



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2835 Product Size: NPS 24 TRUE 40 Production Date: Jul 12, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002903
 Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2015 Grade 6 LT(M45C) A106-2014/SA106-2015 Grade B/C NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2009 MR0103/ISO 17495:2015
 Product Markings: NPS 24 TRUE 40 0.688 INCHWT SMLS 2016/07 NDE 1200PSI
 HEAT BSM-2835 (PIPE # LENGTH MASS) 171.2lb/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	Gelger	Res. Mag. Gauss	Visual Insp.	OD	UT	UT	ET	HydroTest	End Condition	
BSM-2835	Heat	NPS 24 TRUE 40 0.688in. WT	17	DRL	171.2	<5	<20	Pass	Pass	Pass	ASTM E213	ASTM E309	1200PSI/ 5s	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(IW)/Max	CE(CSA)
			BSM-2835	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed	Heat	0.18	1.12	0.015	0.002	0.27	0.03	0.02	0.00	0.01	0.063	0.003	0.001	0.0002
		Product	0.17	1.12	0.013	0.007	0.32	0.04	0.02	0.01	0.01	0.059	0.001	0.001	0.0002	0.38	-	0.38

Heat	Test Type	Microstructure	Hardness	Mechanical Properties						
				Flattening Test	Tension Test 2 in. GL	Yield (Rt0.5) psi	Tensile (Rm) psi	V/T (Rt0.5/Rm)	Elongation (A) %	
										Pass
BSM-2835	Heat	Ferrite & Pearlite	80 HRBW	Pass	Longitudinal; 1.5 in. x WT	52 500	74 000	0.71	45	

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Results (J)		Shear (%)	Lateral Expansion (mm)	
					Impact Energy Min. (J)	Impact Energy Results (J)			
BSM-2835	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(3 Tests) AVG	(3 Tests) AVG	(30/30/30) 30	(3 Tests) AVG	(1.05/0.78/1.28) 1.04

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2015, 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:

Tonya Lam July 18/2016
 Tonya Lam, P. Tech (Eng.)
 Assistant QA Manager