



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2568 Product Size: NPS 24 TRUE 80 Production Date: Oct 29, 2015
 Production Method: Hot Expansion Product Heat Treatment: ThermoMechanical Formed Certificate No.: MTR- 001995
 Product Standards: ASME B36.10M-2015, API SL-45th Ed. GradeB/X42/X46 PSL1, ASTM/ASME A/SAS333-2013 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/X42/X46 PSL1 SMLS 2015/10 NDE 2970PSI
 HEAT BSM-2568 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SAS333 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	Gelger	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition	
BSM-2568	Heat	NPS 24 TRUE 80 1.219in. WT	4	DRL	296.4	<5	<10	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(I/W)	CE(CSA)			
			0.17	1.17	0.012	0.003	0.26	0.02	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.38	0.38			
BSM-2568	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	Heat	0.17	1.14	0.015	0.005	0.28	0.04	0.01	0.01	0.03	0.069	0.001	0.001	0.0002	0.39	0.39			
		Product	0.17	1.15	0.010	0.002	0.28	0.05	0.01	0.01	0.03	0.059	0.002	0.001	0.0002	0.39	0.39			

Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test				Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
					2 in. GI	0.5 in. Round Bar	0.5 in. Round Bar	Longitudinal; 0.5 in. Round Bar				
BSM-2568	Heat	Ferrite & Pearlite	79 HRBW	Pass	Pass	Pass	Pass	52,000	77,000	0.68	40	
				Pass	Pass	Pass	Pass	49,900	72,500	0.69	39	

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy				% Shear				Lateral Expansion				
				J	J	J	AVG	%	%	%	AVG	mm	mm	mm	mm	AVG
BSM-2568	ASTM A333	CVN Long 10 x 10 mm	-45	105.0	90.0	94.0	96.3	25	20	20	20	22	1.58	1.19	1.39	1.39

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/SAS333-2013, 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, API Q1, and PED 97/23/EC.

✓ 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:

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