




Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-2951 Production Date: Nov 15, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003045
 Product Standards: ASME B36.10M-2015, API SL-45th Ed. GradeB PSL1, ASTM/ASME 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:  <API & L/C No. > API SPEC 5L NPS 24 TRUE 40 0.688 INCHWT GRB PSL1 SMLS 2016/11 NDE 1220PSI
 HEAT BSM-2951 (PIPE # LENGTH MASS) 171.2lb/ft ASTM/ASME 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	Geliger	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-2951	Heat	NPS 24 TRUE 40 0.688in. WT	4	DRL	171.2	<5	<10	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1220PSI/ 5 s	30° Bevel

Heat	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)
BSM-2951	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TRCO China)	Heat	0.17	1.13	0.012	0.002	0.31	0.05	0.01	0.01	0.01	0.01	0.01	0.056	0.002	0.001	0.0004	0.38
		Product	0.17	1.13	0.012	0.004	0.34	0.05	0.01	0.01	0.01	0.01	0.058	0.001	0.001	0.0003	0.38	-
			0.18	1.14	0.011	0.004	0.34	0.04	0.01	0.01	0.01	0.058	0.001	0.001	0.0003	0.39	-	0.40

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-2951	Heat	Ferrite & Pearlite	81 HRBW	Pass	Longitudinal; 1.5 in. x WT	50 500	76 000	0.66	49

Heat	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2951	-	-	-	-	(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 API SL-45th Ed., 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.

- ✓ 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 Nov 18/2016

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