



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-2883 Product Size: NPS 20 XS Production Date: Sep 15, 2016
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 002960
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade X42 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 20 XS 0.500 INCHWT GR X42 PSL1 SMLS 2016/09 NDE 1890PSI
 HEAT BSM-2883 (PIPE # LENGTH MASS) 104.1lb/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	Gelger μR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-2883	Heat	NPS 20 XS 0.500in. WT	4	DRL	104.1	<5	<20	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1890PSI/ 5s	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-2883	Blast Furnace; EAF; ladle Refining; Vacuum Degass; Fully Killed (at TPCCO China)	Heat	Heat	0.17	1.20	0.010	0.002	0.26	0.01	0.01	0.01	0.02	0.050	0.001	0.001	0.0001	0.39	-	0.38
			Product	0.15	1.15	0.009	0.003	0.27	0.03	0.01	0.02	0.02	0.052	0.002	0.001	0.0003	0.36	-	0.35
				0.16	1.17	0.010	0.003	0.27	0.03	0.01	0.02	0.02	0.053	0.002	0.001	0.0003	0.38	-	0.37

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) %
BSM-2883	Heat	Ferrite & Pearlite	84 HRBW	Pass	2 in. GL Longitudinal; 1.5 in. x WT	57 500	77 500	0.74	46

Heat	Test	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-2883	-	-	-	-	-	-	(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 5L-45th Ed., X42 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:

Tilam sept 120/2016

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