



JINDAL SAW LTD.

WORK / MILL TEST CERTIFICATE

D / Q / Y / 24 R 00

T.C.NO: JEL / Q / 4111091364 / D
 P.O.NO: P13949
 S.O.NO: 4111001364
 INV.NO: 9111009954

DATE: 12.12.2014
 DATE: 14.11.2014
 DATE: 15.11.2014
 DATE: 12.12.2014

CUSTOMER : AMERICAN PIPING PRODUCTS, INC.
 PRODUCT : HOT FINISHED & NORMALIZED CARBON STEEL SEAMLESS PIPES
 PIPE SPECIFICATION : ASTM A 333 GR. 6 EDN. 2014 / ASME SA 333 GR. 6 EDN. 2013 SEC II / ASTM A 53 GR. B / ASME SA 53 GR. B / ASTM A 106 GR. B / C EDN. 2014 / ASME SA 106 GR. B / C EDN. 2013 SEC II / NACE MR 0175 / NACE MR 0103 / ISO 15156

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PIPE DIMENSIONS		LENGTH (FEET)	END CONDITIONS	STRAIGHTNESS	HEAT NO.	QUANTITY	
4.500" OD	0.237" WT					NOS.	FEET
4'	SCH 40	21.00	Bevelled Ends	Satisfactory	2403419	87	1827.058
					2403417	74	1554.051
TOTAL						161	3381.109

CHEMICAL COMPOSITION :

Heat No.	Analysis	% C	% Mn*	% Si	% S	% P	% Cr	% Ni	% Cu	% Mo	% V	% Nb	% Ti	% CE
		Reqd. Max.	0.29 - 1.06	0.10 Min.	0.010 Max.	0.020 Max.	0.30 Max.	0.20 Max.	0.20 Max.	0.15 Max.	0.06 Max.	0.04 Max.	0.04 Max.	0.43 Max.
2403419	Heat	0.20	1.10	0.29	0.006	0.019	0.007	0.008	0.008	0.005	0.0030	0.0040	0.002	0.383
	Product	0.19	1.09	0.28	0.006	0.018	0.005	0.007	0.006	0.004	0.0029	0.0038	0.002	0.372
	Product	0.20	1.08	0.27	0.005	0.017	0.006	0.008	0.007	0.005	0.0028	0.0039	0.003	0.380
2403417	Heat	0.20	1.10	0.31	0.007	0.015	0.007	0.006	0.007	0.007	0.0020	0.0040	0.008	0.383
	Product	0.13	1.11	0.29	0.005	0.013	0.006	0.005	0.007	0.005	0.0018	0.0039	0.007	0.365
	Product	0.19	1.10	0.30	0.006	0.014	0.007	0.006	0.006	0.005	0.0019	0.0040	0.008	0.373

* Mn. is acceptable upto 1.35 % as per Clause specified in ASTM / ASME Specification.

MECHANICAL TESTS :

Heat No.		TENSILE TEST			OTHER TESTS			
		Y.S.	U.T.S.	% E G.L. = 50.80 mm	HARDNESS TEST	FLATTENING TEST	HYDROSTATIC TEST (100%)	Impact Test
	Reqd.	40000 PSI Min.	70000 PSI Min.	27.50% Min.	200 BHN Max.	As Per Spec.	3000 PSI for 5 Seconds Minimum	L - 5 - 9 J at (-48°C)
2403419	Obtained	53138.99	79969.54	32.28	152 - 154	Satisfactory	Satisfactory	40, 32, 36 - Avg. 36.00 J
2403417	Obtained	50598.07	78156.67	33.20	148 - 150			36, 40, 40 = Avg. 38.67 J

Remarks :

- Steel Making Process : EAF-LRP-VD-CCM, Fully Killed.
- Visual Inspection : Satisfactory
- Heat Treatment : Normalized at 880°C.
- Product is free from Mercury.
- No Repairs Made By Welding.
- NDT Test : Satisfactory.

T.C. AS PER EN10204 - 3.1

We hereby certify that the material herein described has been manufactured, sampled, tested & inspected in accordance with above standard and specification & satisfy the requirements.

Authorized Signatory

Check For Original Water Mark