



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3022 Production Date: Jan 23, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003119
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. GradeB/X42 PSL1, ASTM/ASME A106-2014/SA106-2015 Grade B/C NDE, AS3-2012/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 18 TRUE 80 0.938 INCHWT GRB/X42 PSL1 SMLS 2017/01 NDE 2970PSI
 HEAT BSM-3022 (PIPE # LENGTH MASS) 171.08lb/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.	Visual Insp.	OD	UT (WT)	UT	ET	HydroTest	End Condition	
BSM-3022	Heat	NPS 18 TRUE 80 0.938in. WT	6	DRL	171.08	<5	<10	Pass	Pass	Pass	ASTM E114	ASTM E213	ASTM E309	2970PSI/ 5s	Plain End

Heat	BSM-3022	Steelmaking Method Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at TPCCO China)	Chemical Analysis (wt%)																	
			Test Type		C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B	CE(IIW)	CE(IIW)Max	CE(CSA)
			Heat	Product	0.16	1.16	0.014	0.001	0.29	0.03	0.01	0.01	0.01	0.01	0.047	-	-	-	0.37	-
			0.15	1.17	0.011	0.003	0.28	0.03	0.01	0.00	0.01	0.050	0.002	0.001	0.0003	0.36	-	-	0.35	
			0.16	1.19	0.012	0.003	0.27	0.04	0.01	0.00	0.01	0.050	0.002	0.001	0.0003	0.38	-	-	0.37	

Mechanical Properties										
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)	
BSM-3022	Heat	Ferrite & Pearlite	77 HRBW	Pass	2 in. GL Longitudinal; 0.5 in. Round Bar	psi 49 400	psi 73 000		0.68	36

Heat	Test	Standard	Result	Impact Test	Temp °C	Impact Energy Min. (J)	Impact Energy Results (J)	Shear (%)	Lateral Expansion (mm)
BSM-3022	-	-	-	Sample Details	-	-	(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 GRX42 ASTM/ASME A106-2014/SA106-2015, AS3-2012/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:

Jan 24 / 2017

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