MAHARASHTRA SEAMLESS LIMITED

WORKS (MILL) TEST CERTIFICATE

EN 10204 : 3.1B

QCF 20A

Test Certificate No.: MSL-6/QC/0001R/2022
Date: 26 July 2022

Customer :
P.O.No : 12682 Dated: 28-FEB-22
OC/Loading slip no. : 66210079 (Item No. 10)
Specification : ASTM A106 Gr.B; API 5L Gr.B/X42 PSL-1 :
Process/Type of Pipe Hot Finished seamless carbon steel pipes

OD X WT : 60.30 mm X 5.54 mm
Length Range : 20 - 20 Feet
Total Length : 22840 Feet (1142 Pcs)
Material Code :

A) CHEMICAL COMPOSITION (%) - Reference standard ASTM A-751 & ASTM E-415

Sl No	Heat No	Test Unit	Analysis	C	Mn	Si	P	S	Cr	Mo	Ni	Cu	V	Nb	Ti	Nb+V	Nb+V+Ti	B	Ca	Al	N	Mn/C	Cu+Ni	CE Pcm	CE IIW	B) Special / supplementary Reqts.
Req.	Min.	%			0.290	0.100																				
	Max.	%		0.260	1.060	0.500	0.030	0.010	0.400	0.150	0.400	0.400	0.080	0.110	0.110											
1	AB273		H	0.180	1.030	0.260	0.011	0.005	0.010	0.0020	0.005	0.005	0.0020	0.0018	0.0020	0.0038	0.0058	0.0003	-	0.026	-	5.722	0.010	-	0.355	
			P1	0.190	1.020	0.250	0.010	0.005	0.011	0.0030	0.006	0.006	0.0018	0.0019	0.0020	0.0037	0.0057	0.0002	-	0.027	-	5.368	0.012	-	0.364	
			P2	0.170	1.040	0.260	0.011	0.004	0.010	0.0020	0.004	0.004	0.0021	0.0016	0.0021	0.0037	0.0058	0.0003	-	0.025	-	6.118	0.008	-	0.347	
2	AB299		H	0.170	1.040	0.220	0.011	0.006	0.011	0.0020	0.007	0.005	0.0020	0.0020	0.0015	0.0040	0.0055	0.0002	-	0.033	-	6.118	0.012	-	0.347	
			P1	0.170	1.040	0.210	0.011	0.005	0.012	0.0010	0.006	0.006	0.0019	0.0019	0.0016	0.0038	0.0054	0.0003	-	0.034	-	6.118	0.012	-	0.347	
			P2	0.180	1.030	0.230	0.012	0.007	0.011	0.0030	0.008	0.004	0.0021	0.0022	0.0017	0.0043	0.0060	0.0002	-	0.032	-	5.722	0.012	-	0.356	
3	AB690		H	0.160	1.020	0.200	0.020	0.003	0.011	0.0020	0.004	0.005	0.0020	0.0010	0.0014	0.0030	0.0044	0.0003	-	0.035	-	6.375	0.009	-	0.334	
			P1	0.170	1.020	0.200	0.020	0.004	0.011	0.0020	0.005	0.006	0.0019	0.0012	0.0013	0.0031	0.0044	0.0004	-	0.036	-	6.000	0.011	-	0.344	
			P2	0.160	1.030	0.210	0.019	0.003	0.010	0.0010	0.003	0.004	0.0021	0.0011	0.0015	0.0032	0.0047	0.0003	-	0.034	-	6.438	0.007	-	0.335	

C) MECHANICAL PROPERTIES

Reference standard ASTM 370 & E-8 — Tensile Testing (Loc: Pipe Body) — G.L.=50 mm Nom. Width= 19.05 mm

Sl No.	Heat No.	Test Unit	Quantity Pcs	Quantity Feet	Name of the Steel Maker and Address/Supplier Heat No.	Orientn.	YST (Mpa)	UTS (Mpa)	YST/UTS Ratio	El (%)
Req.	Min.						290	414		30
	Max.									
1	AB273		102	2040	JSPL, Chhattisgarh/ 3119394	L	375.12	496.80	0.76	35.84
2	AB299		836	16720	JSPL, Chhattisgarh/ 3120012	L	347.98	479.20	0.73	36.80
						L	349.55	482.33	0.72	36.64
						L	344.62	475.56	0.72	36.95
3	AB690		204	4080	JSPL, Chhattisgarh/ 3215441	L	351.68	493.36	0.71	35.60

Reference standard ASTM E-23 — CVN Impact Test (Pipe Body)

Absorbed Energy (J)					% Shear Area				
Size & Orientation:									
Temperature°C :	1	2	3	Avg	1	2	3	Avg	
	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	

Reference standard ASTM E-18 — Through Wall Hardness (Pipe Body) — Hardness (HRB) — Transverse Direction

OD					Mid					ID				
1	2	3	4	Avg	1	2	3	4	Avg	1	2	3	4	Avg
74	75	75	74	74	-	-	-	-	-	-	-	-	-	-
75	74	74	75	75	-	-	-	-	-	-	-	-	-	-
76	77	77	76	76	-	-	-	-	-	-	-	-	-	-

Raw Material	Fully killed & Fine Grain Practice	Dimension	Good
Steel Route	EAF-LRF-VD-CCM	Weight	Good
Hot Rolling Temp. °C	880-940	End Finish	Bevel
Heat Treatment	NA	Straightness	OK
Delivery Condition	R	Visual	OK
Norm./Temp. Temp(°C)	NA	Bend Test	OK
HIC	NA	SSC	NA
Inclusion Rating	NA	Hot Straight Temp.°C	NA

NDE Method	Ultrasonic Testing - Good	End Area inspection	OK
Location & Orientation	Longitudinal & Transverse Notch at OD & ID	Hydro Test Pressure	2970 Psi
Type & Size of Ref.Indicator	10% Notch X 50mm Length X 1.0mm Width	Holding Time	5 Sec.
Residual Magnetism	10 Gauss Max	End Protection	Plastic end cap
Field Weldability	NA	External Coating	Black Varnished
Flattening Test	NA	Flaring Test	NA
Micro Structure/Grain Size	Reveals fine Ferrite and pearlite /ASTM No. 7-8	CTOD	NA
Colour Coding	NA		

D) Marking/Stenciling : MAHA ((M) MSL API 5L X-42 PSL-1 / ASTM A106 GR.B / NACE MR0175/MR0103(% S HARDNESS CONTROLLED) BE SMLS SRL OD 2.375 INCH X WT 0.218 INCH HFS HEAT NO.... + 2970 PSI + LENGTH...IN FEET + MADE IN INDIA + WEIGHT - 5.03 LB/FT + PO/SHIPPING MARK : "PO # 25.436" + B.NO....

E) Remarks : 1) Mat. Confirms to API 5L GR.B PSL-1 / X42 (EDN. 2018)/ ASTM/ASME A106 B (EDN. 2019a)/ SA106 B (EDN. 2021). 2) "Country of melt and pour : INDIA".

Legends : T-Transverse, L-Longitudinal, YST-Yield Strength, UTS-Ultimate Tensile Strength, EL-Elongation, GL-Gauge Length, H-Heat , P1-Product 1, P2-Product 2, R-As Rolled, Q-Quenched & Tempered, N-Normalised, N&T-Normalised & Tempered. PE-Plain-end, BC-Buttress Thread Casing, LC-Long Round Thread Casing, SC-Short Round Thread Casing, NU-Non-upset tubing, EU-External Upset tubing, NA- Not Applicable

The material has been manufactured, sampled,tested and inspected and has been found conforming to the specification and PO

FOR MAHARASHTRA SEAMLESS LTD
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Warning : Modification or unauthorized use of this certification is strictly prohibited. Violation calls for criminal prosecution. For authenticity verification, you can contact us at: msltc@mahaseam.com.