



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2525 Product Size: NPS 24 TRUE 80 Production Date: Sep 16, 2015
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001947
 Product Standards: ASME B36.10-2004, API 5L-45th Ed. GradeB PSL1, ASTM/ASME A/SA333-2013 Grade 6 LT(M45C) A106-2014/SA106-2013 Grade B/C NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: <API & L/C No.> API SPEC 5L NPS 24 TRUE 80 1.219 INCHWT GRB PSL1 SMLS 2015/09 NDE 2160PSI
 HEAT BSM-2525 (PIPE # LENGTH MASS) 296 4lb/ft ASTM/ASME A/SA333 GR 6 LT(M45C) A/SA106 GR B/C A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA

Product: Details				Non-Destructive Testing											
Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger	Res. Mag.	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2160PSI/ 5 s	End Condition	
BSM-2525	Heat	NPS 24 TRUE 80 1.219in. WT	1	DRL	296.4	<5	<30	Pass	Pass	Pass	Pass	Pass	Pass	Plain End	

Heat	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
			C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(CSA)	
			Heat	0.16	1.16	0.014	0.002	0.25	0.02	0.01	0.01	0.01	0.01	0.02	0.050	0.002	0.001	0.0001
BSM-2525	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Product	0.17	1.17	0.014	0.005	0.28	0.04	0.01	0.01	0.01	0.02	0.060	0.002	0.001	0.0002	0.39	0.39

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 2 in. GL		Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					75 HRBW	Pass				
BSM-2525	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	52,000	77,500	0.67	38	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy						% Shear			Lateral Expansion		
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	AVG
BSM-2525	ASTM A333	CVN Long 10 x 10 mm	-45	105.0	104.0	71.0	93.3	30	25	20	25	1.57	1.48	1.05	1.37

Additional Details:
 ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with API 5L-45th Ed., ASTM/ASME A/SA333-2013, A106-2014/SA106-2013, A53-2012/SA53-2013, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 and API Q1.

✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service, and NACE MR0103-2012 Section 2.1.
 ✓ No weld repairs have been performed on this product.
 ✓ This product has not come into contact with mercury during the Bri-Steel Manufacturing processes.
 ✓ This certificate represents a quality control system that is compliant with EN 10204:2004 Type 3.1.

Mill Test Certificate approved by:

T. Lam *sep/23/2015*

Tonya Lam, C.E.T.
 Assistant QA Manager