



Pipe 4 S160
SA-333 or 6
M006938B



VERIFIED TO:
ASME SEC. II PART A
20 ED, 9
Sep 14, 2020

JINDAL SAW LTD.

WORKS / MILL TEST CERTIFICATE

F / QLT / 23 R 00

I.C.NO: JSAW / Q / XP2202001119 / C (R1) DATE: 26.12.2022
P.O.NO: 45002283 DATE: 24.08.2022
S.O.NO: 4111005275-100 DATE: 29.08.2022
INV.NO: XP2202001119 DATE: 01.12.2022

CUSTOMER

: VAN LEEUWEN PIPE AND TUBE (CANADA) INC.

PRODUCT

: HOT FINISHED QUENCHED & TEMPERED CARBON STEEL SEAMLESS PIPES

PIPE SPECIFICATION

: API 5L GR. 13600 / X52Q PSL 2 / ASTM A106 GR B - 19a / ASME SA 106 GR B / ASME SA 333 GR 6 (ASME SEC II PART A EDN: 2021) / ASTM A 333 GR. 6-18 /
NACE MR 0175 / NACE MR 0103 / ISO 15156 & CSA Z245 1-2018 CAT II SS M450 GRADE 337
DIN EN 10217-2 DATED 22/NOV/07
HARDCEN
CIF EDMONTON SEAMLESS CARBON STEEL PIPES ACCORDING TO ANSI B36.10

DC No.

: IC Insulating Bank's Name

Description of Goods

PIPE DIMENSIONS		LENGTH (FEET)	END CONDITIONS	STRAIGHTNESS	HEAT NO.	QUANTITY	
OD	WT					NOS.	FEET
4.500"	0.531"	38	Beveled Ends	Satisfactory	M006938B	25	949.965
4 NPS	SCH 140				TOTAL	25	949.965

CHEMICAL COMPOSITION:

Heat No.	Analysis	% C	% Mn	% Si	% S	% P	% Cr	% Ni	% Cu	% Mo	% V	% Nb	% Ti	% B	% Al	% Cu+Ni+C +Mn+V	% Nb+V+Ti	% Mn/C	% CE *
	Reqd.	0.18 Max.	0.29 - 1.35	0.10 - 0.50	0.010 Max.	0.025 Max.	0.30 Max.	0.40 Max.	0.40 Max.	0.15 Max.	0.08 Max.	0.02 Max.	0.04 Max.	0.001 Max.	.		0.15 Max.	.	0.40 Max.
	Heat	0.18	1.13	0.29	0.008	0.010	0.02	0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.032	0.04	0.01	6
M006938B	Product	0.17	1.12	0.29	0.009	0.012	0.02	0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.031	0.04	0.01	7
	Product	0.18	1.13	0.30	0.008	0.011	0.02	0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.032	0.04	0.01	6

MECHANICAL TESTS:

Heat No.	TENSILE TEST			OTHER TESTS				
	Y. S. (0.5% EUI)	U.T.S.	% E G.L. = 50.00 mm	HARDNESS TEST	YS / UTS Ratio	HYDROSTATIC TEST (100%)	FLATTENING TEST	
	Longitudinal Tensile specimen width 24.4 mm							
	Reqd.	310 - 530 MPa	410 - 425 MPa	30.00% Min.	200 HBW Max.	0.93 Max.	20.7 Mpa (3000 PSI) for 10 seconds Minimum	As Per Spec.
M006938B	Obtained Mpa	449	578	38	164 - 165	0.78		
	Obtained Psi	65122	83631				Satisfactory	Satisfactory
	Obtained Mpa	428	552	36	158 - 160	0.78		
	Obtained Psi	62075	80060					

Impact Test (Joule)		% SHEAR AREA ** (85% Min)	
Sample Orientation: Transverse			
Test Type: Charpy V Notch (As Per ASTM E 23)			
Size: L x W x T: 55 x 10 x 10 mm 10-27J at (-45°C)			
Sample 1	Sample 2	Sample 3	Avg
144	142	140	142
			88
			87
			89

Remarks:

- Marking on Pipes: JSAW API SPEC 5L/ASTM A106 GR B/ASME SA 106 GR B/ASME SA 333 GR 6/ASTM A 333 GR 6/NACE MR 0175/NACE MR 0103/ISO 15156 & CSA Z245 1-18 12 2022 4500" (11430 MM) OD x 0.531" (13.49 MM) WT (4 NPS SCH 140) 13600/520Q PSL 2 GR 333 CAT II M450 (LT 45) NACE MR 0175 NACE MR 0103 36 FEET (11.582 M) LENGTH 3000 PSI (20.7 MPa) TESTED HEAT NO. M006938B HFS NDE 22.51 (with 33.55 virginity) PIPE NO. P.O.NO. 45002283 VAN LEEUWEN PIPE AND TUBE COUNTRY OF ORIGIN: INDIA EAF (FF) VDCM July 2022
- Steel Making Process: Satisfactory
- Visual Inspection: Satisfactory
- Heat Treatment: Austenitizing Temperature: 890°C Soaking Time: 35 Minutes Quenching Media: Water Quench Tempering Temperature: 640°C Soaking Time: 55 Minutes
- NDE Test: UT as per ASTM E 213 with notch depth 10% of WT (with) found Satisfactory
- Steel Supplier & Location: JSW Special Product Limited Raigarh India
- Pipe Manufacturer & Location: Jindal Saw Limited, Sindhur, 422113 Dist. Vadina Maharashtra India
- * Charpy V Notch (10 x 10 x 55) x 0.115 x 100 x 100 x 100 x 100 x 100
- ** % Shear area is calculated as per ASTM A 370-21 Table A9.1 measuring the length and width of the entire portion of the fracture surface

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
VIVEK GAIKWAD (Asst. Manager - Quality)

Check For Original Water Mark

Corporate Office: Jindal Centre, 12 Bhikaji Cama Place, New Delhi - 110066, India
28, Shivaji Marg, Najafgarh Road, New Delhi - 110015, India • Phone: +91 (11) 66463827, 66463544

THAI BENKAN CO., LTD.

BENKAN

58 Moo 13 Soi Suksawat 70, Bangkru Phrapadaeng, Samutprakarn 10130, THAILAND
 Telephone : 66 (0) 2463 0074, 66 (0) 463 6235-7

MATERIAL INSPECTION CERTIFICATE

THAI BENKAN CO., LTD.

58 Moo 13 Soi Suktasat 70, Bangkru Phrapadaeng, Samutprakarn 10130. THAILAND

BENKAN

Telephone : 66 (0) 2463 0074. 66 (0) 463 6235-7

Purchaser Name: TRANS-AM PIPING PRODUCTS LTD.

TB-045

Customer PO No. : CI-22-425

Benkan No. :

D/M/Y 17/04/2023 Certificate No. : T202311180448 Rev. No. : 0

[illegible]

44 Return Bead 100D S160 SR
SA-420 WPL-6
65K01M041

VERIFIED TO:
ASME SEC. II PART A
2014 ED, *g*
Nov 21, 2015

4" SCH 160 LR 180 BW RETURN
BEND A420-WPL6

HEAT NUMBER : 07P01015
TRANS AM PIPING PRODUCTS - REV'D BY: 5 8 - 1033 42
Shipment/Seq #:

Purchaser : IRANSAM PIPING PRODUCTS LTD.

INSPECTION CERTIFICATE

TO EN10204 3.1



Thai Benkan Co., Ltd.
58 Soi Watkrumai, Bangkok, Prapadaeng,
Samutprakan, 10130 Thailand.

D M Y Certificate No.

05/02/2008 T- 2008080034

Purchase Order No. Job No.

CI-07-465 (MILL TEST REPORTS)

E-No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspection													
MB-121	ASTM A420-06 / ASME SA420-04 WPL6 NACE MR0175-2003	ASME B16.9	Good	Good													
MFG. No. (Heat Identification No.)	Product & Size	(T:*)	Quantity														
07P01015	180 EL WPL6 4 S160		211/300														
Material Manufacturer	Material Heat No.																
	385731																
Specification	Chemical Composition %																
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	E	Hardness Max 197 HB : GOOD
	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 1000	X 100	MPa.	%	%	Impact Test (J)
Min.		15	50											240	415	30	10 X 10 X 2V AT -45 °C
Max.	30	40	135	35	40	40	40	30	12		80	20			655		340 AVE. 348
	15	18	102	12	1	4	6	11	1		0	0	35	327	483	45	345

NORMALIZING 910 C X 0.5 HR. AIR COOLING

THE RESULTS OF THE TESTS AND INSPECTIONS MEET THE REQUIREMENTS.

C.E. = C+Mn/64+(Cr+Mo+V)/5+(Ni+Cu)/15
We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown herein are correct.

* 1 : "T" symbolized wall thickness in mm. * 2 : Y S Yield strength TS = Tensile strength E = Elongation
Form TZ 6C/2

Quality Assurance Manager
Thai Benkan Co., Ltd.

VERIFIED TO:
ASME SEC. II PART A
20 UED, 9
Dep 07, 2008



Manufacturer of Piping and Pressure Vessel Components
4404 Haygood St - Houston, TX 77022
Phone: 713-695-3633 Fax: 713-695-3528
A Bonney Forge Company

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Sold To: VAN LEEUWEN PIPE & TUBS
2875 - 64TH AVENUE
EDMONTON AB T6P1R1
Canada

MTR #: 361,740

PO #: 45002021

Sales Order #: C001906638

Date: 06/18/2019

Certified Material Test Report

Heat Code: 50567 ✓

This product has not come in direct contact with mercury or any of its compounds, nor with any mercury-containing device employing a single boundary of containment. No welding performed.

We certify that the contents of this report are correct and accurate, and that all test results and operations performed by WFI or its subcontractors are in compliance with the material specification and requirements of the referenced code or standard, and that the material conforms to the dimensional requirements of the order. This document is in accordance with BN10204 3.1.

Material: A350 LF2 CL1

Item	Quantity	Description
2	80	36 - 3 X 1 3M SWP SA350LF2 CL1

11	50	TAG ITEM # 37225 36 - 1 1/2 X 6M THP ✓ SA350LF2 CL1 ✓
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TAG ITEM # 37209

Chemical Composition

Ladle	C	Co	Cr	Cu	Mn	Mo	Nb	NI
	0.1600	0.000	0.14	0.25	1.020	0.018	0.004	0.070
	P	S	SI	V				
	0.007	0.0170	0.210	0.026				

Carbon Equivalency: Ladle 0.39

Product	C	CR	CU	MN	MO	NB	NI	P
	0.0000	0.00	0.00	0.000	0.000	0.000	0.000	0.000
	S	SI	V					
	0.0000	0.000	0.000					

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	73,773	49,634	36.95	63.66	147 BHN

Charpy V-Notch Properties: Test Temperature: -50 F 150 BHN

FT LBS: 32/24/37

% Shear: NB/NB/NB

MLE: NB/NB/NB

MILL/COUNTRY OF ORIGIN: NUCOR (USA) - HEAT#DL18104956/ BONNEY
FORGE (USA) - LOT#50567

PARTS ARE NORMALIZED AT 1650°F FOR A MINIMUM OF 1 HOUR OR FOR 1/2 HOUR PER 1" OF THICKNESS, WHICH IS GREATER, & THEN AIR COOLED. THIS PROCESS IS IN CONFORMANCE TO ASTM A105/A350 NORMALIZING REQUIREMENTS.

1. IN ACCORDANCE WITH ANSI/NACE MR0175/ISO 15156-2015 & ISO 17945/MR0103-2015
IAW MSS SP97 3/4" on 1 1/2" to 36" 6M T.O.L. SA-350 LF2 CL1

HT# 50567

Marie Delmer
Quality Assurance Representative

VERIFIED TO:
ASME SEC. II PART A
20 ED, 9
Nov 23, 2019

VERIFIED TO:
ASME SEC. II PART A
20 ED, SDC
25/09/2019
1937K-165
80054619
