



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3122 Production Date: Apr 27, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003327
 Product Standards: ASME B36.10M-2015, API 5L-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



<API & L/C No.> API SPEC 5L NPS 16 STD 0.375 INCHWT GRB PSL1 SMLS 2017/04 NDE 1150PSI
 HEAT BSM-3122 (PIPE # LENGTH MASS) 62.67lb/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	Res. Mag. Gauss	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition
BSM-3122	Heat	NPS 16 STD 0.375in. WT	1	DRL	62.67	<5	<10	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	1150PSI/ 5s	35° 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-3122	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at TPCCO China)	Heat	0.22	0.57	0.019	0.004	0.24	0.04	0.01	0.01	0.01	0.002	0.001	0.001	0.0003	0.33	-	0.34
		Product	0.22	0.56	0.018	0.005	0.25	0.03	0.01	0.00	0.01	0.002	0.002	0.001	0.0002	0.32	-	0.33

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-3122	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal; 1.5 in. x WT 2 in. GL	psi 43 000	psi 71 500	(Rt0.5/Rm) 0.60	% 37

Heat	Test	Standard	Result	Impact Test	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3122	-	-	-	Sample Details	-	(3 Tests) AVG	(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., 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 May 10/2/2017
 Tonva Lam, P. Tech (Eng.)
 Assistant QA Manager