



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3064 Product Size: NPS 18 TRUE 40 Production Date: Feb 23, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003179
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 18 TRUE 40 0.562 INCHWT SMLS 2017/02 NDE 1300PSI
 HEAT BSM-3064 (PIPE # LENGTH MASS) 104.73lb/ft ASTM/ASME A/SA106 GR B 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. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition	
BSM-3064	Heat	NPS 18 TRUE 40 0.562in. WT	2	DRL	104.73	<5	<10	Pass	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1300PSI/ 5s	Plain End

Heat	BSM-3064	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Chemical Analysis (wt%)																		
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)	
			Heat	Product	0.20	0.56	0.017	0.010	0.26	0.07	0.01	0.01	0.03	0.004	0.002	0.001	0.0004	0.31	-	0.32	
						0.20	0.56	0.015	0.007	0.28	0.06	0.01	0.00	0.03	0.004 <td>0.002 <td>0.001 <td>0.0003 <td>0.31</td> <td>-</td> <td>0.32</td> </td></td></td>	0.002 <td>0.001 <td>0.0003 <td>0.31</td> <td>-</td> <td>0.32</td> </td></td>	0.001 <td>0.0003 <td>0.31</td> <td>-</td> <td>0.32</td> </td>	0.0003 <td>0.31</td> <td>-</td> <td>0.32</td>	0.31	-	0.32

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-3064	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 2 in. GL 1.5 in. x WT	psi 46 600	psi 70 500	(Rt0.5/Rm) 0.66	% 46

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3064	-	-	-	-	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A106-2014/SA106-2015, A53-2012/SA53-2015, and the purchase order requirements, and that the results meet the corresponding requirements. Bri-Steel Manufacturing is registered and certified to ISO-9001:2008 (APIQR-1584), API Q1, and PED 2014/68/EU.

Mill Test Certificate approved by:

- ✓ 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/ISO 17495:2015 Section 13.1

- ✓ 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.

Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager

T. Lam *March 10/2/2017*