



Mill Test Certificate

Bri-Steel Manufacturing
 2125-64 Avenue, Edmonton, AB Canada T6P 1Z4
 Tel: 001 (780) 469-6603
 Fax: 001 (780) 469-6986
 www.bri-steel.com

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2763 Product Size: NPS 18 STD Production Date: May 12, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002824
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: NPS 18 STD 0.375 INCHWT SMLS 2016/05 NDE 900PSI
 HEAT BSM-2763 (PIPE # LENGTH MASS) 70.59lb/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	Gelger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 900 PSI/ 5 s	End Condition
BSM-2763	Heat	NPS 18 STD 0.375in. WT	8	DRL	70.59	<5	<40	Pass	Pass	Pass	N12.5 Pass	-	Pass	30° Bevel

Heat	BSM-2763	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	0.19	0.89	0.018	0.008	0.22	0.03	0.04	0.01	0.01	0.006	0.026	0.001	0.0004	0.35	-	0.36	
						0.18	0.91	0.023	0.004	0.22	0.02	0.03	0.01	0.01	0.005	0.027	0.001	0.0003	0.34	-	0.34

Mechanical Properties									
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) %
BSM-2763	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 1.5 in. x WT	45 500	72 500	0.63	44

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2763	-	-	-	-	-	-	-

- 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/SA106-2013, 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 (APIQR-1584), 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:

May 17 2016
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager



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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2764 Product Size: NPS 18 STD Production Date: May 12, 2016
 Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002825
 Product Standards: ASME B36.10M-2015, ASTM/ASME A106-2014/SA106-2013 Grade B NDE, A53-2012/SA53-2013 Grade B Type S, NACE MR0175-2009 MR0103-2012
 Product Markings: NPS 18 STD 0.375 INCHWT SMLS 2016/05 NDE 900PSI
 HEAT BSM-2764 (PIPE # LENGTH MASS) 70.59lb/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.	Visual Insp.	OD	UT WT	UT	ET	HydroTest	End Condition	
BSM-2764	Heat	NPS 18 STD 0.375in. WT	2	DRL	70.59	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	900 PSI/ 5 s	Pass	30° Bevel

Heat	BSM-2764	Steelmaking Method	Test Type	Chemical Analysis (wt%)															
				C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
		Blast Furnace; EAF; Ladle Refining; Vacuum	Heat	0.19	0.88	0.017	0.007	0.22	0.03	0.04	0.01	0.01	0.006	0.026	0.001	0.0004	0.35	-	0.36
		Degas; Fully Killed	Product	0.19	0.87	0.018	0.005	0.22	0.02	0.03	0.01	0.01	0.006	0.029	0.001	0.0003	0.34	-	0.35

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-2764	Heat	Ferrite & Pearlite	78 HRBW	Pass	Longitudinal; 1.5 in. x WT	psi	psi	0.63	45
						44 700	71 000		

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-2764	-	-	-	-	(3 Tests) AVG	(3 Tests) AVG	(3 Tests) AVG

Additional Details:
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Tony Lam May 11/2016

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 Assistant QA Manager