



Mill Test Certificate

Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2820 Product Size: NPS 24 TRUE 80 Production Date: Jun 29, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002887

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 24 TRUE 80 1.219 INCHWT SMLS 2016/06 NDE 2130PSI
 HEAT BSM-2820 (PIPE # LENGTH MASS) 296.4lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA



Heat		Product: Details				Non-Destructive Testing									
Test Type	Product Size	Pieces	Length	Mass lb/ft	Geiger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT Pass	UT ASTM E213	ET ASTM E309	Hydro Test 2130PSI/ 5 s	End Condition	
Heat	NPS 24 TRUE 80 1.219in. WT	2	DRL	296.4	<5	<20	Pass	Pass	Pass	N12.5 Pass	-	-	Pass	35° Bevel	

Chemical Analysis (wt%)																			
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)	
																			Blast Furnace; Killed
BSM-2820		Product	0.20	1.03	-	-	0.22	0.08	0.14	0.02	0.05	0.031	0.001	-	-	-	-	-	0.42
		Heat	0.20	1.03	-	-	0.20	0.08	0.14	0.02	0.05	0.030	0.001	-	-	-	-	-	0.42

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 (%)
BSM-2820	Heat	Ferrite & Pearlite	75 HRBW	Pass	Longitudinal; 0.5 in. Round Bar	47 200	71 500	0.66	35

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J) (3 Tests) AVG	Impact Energy Results (J) (3 Tests) AVG	Shear (%) (3 Tests) AVG	Lateral Expansion (mm) (3 Tests) AVG
BSM-2820								

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 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/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.

Mill Test Certificate approved by:

T. Lam *July 105/2016*

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