



Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-3202 Production Date: Jul 20, 2017
 Production Method: Hot Expansion Product Heat Treatment: Normalizing Forming Certificate No.: MTR- 003420
 Product Standards: ASME B36.10M-2015, API 5L-45th Ed. Grade 8N/X42N/X46N/X52N PSL2, ASTM/ASME A106-2014/SA106-2015 Grade B NDE, A53-2012/SA53-2015 Grade B Type S, NACE MR0175/ISO 15156-2:2015 MR0103/ISO 17495:2015
 Product Markings: <API & L/C No.> API SPEC 5L NPS 16 SCH 100 1.031 INCHWT GR 8N/X42N/X46N/X52N PSL2 SMLS 2017/07 NDE 2970PSI
 HEAT BSM-3202 (PIPE # LENGTH MASS) 164.99lb/ft ASTM/ASME A/SA106 GR B A/SA53 GR B NACE MR0175/MR0103 MADE IN CANADA




Product: Details				Non-Destructive Testing										
Heat	Test Type	Product Size	Pieces	Length	Mass	Gelger	Res. Mag.	Visual	OD	UT (WT)	UT	ET	HydroTest	End
BSM-3202	Heat	NPS 16 SCH 100 1.031in. WT	1	DRL	164.99 lb/ft	<5 µR/hr	<10 Gauss	Insp. Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

Heat	BSM-3202	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)
		Blast Furnace; EAF; Ladle Refining; Vacuum Degas; Fully Killed (at HYST Valin China)	Heat	0.13	1.46	0.012	0.002	0.32	0.06	0.07	0.01	0.02	0.003	0.026	0.039	0.0001	0.39	-	0.36
			Product	0.15	1.40	0.013	0.005	0.33	0.06	0.06	0.02	0.02	0.005	0.025	0.044	0.0005	0.41	-	0.43
				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test	Yield (Rt0.5)	Tensile (Rm)	Y/T	Elongation (A)
BSM-3202	Heat	Ferrite & Pearlite	94 HRBW	Pass	2 in. GL Longitudinal; 0.5 in. Round Bar	psi 79 000	psi 90 500	(Rt0.5/Rm) 0.87	% 34

Heat	BSM-3202	Test Standard	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)		Impact Energy Results (J)		Shear (%)	Lateral Expansion (mm)
						(3 Tests) AVG	(20/20/20) 27	(3 Tests) AVG	(177/158/162) 166		
		API 5L PSL2	Pass	CVN Trans 8STR 10X10mm	0					(80/50/50) 60	(1.78/1.59/1.98) 1.78

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., N 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 9001:2015 (APIQR-1584), API Q1, and PED 2014/68/EU.
 ✓ This pipe product meets the **SOUR SERVICE** requirements of ANSI/NACE MR0175/ISO 15156-2A:2015 (Annex A2 for Region 3 Sour Service), and ANSI/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, P. Tech (Eng.)
 Assistant QA Manager
 July 27/2017