating Furnace)

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

direction.

10. Impact sample size:
 - A. Plate Thickness Greater than 10MM:(10*10*55)MM
 - B. Plate Thickness Greater than 8MM to Less than or equal to 10MM:(7.5*10*55)MM
- C. Plate Thickness Less than or equal to 8MM:(5*10*55)MM.
11. Mechanical Properties:
 - 1st Row in As supplied condition
 - 2nd Row in After SR-1 Cycle
 12. Simulation Heat Treatment: SR1
 - Target Loading Temperature(°C) : 400
 - Target Rate of Heating(°C/Hr): 200
 - Soaking Temperature(°C): 610+/-10
 - Soaking Time: 1 Hour per 25 mm thickness (1 Hour minimum)
 - Target Rate of Cooling (°C/Hr): 250
 - Target Unloading Temperature(°C): 400
 13. Yield strength determined by 0.2% offset method
 14. Reduction ratio of cast slab to plate is > 3:1
 15. Chemical elements < 0.001 will not appear in test reports & MTCs due to system constraint
 16. Columns under mechanical properties will appear blank, if those tests are not opted for
 17. The above mentioned 10 digit every single Plate Id indicates the first 6 digits as the Heat Number & then the 2 digits demonstrates the

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

Ultrasonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks: TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details: Drawn Under LC NO. B5401023274-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

Prepared by SANGRAM APLATE

Preparation Date :22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09





MILL TEST CERTIFICATE OF STEEL PLATES FOR PRESSURE VESSELS USED AT MODERATE AND LOW TEMPERATURE

Test Certificate No. 0000291188

To, M/s SHARP TANKS & STRUCTURALS PVT. LTD RAIGAD
C/O. BHARAT PETROLEUM CORPORATION LIMITED URAN
TERMINAL, URAN, RAIGAD, PIN-400702 Maharashtra

Date : 22.02.2024

Page 4 of 4

It is certified that the material described below fully conforms to IS 2041 latest specification. Chemical composition and mechanical properties of the product as tested in accordance with the Scheme of Testing and Inspection contained in the BIS certification marks license No. CM/L0005719579 are as indicated below against each plate number. (Please refer IS 2041, latest specification for requirements).

TEST RESULTS

Process of Manufacture : EAF/BOF->LRF->VD->CCM->RHF->Hot rolling

(EAF - Electric Arc Furnace / BOF - Basic Oxygen Furnace / LRF - Ladle Refining Furnace / VD - Vacuum Degassing / CCM : Continuous Casting Machine/ RHF - Re-Heating Furnace)

Mother Id & then the 2 digits specifies the Child Id.

18. Identification of plates: Paint Marking & Hard Stamp: Manufacturer, Specification & Grade, Heat No. / Plate No. Size U.T. MT & LTV.

Supply Condition: FURNACE NORMALIZED
Deoxidation : Fully Killed

The above material supplied confirms to the specified dimensions and tolerances as per specifications and as per mutually agreed Technical Delivery Conditions

UltraSonic Examination : All the above plates are ultrasonically tested as per EN10160 S1E1 and found ok

LC Item Desc: PLATES AS PER PO - ZET-KA-JIN27-13 DATED 01-AUG-2023 LC Remarks TERMS CIP ANY PLACE IN INDIA INCOTERMS 2020

LC Details Drawn Under LC NO. 85401023274-N Dated 05 08 2023 issued by STANDARD CHARTERED BANK, TRADE SERVICES, VAISHNAVI SERENITY, 3RD FLR KORAMANGALA, BANGALORE

Purchase Order No. & Date: ZET-KA-JIN27-13 01.08.2023

Despatch Advice No: 62457936

Truck/Wagon No. DD01Q9397

* Gauge Length: 50 MM

Prepared by SANGRAM APLATE

Preparation Date : 22.02.2024 07:25:05

Printing Date 22.02.2024 & Time 07:32:09

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PL/D/2041/10/2024/015352
Sales order No. : 2110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ20231000251586

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461,THEORIENTALTOWER,
560102 Bangalore Urban
IN

WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION&MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING&INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO.CM/L:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC..(PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

Cast Analysis (%)

Heat No.	C	Mn	S	P	Si	Al	Cr	Cu	Ni	Ti	V	Nb	Mo	B	N	MAE	CE
Q21878	0.110	1.200	0.0025	0.009	0.348	0.035	0.136	0.103	0.212	0.012	0.005	0.025	0.073	0.0003	0.0056	0.042	0.374

Batch Details

Mechanical Properties

Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
60	24.000	3000	8900	JY1509112N	Q21878	5.207	459	533	31	OK	156	168	160	174	167

Grand Total 5.207

Legend :T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²,
EL: Elongation; HRD: Hardness; GL: Gauge Length, IMP: Impact in Joules; IMPAV: Avg. Impact of full size charpy 2mm V Notch specimen ; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent[C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF:
Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHF: Reheating Furnace; NA: Not Applicable.


Authorized Signatory (Quality Assurance)
For ArcelorMittal Nippon Steel India Limited

AMNSIL/QAC-PMR/05/F

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PL/D/2041/10/2024/015352
Sales order No. : 2110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ20231000251586

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
560102 Bangalore Urban
IN

WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING & INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO. CML:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC.. (PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

- Note : (1) Test Certificate conforms to EN 10204-3.1 unless otherwise specified.
(2) The Material Supplied conforms to the Standard Rolling and Weight tolerances.
(3) Mechanical properties are certified at room temperature unless otherwise specified.
(4) All Plates meet specified Chemical and Mechanical Properties.
(5) Orientation of Tensile, Bend is transverse and Impact is parallel to the rolling direction unless otherwise specified.
(6) First '6' characters in Plate No denote Mother Plate Number.
(7) Impact specimen size: 05x10x55mm for thickness <8mm, 7.5x10x55mm for thickness ≥8mm to <11mm and 10x10x55mm for thickness ≥11mm, Type of Notch-2mm V.
(8) Deoxidation : Fully killed.
(9) Process Route : HBI/DRI-EAF-LRF-VD-CCM-Plate Rolling.
(10) Final rolling is lengthwise.
(11) Repair by welding not done
(12) Supply Condition : Furnace Normalized at 910±10°C with soaking time 1 minute minimum / mm of plate thickness, cooling in still air.
(13) % EL on GL : 50
(14) Bend Diameter : 1.5 T
(15) Impact Test Temp : -60°C
(16) Hardness : BHN
(17) Ultrasonic Test : Found satisfactory as per EN_10160_CLASS_S2E2
- (18) Stencilling Details : Plate No., Heat Number, Equivalent Specification, Size, BIS Licence
(19) Steel Die Stamping : No., UT, AMNS India
Plate No., Heat Number, Equivalent Specification, Size, MTL TV, AMNS India
(20) All dimensions are in 'mm' unless otherwise specified.

CIN:U27100GJ1976FLC013787

Test Certificate No. : PL/D/2041/10/2024/015353
Sales order No. : 2110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ2023100251586

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
IN
560102 Bangalore Urban



WE CERTIFY THAT THE MATERIAL DESCRIBED BELOW FULLY CONFORMS TO IS:2041-2009 CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING & INSPECTION CONTAINED IN THE BIS CERTIFICATION MARKS LICENCE NO.CML:3925976 ARE AS INDICATED BELOW AGAINST EACH ORDER NO ETC..(PLEASE REFER TO IS:2041-2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS).

Cast Analysis (%)

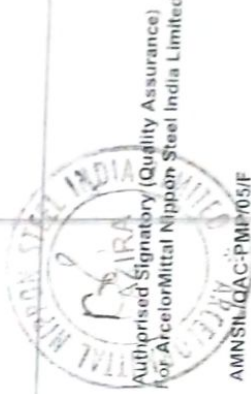
Heat No.	C	Mn	S	P	Si	Al	Cr	Cu	Ni	Ti	V	Nb	Mo	B	N	MAE	CE
P22966	0.110	1.366	0.0023	0.008	0.351	0.035	0.120	0.105	0.200	0.012	0.005	0.022	0.073	0.0003	0.0054	0.039	0.398
Q21875	0.112	1.377	0.0020	0.010	0.355	0.035	0.121	0.101	0.202	0.012	0.005	0.023	0.070	0.0002	0.0055	0.040	0.401
Q21876	0.112	1.372	0.0022	0.010	0.358	0.035	0.122	0.120	0.202	0.009	0.005	0.023	0.070	0.0004	0.0056	0.037	0.402
Q21877	0.118	1.383	0.0020	0.010	0.358	0.035	0.123	0.100	0.202	0.012	0.005	0.023	0.070	0.0003	0.0054	0.040	0.409

Batch Details

Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
110	10.000	3000	12400	JY1564211N	P22966	3.107	454	526	33	OK	150	152	174	148	158
110	10.000	3000	12400	JY1554212N	Q21875	3.121	422	524	35	OK	159	164	170	162	165
110	10.000	3000	12400	JY3049212N	Q21876	3.115	427	545	33	OK	161	150	172	170	164
110	10.000	3000	12400	JY1551211N	Q21876	3.122	427	547	34	OK	151	168	180	164	171
110	10.000	3000	12400	JY1517111N	Q21877	3.134	443	520	33	OK	151	176	152	156	161
110	10.000	3000	12400	JY1550212N	Q21877	3.118	443	523	30	OK	160	158	160	162	160

Mechanical Properties

Legend : T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²;
EL: Elongation; HRD: Hardness; GL: Gauge Length; IMP: Impact in Joules; IMPAV: Avg. Impact of full size Charpy 2mm V Notch specimen; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent [C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF: Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHf: Reheating Furnace; NA: Not Applicable





Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PL/D/2041/10/2024/015353
Sales order No. : Z110092005
Equivalent Specification : IS2041R355/SA537CL1
Specification : IS2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ2023100251586

Date : 25/02/2024
Date : 07/09/2023

To,
ZETWERK MANUFACTURING BUSINESSES
1ST FLOOR, NO.461, THE ORIENTAL TOWER,
560102 Bangalore Urban
IN

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Item No.	T	W	L	Plate No.	Heat No.	Weight(Mt.)	YS(MPa)	UTS(MPa)	EL(%)	Bend	HRD	IMP1	IMP2	IMP3	IMPAV
110	10.000	3000	12400	JY1558111N	Q21877	3.095	460	521	33	OK	154	150	150	180	160
110	10.000	3000	12400	JY3058212N	Q21877	3.105	435	549	32	OK	157	168	176	168	171

Grand Total 24.917

Legend : T: Thickness; W: Width; L: Length; UT: Ultrasonic Test; YS: Yield Strength; UTS: Ultimate Tensile Strength; 1 MPa = 1 N/mm² = 0.102 kgf/mm²;
EL: Elongation; HRD: Hardness; GL: Gauge Length; IMP: Impact in Joules; IMPAV: Avg. Impact of full size charpy 2mm V Notch specimen; SA: % Shear Area;
FGS: Ferritic Grain Size; MAE: (Nb+Ti+V); CE: Carbon Equivalent [C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15]; HBI: Hot Briquetted Iron; DRI: Direct Reduced Iron; EAF: Electric Arc Furnace; LRF: Ladle Refining Furnace; VD: Vacuum Degassing; CCM: Continuous Casting Machine; RHF: Reheating Furnace; NA: Not Applicable

Authorised Signatory (Quality Assurance)
For ArcelorMittal Nippon Steel India Limited

Test Certificate For Steel Plates for Pressure Vessels used at Moderate and Low Temperature

Test Certificate No. : PLD-2041/10/2024/015353
Sales order No. : 2110092005
Equivalent Specification : IS 2041R355/SA537CL1
Specification : IS 2041R355/SA537CL1
Grade : ANBPN37
Invoice No. : GJ20231000251886

Date : 25/02/2024
Date : 07/09/2023

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Note : (1) Test Certificate conforms to EN 10204-3.1 unless otherwise specified.
(2) The Material Supplied conforms to the Standard Rolling and Weight tolerances.
(3) Mechanical properties are certified at room temperature unless otherwise specified.
(4) All Plates meet specified Chemical and Mechanical Properties.
(5) Orientation of Tensile, Bend is transverse and Impact is parallel to the rolling direction unless otherwise specified.
(6) First 'G' characters in Plate No denote Mother Plate Number.
(7) Impact specimen size: 05x10x55mm for thickness <8mm, 7.5x10x55mm for thickness ≥8mm to <11mm and 10x10x55mm for thickness ≥11mm, Type of Notch-2mm V.
(8) Deoxidation : Fully killed.
(9) Process Route : HBI/DRI-EAF-LRF-VD-CCM-Plate Rolling.
(10) Final rolling is lengthwise.
(11) Repair by welding not done

(12) Supply Condition : Furnace Normalized at 910±10°C with soaking time 1 minute
(13) % EL on GL : minimum / mm of plate thickness, cooling in still air.
(14) Bend Diameter : 50
(15) Impact Test Temp : 1.5 T
(16) Hardness : -60°C
(17) Ultrasonic Test : BHN
: Found satisfactory as per EN_10160_CLASS_S2E2

(18) Stencilling Details : Plate No., Heat Number, Equivalent Specification, Size, BIS Licence
(19) Steel Die Stamping : No., UT, AMNS India
(20) All dimensions are in 'mm' unless otherwise specified. : Plate No., Heat Number, Equivalent Specification, Size, MTLTV, AMNS India