



Mill Test Certificate

Bri-Steel Manufacturing Inc.
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-1790 Product Size: 20S160
Production Method: Hot Expansion Product Heat Treatment: As-rolled Certificate No.: MTR-001052
Production Date: Apr 24, 2014

Product Standards: ASME B36.10-2004, API 5L-45th Ed. Grade B PSL1, ASTM/ASME A/SA106-2013 Grade B NDE, A/SA53-2012 Grade B Type S, NACE MR0175-2009 MR0103-2010

Product Markings



<API & L/C No.> API SPEC 5L NPS 20 SCH 160 1.969 INCHWT GR B PSL1 SMLS 2014/04 NDE 2800PSI
HEAT BSM-1790 (PIPE # LENGTH MASS) 379lb/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 lb/ft	Geiger $\mu R/hr$	Res. Mag. Gauss	Visual Insp.	OD*	UT WT	UT ASTM E213	ET ASTM E309	HydroTest 2800PSI/ 5s	End Condition
BSM-1790	Heat	NPS 20 SCH 160 1.969 in. WT	1	DRL	379	<5	<10	Pass	Pass	Pass	Pass	Pass	Pass	Plain End

Chemical Analysis (wt%)															
Heat	Steelmaking Method	Test Type	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	Ti	Nb	B
BSM-1790	EAF, Ladle Refining, Vacuum Degassing, Fully Killed	Heat	0.22	0.95	0.012	0.007	0.32	0.04	0.05	0.01	0.02	0.004	0.004	0.001	0.0004
		Product	0.22	0.92	0.010	0.005	0.31	0.04	0.07	0.01	0.03	0.003	0.001	0.001	0.0002

Mechanical Properties									
Heat	Test Type	Microstructure	Hardness	Flattening Test	Tension Test 50mm GL	Yield (Rt0.5) psi	Tensile (Rm) psi	Y/T (Rt0.5/Rm)	Elongation (A) %
BSM-1790	Heat	Ferrite & Pearlite	76 HRBW	Pass	Longitudinal: 19.05 mm x WT	44,000	67,500	0.65	53

Heat	Test Standard	Impact Test Sample Details	Temp °C	Impact Energy J			% Shear			Lateral Expansion mm			AVG
BSM-1790	-	-	-	J	J	J	AVG	%	%	AVG	mm	mm	mm

Additional Details:

- ✓ We hereby certify that this pipe product was manufactured, sampled, tested and inspected by Bri-Steel Manufacturing Inc. in accordance with API 5L-45th Ed., ASTM/ASME A/SA106-2013 Grade B A/SA53-2012, and the purchase order requirements, and that the results meet the corresponding requirements.
- ✓ This pipe product meets the sour service requirements of NACE MR0175/ISO 15156-2:2009 Annex A2 for Region 3 Sour Service-2009 NACE MR0103-2010 Section 2.1
- ✓ 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.
- OD Tolerances as per API

Mill Test Certificate approved by:

Paul Snowden
2014 MAY 6

Paul Snowden, T.T.
Assistant QA Manager