SAHATHAI
STEEL PIPE

MILL TEST CERTIFICATE

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NO. STS/037/19
DATE: 10 APR 2019
STEEL MAKING: Basic oxygen continuously cast fine grain fully killed hot rolled coil
GRADE: AS/NZS 1163 : 2016 C350 L0
PRODUCTION NO: PRO LOT NO. 69/18

SIZES d x b d_o (mm.)	THICKNESS (mm.)	LENGTH (m.)	WEIGHT (Kg./m.)	BUNDLES	NO. OF PCS/ B'DLE	PIECES	NET WT. (MT.)	I/D	HEAT NO.	CHEMICAL ANALYSIS (C) %																MECHANICAL PROPERTIES(L,A)					CHARPY V-NOTCH IMPACT TEST 0°C (L,A) JOULES							
										C	Si	Mn	P	S	Cu	V	Ni	Cr	Mo	Ti	Nb	Al	B	Micro-alloying elements	CE	T.S. MPa	Y.P. MPa	EL %			Size of test piece							
																													b/t,d/t		10 mm. x 5 mm.				10 mm. x 7.5 mm.			
																												≤15	>15 ≤30	>30	Average of 3 tests	Individual test			Average of 3 tests	Individual test		
										0.20 max	0.25 max	1.60 max	0.03 max	0.03 max	0.25 max	0.10 max	0.25 max	0.30 max	0.10 max	0.04 max	-	Total 0.10 max	-	0.15 max	0.43 max	430 min	350 min	12 min	14 min	16 min	18 min	1 13 min	2 13 min	3 13 min	22 min	1 16 min	2 16 min	3 16 min
BLUE PAINTED SHS, C350 L0				MACSTS201812 / 163112 BRI																																	
20 x 20	1.60	6.50	0.87	1	650	100	0.566	37244	6JL55	0.120	0.020	1.050	0.019	0.007	<0.001	<0.001	0.010	0.020	<0.001	0.001	0.001	0.025	0.0002	0.002	0.300	542	484	17			–	–	–	–	–	–	–	–
40 x 40	3.00	8.00	3.30	1	512	64	1.690	37996	4FX31	0.105	0.007	1.130	0.010	0.006	0.010	0.009	0.012	0.021	0.006	<0.001	0.005	0.033	0.0003	0.014	0.302	537	438	17			–	–	–	–	–	–	–	–
50 x 50	2.50	8.00	3.60	1	392	49	1.411	44606	99040	0.068	0.153	0.543	0.012	0.008	0.198	0.005	0.044	0.056	0.029	0.004	0.009	0.022	0.0006	0.019	0.192	455	423		18		–	–	–	–	–	–	–	–
50 x 50	3.00	8.00	4.25	3	1,176	147	4.998	34019	1MX51	0.110	0.020	1.100	0.017	0.008	0.010	0.001	0.020	0.040	<0.001	0.001	<0.001	0.043	0.0001	0.002	0.304	520	490		22		–	–	–	–	–	–	–	–
								44614	49197	0.067	0.152	0.547	0.011	0.005	0.228	0.005	0.053	0.055	0.018	0.004	0.006	0.025	0.0004	0.015	0.192	495	458		17		–	–	–	–	–	–	–	–
65 x 65	3.00	8.00	5.66	1	288	36	1.630	38001	5C856	0.100	0.010	1.070	0.012	0.005	<0.001	<0.001	0.010	0.020	<0.001	0.001	<0.001	0.031	0.0001	0.001	0.283	498	379		23		–	–	–	–	–	–	–	–
65 x 65	4.00	8.00	7.25	1	240	30	1.740	45412	T02383	0.045	0.022	1.272	0.019	0.005	0.005	0.028	0.009	0.022	0.004	0.001	0.018	0.038	0.0004	0.047	0.269	551	498		18		–	–	–	–	–	–	–	–
65 x 65	6.00	8.00	10.10	3	480	60	4.848	45514	V95952	0.109	0.009	0.993	0.015	0.007	0.003	0.002	0.009	0.016	0.002	<0.001	0.007	0.040	0.0004	0.010	0.280	613	526	17			66.51	70	68	62	–	–	–	–
								45527	V95965	0.115	0.008	0.981	0.016	0.007	0.004	0.005	0.008	0.020	0.002	0.001	0.005	0.044	0.0004	0.011	0.285	584	506	18			68.55	65	71	69	–	–	–	–
75 x 75	5.00	8.00	10.30	2	320	40	3.296	41197	48954	0.049	0.147	0.457	0.008	0.007	0.173	0.005	0.058	0.042	0.021	<0.001	0.032	0.022	0.0003	0.037	0.154	438	415	26			–	–	–	–	–	–	–	–
75 x 75	6.00	8.00	12.00	3	384	48	4.608	41251	98634	0.137	0.169	0.372	0.006	0.005	0.136	0.002	0.051	0.071	0.013	<0.001	0.024	0.022	0.0001	0.026	0.229	532	485	17			84.48	85	90	79	–	–	–	–
								41252	98634	0.137	0.169	0.372	0.006	0.005	0.136	0.002	0.051	0.071	0.013	<0.001	0.024	0.022	0.0001	0.026	0.229	532	485	17			68.44	67	70	68	–	–	–	–
								41336	489030	0.151	0.160	0.252	0.008	0.004	0.186	0.002	0.053	0.073	0.012	<0.001	0.013	0.023	0.0001	0.015	0.226	534	498	18			69.34	70	70	68	–	–	–	–
89 x 89	3.50	8.00	9.07	2	320	40	2.902	45397	T02382	0.060	0.012	1.237	0.013	0.005	0.004	0.024	0.013	0.024	0.004	0.002	0.014	0.038	0.0003	0.039	0.278	516	474		22		–	–	–	–	–	–	–	–
								45399	T02384	0.035	0.009	1.256	0.015	0.007	0.007	0.031	0.019	0.029	0.005	0.002	0.007	0.035	0.0004	0.040	0.260	502	385		25		–	–	–	–	–	–	–	–
89 x 89	5.00	8.00	12.50	2	256	32	3.200	45457	V96169	0.123	0.013	1.040	0.019	0.009	0.003	0.003	0.014	0.022	0.003	<0.001	0.010	0.049	0.0006	0.014	0.303	565	486		23		–	–	–	–	–	–	–	–
								45460	V96171	0.105	0.013	0.994	0.023	0.008	0.003	0.003	0.013	0.026	0.002	0.001	0.009	0.035	0.0005	0.013	0.278	486	439		26		–	–	–	–	–	–	–	–
SUB TOTAL			MACSTS201812 / 163112 BRI	20		646	30.889																														
BLUE PAINTED RHS, C350 L0																																					
50 x 25	2.50	8.00	2.62	1	576	72	1.509	44600	99027	0.067	0.160	0.552	0.011	0.005	0.212	0.006	0.049	0.039	0.015	0.004	0.007	0.027	0.0005	0.017	0.189	441	403		27		–	–	–	–	–	–	–	–
50 x 25	3.00	8.00	3.07	1	480	60	1.474	37304	6JL02	0.110	0.010	1.110	0.018	0.005	<0.001	<0.001	0.010	0.020	<0.001	0.001	<0.001	0.047	0.0001	0.001	0.300	511	487		29		–	–	–	–	–	–	–	–
75 x 50	5.00	8.00	8.35	2	384	48	3.206	45470	V96177	0.112	0.013	1.054	0.025	0.009	0.005	0.006	0.015	0.023	0.003	0.002	0.005	0.035	0.0005	0.013	0.295	569	526	17			–	–	–	–	–	–	–	–
150 x 50	5.00	8.00	14.20	3	360	45	5.112	41203	48954	0.049	0.147	0.457	0.008	0.007	0.173	0.005	0.058	0.042	0.021	<0.001	0.032	0.022	0.0003	0.037	0.154	454	404		28		–	–	–	–	–	–	–	–
SUB TOTAL			MACSTS201812 / 163112 BRI	7		225	11.301																														
TOTAL			MACSTS201812 / 163112 BRI	**27**		**871**	**42.190**																														

SAHA THAI ACKNOWLEDGED THAT MATERIAL BEING SUPPLIED IS IN ACCORDANCE WITH AS/NZS 1163 : 2016

LEGEND
C = Cast Analysis
T.S. = Tensile Strength
Y.P. = Yield Strength Minimum
CE = C + [Mn/6] + [(Cr+Mo+V)/5] + [(Ni+Cu)/15]
EL. = Elongation
L = Longitudinal strip specimen
A = Ageing treatment
MT. = Metric Tonne
b = Width
d = Depth
d_o = Outside Diameter

Impact Test : Impact Test conformance is demonstrated by the
(a) required quality of steel as noted in the above Product Description;
(b) use of Aluminium as a grain-refining element in the steel accordance with Clauses 5 & 9.4.2.3 (b) of AS/NZS 1163, and ;
(c) Aluminium content being not less than 0.020% Total Aluminium or 0.015% Soluble Aluminium (refer to above Chemical Analysis)
No Impact Tests are required below 6mm provided for standard AS/NZS 1163 : 2016 at item 9.4.2.3.

NITTAYA SRAJIT
QUALITY ASSURANCE MANAGER

Chemical testing conducted at China Steel Corporation Chemical Laboratory, Kaohsiung City, Taiwan TAF Accreditation No.0130.
Chemical and mechanical testing conducted at Saha Thai Steel Pipe Public Co.,Ltd. testing laboratory, Samuthprakarn,Thailand NSC-ONSC Accreditation No.0300.

Accredited for compliance with ISO/IEC 17025
ISO 9001 Certification by Bureau Veritas (#TH009192)