




Mill Test Certificate

Bri-Steel Manufacturing
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Product: Seamless Carbon Steel Pipe Product Heat Number: BSM-1789 Product Size: NPS 20 SCH 160 Production Date: Apr 24, 2014
Production Method: Hot Expansion Product Heat Treatment: As Rolled Certificate No.: MTR- 002843
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
Product Markings:  <API & L/C No.> API SPEC 5L NPS 20 SCH 160 1.969 INCHWT GRB PSL1 SMLS 2014/04 NDE 2800PSI
HEAT BSM-1789 (PIPE # LENGTH MASS) 379lb/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 µR/hr	Res. Mag. Gauss	Visual Insp.	OD	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2800 PSI/ 5 s	End Condition
BSM-1789	Heat	NPS 20 SCH 160 1.969in. WT	1	DRL	379	<5	<10	Pass	Pass	Pass	N12.5 Pass	-	Pass	Plain End

Steelmaking Method		Chemical Analysis (wt%)												
Heat	Test Type	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb
			Heat	0.22	0.95	0.012	0.007	0.32	0.04	0.05	0.01	0.02	0.004	0.004
			Product	0.21	0.92	0.014	0.005	0.31	0.05	0.07	0.01	0.03	0.003	0.002
BSM-1789	Blast Furnace; EAF; Ladle Refining; Vacuum Degass; Fully Killed (at HYST Vallin China)			-	-	-	-	-	-	-	-	-	-	-

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-1789	Heat	Ferrite & Pearlite	74 HRBW	Pass	Longitudinal; 0.75 in. x WT	43 500	70 500	0.62	34

Heat	Test	Result	Impact Test Sample Details	Temp °C	Impact Energy Min. (J)	Impact Energy (J)	Shear (%)	Lateral Expansion (mm)
BSM-1789	Standard	-	-	-	(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 97/23/EC.
- ✓ 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:


2016 June 2

Kenton Dechant, P.Eng.
Manager of Quality and R&D