



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3095 Product Size: NPS 24 XS
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003269
 Production Date: Apr 04, 2017

Product Standards: ASME B36.10M-2015, ASTM/ASME A333-2016/SA333-2015 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 XS 0.500 INCH WT SMLS 2017/04 NDE 1580PSI
 HEAT BSM-3095 (PIPE # LENGTH MASS) 125.61lb/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

Heat	Test Type	Product Size	Pieces	Length	Mass lb/ft	Geliger µR/hr	Res. Mag. Gauss	Visual Insp.	OD	Non-Destructive Testing									
										UT (WT)	UT	ET	HydroTest	End Condition					
BSM-3095	Heat	NPS 24 XS 0.500in. WT	5	DRL	125.61	<5	<10	Pass	ASTM E114	ASTM E213	ASTM E309	1580PSI/	5 s	Pass	35° Bevel				

Chemical Analysis (wt%)

Heat	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
BSM-3095	Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed	0.18	1.28	0.017	0.008	0.34	0.09	0.01	0.01	0.04	0.040	0.003	0.002	0.0006	0.42	-	0.43
		0.17	1.27	0.016	0.006	0.34	0.10	0.01	0.00	0.04	0.041	0.004	0.001	0.0005	0.41	-	0.41
		0.17	1.29	0.017	0.006	0.35	0.11	0.01	0.00	0.04	0.040	0.004	0.001	0.0005	0.42	-	0.42

Mechanical Properties

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. GL	1.5 in. x WT				
BSM-3095	Heat	Ferrite & Pearlite	83 HRBW	Pass	Longitudinal; 1.5 in. x WT	Longitudinal; 1.5 in. x WT	57 500	79 500	0.72	48
				Pass	Longitudinal; 1.5 in. x WT		57 500	78 500	0.73	47

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
					(3 Tests) AVG	(14/14/14) 18			
BSM-3095	ASTM A333	Pass	CVN Long 10 x 10 mm	-45	(3 Tests) AVG	(14/14/14) 18	(130/160/162) 151	(40/60/60) 53	(3 Tests) AVG (1.62/2.01/1.98) 1.87

Additional Details:

✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing in accordance with ASTM/ASME A333-2016/SA333-2015, 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 2014/68/EU.

✓ 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 APR 11 2017

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