

Anjar Works

MILL TEST CERTIFICATE

JSW Steel Limited

SURVEY NO - 659, VILLAGE - VARSAMEDI, TA. - ANJAR (KUTCH) GUJARAT INDIA - 370110



TEST CERTIFICATE NO. : JSW/PCMD/717483580

DATE : 30.12.2024

: MOUNTING RENEWABLE POWER LIMITED CUSTOMER **SPECIFICATION** : EN 10025-2 : 2019 / IS 2062 : 2011 UT STD. : EN10160 S2 E3

P. O. NO. : MRPL STEEL 2024 IN P Date - 24.10.2024 GRADE : S355J0+N / E350B0 Impact Temp.(°C) : 0

Sr.	Plate / Coil	Heat	at Thk Width Length Weight Mechanical Properties (Transverse Tensile)								D d	CHARPY V-NOTCH IMPACT TEST (Joules)				Grain	Frain Z - Direction Test							g	s,				
No.	No.	No.	(MM)	(MM)	(MM)	(MT)	1 2						Bend (Transver	` '				size (Throug			ugh Thickness)			Y Groove		F QV	Remarks		
							YS*	UTS	%EL		YS*	UTS	UTS %EL %F		se)	Longitudinal		(ASTM E112)					<i>'</i>	Crack	kability 1	est	ž	Ren	
							(MPa)	(MPa)	5.65√a		(MPa)	(MPa)	5.65√a			1	2	3	AVG		1	2	3	AVG					
	Spe	cified Requi	rement			Min	355	490	22	-	355	490	22		≤25-2T, >25-				27				-						
	•					Max		630				630			NA														
1	24LP0374A1	B035295	34.80	2692	14151	10.407	429	574	29		408	556	27			47	42	62	50										
2	24LP0375A1	A035072	34.80	2692	14151	10.407	421	555	29		425	550	29			292	320	267	293										
3	24LP0492A1	A035268	14.40	2982	11539	3.890	416	560	27		423	563	26		OK	207	211	210	209										
4	24LP0492A2	A035268	14.40	2982	11539	3.890	416	560	27		423	563	26		OK	207	211	210	209										
5	24LP0885A2	A035270	12.80	2981	11539	3.456	417	558	28		423	559	27		OK	172	121	175	156										
6	24LP0892A1	B035276	15.20	2982	12725	4.528	405	572	26		411	574	25		OK	166	176	121	154										
7	24LP0892A2	B035276	15.20	2982	12725	4.528	405	572	26		411	574	25		OK	166	176	121	154										
														,,															
HEAT ANAL	veie	Heat No.	С	Mn	s	P	Si	Cr	Ni	Cu	Ti	V	ical Comp	Mo	%) Al	N	Ca	В	Nb+T	i±\/	Cu	±Ni:	Cra	Mo+Cu+	Ni	Al/N	CE**		Pcm
		Min													0.020							Cu+Ni Cr+Mo+C			IVI	A/N			
Specified R	Requirement	Max	0.200	1.600	0.030	0.030	0.550			0.550						0.0120			0.25	50	-						0.45		
		B035295	0.152	1.410	0.003	0.017	0.192	0.015	0.007	0.011	0.021	0.004	0.026	0.000	0.049	0.0060	0.0010	0.0000	0.05	51	0.0	18		0.033	<u> </u>	8.17	0.39		0.23
i		A035072	0.162	1.360	0.003	0.018	0.196	0.024	0.009	0.011	0.022	0.002	0.027	0.001	0.045	0.0050	0.0010	0.0000	0.05	51	0.0	20		0.045		9.00	0.40		0.24
i		A035268	0.153	1.360	0.002	0.018	0.213	0.024	0.008	0.014	0.022	0.002	0.026	0.001	0.036	0.0060	0.0010	0.0000	0.050		0.022			0.047		6.00	0.39		0.23
i		A035268	0.153	1.360	0.002	0.018	0.213	0.024	0.008	0.014	0.022	0.002	0.026	0.001	0.036	0.0060	0.0010	0.0000	0.05	0	0.0	122		0.047		6.00	0.39		0.23
i		A035270	0.170	1.355	0.002														0.051										
i					0.002	0.018	0.204	0.021	0.007	0.010	0.022	0.002	0.027	0.001	0.050	0.0050	0.0010	0.0000	0.05	51	0.0	17		0.039		10.00	0.40		0.25
		B035276	0.155	1.410	0.002	0.018 0.017	0.204 0.230	0.021 0.019	0.007 0.008	0.010 0.016	0.022	0.002 0.005	0.027 0.025	0.001 0.001	0.050 0.049	0.0050 0.0060	0.0010 0.0010	0.0000	0.05 0.04		0.0			0.039 0.044		10.00 8.17	0.40 0.40		0.25
1		B035276 B035276																		19		124							
I			0.155	1.410	0.002	0.017	0.230	0.019	0.008	0.016	0.019	0.005	0.025	0.001	0.049	0.0060	0.0010	0.0000	0.04	19	0.0	124		0.044		8.17	0.40		0.24
PRODUCT A	ANALYSIS	B035276 Heat No.	0.155	1.410	0.002	0.017	0.230	0.019	0.008	0.016	0.019	0.005	0.025	0.001	0.049 0.049	0.0060	0.0010	0.0000	0.04	19 19	0.0)24)24	Cr+	0.044	Ni	8.17	0.40		0.24
	ANALYSIS Requirement	B035276 Heat No. Min	0.155 0.155 C	1.410 1.410 Mn	0.002 0.002 S	0.017 0.017 P	0.230 0.230 Si	0.019 0.019 Cr	0.008 0.008 Ni	0.016 0.016 Cu	0.019 0.019 Ti	0.005 0.005 V	0.025 0.025	0.001 0.001	0.049 0.049	0.0060 0.0060 N	0.0010 0.0010	0.0000 0.0000 B	0.04 0.04 Nb+T	i +V	0.0 0.0 Cu -)24)24 +Ni	Cr+	0.044 0.044 •Mo+Cu+l	Ni	8.17 8.17	0.40 0.40 CE**		0.24 0.24 Pcm
		Heat No. Min Max	0.155 0.155 C 0.200	1.410 1.410 Mn 1.600	0.002 0.002 S 0.030	0.017 0.017 P 0.030	0.230 0.230 Si 0.550	0.019 0.019 Cr	0.008 0.008 Ni	0.016 0.016 Cu 0.550	0.019 0.019 Ti	0.005 0.005 V	0.025 0.025 Nb	0.001 0.001 Mo	0.049 0.049 Al 0.020	0.0060 0.0060 N	0.0010 0.0010 Ca	0.0000 0.0000 B 	0.04 0.04 Nb+T	i+V	0.0 0.0 Cu -	124 124 +Ni 	Cr+	0.044 0.044 •Mo+Cu+l	Ni	8.17 8.17 Al/N	0.40 0.40 CE** 0.45		0.24 0.24 Pcm
		Heat No. Min Max B035295	0.155 0.155 C 0.200 0.149	1.410 1.410 Mn 1.600 1.396	0.002 0.002 S 0.030 0.003	0.017 0.017 P 0.030 0.017	0.230 0.230 Si 0.550 0.189	0.019 0.019 Cr 0.015	0.008 0.008 Ni 0.007	0.016 0.016 Cu 0.550	0.019 0.019 Ti 0.021	0.005 0.005 V 0.004	0.025 0.025 Nb 0.026	0.001 0.001 Mo 0.008	0.049 0.049 Al 0.020	0.0060 0.0060 N 0.0120	0.0010 0.0010 Ca	0.0000 0.0000 B 0.0000	0.04 0.04 Nb+T 0.25	i+V 60	0.0 0.0 Cu-	+Ni 118	Cr+	0.044 0.044 0.033	Ni	8.17 8.17 AI/N 8.14	0.40 0.40 CE** 0.45 0.39		0.24 0.24 Pcm 0.23
		Heat No. Min Max B035295 A035072	0.155 0.155 C 0.200 0.149 0.159	1.410 1.410 Mn 1.600 1.396 1.348	0.002 0.002 S 0.030 0.003 0.003	0.017 0.017 P 0.030 0.017 0.018	0.230 0.230 Si 0.550 0.189 0.192	0.019 0.019 Cr 0.015 0.024	0.008 0.008 Ni 0.007 0.009	0.016 0.016 Cu 0.550 0.011	0.019 0.019 Ti 0.021 0.022	0.005 0.005 V 0.004 0.002	0.025 0.025 Nb 0.026 0.027	0.001 0.001 Mo 0.008 0.001	0.049 0.049 Al 0.020 0.044	0.0060 0.0060 N 0.0120 0.0039	0.0010 0.0010 Ca C 0010 C 0010	0.0000 0.0000 B 0.0000 0.0002	0.04 0.04 Nb+T 0.25 0.05	i+V	0.0 0.0 Cu	+Ni 118 120	Cr+	0.044 0.044 0.033 0.045	Ni	8.17 8.17 AI/N 8.14 8.98	0.40 0.40 CE** 0.45 0.39		0.24 0.24 Pcm 0.23 0.24
		Heat No. Min Max B035295 A035072 A035268	0.155 0.155 C 0.200 0.149 0.159 0.150	1.410 1.410 Mn 1.600 1.396 1.348 1.346	0.002 0.002 S 0.030 0.003 0.003 0.002	0.017 0.017 P 0.030 0.017 0.018 0.018	0.230 0.230 Si 0.550 0.189 0.192 0.209	0.019 0.019 Cr 0.015 0.024 0.024	0.008 0.008 Ni 0.007 0.009 0.008	0.016 0.016 Cu 0.550 0.011 0.011	0.019 0.019 Ti 0.021 0.022 0.022	0.005 0.005 V 0.004 0.002	0.025 0.025 Nb 0.026 0.027	0.001 0.001 Mo 0.000 0.001 0.001	0.049 0.049 Al 0.020 0.044 0.035	0.0060 0.0060 N 0.0120 0.0059 0.0059	0.0010 0.0010 Ca 0.0010 0.0010 0.0010 0.0010	0.0000 0.0000 B 0.0000 0.0002 0.0001	0.04 0.04 Nb+Ti 0.25 0.05 0.05	i+V i60 51 50	0.0 0.0 Cu	+Ni 118 120 122	Cr+	0.044 0.044 0.033 0.045 0.047	Ni	8.17 8.17 AI/N 8.14 8.98 5.93	0.40 0.40 CE** 0.45 0.39 0.39 0.38		0.24 0.24 Pcm 0.23 0.24 0.23
		Heat No. Min Max B035295 A035072 A035268 A035268	0.155 0.155 C 0.200 0.149 0.159 0.150 0.150	1.410 1.410 Mn 1.600 1.396 1.348 1.346 1.346	0.002 0.002 S 0.030 0.003 0.003 0.002 0.002	0.017 0.017 P 0.030 0.017 0.018 0.018	0.230 0.230 Si 0.550 0.189 0.192 0.209 0.209	0.019 0.019 Cr 0.015 0.024 0.024 0.024	0.008 0.008 Ni 0.007 0.009 0.008 0.008	0.016 0.016 Cu 0.550 0.011 0.011 0.014	0.019 0.019 Ti 0.021 0.022 0.022 0.022	0.005 0.005 V 0.004 0.002 0.002 0.002	0.025 0.025 Nb 0.026 0.027 0.026 0.026	0.001 0.001 Mo 0.000 0.001 0.001 0.001	0.049 0.049 Al 0.020 0.044 0.035 0.035	0.0060 0.0060 N 0.0120 0.0039 0.0059 0.0059	0.0010 0.0010 Ca 0 0010 0 0010 0 0010 0 0010	0.0000 0.0000 B 0.0000 0.0002 0.0001 0.0001	0.04 0.04 Nb+T 0.25 0.05 0.05 0.05	19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	0.0 0.0 Cu	+Ni 118 120 122	Cr+	0.044 0.044 0.033 0.045 0.047	Ni	8.17 8.17 AI/N 8.14 8.98 5.93 5.93	0.40 0.40 CE** 0.45 0.39 0.39 0.38 0.38		0.24 0.24 Pcm 0.23 0.24 0.23 0.23
		Heat No. Min Max B035295 A035072 A035268 A035268 A035270	0.155 0.155 C 0.200 0.149 0.159 0.150 0.150 0.167	1.410 1.410 Mn 1.600 1.396 1.348 1.346 1.346 1.343	0.002 0.002 S 0.030 0.003 0.003 0.002 0.002 0.002	0.017 0.017 P 0.030 0.017 0.018 0.018 0.018	0.230 0.230 Si 0.550 0.189 0.192 0.209 0.209	0.019 0.019 Cr 0.015 0.024 0.024 0.024 0.024	0.008 0.008 Ni 0.007 0.009 0.008 0.008 0.007	0.016 0.016 Cu 0.550 0.011 0.014 0.014 0.010	0.019 0.019 Ti 0.021 0.022 0.022 0.022 0.022	0.005 0.005 V 0.004 0.002 0.002 0.002	0.025 0.025 Nb 0.026 0.027 0.026 0.026 0.027	0.001 0.001 Mo 0.000 0.001 0.001 0.001	0.049 0.049 Al 0.020 0.044 0.035 0.035 0.049	0.0060 0.0060 N 0.0120 0.0059 0.0059 0.0059 0.0049	0.0010 0.0010 Ca 0 0010 0 0010 0 0010 0 0010 0 0010 0 0010	0.0000 0.0000 B 0.0000 0.0002 0.0001 0.0001 0.0002	0.04 0.04 Nb+Ti 0.25 0.05 0.05 0.05 0.05	i+V 50 51 50 51 50 51 51 50 51 51	0.0 0.0 Cu	+Ni 118 122 122 122 117	Cr+	0.044 0.044 0.033 0.045 0.047 0.047 0.039	Ni	8.17 8.17 AI/N 8.14 8.98 5.93 5.93 10.00	0.40 0.40 CE** 0.45 0.39 0.39 0.38 0.38 0.40		0.24 0.24 Pcm 0.23 0.24 0.23 0.23 0.24
		Heat No. Min Max B035295 A035072 A035268 A035268	0.155 0.155 C 0.200 0.149 0.159 0.150 0.150	1.410 1.410 Mn 1.600 1.396 1.348 1.346 1.346	0.002 0.002 S 0.030 0.003 0.003 0.002 0.002	0.017 0.017 P 0.030 0.017 0.018 0.018	0.230 0.230 Si 0.550 0.189 0.192 0.209 0.209	0.019 0.019 Cr 0.015 0.024 0.024 0.024	0.008 0.008 Ni 0.007 0.009 0.008 0.008	0.016 0.016 Cu 0.550 0.011 0.011 0.014	0.019 0.019 Ti 0.021 0.022 0.022 0.022 0.022 0.019	0.005 0.005 V 0.004 0.002 0.002 0.002 0.002 0.002	0.025 0.025 Nb 0.026 0.027 0.026 0.026	0.001 Mo 0.000 0.001 0.001 0.001 0.001	0.049 0.049 0.020 	0.0060 0.0060 N 0.0120 0.0039 0.0059 0.0059	0.0010 0.0010 Ca 0 0010 0 0010 0 0010 0 0010	0.0000 0.0000 B 0.0000 0.0002 0.0001 0.0001	0.04 0.04 Nb+T 0.25 0.05 0.05 0.05	i+V	0.0 0.0 Cu	+Ni 	Cr+	0.044 0.044 0.033 0.045 0.047	Ni	8.17 8.17 AI/N 8.14 8.98 5.93 5.93	0.40 0.40 CE** 0.45 0.39 0.39 0.38 0.38		0.24 0.24 Pcm 0.23 0.24 0.23 0.23

IT IS CERTIFIED THAT THE MATERIAL DESCRIBED ABOVE FULLY CONFIRM TO EN 10025-2:2019 & EQUIVALENT TO IS 2002:2011, Subject to the pro-IT IS CERTIFIED THAT THE MATERIAL DESCRIBED ABOVE FULLY CONFIRM TO EN 10025-2:2019 & EQUI / ALENT FO IS 2062:2011.

CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING AND INSPECTION CONTAINED IN BIS CERTIFICATION MARKS LICENCE NO. CM/L-7945703 ARE AS INDICATED ABOVE AGAINST available at http://sgs.com/terms EACH ORDER NO.

PLAESE REFER TO EN 10025-2:2019 & IS 2062:2011 FOR DETAILS OF SPECIFICATION REQUIREMENTS.

1) Test Certificate confirms to EN 10204 : 2004 Type 3.1 2) Process Route : SLAB (BOF-LHF-RH-CCM-Fully Killed(Al&Si Killed))-Hot Rolling.

3) Supply Condition: Normalized rolled

4) Mechanical Properties are certified at Room Temperature unless specified.

5) Ultrasonic Test are satisfactory as per : EN10160 S2 E3

6) Dimensions are satisfactory as per EN10029:2010 Class B, Table - 1,2,3

7) Surface condition as per EN10163-2 Class B, Subclass-3,

8) Weight calculation for plates is as per Theoretical Calculation

Legend: YS: Yield Strength, UTS: Ultimate Tensile Strength, EL: % Elongation, RA: Reduction in Area, Thk: Thickness, NDTT: Nil Ductility Transition Test, Min: Minimum, Max: Maximum, NA: Not Applicable, S: Simulated Post-weld Heat

Treatment Test,Sat : Satisfactory,WBBT-Weld bead bend test YS*=t≤16-355, 16<t≤40-

345, 40<t≤63=335,63<t≤80=325, CE**= 0.47 for t>30 mm

(Quality Assurance & Control Dept)



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