Vendor:

ALCO

Doc #:

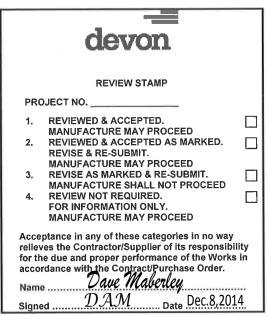
2013-8440-50

Vendor Rev #:

-

Description:

QUALITY CONTROL DATA BOOK



 See attached Document Review Comment sheet for comments/missing QA/QC Records, as noted in the SDDR, and resubmit.
 Vendor to also address Worley Parsons

Vendor to also address Worley Parsons
 Discrepancy List items, and resubmit



THIS STAMP GOVERNS THE FINAL CODING OF THE MANUFACTURERS DATA BOOK

DATE		JOB NO.	PURCHASE ORDER N					
11/18/2014	4	07014-00120	ME-POD-0023			20 ME-POD-0023		
VTRI-2165		DEVO	ON MR. NO.					
	FE-CPF-M023							
EQUIP. NO.		WORLEYPAR	SONS VP NO.	REV.				
001-PK-10-1000 407014-0		407014-0012	0-ME-POD-	1				
		0023-0122						

WorleyParsons Historica & energy						
	REVIEW STAMP					
PRO	DJECT NO					
1⊚ 2.∈	REVIEWED & ACCEPTED. MANUFACTURE MAY PROCEED REVIEWED & ACCEPTED AS					
3.	MARKED. REVISE & RE-SUBMIT. MANUFACTURE MAY PROCEED REVISE AS MARKED & RE-					
4.	SUBMIT. MANUFACTURE SHALL NOT PROCEED REVIEW NOT REQUIRED. FOR INFORMATION ONLY. MANUFACTURE MAY PROCEED					
reliev the d	ptance in any of these categories in no res the Contractor/Supplier of its respor ue and proper performance of the Work rdance with the Contract/Purchase Ord	sibility for				
Name	e MHO Date 2 6	Nov 14				

NOTE: SIGN OFF OF WORLEYPARSONS APPROVAL STAMP IS ONLY APPLICABLE TO THE ENGINEERING PORTION OF THE MANUFACTURERS DATA BOOK. QA/QC PORTION TO BE REVIEWED AND APPROVED BY DEVON

Document Review Comments

ALCO GAS & OIL PRODUCTION - M023 407014-00120-ME-POD-0023-0122_S1

QA Review Notes, errors, and/or missing MRB documents, as per the SDDR for Tag 001-PK-10-1000:

GENERAL COMMENTS

- The MRB is to be one pdf document, with bookmarks noting the sections of the MRB as per the approved Table of Contents layout.
- Where are all the drawings, and specifically the vessel/piping drawings?
- Within the Purchase Order Package SCM-F-1120 document, 4.0 Final Documentation, para.4.1, a Table
 of Contents is to be submitted for review/approval. This has not been received. The ToC should be the
 first document within the MRB, listing all subsections of the data package. Then the MRB is assembled in
 that order.

THIS SECTION WILL BE USED TO IDENTIFY ONLY QA/QC MISSING DOCUMENTS, AS PER THE P.O. SDDR

B. QA/QC RECORDS

- B12 Weld Maps missing
- B13 Certified Welding Procedures missing
- B23 Factory Acceptance Test Procedure missing
- B25 Certified Mechanical Run Test Data missing
- B26 Vertical Pump Head Resonance Test missing
- B27 Procedures for Mechanical, Performance & Optional Test missing
- B30 Weld Procedure Qualification Records (welder qualification tickets) missing
- B34 Contractor Certifications (ASME, CWB, CSA, etc.) missing
- B35 Jurisdictional Permits missing
- B40 Insulation & Jacketing Inspection and Acceptance Report (if applicable) missing
- B41 Performance Test Report missing
- B46 Welder Log and Statistics missing
- B50 Pre-Lift Inspection Report missing
- B51 Equipment Bolt Torque Checklist missing
- B54 PSV Shop Pop Test Records missing

Γitle.	CNRL, Ferrier Central Processing Facility	Date:	11/
Project No.	407014-00120	Rev.	0
evon Project No.	MR-0023		
/IR Title:	COB CHD package 001-PK-10-1000		
VP MR No.	407014-00120-ME-POD-0023		
Data book Doc No.	Quality Control databook (0023-0122)		

em	Description	Reference	Remarks
	The U1 form is missing some pages. The design conditions for the heating coil is missing. The final signature of the Code inspector is missing. Please resubmit with the complete U1 form.	Page 145	
	Vessel mechanical design calculation (including lifting lug calculation) per SDR C1 and C28 are missing. Please provide.		
3	Piping flexibility and stress analysis per SDR C2 needs to be added.	Alco no.: D-2013-8440-51 (0023-0101)	The piping in 8440-50 is identical to 8440-51

QUALITY CONTROL DATA BOOK

CNRL Ferrier Project
Suite 2000, 400 – 3rd Ave. S.W.
Calgary, AB
T2P 4H2

2013-8440-50

Ferrier CFP Project LSD: 11-02-039- W5M

T)	α	Th. T.	0:
1 10	1 H 1		1



SHOP ORDER NO.	DESCRIPTION		l CLIE	NT PO:	
8440-50	COB Closed Hydrocart	bon Drain Package/ 001-PK-10-1000	41000	001343	
PROJEC	CT	MANUFAC	TURING CODI	ES	
Ferrier CPF P	Project	ASME SEC VIII DIV	V 1, 2010 ED. 20	11a ADD.	
11-02-039-08	W5M				
INSPECTION A	GENCY		ASME B16.5		
		С	SA W59		
		C	SA 47.1		
	APPLICAI	BLE SPECIFICATIONS			
Customer Spec. No.:		Description		Date / Rev	
GS-5210	Piping Class Spec	ification - A11		1	
GS-5300	Valve and Valve (1	
GS-5310	Valve Technical D	Descriptions		0	
GS-6100	Painting			2	
GS-6200	Internal Coating for	or Vessels		0	
GS-6300	Thermal Insulation			0	
00-GE-CRT-0001	Electricall and Au	tomation Packaged Equipmen	nt Criteria	3	
00-AR-SPC-0001		Cladding and Steel Doors		A	
00-IC-PHL-0001		nd Control Philosophy		С	
00-IC-PHL-0004	Motor Control Phi	ilosophy		В	
		. · ·			
/. Prep. By	Appr. By	Initial	Rev. D	escription	
RE	RE				

DOG	B IO	
1 31 34	N/L	



SHOP ORDER NO.	DESC	RIPTION/TAG	CLIE	NT PO:						
8440-50		oon Drain Package/ 001-PK-10-1000	-	001343						
PROJ		y	TURING CODI							
	Ferrier CPF Project		oject ASME SEC VIII DIV 1, 2010 ED. 2011a					I		
11-02-039-				, , , , , , , , , , , , , , , , , , , ,						
INSPECTIO										
		C	SA 47.1							
	APPLICAI	BLE SPECIFICATIONS								
Customer Spec. No.:		Description		Date / Rev.						
GS-2410	Structural Steel			0						
GS-2510	Metal Buildings			0						
GS-2530		and Modular Structures		0						
GS-3310	Pressure Vessels			0						
GS-3510	Packaged Equipme	ent		0						
GS-3620	Glycol Tracing			0						
GS-3710	Welding Specifica	ntion		0						
GS-4010	Electrical Design			1						
GS-4020	Electrical Installat	Electrical Installation								
GS-4025	EIC Testing on Pr	e-Packaged Skids		2						
GS-4040	Low Voltage Cont			1						
GS-4050	Combustible Gas	H2S and Fire Detection		1						
GS-4140	Motors Below 400	Motors Below 400 HP								
GS-4410	Measurement Equ	ipment - Installation Criteria		12-Jul-11						
GS-4500	Instrument Design	and Installation		1						
GS-4600	Instrumentation In	stallation Index		23-Oct-09						
GS-4710	Process Automatic	on Systems		0						
GS-4720	HMI Graphics			0						
GS-4730	Process Automatic	on Systems Programming Star	ndard	0						
GS-4740	Process Automatic	on Systems Alarm		0						
GS-5100	Piping Design and	l Configuration		0						
GS-5200	Piping Material Fa	abrication Installation		0						
v. Prep. By	Appr. By	Initial	Rev. D	escription						
RE	RE									

		INSPECTIO	N AND TEST PLA	AN				
SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
	PI	RESSURE VE	SSELS WITH 'U' ST	AMP				0.
1	REVIEW WPS & PQR	ASME SEC. IX	ASME SEC. IX	WPS/PQR	Н	R	die	R
2	REVIEW WELDER QUALIFICATION	ASME SEC. IX	ASME SEC. IX	WQTR	R	R	D.	RL
	CHECK MTR's OF	ASME SEC. IX	ASME SEC. IX	WQTK	K	K		K h
3	PRESSURE PARTS INCLUDING CONSUMABLES	ASME SEC. IX	ASME SEC. IX	MTR	R	R	D	H
3	REVIEW OF QC MANUAL &	, LONIE ODO, IX	ASME SEC. VIII DIV.I				0	1
4	PROCEDURES		DRAWING CODE	QCM/QCP	R	R		R
	MATERIAL IDENTIFICATION STAMPING OF						D	4
5	PRESSURE PARTS	DRAWING/SPEC	ASME SEC.II	MCL/MR		R		Н
6	SET UP INSPECTION	DRAWING	DRAWING/CODE	TS		S	200	н
7	VISUAL INSPECTION INTERNAL, EXTERNAL & DIMENSIONAL	DRAWING	ASME V / ASME VIII DIV 1	TS		s	DP.	4/
8	RADIOGRAPHY TESTING OF WELDS	DRAWING/CODE	ASME SEC VIII DIV. I	RTR		R	20	Н
9	ULTRASONIC TESTING OF WELDS	DRAWING/CODE	ASME SEC VIII DIV. I	UTR		R	200	Н
10	INTERMEDIATE/ FINAL MPT/LPT	DRAWING/CODE	ASME SEC VIII DIV. I	MPIR/LPTR		R	- D	н
11	AIR TEST OF REINFORCING PADS (IF REQUIRED)	DRAWING/SPEC	DRAWING/SPEC	ATR		R/ W	DQ.	H 11/4
12	TUBES & TUBESHEET DIMENSIONAL CHECK	DRAWING	DRAWING	IR		S		N/P
	WELDERS IDENTIFICATION	DRAWING	DICENTING	RTR/VESSEL STAMPING		S	AD	H
14	HVDRO TEST	DRAWING	ASME VIII DIV 1	HR		W/ H	S)	H
15	ABSA REVIEWED AND STAMPED DRAWINGS	DRAWING	ASME SEC. VIII	CRN			100	4
16	FINAL COMPLETION NAME PLATE / MDR / PARTIAL MDR	DRAWING	ASME SEC VIII	MDR/NAMEPL ATE COPIES		S	4	Н

	INSPECTION AND TEST PLAN										
	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO			
	PAINTING INSPECTION SURFACE PREP, DFT CHECK	DRAWING SPEC	COATING SPEC	IR		S	Ð	24			
1.0	FINAL RELEASE NOTE FROM ALCO / 3rd PARTY INSPECTOR	DRAWING		RELEASE DOCUMENT	Н	Н	3D	78 H			

		INSPECTIO	ON AND TEST	PLAN				
	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
		STRU	CTURAL WORK					
19	REVIEW WPS & PQR			WPS/PQR	Н	R		H
20	REVIEW WELDER QUALIFICATION		CSA W59	CWB		R	20	AL
21	CHECK MATERIAL FOR CONFORMITY		CISC			R	Ø	H
	SET UP INSPECTION	DRAWING	DRAWING	TS		S	SD	R/L
23	VISUAL/NDT INSPECTION	DRAWING	DRA WING	TS		Н	DD.	H
24	PAINTING INSPECTION SURFACE PREP & COATING	DRAWING/SPEC	SPEC			S	D	M H
25	VISUAL INSPECTION AFTER WELDING						D	n

		INSPECTIO	ON AND TEST PL	AN				
	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
		PIPING & H	OOK-UP ASSEMBI	L Y				
26	REVIEW NDT (LOT REQUIREMENT FOR RT)		B31.3					K
27	HYDRO /PNEUMATIC TEST	DRAWING	B31.3	AB83	W/ H	w	30	ØS H
28	FINAL COMPLETION			AB83				88
29	PAINTING INSPECTION SURFACE PREP & COATING	DRAWING/SPEC	DRAWING/SPEC			S	D	XS H
30	INSULATION INSPECTION	SPEC	SPEC			s	ØD	Н
31	FUNCTIONAL/ CALIBIRATION OF LEVEL SWITCHES INSTRUMENTATION ITEMS	DRAWING/SPEC	DRAWING/SPEC					N/A
32	TEST REPORTS	SPEC	SPEC	VENDOR REPORT				N/A

		INSPECTIO	N AND TEST PLA	AN				
SL NO	ACTIVITY DESCRIPTION	REFERENCE DOCUMENT	ACCEPTANCE CRITERIA	DOCUMENT	CLIENT	3RD PARTY INSPECTOR	3RD PARTY SIGN OFF	ALCO
		SKID ASSEN	MBLY FINAL CHEC	K		A		
33	CHECK ALL COMPONENTS AS PER P&ID	DRAWING	DRAWING			Н		ВВ Н
34	EQUIPMENT SHOP ERECTION A) ALIGNMENT/ ORIENTATION OF EQUIPMENT B) WELDING/BOLTING OF EQUIPMENT	DRAWING DRAWING	DRAWING DRAWING	TS		S		78 H
35	CHECK CONNECTION PIPING AS PER P&ID	DRAWING	DRAWING			S		В8 Н
36	FINAL VISUAL & DIMENSIONS OF COMPLETE ASSEMBLY	DRAWING	DRAWING			Н		Des. H
37	SURFACE PREPARATION & PROTECTIVE COATING	SPEC	SPEC			S	20	н В
38	FINAL INSPECTION RELEASE NOTE	DRAWING	DRAWING	RELEASE NOTE	Н	Н	70	25 H
39	DATA BOOK REVIEW	PURCHASE ORDER	PURCHASE ORDER			R		20

	LEGEND			
H - HOLD	MTR - MATERIAL TEST REPORT			
W - WITNESS	QCM - QUALITY CONTROL MANUAL			
S - SURVEILANCE	QCP - QUALITY CONTROL PROCEDURE			
R - REVIEW DOCUMENTS	RTR - RADIOGRAPHIC TEST REPORT			
MR - MATERIAL REPORT	UTR - ULTRASONIC TEST REPORT			
TS - TRAVEL SHEET HR - HYDROSTATIC TEST REPORT				
ATR - AIR TEST REPORT ITR - IMPACT TEST REPORT				
IR - INSPECTION REPORT	MCL - MATERIAL CONTROL LIST			
WPQR - WELDER QUALIFICA	TION TEST RECORD			
MPTR - MAGNETIC PARTICLE	E TEST REPORT			
LPTR - LIQUID PENETRANT T	EST REPORT			
PWHTR - POSTWELD HEAT T	REATMENT RECORD			
DRAWING/SPEC - MEANS AP	PROVED DRAWING/SPEC			
SPEC - MEANS CUSTOMER SE	PECIFICATION AS PER ALCO EXCEPTIONS			
ABSA - ALBERTA BOILERS SA	AFETY ASSOCIATION			
ASME - AMERICAN SOCIETY	OF MECHANICAL ENGINEERS			





2836 Ellwood Dr., Edmonton, AB, Canada, T6X 0A9, Phone: (780) 450-8883 Fax: (780) 450-8884, projects@mtlinspection.com

INSPECTION RELEASE REPORT

MTL Jo	b No.	3048	-1		. =	Release No.	001						
Devon	PO#	410	0001	343 / F	E-CPF-M023	WBS No.	01-00348.01.01.03						
Project	t	Ferri	er – (Central	Processing Facility	Location / LSD	Ferrier – CPF LSD: 11-02-39-08 W5M						
Client I	Project	Engine	eer	Shan	n Chin – Engineer e Usipuik – QA Lead Dhaliwal - Expeditor	Phone	403-232-7 Shane.usir 403-776-6	n@dvn.com 497 buik@dvn.cor					
Vendo	-		-	Alco	Gas & Oil Production – Edmonton, AB	Vendor Job No.	8440-50						
Vendo	Prima	y Con	tact	Mic	hael Wagner – Calgary, AB	Phone	403-243-5055						
Equipn	nent	(1) CI	osed H	ydrocarbon Drain Package	Tag No.	001-PK-10-1000						
Carrier		Ti	rans	Tech		Trailer No.							
Packin	g Slip N	lo.				Waybill No.							
Rev#	Inspe	ction	Shi	ipping	Details		Date	Inspector	Vendor				
0		3			Final inspection to building package	je.	August 13, 2014	DD	× XS				
1]											
2													
3				<u> </u>					<u>.</u>				
			8		Description of Material of	or Equipment							
•	Closed	l Hydro	carb	on Drai	n Package c/w ship loose items.								
11109 50-100		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					Yes	No	N/A				
Shop R	elease			dor Qua Fif appli	lity Control shall ensure that all Non-Conform cable.	nance Reports are	X						
Shop R	elease	The the	Vend site w	dor Qua	ity Control shall ensure that all the documen completed equipment.	tation is forwarded to	X	1					
Shop R	elease	The	Clier	nt Repre t any loc	sentative shall witness equipment loading ar	nd tie down and will for transport.	X						
Shop R	elease	The	Vend	dor shall ce with	ensure all packaging, markings and shippin Devon specifications, purchase order, notes	g preparations are in and attachments.	Х						
					Deficiency Items if A	pplicable							
Atta	ched	N	//A	Comn	nents: See cuttached	4IL							
	Dan de	e Groot		1	Augus	t 13, 2014 780-218	-1298	djdegroot@te	lus.net				
	Insp	ector			Signature	Date Phor	ıg	E-Mail	X+11 K = 1 34				

Any omission or failure on part of the inspector to disapprove or reject any work or materials shall not be construed as acceptance of any defective work or materials.

DOCUMENT T45 (Rev 1)

Page 1 of 2



devon

2836 Ellwood Dr., Edmonton, AB, Canada, T6X 0A9, Phone: (780) 450-8883 Fax: (780) 450-8884, projects@mtlinspection.com

*David Glasgow	Lavid Blagers	* Aug 13/14	780-465-9061	dave glasgowe aleagasoil con
Vendor Quality Representative	Signature 0	Date	Phone	E-Mail

ADDITIONAL NOTES



2836 Eliwood Drive S.W. Edmonton, AB T6X 0A9 * Office: (780) 450-8883 Fax: (780) 450-8884 www.mtlinspection.com

		Page	l .	
Job #	3048-1	Date	JULY 23, 2014	
Client_	CNRL.			
Shop	AICO			
Shop Job	# 2043-	8440-	50	

ACTION ITEM REPORT	VENDOR	SIGN OFF
D. C	REPRESENTATIVE	DATE
1) Grease nipple missing from dout + arm assembly	nug	D Aug 13/4
2) Eaves trough down sports not secured of		
2) Paves trough down sports not secured at		
3) all ship loose I tems Including awnings to be secured		Deplysofa
to be secored		
4) lock Il so Porter - to		TXX 1 - Ported W
4D Install safety gate.		Dely 20/4
5) Bolting on ladder is to short-Replace		\$ July 50/14
· ·		00
6) Internal cladding left with open Screw hole that meed to be filled		1 //
Screw hales that mied to be filled		DD Aug 13/14
7) complete touch in pant		
Part tobe touched up on Platfor. Ang 13/4		
Domplet touch up paint (Pant to be touched up on Platforn. Aug 13/4/ 8) Close vents, Seal doors & windows for Shipping.		
Shipping.		
9) Sobject to electrical punch list completed.		
		D Aug 13/14
10) duct take on flonges. May be difficult to remove on site,		8
a)		
*)		
N. C.		
· · · · · · · · · · · · · · · · · · ·		
MTL REPRESENTATIVE:	DATE: July L	3/14
THE ALL ALL DESCRIPTION OF THE PARTY OF THE	DAIDUUI7 ~	

VENDOR REPRESENTATIVE: David Alungar DATE: July 23/14

Phase #:

2013-8440-50A

Phase Title:

COB Closed Hydrocarbon Drain Package TAG: 001-PK-10-1000

TABLE OF CONTENTS

	Title	Availa	bility
		Yes	No
1.	Data Reports	X	
2.	CRN's		N/A
3.	Nameplate Copy	X	
4.	Travel Sheet	X	
5.	Impact Test Reports		N/A
6.	Material Control	X	
7.	Material Reports		N/A
8.	MTR's	X	
9.	NDE MPT		N/A
	LPT		N/A
	RADIOGRAPHY	X	
	ULTRA SONIC		N/A
10.	Stress Relieve Charts		N/A
11.	Hydrotest Report(s)	X	
12.	Hydro Chart	X	
13.	PSV & Valve Cert.	X	

1 the pressure equipment safety authority

PI 3SURE PIPING CONSTRUCTIC AND TEST DATA REPORT

In accordance with the provisions of the PESR Section 31(1)

tne j	pressure equipment safety authority Final	Data Report ⊠;	Partial D	ata Report 🗌	(from one ABSA ABSA- authoriz			ctor to anot
		Complete	both sides	of this Form				
1.	Constructed By: Alco Gas & Oi	Production Equ	uipment	Ltd.	Owner	's	Job TAG:001-Pk	No: (-10-1000
	(Name of ABS) 5203 - 75 th Stre	A authorized primar et, Edmonton, A	y contracto Alberta T	r or subcontrac 6E 5S5	etor)		-	
(Certificate of Authorization Permi		(Address		Expiry Date:	Oct.	7 th , 2016	
2. (Constructed For:							
		(Name of primary	contractor if	different from a	bove)			
			(Address					
(Certificate of Authorization Permi	t No. AQP-N/A	,	,	Expiry Date:	N/A		
	(Required when the primary contractor undertakes			g., NDE, PWHT,	Tie-in, fabrication, hy	dro test,	, final assembly etc.)
,	O	7.1.0000	0.7.7. 0.11	d a				
), (Owner: Canadian Natural Resource			^d St. SW.	Calgary,	AB	T2P 4J8	
	LSD: 11-02-039-08 W5M	(Name and ad		Ferrier CFP	Project, AB			
		(Location of inst	allation)					
	Certificate of Authorization Permi				Expiry Date:	N/A		
((Required when the owner undertakes some/all	of the quality function	is, e.g., NDI	E, PWHT, Tie-in	, fabrication, hydro to	est, fina	I assembly etc.)	
.]	Piping Design Alberta Registration	n No.: PP-N/A						
		_		(Required if	aggregate piping vol	ume is	over 0.5m ³)	
. 1	Design Responsibility: Owner □;	Contractor ⊠						
j. 1	WP No.: WP-340.2 ; Company	: Alco Gas & O	il Prod. l	Equip. Ltd	Owner's WP N	lo. (If	f used): WP-N	J/A
,	(Alberta Registration No.)						(Alberta Regis	
,	WPS No(s). used: <u>CA-P1G1G2-A</u>	W-LT-R2	; Ov	ner's WPS	No(s). (If used)): <u>N/</u>	A	
. (Code: ASME B31.1 Non Boiler E	External Piping [: ASN	ИЕ В31.1 В	oiler External F	Piping	: П:	
	B31.5 □; B31.9 □; CSA Z	662 Steam Pipe	lines □;			-10	,,	
	ASME B31.3 ⊠ - Service	Category: Norm	al ⊠, D	□, M □, Hi	igh Pressure □;	Seve	re Cyclic Cor	ndition 🗆
	High Purity □							
	Drawing No.	Des.		Г				
		Danie						

Shop Construction ⊠; Field Construction □;

Drawing No. Rev. No. Line No.	Fluid (Air/Stm. Etc.)	Des. Press kPa	Des. Temp. ⁰ C (Max. & Min.)	Pressure Test kPa	Test Medium	Pipe Mat'l Spec, & Grade	C.A. mm	Pipe NPS & Schedule	Flange Material & Rating	PWHT/ Preheat Temp. ⁰ C	NDE
B-2013-8440-50S -001 Rev ₋ 0 Iso #1	H.C. liquids	1,579	-29/149	3,000	H ₂ O	SA-106-B	1.6	6" Std.	SA-105N CL 150	None / 10	10% R.T 100% V.T.
B-2013-8440-50S -002, -009 Rev. 0 Iso #2, Iso #9	Gas	1,579	-29/149	3,033	H20	SA-106-B	1.6	6" Std 2" XH	SA-105N CL 150	None / 10	10% R.T 100% V.T.
B-2013-8440-50S -003, -004, -005, -007 Rev. 0 -006 Rev. 1 Iso #3, Iso #4, Iso #5, Iso #6, Iso #7	Condensate	1,579	-29/149	3,000	H20	SA-106-B	1,6	4", 3" Std 2", 11/2" XH	SA-105N CL 150	None / 10	10% R.T 100% V.T.

				,						AB	-83 2011-0
		2					Γ				
B-2013-8440-50S -008 Rev. 1 Iso #8	Fuel Gas	1,579	-29/149	3,000	H ₂ 0	SA-106-B	1.6	2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -010, -011, -012 Rev. 0 Iso #10, Iso #11, Iso #12	Hot Oil	1,579	-29/149	2,965	H ₂ 0	SA-106-B	1.6	2", 11/2" XH	SA-105N CL 300	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -013 Rev. 0 Iso #13	Air	1,034	-45.6/38	3,000	H ₂ 0	SA-106-B	1.6	2" XH	SA-105N CL 150	None / 10	10% R.T / 100% V.T.
B-2013-8440-50S -014 Rev. 0 Iso #14	Gas / Condensate	1,579	-29/149	2,965	H ₂ 0	SA-106-B	1.6	2" XH	SA-105N CL 300	None / 10	10% R.T / 100% V.T.
D-2013-8440-50F -001 Rev. 1 D-2013-8440-50A -001, -002 Rev. 1 -003 Rev. 0 SW pipe lines from Iso #10 through bldg. htr. 001-UHG-10-1080 to Iso #12 and from Iso #12 through and past TCV-1010A to Iso #12 and by-pass line from Iso #10 to Iso #12	Hot Oil	1,579	-29/149	3,103	H20	SA-333 Gr. 6 SA-106-B	1.6	11/2", 1", ½" XH 1" Sch 160	N/A	None / 10	100% V.T.
Thr'd pipe lines from Iso #'s 13-1 & 13-2 throughout the skid package and tubing to PCV-1010A	Air	1,034	-45.6/ 38	1,138	Air / Nitrogen	SA-106-B SA-213 TP 316/316L	1.6 / 0	1" XH 3/8" 20 BWG	N/A	N/A	100% V.T.
Thr'd tubing to PG-1010	Gas	1,579	-29/149	3,103	H20	SA-213 TP 316/316L	0	½" 18 BWG	N/A	N/A	100% V.T.
Heat trace tubing on Iso #'s 1 & 8 o/s bldg.	Hot Oil	1,379	-29/149	3,103	H20	SA-213 TP 316/316L	0	½" 20BWG	N/A	N/A	100% V.T.
Function tested TCV-110 A and TYI-1010A				720 or as regulated	Air	SA-213 TP 316/316L	0	3/8" 20BWG	N/A	N/A	100% V.T.

No.	Line No.	Spool No.	Dwg. No. (with Rev. No.)	Sub-contractor (Name)	AQP No. (if from Alberta)	Expiry (if from Albert		
ydros ubcon	tatic test, PWHT	etc.). For final da	ta report provide infor	ode work that was not comp mation about the code work ractor (e.g., hydrostatic test	that was not con	ipleted by		
				•				
			Endorse certifica	te 'A' or 'B'				
		E OF COMPLIANCE intractor when supplying			TE OF COMPLIAN			
		Partial Data Repor		Signed by the primary contractor when supplying this certificate as a Final Data Report				
corre work	ect and that mat manship of the tered quality sy (s).	statements in this erials, constructi piping fabrication estem and the app	on and on conform to the	We certify that the st are correct and that put described in this Data accordance with the	atements in this riping job no. Tag: 001-Page Report was con	K-10-1000 nstructed in		
		Contrac	tor	Codes Act and Regu		icable		
This co		ntative's Name t valid unless it gned by Primary		ASME Piping Code(s). Date: May 22, 2014 Alco Gas & Oil Contractor David Glasgow Alugas Print Authorized Representative's Name Signature				
		CF	PATIFICATE (OF INSPECTION				
exami extent	necessary to be eering design, an	ployed by	ted, and inspected the nforms to all applicable best of my knowledge		s of the Code and	oort to the of the		

Date:

Date:

Date:

Owner's Inspector Name (please print)

ABSA Safety Codes Officer (please print)

(BOILER EXTERNAL PIPING ONLY)

Furthermore, neither the inspector nor his or her employer shall be liable in any manner for any personal injury or

property damage or a loss of any kind arising from or connected with this inspection.

Owner's Inspector Signature:

ABSA Safety Codes Officer's Signature

Current version of this Form may be obtained from www.absa.ca

Ceruried By
ALCO E GAS & OIL
PRODUCTION EQUIPMENT LTD.
*GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada
Max. Allowable Working Pressure
Max. Allowable External Working Pressure
*F atpsi
Minimum Design Metal Temperature
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Certified By
ALCO E GAS & OIL
PRODUCTION EQUIPMENT LTD.
Edmonton, Alberta, Canada
246 psi at 300 °F Max. Allowable Working Pressure
50 psi at 300 °F
Max. Allowable External Working Pressure
Minimum Design Metal Temperature
2013-8/140-015
BUREZEITER AUCH FURSIN BUREZE BUREZE BER BUREZE BUR
Serial Number
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Serial Number
Serial Number A No.

PIPI	NG TRAVEL SH	IEET	
SERIAL NUMBER: 2013 - 8	440-50	DATE: Novem	ner 22, 2013
Canadian Natural CUSTOMER: Resources Ltd.	COMMENTS:	DATE & NITIAL OF INSPECTOR FOR HOLD POINTS ARE IDEN	
CODE ITEM:		ALCO QC	CUSTOMER/AGENT
APPROVED DRAWINGS		85	
MATERIALS CHECKED AGAINST DRAWING BILL OF MATERIALS		72	
MILL TEST REPORTS CHECKED		83	
IMPACT TESTS		N/A	
UNIT LAYOUT		35	
WELD PROCEDURE APPPROVED		88	
WELDER'S QUALIFICATIONS VERIFIED		83	
FIT-UP		88	
INTERNALS / EXTERNALS		88	
WELD SIZE AND PROFILE		8%	
WELDER'S ID		da	
	P.W.H.T.		
POST WELD HEAT TREATMENT INSTRUCTIONS		N/A	
POST WELD HEAT TREATMENT REVIEWED		N/A	
	NDT INSPECTION	S	
RADIOGRAPHS		VB N/A	
BRINELL HARDNESS TESTING		N/A	
OTHER NDE		N/A	
2	COATING		
VISUAL PRIOR TO COATING		25	
VISUAL AFTER COATING		74	
STENCILING		N/A	
	TESTING		
HYDROSTATIC TESTING		D& May 13/14	
PHEUMATIC TESTING USING SHOP AIR AT 100 PSIG		N/A	
PNEUMATIC TESTING USING HIGH PRESSURE TEST PROCEDURE		DS May 7/14	
FUNCTION TEST		N/A N/A N/A N/A N/A N/A N/A N/A	
P & ID FROM FLOWSHEET VARIFIED		88 July 24/14	1

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Bill of Materials

Summary of Heat Numbers on Spools

Job #: 2013-8440-50/51

Customer: Canadian Natural Resources

Date: May 29, 2014

No.		Rating	Description	Schedule	Material	Heat Numbers
Flan						
1	2"	CL 300	RF WN Flange	XH	SA-105N	12/73631, 12/35079
2	2"	CL 300	RF Blind Flange		SA-105N	4603008
3	6"	CL 150	RF WN Flange	Std	SA-105N	13/37955, 13/38016
4	4"	CL 150	RF WN Flange	Std	SA-105N	12/34064, 13/38606
5	4"	CL 150	RF Blind Flange		SA-350 LF2 CL1	HUP
6	3"	CL 150	RF WN Flange	Std	SA-105N	TL10006133
7	3"	CL 150	RF Blind Flange		SA-350 LF2 CL1	13/76390
8	2"	CL 150	RF WN Flange	хн	SA-105N	722, 509, TL10006617
9	2"	CL 150	RF Blind Flange		SA-350 LF2 CL1	4703602
10	2"	CL 150	RF Blind Flange		SA-105N	1068F, 13144
11	11/2"	CL 150	RF WN Flange	хн	SA-105N	13/75868
	d Rings		r. v. v. v. i.a.i.g.	7.11	071 10011	10/1000
12	3"	CL 150	RF Bleed Rings x 11/2" THK.		SA-516-70N	VDG
	2"	CL 150	RF Bleed Rings x 11/2" THK.		SA-516-70N	TLH
-	ctacle Blind		IN BICCO MINGS X 1172 TTIN.		JOA-5 10-7 014	I C I
	6"	CL 150	RF Spectacle Blind x 1/2" THK.		SA-516-70N	KQD, JYZ, JHT
15	4"	CL 150	RF Spectacle Blind x 3/8" THK.		SA-516-70N	UYB
	2"					
	2"	CL 300	RF Spectacle Blind x 3/8" THK		SA-516-70N	TUQ, NZY
17		CL 150	RF Spectacle Blind x 1/4" THK		SA-516-70N	UYA, RQB
Fitti		1	I //		T	
18	6"		90° LR EII BW	Std	SA-234-WPB	162V
19	4"		90° LR EII BW	Std	SA-234-WPB	11N00007
20	3"		90° LR EII BW	Std	SA-234-WPB	55E00018, 13A00060, 2J2770, 84059, 07P00006,
20	3"		90° LR EII BW	Std	SA-234-WPB	55A00123, 12F00005, 86035, CB798
21	2"		90° LR EII BW	XH	SA-234-WPB	56C00214, 13B00018, 12-211407
22	11/2"		90° LR EII BW	XH	SA-234-WPB	924B, 185A
23	6"x4"		Conc. Red. BW	Std	SA-234-WPB	12F20023
24	4"x3"		Conc. Red. BW	Std	SA-234-WPB	12N20011
25	4"x3"		Red. Tee BW	Std	SA-234-WPB	3A756V
26	4"x2"		Red. Tee BW	Std x XH	SA-234-WPB	CE663
27	3"x2"		Red. Tee BW	Std x XH	SA-234-WPB	B833
28	2"		Tee BW	хн	SA-234-WPB	12P10831, 2C0592, 55E10010, 55K10008
29	2"x11/2"		Red. Tee BW	хн	SA-234-WPB	7687
30	2"x1"		Conc. Swage BW	XH	SA-234-WPB	K2624, 123M
31	2"x1/2"		Conc. Swage BW	XH	SA-234-WPB	UCW, K444
	ts & Couplin	nas	Cono. Orrago 277	/ / /	0/12017718	
32	11/2"	190	WOL	ХН	SA-105N	59059
33	3/4"	CL 3000	TOL	XII	SA-105N	58880
34	1/2"		TOL		SA-105N	58962, 58627
35	1"		3" LG Cplg SW			H3270
$\overline{}$		ICL 3000	3 LG Chig SVV		SA-105N	N3270
Pipi		r	Din a Contia	Ctd	CA 106 B	1205200 (DA120) 52260 (DA001)
	6"		Pipe Sml's	Std	SA-106-B	1325292 (PA120), 53360 (PA061)
	4"		Pipe Sml's	Std	SA-106-B	1323589 (PA038)
	3"		Pipe Sml's	Std	SA-106-B	208978 (PA092)
	2"		Pipe Sml's	XH	SA-106-B	1323281 (P954)
40	11/2"		Pipe Sml's	XH	SA-106-B	1325649 (PA155), 614348 (P929)
41	1"		Pipe Sml's	160	SA-106-B	357384 (PA052)
42	1"		Pipe Sml's	XH	SA-106-B	Y56554 (PA124)
43	1/2"		Pipe Sml's	XH	SA-106-B	574021 (P953)
Tubi	ing				07	
44	1/2"		Tubing Sml's	20 BWG	SA-213 TP 316/316L	YX1302-681
	3/8"		Tubing Sml's	20 BWG	SA-213 TP 316/316L	YX1102-529
	10,0		. abilig onli o		C Z	

METALFAR PRODOTTI INDUSTRIALI S.P.A. STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INDISSIDAZIILI

SEDE AMMINISTRATIVA E STABLEMENTO: 23861 CESANA BRIANZA (LC) - Italy Via G. Parini, 28 Tel. +39 031.655441 Fax +39 031.655149 quality.nff@farmes.com

CERTIFIED BY DNV COMPANY WITH QUALITY SYSTEM = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 1242 Del/Del DDT / Del Nobe N. 931 Del/Del	DeliDated 29.02.2013 Fatturn / Involce N. 756 DeliDated 25.02.2013 Na.Ord./ Our ref. N.	Fetture /	Involce N. 7. Dur ref. N.		DeliDated 25.02.2013
TRANS AM PIPING PRODUCTS LTD		Dest.: TRA	NS AM PIPIN	est.: TRANS AM PIPING PRODUCTS LTD	
9335 ENDEAVOR DRIVE S.E. T3S QA1 CALGARY, ALBERTA	క	8335 - End T3S OA1	8335 - Endeavor Drive S.E. T3S OA1 Calgary, ALBERTA	ERTA	3
				Pag	4 - 9

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COD. COL. COLATA POS.	VS.ORDINE	Q.TA'	DESCRIZIONE						DBM.IN ACC. A	VISINO E DIMENS.	DIMENS.
HEAT CODE HEAT TIEM	YOUR REFERENCE	ŢT.0	DESCRIPTION						MM. ACCORDANCE TO	VIS. & DIMENS.	IENS.
12/73631 056	CI-12-430	456,00	W/N 300 RF 2" XS	S A105N	ı			AS	ASME/ANSI B16.6 -2009	2009 SATISFACTORY	CTORY
MATERIALE / MATERIAL	C% Si%	Mn% 5%	P% C2%	Ni% Mo%	TI% Cu%	% ^%	NP%	N%	AI% C.E.%		
ASTM A106 (LADLE)	0,190 0,250	0,940 0,008	0,014 0,120	0,050 0,020	0,018 0,170	70 0,003	0,002	000'0	0,030 0,390	Q	
PROVETTA / TEST SPECIMEN FORMA	SMERVAMENTO ROTTURA		ALLINGAMENTO CONTRAZIONE	DUMEZZA	,	RESILEIZA/	RESILEIZA / NEPACT TEIT - JOULES	- JOULES			1
LENGHT MAN	North 2 >=0.2% North 2 >=		See Aven	HEM	YT/OGT	TPO / TYPE SOCION	-	84	1 West		OUR REF.
126,60 50,80 1	325,0 526,0	31,0	0'89	159,0 - 163,0		Ş	20 87	28	28	0.0	
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO	RIAL IN ACC. TO		TRATT	RATTAMENTO TERMICO / HEAT TREATMENT	EAT TREATM	ENT			FORNO / FURNACE	E ORIGINE / ORIGIN OF STEEL	F STEEL
ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED.	11 ASME CODE SECT. II,	PART A, ED. 20	2010 ADD. NORM	NORMALIZED AT 820 C - COOLED IN STILL AIR	COOLED IN	STILL AIR			ELECTRIC FURNACE	NACE EUROPEAN UNION	¥
2011a								,			
CSA Z246.12 GRADE 248 CAT.I SOUR SERVICE	I SOUR SERVICE										

COD. COL. COLATA HEAT CODE HEAT 12/36/169	POS.	VS.ORDINE YOUR REFERENCE CI-12-583	NCE		0.00 V. T. 00,00 V. T. 00,00	DESCRIZIONE DESCRIPTION W/N 150 RF 1	DESCRIZIONE DESCRIPTION N/N 150 RF 12" STD	A105N	N9					868	DIMLIN ACC. A DIM. ACCORDA ASMIE/ANSI I	DIM. IN ACC. A DIM. ACCORDANCE TO ASMIE/ANSI B16.5 - 2009	VISNO E DIMENS. VIS. & DIMENS. SATISFACTORY
MATERIALE / MATERIAL ASTM A106 (LADLE)	٦.	C% 0;185	Si% 0,210	Mn% 0,950	800'0 %S	P% 0,009	C7% N 0,110 0,	Ni% A 090'0	Mo% 0,010 0	0,015 0	Cu% 0,170	0,002	Nb% 0,002	%N 0,000	AI% 0,026	C.E.% 0,383	
RECVETTA / TEST SPECIALIN SEZ. INV. LUNG. IIIIN BESTI. INV. LENGHT IIIIN 126,60 50,80	FORMA SHAPE 1=0 2=0	ANEXVAMENTO TO VIETO POINT TO VIETO POINT NAMED 242%	ROTTURA TEMBLE STRENGHT N/mm2 >= 516,0	ALLA F	CAMENTO RECALDON R. 0,0	ALLIMAANIENTO CONTRAZIONE ELONGATION REDUCTION OF AREA %>= %>= 30,0 \$5,0		DUREZZA HANDNERS HENY 156,0 - 159,0	0,00	YIPO/	RESULTABLE SECTION NO. 170-11.	JEGA/INS	Reference 1 2 Note that V 20 84 82	JOULEVen	, 60 u	OVERVAMENTO VIETO POINT Manne >=1,5% 0,0	NALVAT. OUR NEF.
MATERIALE IN ACCORDO A / WATERIAL IN ACC. TO ASTINIASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD.	DO A / MAT	ERIAL IN ACC. TO - 11 ASME CODE	SECT. II, P.	ART A,	ED. 2010	ADD.	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR	ITO TER	MICO / HE	AT TREAT	MENT N STILL	AIR .			FORM	FORNO / FURNACE ELECTRIC FURNACE	ORIGINE / ORIGIN OF STEEL
2011a		-															
CSA 2245.12 GRADE 248 CAT.I SOUR SERVICE	= 248 CAT	I SOUR SERVICE															

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8440-50 40 - 13 404H 19-

MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0178/2009 ISO 15166/2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDA

MARCHIO PRODUZIONE MANUFACTURER'S SYNBOL ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT S. Erigyco

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SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

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Heat | He

BOHE VIDEN By:

PRODOTTI INDUSTRIALI S.P.A. METALFAR

23861 CESANA BRIANZA (LC) - Italy SEDE AMMINISTRATIVA E STABILIMENTO: Via G. Parini, 28

CERTIFIED BY DNV QUALITY SYSTEM COMPANY WITH = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Del/Dated 17,04,2013 5 DeWDated Dest.: TRANS AM PIPING PRODUCTS LTD T3S OA1 Calgary, ALBERTA Del/Dated 22.04.2013 Fattura / Invoice N. 1556 Del/Dated 17.04.2013 Ns.Ord./ Our ref. N. 9335 - Endeavor Drive S.E. క TRANS AM PIPING PRODUCTS LTD T3S 0A1 CALGARY, ALBERTA 9335 ENDEAVOR DRIVE S.E. Certif. N. 2340 DDT / Del Note N. 1799

> quality.mff@farmas.com Tol +39 031,655441 Fax +39 031,655149

VISIVO E DIMENS. SATISFACTORY ORIGINE / ORIGIN OF STEEL Pag. 2 - 11 VIS. & DIMENS. **EUROPEAN UNION** SMERVAMENTO
YELD POINT
Norm2 >=1,8%
0,0 **ELECTRIC FURNACE** DIM.IN ACC. A
DRA. ACCORDANCE TO
ASME/ANSI B16.5 -2009 FORNO / FURNACE 0,390 C.E% N% AP% 0,009 0,027 **.** 22 RESILEMEN / IMPACT TEST - JOULEDONS 283 - 83 0,002 898 ۶ ² N/% Mo% T/% Cu% V% 0,060 0,010 0,016 0,160 0,003 NORMALIZED AT 920 C - COOLED IN STILL AIR TIPO / TVPE 10x16mm \$ TRATTAMENTO TERMICO / HEAT TREATMENT 166,0 - 159,0 DUREZZA A105N **BLIND 150 RF 8"** 060'0 800'0 င်း CONTRAZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 61,0 % ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010 8% **0,008** 24,00 0,960 Mn% SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT ROTTURA TENSUE STRENGHT 516,0 0,240 Si% VS.ORDINE YOUR REFERENCE 0,195 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO స్టి CI-12-294 329,0 TAMPAGGIO A CALDO DI ACCIAI CONUNI - LEGATI E INOSSIDABILI POS PROVETTA / TEST SPECIMEN FORMA
SEZ. mm2 LUNG. mm 6HAPE
SECT. mm2 LENGHT mm 1=O 2=C] 083 13/35699 MATERIALE / MATERIAL ASTIM A105 (LADLE) COD. COL. COLATA
HEAT CODE HEAT 50,80 ADD, 2011a 126,60

VISIVO E DIMENS. SATISFACTORY ORIGINE / ORIGIN OF STEEL VIS. & DIMENS. **EUROPEAN UNION ELECTRIC FURNACE** DIM.IN ACC. A
DIM. ACCORDANCE TO
ASMEJANSI B16.5 -2009 FORNO / FURNACE 0,028 0,378 C.E.% * 83 A% RESILENZA / IMPACT TENT - JOULE/ort 0,010 ž 87 0,003 %qN , 02 0,002 NORMALIZED AT 920 C - COOLED IN STILL AIR TIPO / TYPE 10x10mm KV Cu% 0,120 TRATTAMENTO TERMICO / HEAT TREATMENT 0,017 % | |-Ni% Mo% 0,050 0,010 A105N 156,0 - 159,0 DUREZZA W/N 300 RF 2" XS 0,090 % C CONTRAZIONE REDUCTION OF AREA %>= DESCRIZIONE DESCRIPTION 0,008 Ь% ASTMIASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010 0,970 0,010 455,00 O.TA' % 31,0 Mn% ROTTURA TENBLE STRENOHT Namz >= 0,210 SI% VS.ORDINE YOUR REFERENCE 0,185 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO స్ట SNERVAMENTO YIELD POINT Nimm2 >=0,2% CI-12-430 350,0 POS. PROVETTA / TEST SPECIALEN FORMA SPZ. marz LUNG.mm SHAPE SECT. marz LENGHT mm 1= 0 2= 1 126,60 50,80 1 12/35079 MATERIALE / MATERIAL ASTM A106 (LADLE) COD. COL. COLATA HEAT CODE HEAT ADD, 2011a

のいった万 1 3 NOV 28 2013 COPACO, NOTI HOD 2-0440-510 750 COMPORTS TO BY SIGNED BY 10B # TEM#

100% MANUFACTURED IN ITALY
MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0176/2009 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE NOTE

S. Erigycia

MFF

MANUFACTURER'S SYMBOL

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT

4 0 P M FLANGE 4 H

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CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE

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CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE

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MILL TEST CERTIFICATE

Customer, IRANS AM PIPING PRODUCTS LTD. EN10204-3.1.B(DIN50049/3.1.B) Order No.: 7006501(6)-T/A

Date: 06/21/2013 Certificate No.: SE-8801E

Page: 10F2

0.402 0.394 CE(73) 0.417 0.394 0.400 0.417 0.407 CONFORMS WITH NACE MR0103-12 AND NACE MR0175/35016156.2-08 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A.
CONFORMS WITH 2245.12 CAT I GR248 SOUR
SERVICE-08(FOR USE AS WELDING NECK AND
BLIND FLANGES ONLY)
MN TO C RATIO IS GREATER THAN 3.0" DIMENSIONAL SPECIFICATIONS 0.010 0.005 0.007 0.010 0.006 0.008 0.007 0.008 0.007 Manager of Quality Assurance Dept ¥ ASME B16.5-09 CSA 2245.12 HEAT TREATMENT("2). 0.020 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.00 SPAREL POREING OF A SSIERING 189 0.080 0.003 0.00 0.004 0.004 0.00 0.004 0.001 0.010 0.002 0.004 0.010 0.010 0000 COMPOSITION (%) REMARKS 0.020 0.015 0.002 0.020 0.120 0.00 0.020 0.002 0.003 Z 物女 0.010 090.0 0.010 0.400 0.010 0.010 0.030 0.050 0.120 0.030 0.300 0.150 0.120 0.010 0.020 0.010 0.020 0.080 0.080 0.020 0.100 Material Supplier WEI CHIIH STEEL 0,400 9000 0.100 0.140 0.080 0.007 0.007 0.108 0.007 0.007 0.110 CHEMICAL GOIDED! 2011 ADD GODO STEEL **EVRAZ ZSMIK** ACOMINAS KOTOBUKI 2-011 KOTOBUKI **ACOMINAS** ACOMINAS ACOMINAS ACOMINAS 105N 0.040 0.003 9000 0.006 0.005 0.00 0.002 0.006 0.006 0.014 0.010 0.035 0.020 0.016 0.012 0.017 0.016 0.010 0.016 0.023 0.017 0,021 MATERIAL SPECIFICATIONS CONFORMS TO SA 2100 ASTM A105-11a/ASME SA105-11a <u>\$</u> 1.070 1.140 1.040 0.800 1.050 1.150 1.120 1.160 1.140 1.160 Joule mpact Test 0:200 0.210 0.230 2 S 0.210 0.240 0.180 0.230 0.200 0.220 0.200 Temp: Vinimum. 0.350 N=Normalized, A=Annsaled, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furance Cooled, W.C=Weter Cooled, O.C=Oil Cooled. 0.200 0.200 0.200 0.200 0.210 0.350 0.220 0.200 0.190 0.220 Ş We hereby cartify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order. 70 PCE 8 PCE 5 PCE 60 PCE 11 PCE 30 PCE 1 PCE 400 PCE 5 PCE QUANTITY RA(T) 30.0 T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area 4.6 68.6 70.4 71.3 72.1 88.6 27 155/153 Hardness (HB) 164/152 152/150 153/151 154/151 155/153 153/150 154/151 34.6 32.8 38.0 38.0 33.4 36.4 35.2 C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15 SAN ENG STEEL FORGING CO LTD 311, Jen Hsin Road, Jen Wu District Karbaiung, Tawan, R.O.C. TEL-23724249; FAX:07-3712823 URL: www.sanneng.com.l.w e-mail: saneng@lcds.seed.net.tw DESCRIPTION FORGED STAINLESS STEEL FLANGES Y.S.(*1) (MPA) 250.0 374.0 364.0 372.0 360.0 358.0 383.4 372.0 372.0 370.0 339.0 900 WNRF S120 6" A105N 900 WNRF STD 6" A105N 300 BLRF 2" A105N 4300 BLRF 18" A105N 150 WNRF XS 16" A105N 600 WNRF XS 12" A105N 150 WNRF STD 2" A105N 600 WNRF XS 4" A105N 900 WNRF XS 4" A105N 150 BLRF 24" A105N T.S.("1) (MPA) 485.0 520.0 531.0 524.0 516.0 524.0 541.0 524.0 PRODUCT 535.0 543.3 M M Heat No. CODE NO 4603008 r101628 4677192 4677184 4677192 Y202035 4553922 652897 94409 24639 400 8 8 9 P S 01 00 4 50 50 70 50 No S ŗ ķi

> 8008 3008 9009 913 -1 G 4 7 F 9

8 0 e 1 : P I p S e q # I 9 0 9

Alco Gas Heat Numb Trans Am Trans Am

2 8 2013

SIGNED BYANNON

Po-134044

#100

05-0448-80

102N BLIND FLANGE 0

standaggio a galitio de acciai chaalini - legare (nocespandili METALFAR PRODOTENINGUSTRIKEI S.P.A.

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

ZOBET CESANA BRIANZAGLOP- 1959. VILIG. PINGR. 28 SEDE ANNINISTRATIVA & DIMBLINES/TO: Tel. #Ge litaksisista Fincatio isat. #issate civility. introferrate educa

CERTIFIED BY DNV COMPANY WITH QUALITY SYSTEM = 130 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 4808	Del/Deted 09.09,2013		Fatture / Invoice N.	DeliDated
TRANS AM PIPING PRODUCTS LTD	TS LTD			
9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA		5		
				Pag. 9 - 12

COD. COL. COLATA POR HEAT CODE HEAT TO 13/37955	POS, VS.O	VS.ORDINE YOUR REFERENCE	ENCE		Q.TA' Q.TY 153,00	Q.TA' DESCRIZIONE Q.TY DESCRIPTION 33,00 W/N 150 RF 6" STD A105N	ONE TON RF 6" STI	D A105N	Y					10 10 W	DIM.IN ACC. A DIM. ACCORD/ ASME/ANSI	DIM.IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2009	VISIVO E DIMENS. VIS. & DIMENS. SATISFACTORY
MATERIALE / MATERIAL ASTM A105 (LADLE)		0,180	Si% 0,220	Mn% 0,960	200'0	P% 0,007	080,0	090'0 0'000	NI% Mo% TP% 0,060 0,017	TP% 0,017	Cu% V% 0,003	V% ND% 0,003 0,001	ND% 0,001		N% AY% C.E.% 0,009 0,028 0,372	C.E.% 0,372	
PROVETTA / TEST SPECIMEN FORMS SEZ sem2 LUNG, mm SHAPE SECT, mm2 LENGHT smn 1= 0.2=[] 126,60 50,80 1	v, 2	SMERTVAMENTO YIELD POMIT NUTRAZ >=6236 330,0	ROTTUNA TENSKE STRENOHT Nmm2 >= 508,0		MCAMENTO SHEATTON 32,0	ALLUNGAMENTO CONTRAZIONE BLOWGATTON REDUCTION OF AREA 32.0 60,0	ME	HARD HE 154,0	DUMEZZA HARDNESS HBW 154,0 - 158,0	Ě	RESELENZA / I	RESERVENZA / IMPACT TEST - JOULE/emc. bittom: c 1 2 V 20 86 96	c 1 20 86	· JOULE COM	3 82	SAISTVAMENTO YELLO POINT Norm? >=1,5% 0,0	Na. Rf. Our ref.
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTMIASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART	/ MATERIAL IN	N ACC. TO	DE SECT.	II, PART	A, ED. 2010	10	TRATTAN	MENTO TE	RMICO/F	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR	TIMENT IN STILL	LAIR			FORNC	FORNO / FURNACE ELECTRIC FURNACE	ORIGINE / ORIGIN OF STEEL EUROPEAN UNION
ADD. 20118 CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE	CAT.I SOUF	R SERVI	띩														

COD, COL. COLATA HEAT CODE HEAT 12/73631	A POS.	S. VS.ORDINE M YOUR REFERENCE	RENCE	2	Q.TA' G.TA' Z00,000 V	Q.TA' DESCRIZIONE Q.TY DESCRIPTION 00,00 W/N 300 RF 1" XS A105N	NE ION RF 1" XS	A105N						5 6 8	DIM.IN ACC. A DIM. ACCORDA ASME/ANSI B	DIMJIN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2009	VISIVO E DIMENS. VIS. & DIMENS SATISFACTORY
MATERIALE / MATERIAL ASTM A105 (LADLE)	ia. E)	C% 0,190	Si% 0,250	Mn% S% 0,940 0,008	8% 0,008	P% Cr% 0,014 0,120	۲۲% 0,120	NI% Mo% 0,050 0,020	Mo% 0,020	71% 0,018	Cu% 0,170	%% 0,003	Nb% 0,002	%N 0,000	AI% C.E.% 0,030 0,390	C.E % 0,390	
PROVETTA / YEST SPECIMEN FORMA SEZ maz LING mm SHAPE SECT. mmz LENGHT mm 1:0 2-[] 126.60 50.80 1	SHAPE 1=0 2=0	SNERVAMENTO NIELD PONT NAME = -0,2% 3.25,0	ROTTURA TENSILE STRENGHT Nimn2 >= 526,0	•	ALLUNGAMENTO BLONGATION RI	ELLINGAMENTO CONTRAZIONE BLONDATION REDUCTION OF AREA %>= 31,0 58,0	NE AREA	159,0	DUNEZZA HARDNESS HÓW 159,0 - 163,0	£	RESILIENZA MPACT TEST - JOULE/Gend TRPO TYPE tits Tempo TYPE tits Tempo TYPE Tempo TYPE TEMpo TYPE TEMpo TYPE TY	RESILENZA / MPACT TEST . JOULE/card Artifornia C 1 2 84 80	1 1 8/0 8/0	at . Journier	38	SNERVAMENTO YIELD POINT NAME >=1,0% 0,0	Ne.RU. OUR REF.
	3/SA 105 DE 248 C	MATERIAL IN ACC. T M - 11a ASME CC AT.I SOUR SERVI	O DDE SECT. II, ICE	PART A	, ED. 20	9	TRATTAN NORMA	AENTO TE L ízed a ì	RMICO / H	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR	ATMENT O IN STIL	L AIR			FORNC	FORNO / FURNACE ELECTRIC FURNACE	ORIGINE / ORIGIN OF STEEL EUROPEAN UNION

9-8440-50 1013-84MD-50 9010ED, 2011 ADD NOV 28 2013 V. CONFORMS TO SA \$(0) F. St. 30B # YEAR

MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE NOTE

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY UFFICIO CONTROL LO QUALITA' QUALITY CONTROL DEPARTEMENT J. E. Brightin 3.

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MANUFACTURER'S SYMBOL

MARCHIO PRODUZIONE

BOBE PIDEN 3 D N A J 3. OIS 3 8

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PRODOTTEMBLISTRIAL B.P.A.

CORD CERVICE BRANCA TLCS - 1982 NOT THE WASTERNATURE TO SERVICE STREET Vala Philip Fax 200 [CVL855] 40

CERTIFIED BY DNV QUALITY SYSTEM COMPANY WITH = 130 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

DelDated 02.10.2013 Fattura / Involce N. 3622 DelDated 30.09.2013 DelDated 30.09.2013 Ns.Ord. / Our ref. N. 0 DelDated 8 Deet: TRANS AM PIPING PRODUCTS LTD 9335 - Endeavor Drive S.E. T3S OA1 Calgary, ALBERTA ర TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA Certif. N. 5306 DDT / Del Note N. 4120

SATISFACTORY VISIVO E DIMENS. ORIGINE / ORIGIN OF STEEL Pag. 3 - 12 VIS. & DIMENS. MAJOR REF. **EUROPEAN UNION ELECTRIC FURNACE** 0.0 **ASME/ANSI B16.5 -2009** FORNO / FURNACE DIM. ACCORDANCE TO CE.% 0400 DIM.IN ACC. A 0,025 <u>,</u> 2 Z X RESELBICA / MPACT TEST - JOULE/ON2 0.009 88 X Z 86 0.001 % 2 p 82 D,004 NORMALIZED AT 820 C - COOLED IN STILL AIR ξ TIPO / TYPE 10x10mm \$ 0,140 TRATTAMENTO TERMICO / HEAT TREATMENT Š 0,020 ž A105N & 0,060 0,010 154,0 - 156,0 No. DUMEZZA HARIDMESS HARY X Z W/N 150 RF 6" STD 0,010 0,130 CONTRAZIONE REDUCTION OF ANEA %>= Š DESCRIPTION ž ASTMIASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010 ALLUNGAMENTO ELONGATION 124,00 1,010 0,005 Q.T 2% Mn% SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT TENELS STRENGHT
NAME >== 512,0 0,230 S. 18 YOUR REFERENCE **J**0,190 CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO Š SIGERVANENTO YIELD POINT NAME 2 24,2% STRUMENTON RECEIVED ACRINI CONTRACT - LEGISTE, PROSSOVIEM VS.ORDINE CI-12-430 338,0 Ē PROVETTA / TEXT BPECIAEN FORMA SEZ mind LUNG.mm 144APE MEGT.mm2 LENGHT mm 1=0 2-11 007 13/38016 MATERIALE / MATERIAL ASTM A105 (LADLE) COD. COL. COLATA HEAT CODE HEAT 50,80 ADD. 2011a 126,60

COD. COL. COLATA HEAT CODE HEAT 13/37955	POS.	VS.ORDINE YOUR REFERENCE CI-12-430	NCE		Q.TA' Q.TY 107,00	DESCRIZIONE DESCRIPTION W/N 150 RF 0	DESCRIZIONE DESCRIPTION W/N 150 RF 0" STD	D A105N	NSO					55₹	DIM.IN ACC. A DIM. ACCORDA ASME/ANSI B	DIM.IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2009	VISIVO E DIMENS. VIS. & DIMENS. SATISFACTORY
MATERIALE / MATERIAL ASTM A105 (LADLE)		0,180	SI% 0,220	Mn% 0,960	8% 0,007	P% 0,007	0,080 0,080	NI% 0,060	Mo% 0,010	71% 0,017	Cu% 0,140	0,003	N5% 0,001	%N %N	A% 0,028	C.E.% 0,372	
SEZ GWZ LUNG RAM BE	FORMA BHAPE	ENERVALENTO TREE POINT TREE TO SEE SEE	ROTTURA TENSILE STRENGHT	-	ALLUNGAMENTO ELONGATION R	ALLUNGAMENTO CONTRAZIONE ELONGATION REDUCTION OF AREA S. S	NE : AREA	DUREZZA HARONESE HEW	EZZA WESS	É	REMEDIZA/III	MERCA/M	PACT TEST	RESILENZA / IMPACT TEST - JOUESon 2 Darlinm 'C 1 2	2	MERCYAMENTO YIELD POINT WHENZ >=1,0%	NAJAH. OVIR REF.
20,80	-	330,0	508,0		32,0	0'09		154,0	154,0 - 158,0		₹	44	20 Bi	96 9	82	0,0	
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 105/SA 105 M - 11a. ASME CODE SECT. II, PART A, ED. 2010	105 M -	ERIAL IN ACC. TO	E SECT. II	PART	A, ED. 20	10	TRATTAN NORMAI	LIZED AT	RMICO / 1-	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR	ATMENT SIN STILL	LAIR			FORN	FORNO / FURNACE ELECTRIC FURNACE	ORIGINE / ORIGIN OF STEEL EUROPEAN UNION
ADD. 2011a CSA 7245-12 GRADE 248 CAT.I SOUR SERVICE	48 CAT.	I SOUR SERVICE	201														(pr

5 5 00 t 40 50 Joll Do 2013 05N 0 NOV 28 644 MOTOED 1213-CONFORMS TO SA SIGNED BY YEAR TEM# 10B #

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QUALITY CONTROL DEPARTEMENT UFFICIO CONTROLLO QUALITA' MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0178/2009 ISO 15159-2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDAN

MANUFACTURER'S SYMBOL

MARCHIO PRODUZIONE

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

13 -0 1 e 1 3 d Alco Gas Heat Numb Trans Am Trans Am Shipment # : 1 3 1 3 1 q 1 q 8 t e l. S 9900 8 # / d

N 9 0 1 N / M BOBE Cr i Ö FLANGE 9 GIS 48

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3 4 9

METALFAR PRODOTTI INDUSTRIALI S.P.A.

23861 CL SANA BRIANZA (LC) - EAK Fax +39 031,655149 Fel 139 031 555441 Vui C. Paniel, 28

quality infiditamis com

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

POS

COD COL COLATA

HEAT CODE HEAT

12/34084 ME

MATERIALE / MATERIAL

ASTM A105 (LADLE)

STAMPAGOIO A CALDO DI ACCIAL COMUNI - LECATI E MOSSIDABIU

QUALITY SYSTEM CERTIFIED BY DNV COMPANY WITH < ISO 9001 >

CERTIFICATO DI COLLAUDO SECONDO. EN 10204 13.1. INSPECTION CERTIFICATE

Dol/Dated 29 05 2013 Pag. ? Dest. TRANS AM PIPING PRODUCTS LTD DoVDated T3S OA1 Calgary, ALBERTA Certif, N, 3079 Del/Daled 31.03.2013 Fattura I invoke N 7087 DD1 / Del Note N, 2414 Del/Daled 26.05.2013 Ns.Ord. / Our ref. N. 8335 - Endeavor Drive. S E 8 TRANS AM PIPING PRODUCTS LTD T3S 0A1 CALGARY, ALBERTA 9335 ENDEAVOR DRIVE S.E.

VISIVO E DIMENS SATISFACTORY

VIS & DIMENS

ASME/ANSI B16.5 -2009

C.E.%

Al%

×

NP%

3

Cu%

0,130 0,002 0,002 0,000 0,025 0,388

REBILEAZA/IMPACT TEST - JOULE/Cm2

87

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DIM ACCORDANCE TO

DIM.IN ACC. A

Mark S% P% Cr% NIK Mo% 11% 0,990 0,008 0,011 0,070 0,040 0,010 0,020 O.TA' 224,00 C% SI% 0,195 0,240 YOUR REFERENCE VS ORDINE CI-12-430

WIN 150 RF A" STD A105N

DESCRIPTION

NORMALIZED AT 920 C - COOLED IN STILL AIR THEOLOG BOIL I DAT TRATTAMENTO TERMICO / HEAT TREATMENT 166,0 - 159,0 OUREZZA HAZONERA CONTRACIONE
REDUCTION OF AREA
%>-

ALLUNGAMENTO ELONGATION

SNEAD POINT
NAME > -0.7%

PROVETTA / TEST SPECIMEN FORMA SEZ minz LUNG, from SHAPE SECT, minz LENGHT from 1-0.2-III 126,60 60,80 1

364,0

30,0

ELECTRIC FURNACE FORNO / FURNACE

ORIGINI / ORIGIN OF STILE

EUROPEAN UNION

S NERVAMENTO YIELD POINT Kimmi 2 241 00.

. 88 . E

VIS & DAMENS SATISFACTORY

ASME/ANS! B16.5 -2009

Cu% V% Nb% N% Al% CE,% 0,150 0,001 0,001 0,000 0,010 0,397

11%

DIM. ACCORDANCE TO

DIM IN ACC. A

VISIVO E DIMENS

CSA 2245.12 GRADE 248 CAT I SOUR SERVICE ADD. 2011a

ASTMASME A 105/SA 105 M - 11a ASME CODE SECT, II, PART A, ED. 2010

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO

0,070 0,010 0,009 Mo% W/N 300 RF 3" STD A105N %!N 0,195 0,210 0,990 0,015 0,012 0,100 ပိ DESCRIZIONE DESCRIPTION 8 Q TA' Q.TY 259,00 % M'I'Y Si% YOUR REFERENCE ď VS.ORDINE CI-12-430 TIEN 12/34107 MATERIALE / MATERIAL COD. COL COLATA ASTM A105 (LADLE) HEAT CODE HEAT

ALLUNGAMENTO GLONGATION 31,0 ROTTURA AL TENSILE STREBAGHT MANUEL 27-0 522,0 SHEKVAMENTO
YIELD POINT
NVBRIT >=0,7% 343,0 362 mm² LUNG.em SHAPE 367 mm² LUNG.em SHAPE 367 mm² LMGHTem 1-0 2-0 126,60 50,80 1 ASTM/ASME A 105/SA 105 M - 11a ASME CODE SECT, II, PART A, ED. 2010

NORMALIZED AT 920 C - COOLED IN STILL AIR TRATTAMENTO TERMICO / HEAT TREATMENT

ORIGINE / ORIGIN OF STEEL EUROPEAN UNION

ELECTRIC FURNACE

FORNO / FURNACE

88

* 83

87

p 88

BROLIME CARGAIN

⋛

159,0 - 163,0

DUREZZA HANTONESIS HEDW

CONTRAZIONE REDUCTION OF AREA 30-2

58,0

JOULE/G=2

RESILENZA / IMPACT TEST

1013-8440-510 JOID ED, ROIL ADIO

05-0hh8-9

2 Nov 22 X SIGNED BY # MSLI

JOB# 2013- 8446-50 YEAR ZOIG ED ZOII A

105 N

CONFORMS TO SA

CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE

ADD, 2011a

MATERIALE IN ACCORDO A / MATERIAL IN ACC TO

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT S. Eringtole S.

MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION

ANTERIAL IN ACCORDANCE WITH NACE MR 0176/2009 ISO 16:166-2009 SOUR SERVICE
MATERIAL IN ACCORDANCE WITH FACE MH 01/20/2012 - SOUR SERVICE

ME

MARCHIO PRODUZIONE MANUFACTUNER 3 37*REG

10 E H M / H BOBE Ô 비빔 FLANGE

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gen, a By: 9 S

34064 Products Ltd 8 13 - 1373

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NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCOURAGE

) 1 d d d d d d d

00000 189H 0muM 189H mA sn81T 5hpment/

STREMENT TO COURSE MANAGED - LEGACIO - LEGACIO TO CONTRA PRODOTTE INDUSTRIAL BLAC METALFAR

SALA PROYE E ANALISI MATERIAL! / MATERIAL TEST DEPARTMENT

ZOBO CREATE REPORTAÇÃO, PLOS BEDE-BRIDGE THE BANK BANK TO

日本の大きなのでは、日本のでは、大きなのでは、 Tel =28 (29) (66648) Fax 186 (5) (65548)

Varie Park A

CERTIFIED BY DAY COMPANY WITH QUALITY SYSTEM # 150 BOOT #

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3,1 INSPECTION CERTIFICATE

Delrosted 19,09,2013 Delrosted Pac 3 - 20 Dust: TRANS ASS PSYNG PRODUCTS LTD 9335 - Endemor Drive S.E. T3S OA1 Ceigeny, ALBERTA Feature / Involve N. 3470 Ne, Ord. / Cur ref. M. 0 DeliDated 20.09.2013 DeliDated 19.09.2013 ð TRANS AM PRING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA Certit. N. 5078 DDT / Del Note N. 3961

VISINO E DIMENS, SATISFACTORY ORIGINE / ORIGIN OF STERL VIS. & DINENS. **EUROPEAN UNION** ELECTRIC FURNACE ASME/ANS! B16.5-2009 FORNO / FURNACE DIM. ACCORDANCE TO C) TI 0,026 0,399 DIM-JN ACC. A Ž 8 2553 EDICA I MPACT TEST - JOLD LOND 0,009 82 88 0,002 Ž 78 0,002 NORMALIZED AT 830 C - COOLED IN STILL AIR THO LITTLE STATES 0,015 0,140 ≥ TRATTAMENTO TERMICO / HEAT TREATMENT NI% MO% 0,090 0,020 158,0 - 160,0 FZCL1 DUMEZZA HANDMENE W/N 600 RF 3" XS 0,012 0,128 Š CONTINAZONE REDUCTION OF AVEA NO DESCRIZIONE DESCRIPTION ASTNIASME A 350/3A 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD. Ľ 158,00 1,050 0,005 Q.TA. 셠 347,0 MIN. TEMPLE STRENGHT NAMES >>> 536,0 0,180 0,230 VS.ORDINE YOUR REFERENCE CSA Z245,12 GRADE 248 CAT.fl SOUR SERVICE MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO Š TIELD POSIT TIELD POSIT POSITION 7-4,7% CI-12-311 400,0 ASTE A350 LF2 CL.1/2 (LADLE) POS. PROPERTY INTER OFFICERS SHAPE SECT. MELL LENGTH FOR 1= 8 2=] MATERIALE / MATERIAL COD. COL. COLATA
HEAT CODE HEAT 13FZ78 50,30 126,60

VISIVO E DIMENS. SATISFACTORY ORIGINE / DRIGIN OF STEEL VIS. & DIMENS **EUROPEAN UNION** THEIR POST ELECTRIC FURNACE **ASMEJANSI B16.5 -2008** DIM, IN ACC. A DIM, ACCORDANCE TO FORMO! FURNACE CIT 0,060 0,010 0,017 0,140 0,003 0,001 0,008 0,025 0,390 28 Z % RESUREDCA / SEPACT TEST + JOULD'S. 7 ž 86 メラ ្ច ន NORMALIZED AT 1220 C - COOLED IN STRIL AIR š TIPO / TYPE 1 lecthous ⋛ TRATTAMENTO TERMICO / HEAT TREATMENT Š Ĕ 154,0-156,0 CUPULTZA HARLIMESE A105N X X W/N 150 RF 4" STD 0,010 0,130 ž CONTRAZIONE REDUCTION OF AMEA Non DESCRIZIONE DESCRIPTION 60,0 ž ASTMIASME A 105/9A 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010 0,980 0,010 128,00 Q.T? Š 32,0 Many MOTTORY TENER E BITAERE * Service >~ 512,0 0,240 8 YOUR REFERENCE CSA 2245.12 GRADE 248 CAT.I SOUR SERVICE ₩ 0,185 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO Y. PRESENTATION
VIELD POBIT

VIELD >=0,2% VS. DRDINE CI-12430 330,0 SO FE PROVETTA (TEST BRECHES) FORMA SEZ LING LANG FOR SHAPE SECT, AND LENGHT FOR 10 0 24 COD. COL COLATA POS.
HEAT CODE HEAT TEM
(13/28/06) 005 MATERIALE / MATERIAL ASTM A105 (LADLE) 50,80 ADD, 2011a COD, COL. 126,60

Po-134121 35-Stock A010 (CD, 7211 ADD 913-8440-51 MOV 2.9 2013 105 N SHOWED 3Y #四 JOB # _

3-8440-2

NOTE 190% MANUFACTURED IN ITALY
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERAL. IN ACCORDANCE WITH NACE INRATIZABAD SO 1519-2009 - SOUR SERVICE
MATERAL. IN ACCORDANCE WITH NACE INRATIO(2011 - SOUR SERVICE
MATERAL. IN ACCORDANCE WITH NACE INRATIO(2011 - SOUR SERVICE

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Alco Gas & Heat Mumber Trans Am Pl Thens Am Pl

ENTE UFFICIALE DI COLLAUDO DISPECTION AUTHORITY UFFICIO CONTROLLO QUALITÀ QUALITY CONTROL DEPARTEMENT E. Strate of

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MANUFACTURER'S SYMBOL MARCHID PRODUZIONE

şq 9 1 0# 134 38606 9 13 -: 40 NSO1 N/M ¥ 0 9 BOBE 88 B. veR SID 7 17 FLANGE

COFFER® an AFGRabal Company

Material Test Report

Heat Code: HUP

ISO 9001:2008 Certified

An Ameri-Forge Group Company 13770 Industrial Rd. Houston, TX 77015 Sales: (713) 868-4421 Fax: (713) 455-8366

Line: 8 Sales Order: 130292 PO: 33189070R2100 CE FRANKLIN LTD. Qty Shipped: 45 Item Code: 0153400100-0031F 1800, 635-8th Avenue S.W. Item Desc: FLG 04.00 0150 BL RF & T2P 3M3 Calgary, ALB Supplier Heat: A102357 Supplier: STEEL DYNAMICS Spec: CSA 2245.12-09 GRADE 248 Cat.2 - ASTM A350(12)/ASME SA350(13) EPCRA CAS# Product Element EPCRA CAS# Product Ladle Element (%wt) 7440-47-3 0.16 0.16 Cr Chromium 0.19 0.18 C Carbon 0.03 0.03 Molybdenum √ 7439-96-5 Mo 1,11 1.12 Manganese Mn 0.037 0.034 V Vanadium 0.013 0.013 Phosphorous 0.002 0.001 Cb Columbium 0.005 0.004 9 Sulphur 0.027 Aluminum Al 0,22 Si Silicon 0.24 0.43 C.E. 7440-50-B 0.20 0.20 Copper 7440-02-0 0.09 0.09 Ni Nickel **Heat Treat** Mechanical Testing 1675 Accutest 496283.0 Norm, Temp. (F) Test Lab Norm. (Hrs) SACRIFICIAL PIECE Test Bar Size AIR Norm. Cooling Type 145 - 145 HBW 33.0 Elg (%) Other 73.0 STEEL DYNAMICS RA (%) MILL 0.250 Tensile Specimen Size (in) A102357 MHC 79 B Tensile (kei) VD 52.8 Yield (ksi) EF Gauge Length -50 K Gr.Sz Charpy Temp (F) 68 - 97 - 82 Charpy (ft lbs) 82 Avg Energy 3 Specimens (ft-lbs) YEAR WIDE D. WILL ADD Min Energy 1 Specimens (ft-lbs) 55 - 80 - 70 % Shear 56 - B0 - 60 Lat. Exp. 1- BU40-50 SIGNED BY No Weld repair performed. Chemical Analysis results shown are actual. Forgings are capable of passing hydrostatic test compatible with the appropriate rating. Elongation taken from a round specimen. Yield strength was determined using the .2% offset method. All material supplied under this order is certified to be free of mercury contamination and no mercury bearing equipment was used in manufacturing, fabrication or testing. Made Product compliant with NACE MR0175 / ISO 15156, latest edition and dimensions to ASME B16.5 . Product was

EPCRA Supplier Notification: This product may contain one or more toxic chamicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) and 40 C.F.R. Part 372. Potentially reportable chemicals are indicated with a checkmark in the "EPCRA" column and a Chemical Abstract Services (CAS) registry number is provided for each such chemical in addition to the percent by weight of the chemical present in this product. It is your responsibility atone to determine whether your facility is required to submit a Toxic Release inventory Report under EPCRA Section 313.

AmeriForge manufactures materials according to a certified Quality Management System conforming to ISO 9001:2000

Tensile Testing Fer ASTM E8; Brinell Hardness Per ASTM E10; Charpy Testing Per ASTM E23.

Certification No.:

No welding performed.

286626

and in compliance to PED 97/23/EC, Section 4.3

Product compliant with NACE MR0103, latest edition.

Certification Date:

12/23/2013

This report is issued in compliance with the requirements of EN10204 3.1 / ISO 10474 3.1.b

Order#: 312846 Seq: 17 PO#: 133700 Heat#: TL10006133 Mill: Tri-Lad Part#: FL 3 1 R W STD 5 Part Desc: Flanges 3 (88.9mm O.D.) 150# RAISED FACE WELD NECK STD A/SA105N



TRILAD Flanges and Fittings, Inc.
30 WOODSLEE AVE
PARIS, ON, CANADA N3L 3V1
(PHONE) 519-442-6520
(FAX) 519-442-7658
www.tri-lad.com

CERTIFIED MATERIAL TEST REPORT

Certificate No. 13170293		EN 10204 3 1	Date	of Report 7/	02/2013
Customer			Customer Order No 405074		Quantity 32
		AB	Tri-Lad Order No 580954	Line No 1	
Specification SA105N SECT 2010 EDITION	2011A A	DDENDA	Heal Treatment NORMALISE	D	
lien Description 3 150 WN STD RF A10	5N ←	(801609)	Temperature	90 C	
Shop Order/Trace No			Time N=1 OSRS		Lot Definition
Lot No					
Heat Code TL10006133					
C E Mell Practice					
.41		Chemical Con	position		
Heat Product Heat Product					
		Mechanical Properti			ALCOHOLD TO THE
Yield Tensile Elongation Ksi 56 Ksi 83 Mpa 388 Mpa 572 26 %	of Area	HBW 159 HBW 159	The state of the s	IBS.	Shear Fracture
Tensile Specimen STD RD Lateral Expansion Impact T	уре	Impact Orientation	Starting Material		Impact Specimen
CONFORMS TO SA 105 TY YEAR 2010 ED, 2011 ADD JOH & 2013 - 8440 - 5 D	6	Notes - 8440-51 - Stock			
SIGNED BY NOV 2 2 2013		NACE	MR0103 LATEST ED MR0175/IS015156-0	9	
ASME Sect II, ASME B16 5, B16 9, R16 36, NO WELD REPAIR Material conforms to both ASTM (A) and ASM We hereby certify that all information present specification	B16 47, CSA ME (SA) appl	i, MSS, AWWA C-207	Les Mansfie	d. CET	14/12
We hereby certify the results to be a true cop	y of the recor	ds of the company.	C - 1% A		

METALFAR

23851 CESANA BRIANZA (LC) - Mary SELE AMBINISTRATIVA E STABILIMENTO: Via G. Parini, 28

COMPANY WITH

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 6330 Del/Dated 03,12,2013 Fattura / Invoice N. 4324 Del/Dated 29.11.2013 el Note N. 4954 Del/Dated 29.11.2013 Ns.Ord. / Our ref. N. 0 Del/Dated Dest.: CE Franklin Ltd - DISTRIBUTION CEN, Š CE FRANKLIN LTD, A Division of NOV WILSON 1800, 635 - 8TH Avenue S.W. T2P 3M3 CALGARY, ALBERTA DDT / Del Note N. 4954 CANADA ULC

SATISFACTORY VISIVO E DIMENS ORIGINE / ORIGIN OF STEEL Pag. 5 - 10 VIS. & DIMENS **EUROPEAN UNION** 2603 - 76 Avenue T6P 1P6 EDMONTON, ALBERTA % ED SHERVAMENTO YIELD POINT Name pertits 0.000 ELECTRIC FURNACE ASME/ANSI B16.5 -2013 DIM. ACCORDANCE TO FORNO / FURNACE 0,009 0,027 0,380 C.E.% DIM IN ACC. A 8 Al% ro RESILIENZA / IMPACT TEST - JOULETONS er % Ž 83 0,150 0,001 0,002 %qN ئو 20 NORMALIZED AT 920 C - COOLED IN STILL AIR % TIPO / TYPE 10x10mm 交 TRATTAMENTO TERMICO / HEAT TREATMENT Cu% 0,016 % <u>1</u>% Ni% Mo% 0,060 0,020 152,0 - 154,0 DUREZZA HARDNESS HBW A105N CERTIFIED BY DNV **QUALITY SYSTEM** = 1SO 9001 =0,980 0,010 0,012 0,090 S/O 150 RF 10" % O CONTRAZIONE REDUCTION OF AREA %>= DESCRIZIONE DESCRIPTION % L ASTM/ASME A 105/SA 105 M - 13 ASME CODE SECT. II, PART A, ED. 2013 18,00 ROTTURA ALLUNGAMENTO
TENSILE STRENGHT ELONGATION
Nmm2 >= %>= Q.TA' % 33,0 cuality, miff@farmas.com Tel. +59 031.855441 Fax +39 031.655149 Mn% ALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT CSA CAN3 Z245.12-09 GRADE 248 CAT.I SOUR SERVICE 519,0 0,180 0,240 %is YOUR REFERENCE 3220811-OR-2100 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO % SNERVAMENTO YIELD POINT N/mm2 >=0,2% PRODOTTI INDUSTRIALI S.P.A. STANSAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INCESIDABILI VS.ORDINE 338,0 POS. PROVETTA / TEST SPECIMEN FORMA
SEZ mm2
LUNG, mm SHAPE
SECT. mm2
LENGHT mm := 0 2= 13/39559 MATERIALE / MATERIAL ASTM A105 (LADLE) COLATA HEAT CODE HEAT 126,60 50,80 COD COL

SATISFACTORY VISIVO E DIMENS ORIGINE / ORIGIN OF STEEL VIS. & DIMENS **EUROPEAN UNION** 8 % YIELD POINT
NAME TO THE 0,000 ELECTRIC FURNACE ASME/ANSI B16.5 -2013 FORNO / FURNACE DIM. ACCORDANCE TO NI% Mo% Ti% Cu% V% Nb% N% A1% C.E.% 0,080 0,010 0,030 0,150 0,002 0,001 0,000 0,028 0,376 DIM IN ACC. A 70 RESILIENZA / IMPACT TEST - JOULE COME 68 3 49 ပ္ NORMALIZED AT 930 C - COOLED IN STILL AIR 152,0 - 156,0 **F** TPO/TYPE 10x10mm TRATTAMENTO TERMICO / HEAT TREATMENT LF2CL1 DUREZZA HARDNESS 0,015 0,150 BLIND 150 RF 3" P% CF% CONTRAZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 0'09 STM/ASME A 350/SA 350 M - 13 ASME CODE SECT. II, PART A, ED. 2013 600'0 ALLUNGAMENTO ELONGATION 105,00 Q.TA′ Q.T≺ %s 32,0 0.860 Mn% ROTTURA TENSILE STRENGHT Numra 200 CSA CAN3 Z245.12-09 GRADE 290 CAT.II SOUR SERVICE SMERVAMENTO ROTTURA YELD PONT TENSIE STRENG MINIEZ SPECIAL MINIEZ 512,0 %IS YOUR REFERENCE 3323839-OR-2100 NATERIALE IN ACCORDO A / MATERIAL IN ACC. TO လိ VS.ORDINE 308,0 ASTM A350 LF2 CL1/2 (LADLE) POS. LUNG. mm SHAPE
LENGHT mm 1=0 2= HEAT CODE HEAT | ITEM | 112M MATERIALE / MATERIAL COD. COL. COLATA SEZ mm2 LUNG.mm SECT. mm2 LENGHT mm 50,80 126,60

POINT LOS MILADO FEB 1 9 2014 1013 -8440-50 CONFORMS TO GA 350 LP ACL ! SIGNED BY YEAR 108 # TOW!

-8440-50 Pe-134661 NOTE 100% MANUFACTURED IN ITALY
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE

Z F F

MANUFACTURER'S SYMBOL MARCHIO PRODUZIONE

ENTE UFFICIALE DI COLLAUDO

UFFICIO CONTROLLO QUALITA'
QUALITY CONTROL DEPARTEMENT

INSPECTION AUTHORITY

NORMA (INDIA) LIMITED
48, Site IV industrial Area, Sahibabad, Ghaziabad-201010 (U.P) INDIA.

1000	THE TRANSPORT OF THE PARTY OF T	T TOOLS I		Works Toot Contiferation
48,51fe Tel: 91-12	48,51fe 17 industrial Area, Sanibabad, Chaztabad-201010 (C.P) INDIA. Tel: 91-120-2896091. 2895404 Fax: 91-120-2895930 F-mail: normaindia@gmail. com	aztabad-201010 30 E-mail: normai	l (U.P) INDIA. ndia@gmail. com	works rest certificate
NORMA/LA!	NORMA/LAB NO-027/12-13	INVC	INVOICE NO. E-	DAT'E:-08.04.12
P. Order. No:		Customer:	SILBO IND.INC.	Forging specification: ASME SA105 -09
Component	Component 2" 150#WNRF XH FLG.		U.S.A.	ASTM A105 -09
Drawing No.				Steel Supplier RINL,
Machining	ANSI B16.5-2009	Quantity:-	807	
212	ASME B16.5-2009			Mill Heat No. 101152
	TEST RESULTS			NORMA HEAT NO-722
	CHEMICAL COMPOSTION		MECHANICAL PROPERTIES.	IES,
Elements %	Specified	Actual	PROPERTIES SPECIFIED O	PROPERTIES SPECIFIED OBTAINED Specified carbon as per Purchase Ord

IES.	SPECIFIED OBTAINED Specified carbon as per Purchase Order	0.25max.	357.76 Serrated face as ner MSS-SP-6 With in limits	of 125-250AARH		525.36 H.T -: Normalised at temp 920°C	CARBON EQUIVALENT (CE)	34.08 $CE = C + Mn + Cr + Mo + V + Ni + Cu$	6 5 15	156-163	OF OLD SOM ALA SY DINIAGEM	48.89 2"-150 XH SA105 N 722 B16.5 NORMA INDIA	Remarks: We here by certify that the material Charlesd by:	CICCACO Dy.	cried above	Certified by:	et-Por each to Quality Control Manager	f 0,06% miximum	n t 35%.	
MICCIPAINICAL FROFERITES.	SPECIFIED OF		250.00	min.		485.00	min.	22.00	min	187.	тах.	30.00 min.	hy certify that t	as been tested in	specifications refu	ements as per EN1 MR0175-2003.	105 Table 1 Not	increase of the specified	ited up to miximus	
MECHANISI	PROPERTIES		Yield Strength	(mpa)		Tensile Strength	(mpa)	%Elongation in	50mm / 4D	Hardness	НВ.	% Reduction of Area	Remarks: Wr here	described here in has been tested in accordance	with the applicable specifications referred above	and meets the requirements as per EN10204/3.1B & NACE Standard-MR0175-2003.	"As per ASIM A105 Table 1 Note: For each	miximum(0.35%), an increase of 0.06% munitances above the specified miximum	4(1.05%) will be permited up to miximum 1.35%.	0
	Actual	MILL 1 C.	0.25	98.0	0.22	0.013	0.019					H	W.		0.393		Zino			
VIO 1100 IV	Aci	NORMA LAB: MILL 1.C.	0.24	06.0	0.24	0.015	0.21	0.007		0.003	0.002	0.001	0.001	00:0	0.392		Ag OT SASO ENOUGH	YEAR (No 16E-D.)	108 + 10013 - 51010 + 801	X
	Specified	Composition	0.35max.	0.60-1.05	0.10-0.35	0.040max	0.035max	0.30max.		0.40max.	0.40max.	0.12тах.	0.080max	7	0.47max.		- 5	en ny Male aring	ior .	-
	Elements %		Carbon	Manganese	Silicon	Sulphur	Phosphorous	Chromium		Nickel	Copper	Molybdenum	Vanadium		Carbon	Equivalent (CE)		-8266-50	#129163	

Po # 129 163 43-8266-50

3-8440-50 NOV 2 2 2013

BACTARDO BY FIGHT -

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	30		S	JOHIR	FORG	SUDHIR FORGINGS PVT	PVT.L	0		Control No. TC/01	10,01	
SUDHIR FORGINGS (P) LTD	VGS (P) 1 TD			2	S T ROAD, LUI	G T ROAD, LUDHIANA (INDIA)				Kev. U1 Eff Date 01 07 2009	07 2009	
		10		TEST	EST CERT	IIFICA.	世					
				(in acc	proance with t	(in accordance with EN 10204 3.1 5)	lo				40.00	100
TEM		2" 150 WN	RF XH (SK)	2" 150 WNRF XH (SKU 5874337)	ļ	CERTIFICATE No.	TE No.	SF/FLANGE/2215/611	5422156511	DATED	23-Knar-2014	-25.14
TITLANTITY		150 PCS				LAB Ref. No.	٥.	1503				
FINISH	Ĭ	BLACK PAINT	IN.			CUSTOMER NAME	RNAME	CCTFCO	CCTF CORPORATION	NO		
MAT. SPECIFICATION	NOL	ASME SA	105N-10 / A	ASME SA 105N-10 / ASTM A105N-03	2-03	INVOICE No.	, o	SF/2011-12/114	12/114			
ON CO	4028984		ŢO	30-May-2011	11	INVOICE DATE	ATE	29-Mar-2012	112			
						Chem	Chemical Analysis	ŝ				ĺ
Heat No. Heat No.	Description	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	%¤W	ž	%5	SI%	%no	Wi%	Cr%	Mo%	%^	C.E.%
-	Specified	0.25 max	0.60 - 1.05	0.035 max	0.040 max	0.10 - 0.35	0.40 max	0,40 max	0.30 max	0.12 max	0.08 max	0,47 max
509 4618	Observed	6240	0.910	0.027	0 008	0.195	0.083	0 048	2100	0.000	0.001	0.384
ļ	H					Physical / M	Physical / Mechanical Properties	perties				
Heat No. Heat No.	Description	UTS	UTS NJ MM²	YIELD	YIELD N / MM2	Elong	Elongation%	R.A	R.A.%	Ŧ	Handness (BHN)	5
-	Specified	485	485 min	250	250 min	22	22 min	30.	30 min		187 max	
509 461B	Observed	150	513 71	33.	335 26	74	42.4	51	51 23		35:	1.
CAST TREATMENT PROCESS	LEST TREATMENT PROCESS :: TEMP 870°C - 910°C	870°C - 910°C			57	13-Stock	PCK 1.0 A	3	M COLL AS OT BASTOSAS	0	Z	
REMARKS.		I			HO	1013	0,1	Ω.	TON TONE DION MONTH	SED!	M 10	6
Flanges are	Flanges are forged steel and manufectured in stirct accordance with ASTM A/SA 105 & ANSI B16 5	manufactured	in strict accor	dance with A	STM A/SA 1(05 & ANSI B16	5 5	ं दू	100 \$ 801	2013-8440-50	140-	0
The flange	The flange have been normalized in accordance with AST M ABD I	lized in accord.	ance with A.S.	95.						00		
We certify t	We certify that the Maleria! Suits the Requirement of P.O. (Relevant specifications	suits the Requir	ement of P.O.	/Relevant sp	PCLICATIONS				TEM#	1		
Flanges ha	Flanges have serrated face as per MSS-SP-6 within the limit of 125 · 250 RMS Flanges are painted with black paint. & Marked as SF 2 WNRF XH 150 A1	as per MSS-SP th paint & Mark	-6 within the l	limit of 125 · 2 2 WNRF XF	50 RMS I 150 A105I	the limit of 125 * 250 RMS r SF 2 WNRF XH 150 A105N B16 5 509 INDIA	AIDNI 6	35	Serves BY	NO.	V 22	133
4.				-		-	Pro	Crisco	FORSUDE	FOR SUDHIR PORQUES PVT, LTD	S PVT, LTD	
		<u>_</u>	-			-4	1- Suyo-	05-0	0	i seed	P. W.	25
		1	93	elday			de		ď	Q.C. Mor	5	

Order#: 312846 - A Seq: 16 PO#: 133700 Heat#: TL10006617 Mill: Tri-Lad Part#: FL 2 1 R W XS 5 Part Desc: Flanges 2 (60.3mm O.D.) 150# RAISED FACE WELD NECK XS A/SA105N



TRILAD Flanges and Fittings, Inc.
30 WOODSLEE AVE.
PARIS, ON, CANADA N3L 3V1
(PHONE) 519-442-8520
(FAX) 519-442-7658
www.tri-lad.com

ISO 9001:2008

CERTIFIED MATERIAL TEST REPORT

Certificate No. 13174936		EN 10204 3.1		Date of R	eport 9	/27/201	3
Customer			Customer 0, 412563	rder No	(Quantity	2
	,	AB	Tri-Lad Ordo 593063	er No	Line No 2		
Specification A105N STC	OCK	-	Heat Treatment	RMALISED			
Item Description 2 150 WN XS RF	A105N	866501	Lemperature	5 0007			
Shop Order/Trace No.	CÖNFORMS TO E	105 N	N=.55H	RS		:Ln! De	linition
Lr.l No	2013	2440-50	9 -	8440.	-50		
Heat Code	JOS * 15	3	44-	Stock	5		
C.E. Melt Pr. EF		NOV 2 2 2013	- Po -	13370			
Heat Product C 19 Mn 1 03	P 028	The state of the s	Cu j'Ni	06 Cr	10 M	02) ^V	.001
Heat Nb Product 01							
Heat Product		Y					
		Mechanical Proper	lies				
Ksi 63 Ksi 83	gation Reduction of Area	HBW 161 Temper		mpact Values		Shear Fra	acture
Tensile Specimen STD RD							
Lateral Expansion	mpact Type	Impact Orientation	Starting	мателаі		Impact Spec	amen
		1				-1	
Cr+Mo <= 0.32% Cr+Cu+Mo+Ni+V <= 1.00% Mn/C >= 3.0 CE = C + Mn/6 + (Cr+Mo		Notes 0.12 0.3 5.42)/15 0.40	l 2				
ASTM A105N-12 ASME SA105N 2010 Editi	on 2011A Adden	da ANS NACI	Z245.12-09 I/NACE MR017 MR0103 LAT MR0175/ISO	5/IS01515 EST ED.	T \$\$ 6:2009(E)	
Material is in accordance with the app ASME Sect II, ASME B16.5, B16.9, NO WELD REPAIR Material conforms to both ASTM (A) We hereby certify that all Information	B16.36, B16.47, CSA and ASME (SA) appli	, MSS, AWWA C-207		\	oll De	2/4/2)
specification.			~	es Mansfield, (CET	f5)	7.(

Quality Assurance Manager

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1	JIV
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1	JI

SAN ENG STEEL FORGING CO LTD 311, Jen Hsin Road, Jen Wu Districk Kaphsiung, Taiwan, R.O.C. TEL.07-3724249; FAX:07-3712923 URL: www.saneng.com.tw e-mail: saneng@xsts.seed.net.tw

(MILL TEST CERTIFICATE.

Date: 12/02/2013 Certificate No.: SE-6954H

Page: 1 OF 1

Customer: SEYBOLD INTERNATIONAL CORP. EN10204-3.1.B(DIN50049/3.1.B)

Order No.: 7006954(8)-CEF/NOV

	-									_		
DIMENSIONAL SPECIFICATIONS	ASME B16 5-13 CSA Z245.12	NO TINO N MO	0.010 0.002 0.000 0.010 0.002 0.006 0.010 0.002 0.007	0.010 0.002 0.000 0.001 0.005 0.005 0.005 0.005 0.005 0.005 0.005 0.007 0.007 0.007 0.007 0.007 0.005 0.001 0.007	0.020 0.005 0.005 0.001		## HEAT TREATMENT(*2) ☑ N	REMARKS 890*CX4HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0103-12 AND NACE MR015/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3	CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-08 (FOR USE AS WELDING NECK AND	TEST SPECIMEN ORIENTATION: TRANSVERSE TEST SPECIMEN ORIENTATION: TRANSVERSE	IMPACT TEST TEMP: -48°C MN TO C RATIO IS GREATER THAN 3.0"
		EMICAL COM	0.007	0.006 0.007 0.010 0.006 0.160 0.050 0.006 0.007 0.020			Material Supplier	SOUNDS	ACOMINAS	WEI CHIH STEEL ACOMINAS	ACOMINAS	ACOMINAS
SPECIFICATIONS	ASTM A-350 LF2-13 CL.1/ASME SA-350 LF2-13 CL.1	Si Mn P 0.150 0.600		1.170	0,230 1,170 0,019 0,220 1,180 0,016 0,200 1,150 0,021		Impact Test Temp: 46°C	2 3		64.0 83.0 51.0 84.0		
Order No.: 7006954(8)-CEF/NOV MATERIAL SPECIFICA	-350 LF2-13 CL.1/ASN	O I	0.300	0.220	25 PCE 0.220 0.320 0.15 PCE 0.220 0.320 0.			30.0		70.4 116.0 68.6 90.0	70.4 116.0	
ON WA	A.STM.A	QUANTITY	201	20 88	100		Hardness R.A. (HB)	197	11		7 153/151	
w ed.net.tw	NGES	DESCRIPTION	P) 3" LF2	(P) 2" LF2	AP) 3" LF2 PT TAP) 2" LF2		Y.S.(*1) E.L.(*1) (MPA) (%)	250.0 22.0	364.0 33.8 372.0 36.0		-	354.0 33.8
URL: www.sarreng.com.tw e-mail: saneng@ksts.seed.net.tw PRODUCT	FORGED CARBON STEEL FLANGES	DESC	300 BLRF(2"NPT TAP) 3" LF2	150 BLRF 2" LF2 150 BLRF 2" LF2 600 BLRF 1" LF2 600 BLRF 1" LF2	600 BLRF(2"NPT TAP) 3" LF2 600 HUB BLRF(1"NPT TAP) 2" LF2 450 SOBE 2" 1 F2		T.S.(*1)	Min 485.0		527.0 537.4	529.0 527.0	529.0 535.0
URI	FORGED	u u	1611217		6 1737178 7 1560596	2000000	Heat No.		4677159		4603012 6 4677159	7 4603012 8 4553962
	1	E	o 🔽	4 6 4	0 0 1	v	1	e e	Ι΄,	0.00		

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NO TO GO JOH HOD CONFORMS TO SA \$50LF 2.CL. 1013 - EIOI 3 -TEN F *2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Fursipee Cooled, W.C=Water Cooled, O.C=Oil Cooled. We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order. -3; C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

1: T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.

是90003 PORGING CO ASSURANCE 物本

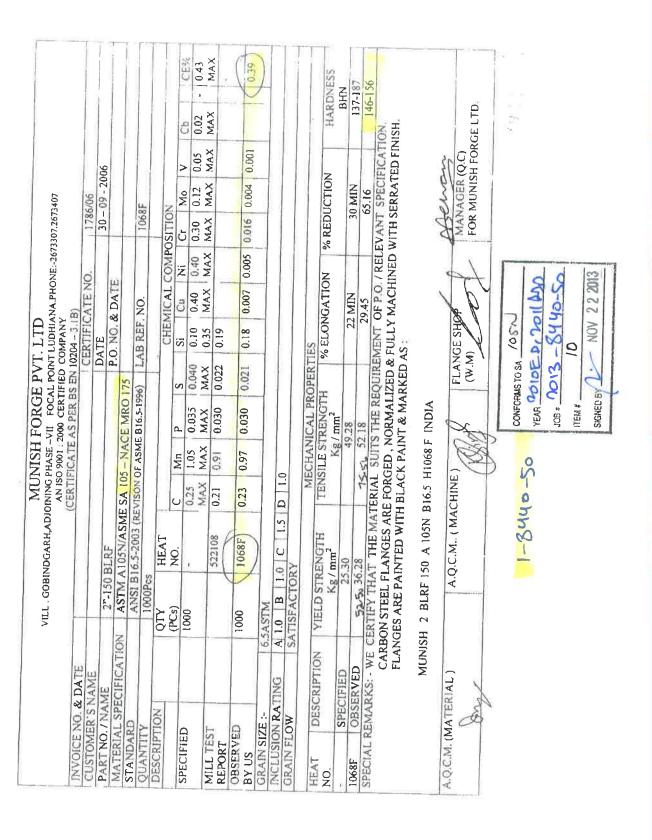
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Se T

Manager of Quality Assurance Dep't

8440 - SD

1 9 2014 SICKED BY (4) PO# 120538 (4) JH 78 16-03



PO# 120524 0 J# 7958-06

A-Anneated, O=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Referred, F.C=Furance Cooled, W.C=Water Cooled, O.L=Oil Cooled, F.Mar (S) + (Cr + Mo + v) / 5 + (Ni + Cu) / 15		Trength, Y.S.=Yield Strength, E.L. = Elongation, R.A. = Reduction of Area.	321.7 37.8 150 64.9 OEMK	00: SE-5005C 10F1 00:00 00:	10 S. COM POS	CONFO VEAR JOB# JOB# JOB# JOB# JOB# Mates CHEMIC CHEMIC CHEMIC COEMIC OEMIC OEMIC OEMIC OEMIC	CERTIFICATE Broin-Scott	MILL TEST EN10204-3.1.	Auroness (-18) 187 187 150 150 150	EL(1) (%) 22.0 33.2 34.0 37.8	PROBLES CRIP. FLANGES FLANGE	ENG STEEL (on their Road into Hein Road into Hein Road into Hein, 7.3724249; F. 7.3724249; F. R. O.D. U.C. T. S. C. S. O. BLRF Z. A. S. O. THRF Z. X. S. O. THR	SANITATION OF THE PARTY OF THE
					(C.O.S.)		ν	d, S.R=Stress Refleve	Solution Treater Oil Cooled.	mpered, S.T= or Cooled, O.L + Cu) / 15	riched, T=Te d, W C=Wate +v) / 5 + (Ni	eated, O=Que urance Cook 6) + (Cr + Mo	d, A≓Ann led, F C=F C + (Mn /
The same of the sa					F.0000		τΰ	d, S.R=Stress Refleve	Solution Trealer :=Oil Cooled.	mpered, S.T= or Cooled, O.L + Cu) / 15	nched, T=Te id, W C=Wate +v) / S + (Ni	urance Cook	zed, A=Ann soled, F C=F = C ← (Mn /
OEMK OEMK	OEMK	323.6 34.0 150 86.8 OEMK 321.7 37.8 150 64.9 OEMK	3236 240		480 CXSHRS	OEMK	4	629	150	33.2	4510311.9	519.8	1
DEMK OEMK OEMK	OEMK OEMK OEMK	519.8 4(51) 9 33.2 150 65.9 CEMK 523.7 323.6 34.0 150 86.8 OEMK 517.6 321.7 37.8 150 64.9 OEMK	519.8 45.1931.9 33.2 150 65.9 CEMK	7(72)		Material		-					
Tento: Administration of the state of the st	Mismum: Joule Marterial Supplier Mismum: Joule Marterial Supplier OEMK OEMK	Markerial Supplier Markeri	T.S.(*1) Y.S.(*1) E.L.(*1) Hardness R.A.(*1) Impost Test	0.000	060 0.040 0.000 0.	0.011	0.200 1.160 0.160 1.060 0.210 1.110				105N F 4105N F 4105N	50 BLRF 2" A 50 THRF 1 1/	<u>^</u>
0.200 1.160 0.007 0.011 0.060 0.440 0.000 0.160 1.000 0.040 0.000 0.0210 1.110 0.018 0.014 0.110 0.070 0.000	0.200 0.200 1.160 0.007 0.011 0.060 0.004 0.005 0.00	150 BLAF Z A155N 150 BLAF Z Z T Z T Z T Z T Z T Z T Z T Z T Z T	150 BLRF Z*A105N 150 THRF 1 1/2*A105N 150 D 0.200 0.200 0.1160 0.007 0.011 0.066 0.040 0.005 0.000 0.010 0.000 0.010 0.000 0.010 0.000 0.010 0.000 0.010 0.0	z	Cu Cr Ni Mo V	S S 0.040	Mn 0.800 1.050	Se Mar	QUAR	NOIL	ESCRIP	٥	
150 HeF Z ATISK 150 He Z ATISK 150	150 BLOF Z'ATSA 150 BLOF Z'	150 BLPF ZA155N No. 1	DESCRIPTION Min	316 5-03 245 12			6/ASME SA105-07	ASTM A105-0			FLANGES	RBON STEE	GED CA
Si Mn CAL COMPOSITION (X) Si Mn P S Cu Cr NI Mo V NB N 0.100 0.000 0.000 0.400 0.400 0.100 0.000 0.000 0.000 0.200 1.160 0.007 0.011 0.000 0.400 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.400 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0011 0.000 0.001 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0011 0.000 0.001 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0011 0.000 0.001 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0012 0.001 0.0010 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0012 0.0011 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.160 0.0012 0.0012 0.0011 0.000	CARBON STEEL FLANGES	CARBON STEEL FLANGES ASTM A105-06ASME SA105-07 ASMEB 18 5-33	CARBON STEEL FLANGES ASTM A105-06/ASME SA106-07 CHEMICAL COMPOSITION (%) CSA 2245.12 CSA 2	PECIFICATIONS	DIMENSIONALS		PECIFICATION	MATERIALS				RODUC	1
Simple Sation	CARPON STEEL FANGES ASTMANOS-OKASHE SANGE SA	Charles Company Comp	CARBON STEEL FLANGES CARBON STEEL FLANGES ASTMA105-06/ASME SA105-07 CARBON STEEL FLANGES ASTMA105-06/ASME SA105-07 CARBON STEEL FLANGES ASTMA105-06/ASME SA105-07 TO STAND	ate No : SE-5005C Date : 06/2/5/2008 Page : 1 OF 1	2	CANADA) SIGNED B	BUDINSON BY THE STANCES (STENSON BY THE STANC	EN10204-3.1. Customer, W.F.F.F. Order No.: E05005		523	alwan, R.O.C AX:07-37123 com.lw B.seed.net.lv	iung Hslen, 7 7,3724249; F mww.sanang.: saneng@ks	Kaohi TEL:0 URC:1
Thirty Cartifolds Thirty	ENVIRONA STREET CONTINUES & PARKES CAMPAGES CANDESCAPED CANDESCAPE STATES CANDESCAPED CANDESCAPE STATES CANDESCA	Fig. 10 Fig. 12 Fig.	Table Tabl		010ED, 7011 ADD	YEAR JOB#	CERTIFICATE	TEST		CTD	ORGING CC	ENG STEEL	SANE
VEAR	Value Valu	The Part Par	VENG STEEL FORGING CO LITD	5)	570Sr /05~	CONFORM	0	59A328	3144		A 105	TIND	0 B
CONFORMS TO SA	TEST CERTIFICATE CONFORMS TO SA COST ALONG CONFORMS TO SA COST CO	HT-13144 59A3280	HT-13144 5943280 CONFORMSTOSA OSTA O	(30)	8440-51								

STANDARGE A BASTO OF ACOM CONDO - LEGAL - BASSONALLY METALFAR PRODOTTINDUSTRIKLI S.P.A.

GREET CHEANA BRANGALCO - REST or a water profession between the

CARTY CHOCKEN PARTY Tol. #89 TSM; BEGGGS For 1440 BST, BESS 409

SALA PROVE E AKALISI MATERIALI / MATERIAL TEST DEPARTMENT

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Pag. 1 - 15 Del/Deted Del/Dated Fathura / Invoice N. Na.Ord. / Our ref. N. Del/Defed 28.08.2013 ð Del/Dated TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA Certif, N. 4663 DDT / Del Note N. 0 CERTIFIED BY DNV QUALITY SYSTEM COMPANY WITH = 180 9001 =

VISINO E DIMENS. SATISFACTORY ORIGINE / ORIGIN OF STEEL **EUROPEAN UNION** SNERVAMENTO YIELD PORT Minur2 ==1,0% ELECTRIC FURNACE ASME/ANSI B16.5 -2009 DIM. ACCORDANCE TO FORNO / FURNACE 0,390 C.E.% DIM:N ACC. A 0,009 0,025 Ş 98 HESH EDICA / HIPACT TEST - JOULETONS 8 % 2 88 V% Nb% 0,002 0,001 20 NORMALIZED AT 920 C - COOLED IN STILL AIR TIPO / TYPE 10x10mm ⋛ 0,150 TRATTAMENTO TERMICO / HEAT TREATMENT 0,016 ž 0,060 0,010 156,0 - 158,0 Mo% DLREZZA W/N 150 RF 8" STD A105N 0,008 0,100 Š CONTRAZIONE REDUCTION OF AREA %>= DESCRIZIONE 60,0 ž ASTM/ASME A 105/8A 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010 88,00 0,950 0,007 ž Mn% 512,0 0,220 Š YOUR REFERENCE 0,195 CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO VS.ORDINE WELD POINT
VIELD POINT
NIMM2 >=0,2% 336,0 POS TEN SHAPE 13/37306 MATERIALE / MATERIAL ASTM A105 (LADLE) COLATA PROVETTA / TEST SPECIMEN
SEZ. mm2 LUNG. mm
SECT. mm2 LENGHT mm HEAT CODE HEAT 50,80 ADD, 2011a COD. COL. 126,60

W/N 150 RF 1.1/2" XS A105N DESCRIZIONE DESCRIPTION 8 0,960 0,010 150,00 Q. Ţ. 8% Mn% 0,230 Si% YOUR REFERENCE ₩ 0,185 8 SMERVAMENTO YIELD POINT NIRM2 >=0,2% 318,0 VS.ORDINE POS. PROVETTA / TEST 8 PECINEN FORMA SEZ mm2 LUNG, mm BHAPE SECT. am2 LENGHT mm 1=0.2-13/75868 MATERIALE / MATERIAL ASTM A105 (LADLE) COD. COL. COLATA HEAT COOP HEAT

0,060 0,010 0,023 0,015 0,140 25 C CONTRAZIONE DUCTION OF AREA FOTTURA TENSHLE STRENGHT Nimm2 >-518,0 518,0 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO

Cu% V% NORMALIZED AT 920 C - COOLED IN STILL AIR TIPD / TYPE 10x10mm TRATTAMENTO TERMICO / HEAT TREATMENT 156,0 - 158,0 DUREZZA ASTWASME A 105/SA 105 M - 11a ASME CODE SECT. II, PART A, ED. 2010

ORIGINE / ORIGIN OF STEEL **EUROPEAN UNION** ELECTRIC FURNACE **ASME/ANSI B16.5 -2009** FORNO / FURNACE 0,000 0,031 0,390 **28** RESILLEIZA / MPACT TEST - JOULEGAZ 82

0,002 **PP%**

128 1

Mo%

% 2

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No.RR.

VISIVO E DIMENS. SATISFACTORY

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O Po-134644 8440-S 1

2 8 2013 GOOD HOOD Byyo -50 NON ! CONFORMS TO SA YEAR COLOED. JOB # 1013-SIGNED BY HEW!

NOTE 100% MANUFACTURED IN ITALY
NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0178/2009 ISO 15/156-2009 - SOUR SERVICE
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE

MANUFACTURER'S SYMBOL ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT

MARCHIO PRODUZIONE

NSOLA N/W 0 BOBE, 1-1/5.. FLANGE

CSA 2245.12 GRADE 248 CAT.I SOUR SERVICE

ADD. 2011a

50,80

126,60

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\$ # ya b 88



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757 Fax: 780-450-0298

MILL TEST REPORT

Date: January 2, 2014

NACE: MR0175-09 & MR0103-03

Heat Code: [VDG]

Description: Bleed Ring 3-150

Material Designation: ASTM A350/LF2/A105N

Specification: SA51670N

Material Supplier: Ascometal via Ryerson

Heat Number: H9099

Work Order: Stock, 127327

						CHEMICAL COMPOSITION %	COMP	OSITION	%					
													ě	A
ر	Ma	Д	S	Si	స	Mo	Z	Cu	Cp	Al	N2	>	=	2
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.169	1.132	800.	.012	.261	.143	.049	160.	co1.	nnon:					,
									7					
					2	MECHANIC	AL PR	CHANICAL PROPERTIES	2					
							-				1			
Yield St	Yield Strength	Tensile Strength	ngth	Elongation (%)		Reduction of Area	ea	Hardness (BHN)		Charpy @ -50□F < (FTLB)	OF A	Test Direction		3
<u>(1)</u>	SI)	(FSI)		(0/)		(a.)		1			í		_	
767	49648	72196		33.2		<i>L</i> 9		149	34.9,	34.9, 32.8, 30.5, (32.7)	, (32.7)		1 .	.412
3	21.0				-									1
						MISCI	MISCELLANEOUS	EOUS				CONFORMS	CONFORMS TO SA CIT CONFORMS	NO
												VEAR (100 (CE) (CE)	450 I
												<	un)	- V
CASSIM	CAs almalring Duogoes.	.0000								(9	No s	OK - 01-10- (IM)	00.0

Steelmaking Process:

Condition of Material: Normalizing Time/Temp. 2.75 hrs/1675'F; air cooled.

8440-50 mens

Original Material: htt Global P.O.: 22331 W.O.: Stock The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Grain Size:

Note:

Signed:
Quality Assurance Representative

C:\windown\desktop\global\qu m



Edmonton, Alberta 6803-71 Street

780-450-0298 780-450-9757 Fax: Phone:

MILL TEST REPORT

Date: February 27, 2013

Bleed Ring 2-300, 2-600, 2" x 3/1" 300, 2" x 1" 600, 3-900, 3-1500, 3-1500 RTJ, 4-150, 3-150; Vent Blind 3-900, 3-1500 Heat Code: Description:

NACE: MR0175 & MR0103 3-1500 RTJ, 4-150; Spectacle Product 4-150, 3-1500, 3-1500 RTJ, 3-2500 RTJ, 4-150, 10-900 RTJ

Material Designation: ASTM A350/LF2/A105N

Specification: SA51670N

Material Supplier: CMC Impact Metals via Ryerson

Work Order: Stock, 120472, 120080, 121138, 121548, 122068, 122134, 122404, 122466, 124149, 124733, 124426, 124919,

125161,125076, 125331, 125325, 125736, 126495

				CHEMICAL COMPOSITION %	COMPC	SITION	0,				
			5						18	Ē	22
		č	ځ	Mo	ï	Cu	Cp	Al N2	>		
C Mn	S d	5	5	CTAT		100		(CC)	016	1000	1
17 1.21	013 004	1 .21	.10	020	0.8	7.1					
				MECHANICAL PROPERTIES	AI, PRO	PERTIE	r o n				
			AT .		-			(Toot	J.	ru:
Yield Strength	Tensile Strength	Elongation	ıtion	Reduction of Area	ea	Hardness (BHN)	Cha	Charpy (@ -50⊔F (FTLB)	Direction		
(KSI)	(KSI)	(%)		(6.)		1	07	(99) 85 12 09		42	- 2
	0.97	33		69		141	0%,	11, 50 (00)			
49.0										10 - 10 - 10 N	NO
				MISC	MISCELLANEOUS	EOUS			CONFORMS	LO BA	000
									YEAR	YEAR WIDISM TO THE	1
								844e - 50	1084	N13-8440-50	01-0
Steelmaking Process: Condition of Material	Steelmaking Process: Condition of Material: Normalizing Temp @ 1675'F;	lizing Tem	p @ 1675	'F; Time (min) 420.	in) 420.		8	Ro-134824	- want	2 5	5 FEB 2 1 2014
Crain Size:									STAMED BY		
Olam Sarvi											

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Quality Assurance Representative Signed:

Note

Original Materials for CHAITP, 0.: 2157 W, 0.: 2454



Edmonton, Alberta T6B 2M5 6803-71 Street

780-450-0298 780-450-9757 Fax: Phone:

MILL TEST REPORT

Date: January 31, 2008

Heat Code:

NACE: MR0175 & MR0103 Description: Spectacle Product 6-150, 8-150, 2 ½-150, 6-1500

Material Designation: SA516-70N

Material Supplier: Baoshan Iron & Steel Co., LTD. via Edmonton Exchanger

Work Order: 80203, 80876, 84116, 99259 Heat Number: 408258-7313446300

	V Ti N	.000 .014 .0021
	Np	.016
	AL	1
%	Sn	.0010
MICAL COMPOSITION %	Cu	.20
COMP	Z	.31
EMICAL	Mo	00.
CHE	Ċ	.20
	Si	.29
	S.	.0010
	а	200.
	Mn	1.11
	0	.16

	Test CE Direction	.38
	Charpy @ -51□F (FTLB) Di	67, 75, 64 (69)
PROPERTIES	Hardness (BHN)	151
MECHANICAL PROPERTIES	Reduction of Area (%)	
	Elongation (%)	25
	Tensile Strength (PSI)	76850
	Yield Strength (PSI)	54810

CONFORMS TO SA SIB-TON	108 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
S	8440-50 134824	
MISCELLANEOUS	Steelmaking Process: Condition of Material: Normalized @ 900°C for 15 minutes. Grain Size:	
	Steelmaking Process: Condition of Material: Grain Size:	

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Quality Assurance Representative Signed:

Note:

ASTM ASIG-70N Global P.O.: 16739 W.O.: 80203



rta

MILL TEST REPORT

Date: October 30, 2007

Heat Code: JYZ

Description: Spectacle Product 6-150

Material Designation: SA516-70N

NACE: YES

Material Supplier: Posco via Edmonton Exchanger

Heat Number: SB73972-PB35702402

Work Order: 78357

CHEMICAL COMPOSITION %

F	T	V
	Z	-
	Ti	.001
	Λ	010
	Nb	
	AL	.034
	Sn	1
	Cu	1111
	Z	.23
	Mo	000
	Ċ	.02
	Si	.351
	S	9100
	l d	.0085
	Mn	1.155
	ပ	.1722

MECHANICAL PROPERTIES

	CE	.39
	Test Direction	
	Charpy @ -51□E (FTLB)	119, 123, 128 (123)
A TONE	Hardness (BHN)	151 6
	Reduction of Area (%)	1
	Elongation (%)	24
	Tensile Strength (KSI)	75.7
	Yield Strength	51.3

	MISCELLANEOUS	CONFORMS TO SA 516-70 N
		YEAR LOUGO, TO 11 ASK
Steelmaking Process:	05-04h8	JOB# NO13 -8440-50
Condition of Material: Normalized @890'C 20 min.	ormalized @890°C 20 min.	24 rear
Grain Size:		Strawer av A . FEB 2 1 2

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Note:

Signed:

Quality Assurance Representative

ASTM A310-TON Gubbi P.O.: 16526 W.O.: 78337



6803 – 71 Street Edmonton, Alberta T6B 0A5

MILL TEST REPORT

Date: July 13, 2007

HEAT CODE:

Description: Spectacle Product 2-300, 8-150, 6-150

Material Designation: SA516-70N

NACE: MR0175

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 10079-549026

75561, 78357, 82247 Work Order:

CHEMICAL COMPOSITION %

	Ь	S	Si	Cr	Mo	Z	Cu	Sn	Al	NP	Λ	Ξ	Z
- 1													
	800.	5000.	.361	.041	.020	590	.036	-002	.042	.001	.002	005	.0045

MECHANICAL PROPERTIES

CE	.39
Test Direction	
Charpy @ - 51°F ← (FT.LB)	105, 117, 117 (113)
Hardness (BHN)	145 K
Reduction of Area (%)	****
Elongation (%)	26.0
Tensile Strength (KSI)	76.6
Yield Strength (KSI)	53.8

	MISCELLANEOUS	CONFORMS TO SA 516-76 N
		YEAR (1010 D), YOU AD
Steelmaking Process:		8440-50 1001 1001 0S-0440 8
Condition of Material:	Condition of Material: Normalized (a) 1670'F, air cooled.	120 80 WEM#
Grain Size:		STAND BY L. FEB 2 1 2014

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Quality Assurance Representative Signed:

Note:

ASTM AS16-70N Global P.O.: 16279 W.O.: 75561 Original Material:



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757 Fax: 780-450-0298

MILL TEST REPORT

Date: November 20, 2013

HEAT CODE: (UYB)

Description: Spectacle Product 2-600, 4-150

Material Designation: SA516-70N

Material Supplier: Ruukki via Canadian Plate Products Ltd.

Heat Number: 69196-033

Work Order: 125093

NACE: Conforms to Nace MR0175/ISO 15156-2 2009 Annex A & MR0103

Mn P																
1 1 1 0 011 001 32 0.07 0.04 0.04 0.01 0.02 0.003 0.038 0.013 0.004 0.04 0.04 0.01		M	a	U	i.S.	Ç	Mo	ž	Cu	SN	В	AL	qN	^	Ti	Z
1 1 1 0 011 001 32 07 004 04 011 002 0003 038 001 013 004)	INTI	1)	,							000	100	010	100	200
	101	1 10	011	001	.32	70.	004	.04	0111	.002	.0003	.038	.001	.015	+00	COO

			MECHANICAL PROPERTIES	PROPERTIES			
					1		
Yield Strength	Tensile Strength	Elongation (%)	Reduction of Area (%)	Hardness (HBW)	Charpy @ - 51°F (FT>LB)	Test Direction	CE
(KSI)	(ICAI)	(6.)		1	110 00 00 (00)		3.6
51	75	28		159-166	119, 92, 63 (96)		
,							
			MISCELLANEOUS	ANEOUS		GOMFORMS TO	N-DL-916 AS TO SA STANDING
						3	70 10 Eb. 70 11 ADO
Steelmaking Process:	cocess:				8440-50	2	181 Nov3-8440-50
Condition of M	Condition of Material: Normalized	pez			Pa-134824		15,
Grain Size: AS	Grain Size: ASTM Specification A20/ A 20M	A20/ A 20M				VI CHOUNT HY	SEB 2 1 2014
						CHARLE OF	

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product.

Quality Assurance Representative

Signed:

ASTM ASIGNIN Gubal P.O.: 22197 W.O.: 12593



6803-71 Street
Edmonton, Alberta
T6B 2M5

Phone: 780-450-9757 Fax: 780-450-0298

MILL TEST REPORT

Date: April 9, 2013

NACE: Conforms to Nace MR0175/ISO 15156-2 2009 Annex A & MR0103

HEAT CODE: TUO

Description: Spectacle Product 2-300

Material Designation: SA516-70N
Material Supplier: Ruukki via Edmonton Exchanger

Heat Number: 58263-013

Work Order: 120786

CHEMICAL COMPOSITION %

z	003
Ti	005
>	800
CA	i.
В	0000
Al	.037
Sn	.003
Cu	.013
ïZ	.03
Mo	.004
ڻ	×05
Si	.35
S	.001
4	010
Mn	1.11
C	.180

	ection C.E.	38
	Test Direction	
	Charpy @ - 51°F (FT.LB)	86, 81, 99 (89)
CHANICAL PROPERTIES	Hardness (BHN)	146
MECHANICAL	Reduction of Area (%)	1
	Elongation (%)	26
	Tensile Strength (KSI)	75
	Yield Strength (KSI)	51

MISCELLANEOUS	0 3	MICHANS TO SA 216- 101N
	2440-50	108. 8440-SO
<i>-</i>		7/
Condition of Material: Normalized @ 1688'F.	B-134824.	ברבת זין יווע
Grain Size: ASTM Specification A20/ A 20M	31	CHEED BY TO THE TANK

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Note:

| Original Mitorial plate | ASTAL AST6-70N | Global P O 2160S | W O 120786



Edmonton, Alberta T6B 2M5 osus-/1 street

MILL TEST REPORT

HEAT CODE: (NZY), 3/8" WT.

Description: Spectacle Product 2-300, 2-600 Material Designation: SA516-70N

NACE: MR0175

Material Supplier: Dillinger Hutte via Edmonton Exchanger

Heat Number: 16154-444052 Work Order: 99474, 102075

Date: July 8, 2010

(3) B124-8

1-8440-50

YEAR BOIGED, TO 11 ACO (2+1 26 E42 JOBS DO13 -6440-50 COUTORIUS TO SA 516-76 M.T SIGNED BY. TEM#

					CH	CHEMICAL COMPOSITION %	L COM	POSIT	% NOI						
	;	4	O	5	č	Mo	Z	Cu	SN	Д	AL	NP	Λ	Ti	Z
O	Mn	ч	2	5	5					0	0,00	010	000	003	004
	112	011	0007	.342	.055	015	.027	024	000	.0003	.043	010.	000.	Coo.	
148	71.1	110,													

Yield Strength Tensile Strength Elongation (%) Reduction of Area (BHN) Hardness (FT>LB) Charpy @ -51°F (FT>LB) Test (CB) CE (KSI) (%) (738-151) 142, 130, 153 (142) (35) 55.8 74.7 37.0 MISCELLANEOUS (35)				MECHANICAL PROPERTIES	PROPERTIES			
74.7 37.0 — 138-151 142, 130, 153 (142) (MISCELLANEOUS	Yield Strength	Tensile Strength	Elongation (%)	Reduction of Area	Hardness (BHN)	Charpy @ - 51°F (FT>LB)	Test Direction	CE
74.7 37.0 — 138-151 142, 130, 153 (142) MISCELLANEOUS	(ICA)	(Text)						
	8 8 8	74.7	37.0	1	138-151	142, 130, 153 (142)		35
MISCELLANEOUS	2:00							Į
				MISCELL	ANEOUS		,	
	Choolmaling Propess	- DDDDDD						

Steelmanng 1 1 occs

Condition of Material: Normalized @ 1670'F, air cooled.

Grain Size:

Note: The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product

Quality Assurance Representative Signed:

ASTM A516-70N Glabal P.O.: 18827 W.O.: 99474



Edmonton, Alberta 6803-71 Street T6B 2M5

780-450-0298 780-450-9757 Phone: Fax:

MILL TEST REPORT

Date: November 20, 2013

Heat Code:

Description: Spectacle Product 2-150

Material Designation: SA516-70N

NACE: MR0175/ISO 15156-2 2009 Annex A & MR0103 2007 Material Supplier: Voestalpine Grobblech GmbH via American Alloy Steel

Heat Number: 931945-254281-2

Work Order: 125093

				CH	CHEMICAL COMPOSITION %	COMPC	OSITION	0%					
Z Z	d	v	:Z	۲	Mo	ï	Cu	Sb	As	qN	٨	Ti	В
	900' 09	6000	.328	.026	700	260	158	.0020	.0020	01	.004	005	0000
-				MEG	ECHANIC	AL PRO	CHANICAL PROPERTIES	Si					
Yield Strength	Tensile Strength (MPa)	trength a)	Elongation (%)		Reduction of Area (%)	a	Hardness (BHN)		Charpy @ -50□C (J)	ار ر	Test Direction	CE	H
396	539	6	25.2		1		166-174 4		137, 184, 167 (163)	(163)			40
					MISCELLANEOUS	LLAN	TOUS				CONFORMS	CONFORMS TO BA 516-70 Z	7' 6
Steelmaking Process: Condition of Material: Normalized @ 920'C, 10 min, air cooling.	Process: Material:	Normalize	.d @ 920°.	C, 10 mir	ı, air cooling	2,0			8440-50 Po-134824	50	YEAR JOSE A	17 Selve-50	64We-50
Grain Size: ASTM Specification A20/A 20M	ASTM Spec	ification /	420/A 20I	M							STEWED BY		2 1 2012

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Note

AUTHUNSTON Glafort P.O.: 22197 W.O.: 125911

Quality Assurance Representative

Signed:



780-450-9757 780-450-0298 Fax: Phone:

MILL TEST REPORT

Date: May 30, 2012

NACE: Conforms to Nace MR0175/ISO 15156-2 2009 Annex A & MR0103

Heat Code: [ROB] //4" WT.

Description: Spectacle Product 2-150

Material Designation: SA516-70N

Material Supplier: Dongkuk Steel via Edmonton Exchanger

Heat Number: K1131220-A165900-01

Work Order: 114829

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		Ľ.	000		
		Λ	200	700.	
		N _p	001	100.	
		T.Al	000	.023	
%		Sn		1	
CHEMICAL COMPOSITION %		C		.01	
COMPC	To the second se	ž		.01	
FMICAL		Mo	OTAT.	.001	
		ځ	5	.016	
		5	50	37	
			Ø	001	100.
			4	010	710.
			Mn	,	1.44
			S		.17

Yield StrengthTensile StrengthElongationReduction of Area (%)Reduction of Area (BHN)Hardness (BHN)Charpy @-51 \(\text{B}\)Test (FTLB)(KSI)(%)24151 \(\infty \)107, 107, 100 (105)				MECHANICAL PROPERTIES	PROFENIES			
78 24 151 <	ld Strength	Tensile Strength	Elongation (%)	Reduction of Area (%)	Hardness (BHN)	Charpy @ -51□F (FTLB)	Test Direction	CE
78 24 151 <-	(KSI)	(ICN)						414
	C	78	24	1	151	107, 107, 100 (105)		LYLE

NoT-412 Not 316-70N	1012 - K440 - 60	7	13 5014	903H20 8V
1-8440-50	,			
MISCELLANEOUS			-1	
			Condition of Material: Normalized @ 16/0'F, 25min.	fication A20/ A 20M
		Steelmaking Process:	Condition of Material:	Grain Size: ASTM Specification A20/ A 20M

The information contained here is a copy of the information for the raw material provided to Global Machine & Supply Inc. for the above mentioned product. Quality Assurance Representative Signed:

Note:

ASTM AS16-T0N Glebal P.O.: 20748 W.O.: 114820

INSPECTION CERTIFICATE

SEAMLESS CARBON STEEL BUTT WELD TRANS AM PIPING PRODUCTS LTD. FITTINGS

> Customer Product

CSA 245.11-09 Cat I/EN10204 3.1/NACE MR0175-09/ISO 15156-09/MR0103-10 ASME SA/ASTM A234 WPB-11a

17, TUNG LI ROAD HSIAO KANG, KACHSIUNG, TAIWAN, R.O.C. TEL:(07)831-9157

SIGNED BY. 05-0448-4

00200016-040

28 2013

CI-13-233

(LODED, MILLED

YEAR

CONFORMS TO ST. 134 WPB

44050

8/3

80f

104

FAX:(07)821-7500, 831-2942

Certificate No Order No 2013/10/04

Date CHUP HSIN ENTERPRISE CO., LTD. 2 4 3 4 5 4 4

T					T										٦
			Ave.	9			REMARK								
Dimensional Inspection	GOOD	r Test	Charpy VNotch Impact Value	3		_			98.0		HOT				
Dimensio		Impact	Size of specimen	63			Heat Treatment				620°C TO 980°C HOT	FORMED			
2			Test	16		Hardness	ğ	НВ		197	134	1	13/	125	20
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spection	00	*,	0	1 301			ш	*	30		30.5	31	31	45	46
Visual Inspection	G005		Raw Certificate No.	TANJIN 12103314 BAOSHAN 1101040006301 HENGYANG C201317956-1	1022	Fension Test	57	P.S.1	00009	95000	63800	75500	68500	66300	68600
· .			Raw O	TIANJIN 12103314 BAOSHAN 11010 HENGYANG C2013:	TIANJIN 12121022 TIANJIN 12121008	ΝŤ	Y.S	P.S.I	35000		41499	45271	47883	44256	45271
							CE	X100		20	77	53	31	33	37
ion			Heat No	311963 320252 1233162V	331619 321678		Q.	X1000 X1000		20	23	-1	7	п	4
Specification for Inspection	9-2007	-	T Q	963C 252D	A619 1673		>	X1000		8	н	н	4	7	7
tion for	ASME B16.9-2007		Quantity Heat ID	9 2	J4 H		Mo	X100		3	7	П	0.9	7	0.5
ecifica	ASIA		Quanti	125	2 4	ion%	٥	X100		4	ø	11	4.4	7	77
Ŋ						Chemical Composition%	Ž	X100		5	m	m	2.8	-	6.5
				\$ -1 V	448	nical C	3	X100		4	9	7.	6,5	2	7
			_			P.	S	X1000		80	o	9	10	4	-M
<u>m</u>	_		Description				۵	X100 X1000 X1000		25	18	18	6	15	13
Material	ASTM A106 GR.B		De	888	STD	2	Ę	X100	29	135	52	52	82	83	90
Starting	STM A1			90 E L/R SMLS STD 90 E L/R SMLS STD	90 E L/R SMLS STD		ß	X100	St	-	21	23	21	20	74
Sta	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			90 E L/R SMLS STD 90 E L/R SMLS STD	90 E L/R SMLS STD	2	U	X100		22	16	17	15	120	2 00
			Item	177			Specifi-	cation	M Ci	Max	-	-	1	. 0	27

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

0 B EFBOM BM

Spec

Alco Gas & O Heat Number: Trans Am Pip Trans Am Pip 0 2 4 0 0 5 9 # u l l 5 3 1 D



INSPECTION CERTIFICATE

samatpeak nor. 10130 Theidand

TO EN10204 3.1

lob No

Purchase Order No

N-N

Purchaser _ CCTF CORPORATION

1. 2012200113 14/02/2012

6000 4-8440-SD Dunensional Inspection THE STATE OF THE COST OF THE ATTREMENT MOED, JOH 400 -- DEC 0 3 2013 Bam h52 50 01 530 0160 2613-8440-50 - 13418C 7510420 7510632 7510420 7511299 7510292 14-51-0CK Nem No HARDNESS MAX Hardness Actual Data Visual Examination HB 118 . 145 D. HB 118 - 145 HB 118 - 145 HB: 118 - 145 125 - 140 Good 197 IIB 211PCACE INS. An Cooling Ospecification for inaternal made 30 45 38 38 47 88 ASME B18 9-2007.818 25-2007 Heat Treatment (Note 1) 415 655 Specification for Inspection Tension Test *2 503 502 490 477 532 < K ⋖ < MPa 240 313 359 329 322 297 Y.S 100/750 13/320 79/750 11/60 8 Quantity CE 35 33 8 36 34
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SA 2245,11-09 GF 241 CAT 1.5S NACE MR0175ASO 15136-2 09&AMR0103-10 (T:+1) 80 0 0 0 15 2 Specification for Material Made from Seamless Pipe ASTM A234-11/ASME SA234-10 Gr WPB 40 0 2 9 4 9 Chemical Composition % 40 3 CV Product & Size 40 90 ES WPB 1 1/2 S40 90 EL WPB 1 1/4 S40 90 EL WPB 4 S404 90 EL WPB 4 S40 45 EL WPB 6 S40 28 9 2 9 9 8 13 14 12 14 106 82 78 82 86 87 S Si 100 100 10 19 20 92 19 17 10M00026 11N00007 11N00034 11F00006 11N00004 MFG No. 4890208 8 19 19 10 Material Heat No. Specification JOKB458 J0K5087 J1L9044 JOL6183 Max Min 06426 MC-550 S N

(Note 11.5. Hot formed with final temperature

of the letters of the body to the following sections of content or sections and one formal to meet the requirements C.E. C. + Min/Go (Crt Mos V V5) (Na) Cu)/15

MAGNETIC TARTICLE EXAMINATION FOR THEOMEN

We hereby verify that the product described beyon has been manufactured in accordance with the specifications concerned and also with the purchaser's requirements and that the test results shown betein are correct

*1 | Esymbolized wall thickness in man *2 YSYield strength TS - Tensile strength T - Florigation

Quality Assurance Manager That Benkan Co., Etd

MC-819	Phrehise Deder E1-3263	Jer No.		Inh No	o				EZ C	IO EN10204 3.1				D 01	Semutprakern, 10130 Thailand M Y Certificate Ni 01/03/2013	in, 10130 Thailand Certificate No T- 2013140274
No.	MFG. No.		×	STERREZ	ade froi	Specification for Mab Made from Seamless AZD-11ASME SAZA-10G CSAZA611-08 Gr.201 C8T 1 88	Specification for Material Made from Seamless Pipe ASTM AZM-11ASME SAZM-10 GEWPE CSA ZM6 11-08 OF 201 OF 18	7 V B			Spec	ification f	Specification for Inspection ASME 816.9-2007,816 26-200		nation	Dimensional Inspection Good
11 (%)	(0)			Produc	Product & Size	ari ari		3	£.	0	Quantity		Heat Treatment (Note 1)		Hardness Adlust Dala	Boron(%)
1 0 000	00	30 EL	90 EL WPB 3 STD	3 STD	*						200		∢		HB: 130,132,136	00000
14																
m																
4		-			ļ	1										
ν,																
	2 4			Chemica	Chemical Compositions %	alitions %							Tension Test *2			
Spec	Specification C Si	Mn	Д	S	-		ð	Mo	>	g	CB	XS	13	pc		
4	Min x 100 100	, x 100	1000	1000	, 100	100 1	001 _x	100 X		1000	100		МРа	%	HARDNESS MAX	امحا
	Max 10	23										240	415	30	197 HB: GOOD	00
Materia	Material Heat No. · 23	106	20	10	40	40	40	1世	80	20	40		655		1-64	-6440-50
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2															- GIOE	PRIOED, POIL ADD
ю												S	1-Stock		108 NO13	1013-8440-50
4											Δ.	No. 12	33700		CEM#	20
8															SIGNED BY A	NOV 2 2 2013
lote I) A : Hot datedal accordin	Normal A : Hat formed with final temperature between \$20°C-380°C. Air Cooling N : Normalizing 910°C.x0 5 HR. Air Cooling VN : Normalizing 910°C.x0 5 HR. Air Cooling (Specification for material mit heards according to Ar-Signey Entrol 16050 15156-1-2008 & APRIL 05-2010 (Specification 3)	a 620 °C-980	C, Air Co	oling N :	Normeliz	ing 910°Cs	10 5 HR. A	ir Cooling	N: No	malizing 9	910°C×0.5 H	R Air Cooling	(Specification for ma	lerial me	entiture from Specific	Talk and the control of the control
The fittings was: $E = C+Mn/($	The ithings was maintained, at ampled based and inspected in accordance with the specification, and was lound to meet the requirements $C E = C + Mn/6 + (Cr_0 + Mo + VyS + (Ni + Ca)/15)$ MAGNETIC PARTICLE EXAMINATION FOR	negunan	ce with the MA(Specification	n, and was PARTICE	LE EXAN	th the specification, and was lound to meet the requirements MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:	N FOR T	EE ONE.	3 4					Rustrage Kampiranon	nonalo
Je hereby cer	We hereby certify that the product described herein	rein has be	en manu.	factured	has been manufactured in accordance w	lance wit.	has been manufactured in accordance with the specifications concerned	cification	S CONCER	ned .				_	Quality Assurance Manager Thai Renkan Co Tid	e Manager 'o Tri

INSPECTION CERTIFICATE

BKL

TO EN10204 3.1

Job No.

Purchase Order No.

E-No.

Purchasor: VANLEEUWENFIPEAND TUBE (CANADALING

58 Soi Watkrungi, Bangkru, Prapadaeng. Samutprakam, 10130 Thailand: Thai Benkan Co., Ltd

Certificate No. > Σ Ф

MC-936	45001560													1		Certificate INO
					Speci	Specification for Material Made from Seamless Pipe	on for Material Seamless Pipe	terial Pipe			Spe	Specification for Inspection	r Inspection	Visi	Visual Examination	2013040074 Dimensional Inspo
No.	MFG. No.		CSA 224	AS1 5 11-09 Gr	ASTM A234-11/ASINE SA234-10 Gr.WPB CSa 2245 11-08 Gr 241 CAT 1 SSINCE MEDITARSO 15168-2,088/MR0103-2010	S MACE A	\$A234-10	Gr.WPB 5169-2,098	MR0 (03-20	5		ASME B16.6	ASME B16.9-2007, B16.25-2007	6	Good	Good
				<u>-</u>	Product & Size	Size			(II-II)	(1)	Quantity	1 3	Heat Treatment (Note 1)		Hardness Actual Data	for No.
1	13A00058	3,	1 → 0€	90 EL WPB 3 S40	S40						87/1,000		A		HB: 118 - 145	3518
2	[13400060]	3	30 EL 1	WPB 3	90 EL WPB 3 S40 ←	1					834/1,000	300	4		HB: 118 - 145	3518
3	12K00007	3,	30 EL \	90 EL WPB 4 S40	S40						154/800	00	A		HB: 118 - 145	3523
4	13800011	0,	30 EL \	90 EL WPB 8 S40	S40						77/200	2	¥		HB: 118-145	3534
5	13B00086	3,	30 EL √	90 EL WPB 12 STD	2 STD						40/250	02	*		HB: 118 - 145	3540
Specification				Ü	Chemical Composition %	mposition	%						Tension Test #2	-		
openingin	ပ	\neg			S Cu		່ວ່ 	r Mo	V O	NP		YS	TS	T.)		
Min	100 X 100		100 K	0001 x	1000 100	00 x 0	00 x 0	001 _x 0	0 X 1000	0 X 000	0 100		MPa,	%	HARDNESS MAX	×
Max		10	53									240	415	8	197 HB:	SOUR LANG-KO
Matcrial Heat No.	t No. 30		106	20	58	40 4	40	40	15 8	80	20 45		655		0	20 20 10 20 20 20 20 20 20 20 20 20 20 20 20 20
1 J2L8512	18	20 8	85 1	10 4	-	N	4	~	0	0	33	324	496	58	20	132098
2 J2L8512	18	20 8	85 1	10 4	de	2	4	4	0	0	33	324	496	58	681KO26 TO 61	BENDETIC LSA WAS
3 24132	16 2	24 8	83 1	11	7	8	7	ო	m	_	34	303	470	34	BOIN HARL	MOED, YOUADD
4 J2KB179	29	80	80 2	22 5	7	2	4	7	0	0	35	264	479	41	7	20
5 1-94347	19	24 8	1	14 4	-	_	-	v	۲,	7	33	364	505	44	S rate	NOV 2 2 2013

(Note 1) A: 11st formed with final temperature between 620 °C-980°C, Air Cooling N: Marualizing 910°Cx0.5 HR. Air Cooling

The integrations incurrent competitionand inspected in accordance with the operationand was found to meet the requirement C.E. = C.+Min 6-(CreMo-V)/24(Mi+Cri)/15

* L. *T** symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation

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.

Note for WPB.For each reduction of 0.10% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.35%

Quality Assurance Manager Thai Benkan Co., Ltd. Aumanaya Lampingrang

Order#: 312846 Seq: 5 PO#: 133700 Heat#: 2J2770 Mill: Rigid
Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB

PURCHASER	ER SEYBOLD	α.			U								UA E	71-00-0107	21-10	1
STANDARD		ASTM A234 WPB-11 ASME SA234 WPB-04	45				亩	INDUSTRIES CC	INDUSTRIES CO., LTD. CHUNG RD.NIAO-SONG,	ر, LTD.			ORDER NO:	9!	7006127/E1-3562	62
MATERIALS	it.	CSA Z245.11-09 Gr. ASTM A106 Gr.B	241 CA		Service	3분	AOHSIUN(EL: 886-77	KAOHSIUNG 83301,TAIWAN TEL: 886-77310527~8	AIWAN				P.I. NO:): 2 01-2		ľ
MSP. SPEC.	o" ="	16.9 -07	1			F. ACCOR	FAX: 888 77315887 ACCORDING TO EN102		15887 EN10204/DIN50049/3.1	9/3.1			CERTIFI. NO	13013	2-8	1440-50
	PRODU	PRODUCT & SIZE		QUANT	ANTITY PCS	MFG NO	Ō	VISUAL & DIMENTIONAL INSPECTION	AL & TIONAL STION	HARONESS MAX 197 HB		HEAT TREATMENT	MACNETIC PARTICLE EXAMINATION	W 0	3000	¥ 0
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l III) _		ι.	20	2,10700	2	9	GOOD	127-134	4	∢			234 V 20	a
Щ	ELL 45 LR 3" STD	٥		Ω	20	2D6870	02	9	GOOD	137-141	_	4	CONFORMS TO SA			
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ī ī	ELL 45 LK 8" KH			2002	2 5	0.0770	50	8 8	G009	126-134	1	(∢	TEN 4	70		
<u>, m</u> <u>o</u>	ELL 90 LR 4" STD	1 0 _		250	2 2 2	2H5901	₅ ≥	888	6000 6000	128-136 142-145	വയ	« «	SIGNED BY	NON	22	2018
Ĭ						CHEMICAL COMPOSITION %	COMPO	SHON %					IIIS ABID.	TEST TO		
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	(NOTE): A:HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING. N:NORMALIZING AT TEMPERATURE 880°CX0.5HR, AIR COOLING. N:NACE MR61-75-090815015156.2; NACE MR 0103-103-3671585-CTORY NACE MR61-75-090815015156.2; NACE MR 0103-103-3671585-CTORY NOTE: THE DESCRIPTION HAS REEN MANUFACTURE.	A-HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980 NANORMALIZING AT TEMPERATURE 880°CX3.6HR,AIR COOLING, MACE MR. D4-5-508/S0/S16.5L, MACE MR 0103-10; SATISFACTIORY MACE MR 0103-10; S	TEMPERA SO15156.2	EMPERAT	SATURE BETWEEN 620°C-98 880°CX0.5HR,AIR COOLING E MR 0103-10:SATISFACTOR	VEEN 620' AIR COOL SATISFAC	C-980°C, A ING. TORY S BEEN M	IR COOLIN	RATURE BETWEEN 620°C-980°C, AIR COOLING. 880°CX0.5HR, AIR COOLING. E MR 0103-10:SATISFACTOR. E MR 0103-10:SATISFACTOR. E MR 0103-10:SATISFACTOR. E MR 0103-10:SATISFIN HAS REEN MANUFACTURED IN ACCORDANCE	CCORDA	Ш S		6	9)	्रं	3
- > 1	WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE	:IFICATIONS	CONCER	VED AND	ALSO WIT	H THE PUF	3CHASER	S REQUIR	REMENTS /	AND THAT	뿓		MANA	MANAGER OF G.A. DEPT	DEPT.	
_	TEST RESULTS SHOWN HEREIN ARE CORRECT.	SHOWN HE	REIN ARE	CORRECT	'ب											



INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO., LTD.

81,MOG4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MUANG SAMUTPRAKARN THAILAND 10270, Tel : (882)701-5226

MAY 29, 2008

Date

Order No. Job No. Job No. CARBON STEEL BUTT WELDING FITTINGS SUMTONIO METAL INDUSTRES. LTD.	Purchaser: ALLIED FITTING CANADA	ED FITTE	ING CA	NADA			j		APDE	FROM	SEAR	(ESS	STEE	MADE FROM SEAMLESS STEEL PIPE	647				Cartificate No.:	te No.:	T08-31083/1
	Order No	ارا			اد	ob No.			_					Produc	٠.					Raw M	aterail Pipe Meker
Standard	091107-MZ	/3									CAR	30N S	Æ	BUTT	WELD	ING FI	TTING	(0	<i>w</i>	UMITOMO N	METAL INDUSTRIES, LTD.
ASTIN CASTA CAN WINDOWS	spection Sta	ndard			Materi	lel Stano	dand		-						-		-			L	
No. Product code	ASME B16.9-07 ASTM A960-07 NACE MR-0175-03, W	IR 0103-05		A A234-1 5 SA234 7245.11-	WPB WPB -02 GR2	exest	at musian	IL URAGE		pearar	9		6001	_)imensi	<u>.</u>	000	۵		U,T.W,T, INSPECTE
C Si Min P S Cu Ni Cr Misor Ni Cr	Manufacturing No.		act code		Ma	tarial	_				Artic	युऽ ४० व	é			****	S	ntity			Note.
C Si Mn P S Cu Ni Cr Mo V Nb Ti B Ca Ai C.E. Y.S. T.S. E Hardries	84059				\$	PB		S				RADIUS		BOW	(c)	J		Pos.	ANAJI MA	ING MANUFA TERIA (THAU DUGED FROM	CTURED BY LAND) CO.L.TD. A A106 GR.B. SEAMLESS PIPE
C Si Mn P S Cu Ni Gr Mo V Nb T1 B Ca Ai D.E. V.S. T.S. E Hardress							ਠ	semical	Сошро	sition (9							lechanical	Test		
X100	pecification	O		Mn	Д	S	-	-	-		ž	-	-	පී	R	C.E.	Y.S.	T.S.	ш	Hardness	
10 29	Min.	-	COOL	X 0013	1000 X	1000 X	-	-			_	-	X1000	X10000	X1000		2	Pa	8	HB	
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24 58 11 9 2 2 5 0 0 0 0 0 0 0 0 0	Fitz Charge No.	30		106	-		-				2	2	عا	65	ĵį.	ī		655		187	
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on, um, an increase of 0.06% um, an increase of 0.06% a maximum of 1.35% as par fact nota D VEAR VEAR)E. = O+ Mn 6	+ 0+	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1 1	رق					Inspection	n Cartif	cate:	ACCOR	NA TO	EN 1020	4, 3,1:2	904		ISO 9 Certif	001: 2000 Ma	enufacturing Company Cerdificate No. THO700005
um, en increase of 0.00% um, en increase of 0.00% um, en increase of 0.00% VEAR 10 ED, 10 II B. OS 1 - Strock TEAR 20 TEAR 20 TEAR 20 TEAR 20 TEAR 20 TEAR 20	.S.= Yield Strer		S,= Ter	sile Str	ength,	E = B	Tongertlo	Ľ.								122	13	0			
1-510CK 1081 20 Po-153700 108101 NOV 22 2013	or each reduct nanganese(Mn) of ASTM A234—	don of 0.01 above spe 02/ASME	SA234	the spec eximum 1 Table 1.	offied as will be pr	rbon(C.) ermitted	Medmu up to a	m, en ínom maxémum	rease of of 1,35%	0,06% #s per fi	sot note	۵	8 %	SHORMS	TOSA	200	2011	180			
Po-153700 NOV	W / Forming to REDUCER & C.	emperature AP / Norm	a 780°C selfzing:	- 930°C	and e	ooled in	still «ir		1	5	5		\$		-	20					AT-2
	nareby cartify t	hat the me orms to th	aterial de le stende	sscribed and as sp	herein h	above.	duly	-	0	3	27	٥	¥ 15	1000	5	NON	222	2013	()	M	1

Order#: 312846 Seq: 5 PO#: 133700 Heat#: 07P00006 Mill: BKL - Thai Benkan 3 | 9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB Part#: WF 3 STD 90 PB Part Desc: Weld Fitting Inspec (Note 1) A.: Hot formed with final temperature between 620 °C-980°C, Air Cooling N.: Normalizing 910°Cx0.5 HR. Air Cooling *N.: Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plane). S.: Aures Relieving 673° Cx0.5 HR. Air Cooling *N.: Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plane). S.: Aures Relieving 673° Cx0.5 HR. Air Cooling (Specification for material made from plane). S.: Aures Relieving 673° Cx0.5 HR. Air Cooling (Specification for material made from plane). S.: Aures Relieving 673° Cx0.5 HR. Air Cooling (Specification for material made from plane). S.: Aures Relieving 673° Cx0.5 HR. Air Cooling (Specification for material made from plane). 58 Soi Watkrunai, Bangkru, Prapadaeng Good Quant. Assurance Manager Certificate No. Samulprakam, 10130 Thailend. Thai Benkan Co., Ltd. BKL Thai Benksn Co., Ltd. GOOD HARDNESS MAX Visual Examination Symbol No 7510381 7511289 7514807 197 HB :: Good × × 30 32 40 8 B Q YEAR PO LOED, JOH ADD 108. Co13-846-51 1 MOV 2 2 2013 CONFORMSTORA 254 WPS 415 655 Specification for Inspection Pension Test *2 472 489 487 2 ď ⋖ ď MPa. ASME B16,0-2003 INSPECTION CERTIFICATE 2 240 312 296 358 SS 160/320 Quantity 500 C.E. ത 100 32 32 83 TO EN10204 3.1 1000 20 ピ V O 15-0448-1 MAGNETIC PARTICLE EXAMINATION FOR THE ONLY: -Po-133700 0.00 100 1000 8 > O • -5 CSA Z245,11 GR241 CAT I NACE MR0175-2003 Cr Mo ASTM A234-088/ASME \$A234-04 Gr. WBP ന 0 4-Specification for Material Made from Seamless Pipe 40 x 100 4 S ç, Chemical Cemposition % 용 100 Z n (1) N 90 EL WPB 3 S40 ← Product & Size 8 J 1000 X EL WPB 12 XS N ന **T** Jeb No. 45 EL WPB 6 S40 28 S N 1 Ψ-100 1000 22 9 4 00 8 106 8 M 67 73 84 Perchase Order No. × 100 2 2 23 47 Si MFG. No. (Heat Identification No.) 07P00006 07N00035 08A00096 C.E. = CHAMBERCHMONVICHONHOUNS Purchaser CCTF CORPORATION 4881537 8 100 00 19 9 U Material Heat No. Specification J6KB837 9-02320 Max. 49524 Min MB-161 E-No. 2 m 4 S ŀΩ 3 4 Š. N 1-1

SIGNED BY

INSPECTION CERTIFICATE Parchaser - COMCO PIPE AND SUPPLY COMPANY

TO EN10204 3.1

Job No

Purchase Order No.

E1-2998

8048 8048 D.M.C

	60	S. Borbight.		A. 11.00			Sweet Service		15-0449-1	18-8326-50	0001C) HR	CONFORMS TO SA LON LAND	1012-8440-CI	70	1 NOV 2 2 2018
Visual Exammation	0 = 0	rlaidness Actual Data	HB: 138,135,139	HB 128 130,132			SAC	% EARDNESSIGN	30 (67 KB	80	34	34 CONFORMS TO		Table 1	VII COMMON IN
Specification for Inspection	ASME 818 9-2007,816 25-2007	Heat Treatment (Note 1)	A	A			Tension Test #2	MPa	240 415	655	7 499	480			
Specificati	ASME	Quantity	36/100	500			Nb C.E. YS	001 x		20 40	34 322	35 4 328			
		(1941)					>	100 1000 1000		15 80	0 0	3			
Specification for Material, Made from Seamless Pipe	ASTM A234-11/ASME SA234-10 Gr WFB CSA ZZAS 11-00 Gr 241 CÄT 1 68						j	(00 × 100 1		40 40	18 6	9			
Specification Made from	1 A234-11/ASME SA234-10 G CSA Z246 11-00 @ 241 CAT 1 68	Product & Size	တ္သ	3 STD ←			deal Composi	X 1000 100	-	10 40	15 10	11			
	ASTA	P	90 EL WPB 4 XS	90 EL WPB 3 S			Sim Sim	100 X 000 X	29	106 50	74 15 6	81 8			دا بره دا مرمانده در
1						1	175	100	0		18	24 B			
	Z E I		55A00125-1	55A00123		1		, 100 100		23	£	4			
	70(%)		0 000	0.003	41	~	 Specification	Min	Māx	Material Engr No	972845	7 22927	е.	A	State 1. State State 1. State

(Note 1) A Brightner will find temperature between 620°C 530°C, Air Careling Ni Neuraliding 910°C, at Cooling Ni Neuraliding (Note 1) A Brightner with the Cooling Ni Neuraliding (Note 1) A Brightner with the Cooling Ni Neuraliding (Note 1) A Brightner And Sand (Note 1) A Brightner (Note 1) A Brightner

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INSPECTION CERTIFICATE

TO EN10204 3.1

Job No.

Purchase Order No.

MC-645

No.

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N

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E-No.

Purchaser: VAN LEEUWEN PIPE AND TUBE (CANADA) INC.

BKL

58 Soi Watkrunai, Bangkru, Prapadaeng, Samulyakem, 10130 Thuiland, Thai Benkun Co , 111d.

Certificate No. > Ξ

In mensional Inspection 0000 3518 (2) (2) 3578 2821 Ign No 34, 20120402st HB: 118 - 145 <---Hardness Actual Data Visual Examination HB: 118 - 145 HB : 120 - 140 HB: 130 - 160 HB: 118 - 145 Good ASME B16.9-2007, B16.25-2007 Heat Treatment (Note 1) Specification for Inspection Teneion Tret *7 ⋖ <€ ⋖ ⋖ Z 385/1,500 69/1,500 46/1,500 24/750 370 Quantity (F.E) SATM A234-11/ASME SA234-10 Gr.WPB & CSA 2246 11-08 Gr.241 CAT 1 SS NACE NIRO176/SO 15156-2.038MR0103-2010 ASTM A234-11/ASME SA234-10 Gr.WPB Specification for Material Made from Seamless Pipe Product & Size 90 EL WPB 3 S40 ← RE WPB 12 X 8 STD 90 EL WPB 3 S40 90 EL WPB 3 S40 90 EL WPB 2 S80 2F00005 12E00012 12E00004 12K00008 12F20071 45001462 MFG. No.

lension Jest * 2	TS E	. HARDNESS MAX	416 30 197 HB: GOOD 1-8440-51	655	479 31 PO#13/473	504 33 confront to 84, 524 1, CPB	486 34 YEAR 1918/50 , 70/18/10	10	5 972694 16 19 79 21 8 15 8 19 5 0 0 35 336 518 31 TO 2 2 2 2 18
Tension	YS	MPa.	240		317	327	319	307	336
	C.E.	001 100		45	33	34	35	32	35
	NP	1000		8	2	0	0	0	0
9	Δ	000I		80	69	0	0	0	0
	Mo	x 100		π	က	വ	rC	-	co.
	ڻ	x 100		40	4	18	17	ব	19
sition %	ï	001		40	n	60	œ	N	80
Chemical Composition %	Cu	-		8	80	14	14	2	15
Chemica	S	x 1000		58	- -	5	4	7	ထ
	4	x 1000		20	10	12	<u>ب</u>	8	77
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	Ç	100		30	16	16	9	18	16
	Specification	Min.	Max.	Material Heat No.	48751	972974	973946	25172	972694
1	1			2	-	2	3	4	5

The fixings was manufactured sampled tasted and inspected in accordance with the specification and was found to meet the requirements C.E. = C+Mn/6+(Cr+Mn+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.

Quality Assurance Manager Thai Benkan Co., Ltd. Mungaph Kangdanson

1-6440-50 7-8390-51 70-132707 INSPECTION CERTIFICATE

JOS-8440-5101 YEAR JOICED, 2241 MYD CONTORNS TO BE 23 4 W P. S. See 2 2 2013 JUNE 28 2008 T08-9859 TEN F ₩ No.

81,MOO4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MUANG SAMUTPRAKARN THAILAND 10270, Tel : (682)701-5226 MADE FROM SEAMLESS STEEL PIPE
--

AWAJI MATERIA (THAILAND) CO,,LTD.

Raw Materall Pipe Maker Product Job No. Purchaser: ALLIED FITTING CAMADA

of the Co			Job No.	19.												
								CAR	S NOS	TEEL E	SUTT WI	CARBON STEEL BUTT WELDING FITTINGS	HTTINGS	ĩs	ымпомо мет	SUMITOMO METAL INDUSTRIES, LITO
1212U/AAW/												-				
Increozopo Standard		Mat	Material Standard	nderd		ī							.=	9		OF INT IMSPECTED
ASME 316.9-57	ASTA A234-07 TIPD ASIAE SACER WARE	124 APB	PD CYC	agit nuo	SIBAT UZERB		Appe	Apparance		GOOD		noisneuniO		2		
NADE MR-0118-05, MR 0103-05 CSA 2245 11-02 GR.241 CATJ	S CSA EZAE	11-02 (3	R241 CA	11									Quentity		*	Note.
Manifecturing No. Prod	Product code		Material					Arti	Article & Size	20				ALFIT	ALL FITTING MANUFACTURED BY	URED BY
84035			WPB		(9)	5TS	08	STD 80 LONG RADIUS ELBOW	RADIUS	SEL	BOW	m.	3- K Z50 Pcs	AWAJI N.	AWAJI MATERIA (THALLAND) OD 110 ARE PRODUCED FROM A108 GR.B SEA	AWAJI KATERIA (THAILAND) 00.110 ARE PRODUCED FROM A108 GR.B SEAALESS PIPE'
					ļ		V						*1 Mechanical Test	al Test		
					Chemical Composition (%)	Corn	positi	(%) no	-			1	× × ×	U	- Hardness	
e	Mn	۵	Ø	ठ	Cu Ni Cr Mo V Nb T	ច់	æ	>	F	00	3		2	8	T	
- Charles and the control of												17, 19 4	STL S	2		

		1															
							76		No line	B. 30,410.	11.4.4.4.	STANKS.	COURSE STAND DESCRIPTION	X1556W	X135 SK X15 UE 5120	0.11.2	
10	0.7.	001110	101100	X1535	021120	4150	012	X NOS	1	N. S.	201	2	The state of the				740
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Max.		5	S.				1	1				,	R	88	E	£	
Cherry No.	30	-	1.06	50	82	40	8	04	5	0	7	4					L
JH10286	1	22 81	89	74	Dal	81	19	ra	2	0	O	(1)	ŧ.	10	13	8	308
	+		380													1	

1SO 5001; 2000 Manufacturing Company Osttined by BV, Cortifoate No. THO7023355

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4] YSE YEG Strangth, IS of Tenalle Strangth, Fin Bongation.

•2 For each raduction of ODIA below the apositing carbonic) Madmun, an increase of BDSX are partition in merganeos(Mn) above aposition maximum will be permitted up to a maximum of 135% as parting note DIASTA ASSACEAZASME SA234 Table 1.

SLBOW / Former temperature 180°C – 930°C and cooled in still air

YE LAYED GOTTEN THAT THE OTHERS DESCRIPED SECTION SECTION TO SECTION TO SECTION THE SECTION SE

Order#: 312846 Seq: 5 PO#: 133700 Heat#: CB798 Mill: TK Corporation Part#: WF 3 STD 90 PB Part Desc: Weld Fittings 3 (88.9mm O.D.) STD LR 90 DEG ELBOW A/SA234-WPB

INSPECTION CERTIFICATE

(EN10204:2004 3 1 / ISO 10474:1991 3 1B)

117-12, Noksan Saneop Daero Gangseo-gu, Busan, 618-817 Korea Tel: 82-51-970-6672

Tel: 82-51-970-6672 Fax: 82-51-831-6886

P.O No.		Plpe & Supply		Certificate	e No.	20130602648 C	Date 2013/06/11
	E1-2337	77-6		Project Na	ame		
Job Na.							
Specification tor Material	ASTM/AS	ME A/SA234 WPB(10 Ed	I, & 11 Add.)NACE MR0175	5-Jay-Vac t: Etarling N	Anterial	GEAMLEGO PIPE	
Specification for Inspection	ASME B	16.9-2007		Dimensio	n and Visual I	nspection	GOOD
Heat Code No	No		Descriptions		Q'ty (Pcs)	Heat Troatmont	
(CH798)	90	ELBOW LONG	STD B.1		106	HOT FORMED 845 で~945 で	
				234 WPF	3		
			JOB# 9013-	8440-51	- 1-1	3440-51	
0050104	201	U B O O I T I O N	SIGNED IN	-NOV 2 2 2013	- Pol.	13370r	
CHEMICAL	Lenna	MPOSITION		Mo Cu V Cb	B CE RI	aw Heat No	
Heat Code No	Spec. Max	-		Mo Cu V Cb 0 15 0.40 0.020 0.020		aw Heat 140	
[HCN]	Min.	0.13 0.29					
CB798	L			0.05 0.06 0.004 0.014 0.03 0.04 0.003 0.012			
MECHANIC	AL F	PROPERTIE	s				
MECHANIC Heat Code No [HCN]	Spec Max.	Y.S T.S Mpa 655	E.L (%)	Hardness Test HB 197			
Heat Code No	Spec	Y.S T.S	E.L (%)	HB			
Heat Code No [HCN]	Spec Max. Min.	Y.S T.S Mpai 6655 240 415	E.L (%)	HB 197			
Heat Code No [HCN] CB798	Spec Max. Min. P	Y.S T.S Mpa 665 240 415 271.4 478.8	E.L (%) 25 4 31 4	HB 197	Reallon and also	o with the requirements of	alls: I for by the above order

□ Reviewed by:

□ Witnessed by:

Approved by:

x 4. start

Head of Quality Control Dep't

Order#: 312846 Seq: 8 PO#: 133700 Heat#: 56C00214 Mill: BKL - Thai Benkan Part#: WF 2 XS 90 PB Part Desc: Weld Fittings 2 (60.3mm O.D.) XS LR 90 DEG ELBOW A/\$A234 WFB 19-8440-50 8440-50 Dimensional inspec 234 WPB 58 Soi Walkausar, Bangkuu, Paspadarng 2 2 2013 2010ED, 2011/20 35.100 50 - STOCK Certificate No Samutprakarn, 10130 Ihadand Berenifel VC-NOV Thai Denyan Co Ltd HARDNESS MAX N W THOUNG HT 3081 2013 Hardness Actual Data Visual Examination 151, 152, 153 HB 119,123,128 123 124 125 151, 153, 154 SIGNED BY Good \succ 197 HB 1 YEAR Z 몆 9 30 % 63 37 34 67 口 67 \Box ASME B18,9-2007, B16 25-290 Meat Incatment (Note 1) 415 Specification for Inspection Tension Test *2 656 469 13 467 495 509 469 ď ⋖ MPa INSPECTION CERTIFICATE 240 340 328 322 322 301 S 200/500 12/30 200 20 Quantity 35 CE , 100 34 32 35 34 TO EN10204 3_1 000 X 20 2 0 Annex A Seel making process is basic organization to the SSC Region 3) Annex A Seel making process is basic organization to the (I:#1) 1000 1000 80 > 0 0 0 0 Note: 1) A : Hot formed with final temperature between 520 TC -850 TC, Air Cooling N : Normalizing 910 TCx0 5 HR. Air Cooling 3 Mo × 100 They wall this specification and was found to meet the reass emerica AS TM A234-11/ASME SA234-10 Gr WPB Specification for Material Made from Seamless Pipe 100 Ü 40 25A 7245 11-08 Gr 241 CAT 1:55 10 5 2 3 Chemical Composition % × 00 ź 2 C \sim 6 Cv Product & Size Cil 100 90 EL WPB 2 XS 9 Job No. 180 EL WPB 3 S160 ~ RC WPB 3 X 2 STD 45 EL WPB 3 \$160 1000 90 EL WPB 3 XS 58 S 2 1000 20 Purchaser COMCO PIPE AND SUPPLY COMPANY 9 0 15 18 ÇV. 100 Mn 106 Purchase On les No 130 130 84 81 E1-4081- REV 1 001 X ŝ 10 29 22 20 18 53 56C00218-1 56C00214 56C00220 56C00216 56C20206 MFG. No 00ī x 30 Ç --6 19 Material Heat No. Specification

CE = C-Mn/6+(Ct+Mo+V)/5+(Ni+Cu)/15

* 1: "T' symbol;zed wall thickness in mm * 2: Y5 Yreld strongth TS = Teusile strongth E = Elongation

* Ve breeby certify that the product described herein has been manufactured in accordance with the specifications concerned

and also with the product described the test results shown herein are correct and one of the specification of 0 10% relow the specified culton has predicted culton and release above the specified maximum will be permitted up to a maximum of 1.333.

Form 7 Z-6A /4

J3K5206 13K5852

 C_1

Min Max

0.002 0 002

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(%)[]

MD-139 E-No.

J3L2513 J3L2513 989876

Quality Assurance Manager

That Benkan Co. Ltd

BKE

INSPECTION CERTIFICATE

TO EN10204 3.1

Job No.

Purchase Order No.

Purchaser: TRANS AM FIPING PRODUCTS LTD.

58 Soi Waternest, Bengfort, Prepadency, Certificate Mo. Sarautprakam, 10130 Thatkad. Thei Benkun Co., Urt. بـر<u>ا</u> Z

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No. MF																
				S. S.	Specification for Material Made from Seamless Pipe	on for M Seamles	aterial s Pipe	•			Speci	fication for	Specification for Inspection		Visual Examination	(Dimensional Inspendo
	MFG. No.		CSAZNE	STM AZZA S11 Gr241 (ASTM AZZA-11/ASNE SAZŻA-10 GCWPB E-CSA/ZWG11 G-ZA1 CAT 1 NACE MPOTZASO 1518-1: 2008	SAZ34-10 MRO175/19C	Gr.WPB) 15138-2:	1 800			*	SME BIE.8-	ASME B16.9-2007,B16.25-2007	20	Good	Goad
				Product	Product & Size			D	(F*1)	5	Quantity	m	Heat Treatment (Note 1)	_	Handhess Actual Data	
	12G00044	1900日	SO EL WPB 1	12 5120							1/15		∢.		HB:116-145	
	15500018	89 E	90 EL WPB 2 S80	2 580						m"	3,000/4,000	0	A		HB:130-187	
3																
4													-			
5																
				Chemical	Chemical Composition %	00 %					-	Ţ	Tersion Test *2			
Specification	0	Min	D.	S	Ü		ů	Mo	>	2.	C.E.	YS	TS	ш		
Min.	×		0	9		. 100 ×	× 100	X 100 X	x 1000	, 1000 1000	, 100	-	MPa	%	HARDNESS MAX	X
Mex.	10	88										240	415	8	197 HB: GOOD	5
Material Heat No.	8	106	SS.	88	8	9	8	15	80	8			655			
1 2-80323	19 25	2	13	43	7	60		4-		₹	8	248	483	37	ORIO	TINIAI
2 978740	15 19	55	16	4	18 9	18	3	0		0	35	323	513	8		
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The thirty was many transportational and transment in accordance with the production and a transfer mask the majoriments.

CE = CHANGORICH MONTHY (FUNITY)

MACHETIC PARTICLE EXAMINATION FOR THE ONLY:

1. The symbolized well this threats in min. 2. 32 YS Yield strongth TS = Thenile strongth E = Equation

We hearby cartify that the product described brain has been manufactured in accordance with the specifications conserred and also with the summinents and has the test results shown hearth are control.

PO-134121 60-Stock 3-8440-51

SIGNED SY fe.

7013-8440-51 NOV 29 2013 #85

Quality Assurance Manager Thai Benkan Co., Ltd.

Surger Lynnig

YEAR CUIDED, 2011 ADD

Altoo Gas & Oll PO# 194111 Heat Number: 13800018 Trans Am Piping Products Ltd Ship Products Ltd BBA, q BA: #11011

BKL

INSPECTION CERTIFICATE

TO EN10204 3.1

Job No.

Parchase Order No.

Purchaser : TRANS AM PIPING PRODUCTS LTD.

Samutpokam, 10130 Trailend.

That Benkun Co., Ltd. 58 Soi Wathcreaf, Bangfors, Propoderaje Condition No. \succ Z

-																		
						8, 3	Specification for Material	on for I	Asterial	1			Spec	ification fo	Specification for Inspection		Visual Examination	Directsional Inspection
No.	J	MFG. No.			CSAZA	ASTM AZZA-1 JASNE SAZSA-10 G.WPB CSAZZ-61 G-20 CSI Z-61 G-20 CSI WCS-MC017250 (5192-2) 2009	TIMENE SATI NO	SAZZA-1	0 GC/NP2	300			~	SME 816.8	ASME B16.9-2007, B16.25-2007	77	Good	Good
						Product	Product & Size				(Tr*1)	0	Quantity		Heat Treamont (Note 1)		Hartness Actual Data	
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w													2	5 - 8440-51	51			

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C.E. = Cookin/Art(Cookin/Art)St(Ni+Co)15

1. The symbolized wall thickness in met. * 2. YS Yield strength TS = Teinile strength B = Elongshion

1. The symbolized wall thickness in met. * 2. YS Yield strength TS = Teinile strength B = Elongshion

We hereby certify that the product described berein has been manufactured in accordance with the specifications concerned and also with the specifications concerned.

GO - STORY 121451-01

Quality Assurance Menager Thai Benkan Co., Ltd. 04/02/2014 72010EDD-2011ADD JOE # 2013 - 8440-51 SIGNED BY

Burneys Kongress

Alco Gas Heat Numb Trans Am Trans Am Ş 0 Rev'd By:

E-No.

CRANE SUPPLY VALVE WAREHOUSE PD#0002-631550 Involce No.: HYZ0130809 Perchaser Declar No.:

MATERIAL TEST REPORT

YANGZHOU HUAYU PIPE FITTING CO., LTD.

NO 59, EN OTHER STREET, RACTORG COUNTY, JAANSSU PROYNICE, P.S.CITILIA Z2330

Max 197HB Hardness 9000 0000 Victoria and Dispensional Inspection

> Specification for impaction ASME B16.9-2007

Material Specification

0000

HON-DESTRUCTIVE TESTIVITY ASTAMSAE ISAZA-OLYAPE NACE MEDITS-IZE

5000-1105000 Cartificate for ENTOZOLZON 3.1 Deat: Aug. 9, 2013 Certificate No:

COT SOLDS Critico

> Certification Certification X007=100×

Patron Scool

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	NO. Product Dear-Influ	iond a	06	271 AZSTD WPB BW CON RED 271 AZSTD WPB BW CON RED 23	Yotal (Page 1-Page2)

Mater (3) MF. Hot formed (E20-980 PC) and cooled in soil air. (7: Cold formed and normatical (ES) 12x0.9-RS), cooled in soil air. HORE (1) YS=YORD SYRDUGH TS=TOTATE BYBOTOGEN (2) CC=C+NNS+(CA-LO-V)S+(NS+CO-V)S+ 20-Stock Note: (5) PARSPOSE'A Maderial Indoction

2311ADD CONTRIBETURA 434 WPB SERVED BY SAPR 3 9 2011. 1201- Py 40-51 YEAR 2010 ED TEM

Named and control. This material was manufacture with the specifications concomed and also meth. We harely carefy that the products detailed the

PAGE 2 DF 2

125-001

104122231

INSPECTION CERTIFICATE

<u>8</u>

CHUP IISIN ENTERPRIST (O., LTD. (MILL TEST) Customer TRANS AM PIPING PRODUCTS LTD.
SEAMLESS CARBON STEEL BUTT WELD FITTINGS

17, TUNG EL ROAD HSIAO KANG KAOHSIUNG, TAIWAN II O.C TEL:(07)831-9157-9 FAX:(07)831-2942, 821-7500

Certificate No : 09700066-0104 CI-08-362 2008/10/8 Date

Dimensional Inspection

GOOD

ASMESA/ASTM A234 WPB-05a ASA 724 11-96 G241 CAT LNACE MR 0175-03.

Specification for Raw Material

Visual Examination Specification for Inspection

Hear No. J6K1728 J6K4185 Heat [1]

Quantity

Description

Item

ASME B16.9-2001

Raw Certificate NO.

Raw Material Mfg

BYYL8104 **BYYK223**

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J6K3505

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BYYL4506

BYYK2300

Remark Magnetic Particle Exam.

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Chemical Composition

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AS J. SMRCPMCD

9010ED1 2011

9013

Section

of Quality Assurance

SID 7-7

SCHWELD BY

The first results shown herein are correct.

7 **-** 8 TRANS AM PIPING PRODUCTS 68 BX: **KEA,D** 8776 HEAT NUMBER

00 BM ETTS YS34-MbB 1-1/2" XH LR

ASTM A106 GR.

Po#126163

INSPECTION CERTIFICATE

CHUP HSIN ENTERPRISE CO., LTD. 17, TUNG LI ROAD HSIAO KANG

TRANS AM PIPING PRODUCTS LTD.

Customer: Product Spec

CI-07-632 2008/2/26 KAOHSIUNG, TAIWAN R.O.C. TEL:(07)831-9157-9 FAX:(07)831-2942, 821-7500 SEAMLESS STEEL PIPE FITTING ASME SA/ASTM A234 WPB-05a CSA 7245 11-96 (724) CAT 1, NACE MR 0175-03

Dimensional Increation	GOOD	Raw Material Mfg Raw Certificate NO. SUMITOMO S	Heat Magnetic Remark Treatment Exam. GOVE TO 980C HOT FORWED CONFORMS TO SA CONFORMS TO S
tal Examination	G00D	Heat No. Raw Mate J6K0028 SUMITOMO J4K4508 SUMITOMO J6K4185 SUMITOMO J6K3505 SUMITOMO J6K2332 SUMITOMO J6K2727 SUMITOMO J6K2727 SUMITOMO	st
ction Visual		Heat ID. 028D 5684 1854 505C 0613 2332 A993	at the
Specification for Inspection	ASME B16.9-2001	Quantity 111/2 2 2 3 3 4 4 21/2	Tension % Tension Cr Mo V Nb C.E. V.S.
Specification for Naw Material	ASTM A106 GR.B	Description 90 ELR XS 44 45 ELR XS	Specification C Si Mn P S Cu Ni Cr Mo V Nb C.E. Y.S Cation X100 X100 X100 X100 X100 X100 X100 X10
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I-1/5" XH LR 90 BW ELLS A234-WPB



Thei Benkan Co., Ltd.

INSPECTION CERTIFICATE

Purchaser: TRANS-AM PIPING PRODUCTS LTD.

TO EN10204 3.1

58 Soi Wathrunai, Bangkru, Prapadaeng, Samutprakam, 10130 Thailand

Certificate No. ×

Visual Examinati 1

Good

Proge Actual Diplo

Good

HB: 118 - 145

118-146

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8-145

Specification for In-1. A

on Water

Job No.

Purchase Order No.

CI-12-235 C/O: 1

ASHE 516.8-2007, 516.25-200

4 21/750 29377 5 Made from Seamless Pipe

DEL WPB 6 S40

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(Note 1) A: Hot formed with final temperature between 620 °C-980°C, Air Cooling. N.: Normalizing 910°C, 0.5, HR, Air Cooling. N. Normalizing. 910°C, 0.5, HR, Air Cooling. 910°C, 0.5, HR, Air C OPINSTOCK ZSU WPB

MINERA GOLL AD 9013-8-446-5-

SIGNATURES.

MAGNETIC PARTICLE EXAMINATION FOR TEE-ONLY: The Mange was manufactured campited pectual and inspectful in accordance with the specification and well foully to histories requirements. C.E. = C+Ma/6+(Cr+Mo+V)/5+(Ni+Ca)/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: YS Yield strength TS = Tensile strength $E \mp Elongation$

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Material Heat No.

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Form TZ-6A/3

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MFG. No.

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-8440 7

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Quality Assurance Manager Thai Benkan Co., Ltd.

0# 134 20023 Produc 8 12 -

NOV 2.2 2013

Rungnapa Kamptranon

INSPECTION CERTIFICATE

TO EN10204 3.1

Job No.

Purchase Order No.

E-No.

Purchaser VAN LEEUWEN PIPE AND TUBE (CANADA) INC.

58 Soi Watkrunas, Bangkru, Prapadateng, Certificate No. Sametpeakan: 10130 Thailand. Thai Benkan Co., Ltd.

Σ

No. MFG. No. Specification for Material Specification for Inspection Nishal Examination Discussional Inspect Made from Seamless Pipe ASTM 234-1/MSME Size Cri-1) Quantity Heat Treatment Headwas Adual Data Heat Treatment Heatwas Adual Heatw	MC-936	4	45001580												8	04/01/2013 T- 2	T- 2013040003
MFG. No.							Specific	ation for	Materia	15 9			Specifi	cation for Inspection		sual Examination	thereases in Insp
12K20010 RC WPB 4 X 3 S40 Froduct & Size Cr:+1) Quantity Heal Treatment Herdross Actual Data Hear Residual Pota Hear	No.	X	FG. No.		CSA ZNS	ASTM.	A234-11/A CAT 188 W	SIME SAZE	4-10 Gr.W	7 PB 2.08&MR010	03-2010		AS	ME B16.8-2007,B18.25	2000	Good	Good
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12N00011 90 EL WPB 10 S40 48/200 A HB : 120 - 150 12N20105 RC WPB 4 X 3 S80 Chemical Composition % A B : 125 - 140 Specification C Si Mn P S Cu Ni Cr Mo V Nb C.E. YS TS E	2	12	N20011		3C WP	B4X38	340	1					33/100	z		HB: 135 - 150 <	
12N20105 RC WPB 4 X 3 S80 Tension Test *2 RC No. Ni. Cr. Ni.		12	N00011		90 EL V	VPB 10 9	340						48/200	A	_	HB: 120 - 150	3537
12N20105 RC WPB 4 X 3 S80 Red Mps Red) 4	12	P00007		90 EL V	VPB 10 8	340						60/200	A		HB: 120 - 150	3537
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MAGNETIC PARTICLE EXAMINATION FOR THE ONLY The frangs was manufactured, sampled pested, and napported in accordance with the specification, and was found to meet the requirements

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; YS Yield strength TS = Tensile strength E = Elengation Form TZ-6A/3

VI. QA Approved

INSPECTION CERTIFICATE 1.572

INDUSTRIES CO., LTD.

7006807/CI-13-236 ORDER NO:

2013-10-08

DATE

13C05-2 P.I. NO.

13,02-5 SERTIFI, NO:

8. MELCHUNG RD, NIAO-BONG, KAOHSIUNG 83301, TAIMAN ASTM A106 Gr.B ASME B16.9 -07

ASME SA234 WPB-04 CSA Z245.11-09 Gr.241 CAT | Sour Service

SEYBOLD INTL CORP **ASTM A234 WPB-11**

PURCHASER:

STANDARD

ACCORDING TO EN10204/DINS0049/ TEL: 886-77310527~8 FAX: 886-77315887

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DIMENTIONAL INSPECTION VISUAL &

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3E732V 3E071V

CON-RED 6X2" STD CON-RED 6X2" XH

264597

90 LR 2" S160 ELL 90 LR 3" STD

2C1000

-2440 -SO 2011 4-00

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Scoop %	#MEU#	SIGNED BY

GOOD	HEM#	SIGNED BY	
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TEM#	SIGNED BY	* PHYSICAL TEST	

* PHYSICAL	
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MANAGER OF G.A. DEPT.

(NOTE): A:HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C.-980°C, AIR COOLING.

N:NORMALIZING AT TEMPERATURE 880°C X0.5HR, AIR COOLING.

N:NORMALIZING AT TEMPERATURE 880°C X0.5HR, AIR COOLING.

N:NORMALIZING AT TEMPERATURE 880°C X0.5HR, AIR COOLING.

NACE MR.-01-75-09/ISO/1515-2. NACE MR. 0103-10:SATISFACTORY

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.

* TYPE OF SPECIMEN:STRIP(WIDTH:1 in./GAUGE LENGTH:2 in.) ** SAMPLING DIRECTION:L=LONGITUDINAL T=TRANSVERSE

co Gas ana Am ana Am Ipment / A H e i

TEE A234.WPB BM BED GIE 4 X 3

INSP, SPEC. MATERIALS

€D TK corporation

INSPECTION CERTIFICATE

117-12, Noksan Saneop Daero, Gengseo-gu, Busan, 618-817 Korea

Tel: 82-51-970-6672

Job No. Specification As NA Specification for Inspection As Inspection	SME B	ME A/SA	D 15156	B(10 I	Ed, & 11 Ar	ld.) RD103-0	07					Name		EDMONTON		
Specification AS NA Specification for inspection Heat Code No (HCN) BV662 002 CF759 002	SME B	0175/190	D 15156	B(10 E	Ed. & 11 A	ld.) RD103-0	07									
for Material NA Specification As for Inspection As Heat Code No (HCN) No BV662 002 CF759 002	SME B	0175/190	D 15156	B(10 E	Ed, & 11 A	Id.) RD103-0	07			+						
Specification AS for Inspection Heat Code No [HCN] BV682 002 CF759 002	SME B	_					-			6	tarting	Mater	iai	SEAMLESS PIPE		
[HCN] NO BV662 002 CF759 002	-			7.7						С	lmans	ion an	d Visual I	napection		BOOD
CF759 002	22 RE				Ε	escrip	tions						Q'ty (Pcs)	Heat Treatment	N.D.E (GOOD)	
		DUCING	3 TEE		STD	/ X-S		B.W		3" x	1-1/2		10	N: 910°C	MT	
	23 RE	DUCING	3 TEE		STD	/X-S		B.W		3" x	2"	- 1	300	N: 910 °C	MT	
CE363 002	25 RE	DUCING	3 TEE		STD	/X-S		B.W		4" x	2" -		100	N: 910°C	MT	
CHEMICAL	CON	IPO.	SITI	ON	1(%)											
- 19	Spec.	C	Si	Mn		8	NI	Cr	Ma	Cu	v	CE	Raw Heat	Na		
Heat Code No	Max.		-		0.050 0.			0.40	0.15			0.50	naw near	110		
[HCN]	Min.			0.29	•		-		-	-		-				
BV662	L				0.014 0.			0.15					969924			
CF759 CE363	L				0.008 0.0			0.07 0.18	0.02	0.03			325026 977238	A company to the law to the	430	WPB

MECHANICAL PROPERTIES

0000	Y.S	T.S	E.L.	Hardness Test	
Spec	K	si	(%)	HB	
Max. Min.	35	95 60	28.4	197	
P	42.6	63.8	37.5	144 142	
P	41.9	64.8	38.1	140 142	
P	37.5	63.6	39.1	142 144	
	Min. P P	Max. Min. 35 P 42.6 P 41.9	Max 95 Min. 35 60 P 42.6 63.8 P 41.9 64.8	Spec Ksi (%)	Spec Ksi (%) HB

1-8440-50

Po-134044

We hereby certify that the material herein has been made and tested in accordance with the above specification and also with the requirements called for by the above order.

Remark:	105A 2245.11	Gr. 241	Cet I	Sour	Service

*GRN Ne.
OA9957 2,0A99067,24,0A9067,27,0A9067,20,
OA9967 2,0A99667,28,0A9067,28,0A9067,28,
QA9967,27,0A9067,27,0A9067,29,
*Telenile Test specinien Type : Longitudinal

MON 58 5012

ITEM #

SIGNED W

□ Reviewed by:

Witnessed by:

Head of Quality Control Dep't



CONFORMS TO SA 434 WPR

00100169-0402 NOV 28 2013 2013/06/25 CI-12-649 1. Certificate No SIGNED BY Order No

YEAR WOODED , DOUGHOOD 1013-8440-50 10B # TEM# Date INSPECTION CERTIFICATE FAX:(07)821-7500, 831-2942 CHUP HSIN ENTERPRISE CO., LTD. 17, TUNG LI ROAD HSIAO KANG, KAOHSIUNG, TAIWAN, R.O.C. TEL:(07)831-9157 CSA 245.11-09 Cat I/EN10204 3.1/NACE SEAMLESS CARBON STEEL BUTT WELD

			Ave.			REMARK			3.0			
Dimensional Inspection	G009	Impact Test	Charpy VNotch Impact Value							SHR		
Dimens)ediii	Size of specimen			Heat Treatment		20.	NORM. 910°C x0.5HR			
	•		Temp	1	Hardness	Test	HB		197	139	13/	138
			MT	PASS PASS PASS	Har	۳			H	4 4	7 +	1 #1
Visual Inspection	G00D		ó	-		m	*	30		42.5	£ 15	43.3
Visual Ir	99		Raw Certificate No.	SUMITOMO BYYM8807 SUMITOMO BYYM8360 HENGYANG CZ01300261-1 SUMITOMO BYYF3800	Tension Test	T.S	P.S.I	00009	95000	00299	24200	74000
			Raw C	SUMITOMO BYYM8807 SUMITOMO BYYM8360 HENGYANG CZ0130026 SUMITOMO BYYF3800		YS	P.S.1	35000		42100	00874	49700
Specification for Inspection			0			H.	X100		20	72	77	37
			Heat No	JOL6016 JOL1330 12151678 J8K8833		NP	X1000 X1000 X100		20	0 (۰ ,	1 0
	9-2007		Heat ID	6016 330A A67V B833		>		8		0 (o ?	0
	ASME B16.9-2007		Fee	19 E 8 8	<u> </u>	Mo	X100		15	H	7 0	S H
	ASIA		Quantity	2 2 7 2 2	ion%	ช	X100		40	4	m (12
Ŋ.				2 3 1	Chemical Compositi	ï	X100		8	н (7 :	2
				8 X X X X X X X X X X X X X X X X X X X	nical Co	8	X100		\$	77	v !	1 [
			5		Chen.	s			288	CO (n 6	6 m
iai	80		Description	S		Δ.	X100 X1000 X1000		20	19	7 5	3 91
Mater	106 GR.		ది	N X SE		Mn	X100	29	135	25	25	133
Starting Material	ASTM A106 GR.B			TEE SMLS XS RED TEE SMLS XS RED TEE SMLS XS RED TEE SMLS XS RED TEE SMLS STD / XS		Si	X100	51		22	23	24
Ş	A			TEE SMLS XS RED TEE SMI RED TEE SMI RED TEE SMI		U	X100		22	17	17	7 5
			Item	111 130 133 136		Specifi-	cation	Mi	Max.	111	130	136

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

Alco Gas Heat Numb Trans Am Trans Am Shipment

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

TRANS AM PIPING PRODUCTS LTD.

Customer Product ASME SA/ASTM A234 WPB-11a

Spec

Job No.

Purchase Order No.

45001560

MC-936 E-No.

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benkan Co., Ltd.

58 Soi Watkrunai, Bangkru, Prapadaeng Samutprakam, 10130 Thaitand.

Certificate No. T- 2013040046 ≻ W

Ω

06/02/2013

							Sp	Specification for Material	ion for	Materia	_			, Cook	6	T	3	11	Ottontos Oz
TOTOLOGY TOTOlogy				-			×	ade froi	n Seam	less Pip	63			lipade	Icanon tor	mspecuon		ial Examination	Unmensional Inspectio
Total 10853 Tyte 2 Seq. Tyte 3 Sep.	S	W	FG. No		CSAZ		STM A22 3-241 CAT	7-11/ASH	E WROTZER	30 1515B-2	DEEMPOIO	3-2010	11.44	⋖	SME B16.9-	2007, B16.25-200		Good	Good
Tani to tani							Produc	ot & Siz	e e			(I:*1)	0	uantity	He	at Treatment (Note 1)	-	Hardness Actual Date	llem No.
12M10815 TWPB 6 S40 12M10815 TWPB 6 S40 12M10815 TWPB 6 S40 12M10815 TWPB 6 S40 12M10816 12M10	-	(E)	P1083		TWP	B 2 S8	100							194/300		Z		HB: 118- 145 ←	2988
12N110815 TWPB 6 S40 TWP	2	12	M1083	2	TWP	B 3 SB	0							26/75		z		HB: 118 - 145	3005
Specification C Si Max. Max. TWR052 Secondarian Secondaria	3	12	M1081	य	TWP	B6 S4	0							13/75		z	-	HB: 120 - 150	2954
Specification C Si Mn P S Cu Nical Compositions of Alexandres	4	12	N1081	2	TWP	B 6 S4	0							51/75		z		HB: 120 - 150	2854
Specification C Si Am P S Cu Nin C Si Am P S Cu Nin C Si Am P S Cu Nin C C Nin P S Cu Nin C C Nin P S Cu Nin C C Nin C Nin C C Nin C Nin C C Nin P S Cu Nin C C Nin C Nin C C Nin C Nin C C S Au	2	5	N1081	60	TWP	8654	0							2/75		z		HB: 120 - 150	2954
Appecinication C Si Mn P S Cu Ni Cr No V Nb C.E. YS TS E Min. Included to the control of the c		į.					Chemica	Compos						1	- Te	ision Test *2			
Min. X 100	1	Specification	C	Si	Mn	٩	S	Cn	Ž	Cr	Mo	^		C.E.	YS	TS	ш		
Max. 30 10 29 40	//-	Min.	00	_					× 100					001 100	~	MPa.	8	HARDNESS MA	×
Material Heat No. 30 108 50 40 <td>-</td> <td>Max</td> <td></td> <td>5</td> <td>23</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>240</td> <td>415</td> <td>30</td> <td>197 HB:</td> <td>os- 0448-1 acos</td>	-	Max		5	23										240	415	30	197 HB:	os- 0448-1 acos
J2L8512 →18 20 85 10 4 1 2 4 1 0 0 33 327 480 56 Po-153 J1KA032 19 18 83 18 5 1 2 5 2 0 0 34 310 491 39 correction J2L6263 19 18 8 1 2 3 1 0 0 34 328 478 39 correction 975058 20 23 47 13 1 10 6 15 4 2 0 33 289 470 37 nmm 5127 17 23 83 10 1 8 3 5 2 3 1 34 328 468 36	Σ	faterial Heat No.	30		108	20	28	40	9	40	<u>₹</u>	80	20	45		655		7	S S S S S S S S S S S S S S S S S S S
JIKA032 19 18 83 18 5 1 2 5 2 0 0 34 310 491 39 company Demonstration J2L6263 19 20 85 13 8 1 2 3 1 0 0 34 328 478 38 78122 975058 20 23 47 13 1 10 6 15 4 2 0 33 289 470 37 7812 51277 17 23 83 10 1 8 3 5 2 3 1 34 328 468 36 7	_	1	₹ 18	20	355	10	4	_	2	4	-	0	0	33	327	480	56	Po	132098
J2L6263 19 20 85 13 8 1 2 3 1 0 0 34 328 478 38 478 39 470 7812 975058 20 23 47 13 1 10 6 15 4 2 0 33 289 470 37 478 35 51227 17 23 83 10 1 8 3 5 2 3 1 34 328 468 36 468 36	2	J1KA032	19	80	83	18	വ	-	2	ιΩ	2	0	0	34	310	491	39	SHOWS	234 WPB
975058 20 23 47 13 1 10 6 15 4 2 0 33 289 470 37 10 51227 17 23 83 10 1 8 3 5 2 3 1 34 328 468 36 468 36	3	J2L6263	19	20	85	13	αD	-	2	m	-	0	0	34	328	478	38	8 3	NOED, ZOII ADD
51227 17 23 83 10 1 8 3 5 2 3 1 34 328 468 36 Manual L	4	975058	20	23	47	<u>0</u>	-	10	ဖ	1	4	7	0	33	289	470	37		28
	S	51227	17	ន	83	10	_	8	r.	Ŋ	2	ო	~	34	328	468	36	The Committee of the	1- MOV 2 2 2013

(Note 1) A: Hot formed with final temperature between 620 °C-980°C. Air Cooling N: Normalizing 910°Cx0.5 HR, Air Cooling *N: Normalizing 910°Cx0.5 HR, Air Cooling *N: Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) S: Signed Street S The fithigs was resonanced sampled Jested, and inspecied in accordance with the specification, and was found to meet the requirements

C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY

G005

* L: " Γ " symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation Round T7 - AAA

and also with the purchaser's requirements and that the test results shown herein are correct.



Rungzape Kampiranou

VL OA Approved

RATE INDUSTRIES CO., LTD.

ASTM A22 VIOP 1 ASME SACH OPPOR

INSPECTION CERTIFICATE

8 MEHOPIUMO RD 7846-8074, WOHSIUMO HARELĮ 83201 TAMMAN TELL 898-7731 0537-8

ACCORDING TO EN10204/DIN60049/3.1

19, ZME 1184 + 24 134 EGIN GENCO 3164 403 - 15 32 - M. EGG FINE) 4 SME 615 9 67

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Order#: 312846 Seq: 12 PO#: 133700 Fleat#: 55E10010 Mill: BKL - Thai Benkan Part#, WF 2 XS T PB Part Desc: Weld Fittings 2 (60.3mm O.D.) XS WELD TEE A/SA234-WPB

E-No. MC-819	Furchaser COMCO FIFE AND COFFEE COMPANY	UPPLY	COMPA	A.A.		⊣	2)EC	TIC	J Z	ER	INSPECTION CERTIFICATE	ZAII			Thai Benkan Co Lud	Thai Benkan Co. L.C.	2 134 P
No. C-819									TO	EN10	TO EN10204 3.1					Samulprakam	Samulpiakam 10130 Thailand	
C-819	Purch	Purchase Under No	S. N.		Joh No.	20									Ω	MY	Certificate No	0
	E1-3263														1505	- STEETS	2013140192	
					Spi	ecificat de fron	ton for l	Specification for Material Made from Seamless Pipe				Specifi	cation for	Specification for Inspection	Visus	Visual Examination		Dimensional Inspection
o Z	MFG. No.	10.		AS	ASTM A234-11/ASME SA234-10 Gr,WPB CSA,2345 11.09 Gr 241 CAT 1 SS	11/ASME	A234-11/ASIME SA234-10 G CSA Z245 11-09 Gr 241 CAT 1 SS	D Gr.WPB				ASI	ME B16 9-2	ASME B16 9.2007, B16, 25-2007	20	Good	5	0 0 0 E
TI (%)					Produc	Product & Size	4)			(L*1)	No.	Quantity	Ĭ	Heat Treatment (Note 1)		Hardness Actual Data	0000	
0.000	355,0010		T WP	T WPB 2 XS	1							200		z		HB : 142,143,145		0 0001
2 0,000	SSE10015	15	TWP	T WPB 3 X 1	STD							Ŋ		Z	보	HB:133,134,136) 6	90006
3 0 000	55E10017-1	17-1	TWP	T WPB 3 X 2	STD	1						1/50		z	¥	HB: 126,128,130	0	0.0000
2						6	Sien G						T	Tension Test *2	=			
Speci	Specification	5	N _r	_	S	70	Z	Ü	Mo	>	NP	C.E.	YS	TS	E			
	Min 100	×		X 1000	1000	201	X 100	x 100	100	X 1000	x 10001	100	4	MPa	%	HARDNESS MAX	MAX	ū
2	Max	10	29										240	416	30	197 HB: GOOD	000)
Materis	Material Heat No 23		106	20	9	40	40	40	t0	90	20	40		655		70	S. S	
150	J2L4043 -> 20	2	84	13	₩.	2	2	2	115	0	0	35	334	485	58		28.5	-8
2 JZK	J2K4431 19	9	85	20	2	2	7	9		0	0	35	344	498	37	6		JA 110
3 JZK	J2K4431 19	19	85	20	2	7	7	6		0	0	35	341	498	37	YEAR	Do13-8440-51	140-5
4											7				-		28	
2	2															SIGNED BY.	- NOS	277

The Mings was manufactured pampled based and enspected in accordance with the specification and was found to m

Quality Assurance Manager Thai Benkan Co., Ltd

CE = C+Mn/6+(Ct+Mb+V)/5+(Ni+Cu)/15 MAGNETIC PARTICLE EXAMINATION FOR THE ONLY:

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 therein are correct.

* 1: "T" symbolized wall thickness in mm, * 2: YS Yield strength TS = Tensile strength E = Blongation
Form TZ-6A/3

Order#: 312846 Seq: 12 PO#: 133700 Heat#: 55K10008 Mill: BKL - Thai Benkan Part#: WE 2 XS T PB Part Desc: Weld Fittings 2 (60,3mm O.D.) XS WELD TEE A/SA234-WPB

INSPECTION CERTIFICATE

TO EN10204 3.1

Job No.

Purchase Order No.

E1-3560

MC-947 E-No

Purchaser: COMCO PIPE AND SUPPLY COMPANY

Samutprakam, 10130 Thedand Thai Benkan Co , Ltd

BKL

58 Soi Walkrunai, Bangkru, Prapaczeng Certificate No \geq \Box

																THE COLUMN THE PARTY OF THE PAR	ini	
				o'a aad		N	pecifica ande fro	ation for	Specification for Material Made from Seamless Pipe	al			Spec	Specification for Inspection	Inspection	Visual Exa	mination	Visual Examination Dimensional Inspection
N _O		MFG. No.	No.			ASTM A234-11/ASME SA234-10 Gr.MPB CSA 2245 11-09 Gr 241 CAT 1 SS	Z245 11-08	A234-11/ASME SA234-10 G CSA Z245 11-08 Gr 241 CAT 1 SS	-10 Gr.WF	g.			র	SME 818.9-20	ASME B18.9-2007, B16.25-2007	Good	рo	Good
	11 (70)					Produ	Product & Size	92		8	(T:*1)		Quantity	He	Heat Treatment (Note 1)	Hardness	Hardness Actual Data	Boren(%)
	<0.001	55K10001	201	ıw ⊢	T WPB 1 S160	160							9	-	Ż	HB: 129,131,133	131,133	,000 0×
2	<0.001	55K10006	906	1 ×	T WPB 16 STD	STD							ιΩ		Z	HB: 142,143,145	143,145	<0.000.
ω.	0000	55K10008	308	T WI	T WPB 2 XS	54							150		Z	HB: 144,146,153	146,153	0.0601
4 2																		
X						Chemic	al Compo	Chemical Composition %						Ter	Tension Test *2		-	
Ê	Specification	ט	Si	Mn	A	S	J	Z	ď	Mo	>	岩	C.E.	YS	TS	tn		
	Min	10 ×	x x 100 100) x	1000	1000	100	100	100	100	1000	1000	x 100	M	МРа.	% HARL	HARDNESS MAX	k
	Мах		10	23										240	415	30 197 HB	- 1	6000 1-8446-5
	Matcrial Heat No.	ło. \ 23		106	20	10	40	40	40	15	80	20	40		655		-	7-84-01
-	2-76095	19	24	83	10	4			4	75	×-	₹	35	287	475	47	200	
	3-90042	19	24	83	17	m	₹	-	m	⊽	ζ-	₹	34	305	489	46 00%	76	Co. Azar Asia
3	J2L8512> 18	118	20	33	10	4	_	2	4		0	0	33	327	480	S6 YEAR	1 11	1012 - 8440-51
																700		

(Note 1) A: Hot formed with final temperature between 620°C-980°C, Air Cooling N: Normalizing 910°Cx0.5 HR. Air Cooling "N: Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made material according to ANSIMACE MF0175/890 15156-2-2008 & MF0109 - 2010 (SSC Feeden 3)

The fittings was manufactured sampled lessed and inspected in accordance with the specification, and was found to ment the requirements

CE = C+Map(6+(Cr+Mo+V)/5+(N1+Cu)/15

We hereby certify that the product described herein has been manufactured in accordance with the specifications concerned GOOD and also with the purchaser's requirements and that the lest results shown herein are contect.

Quality Assurance Manager Thai Benkan Co, Ltd

Rusysapa Kampiramon

SIGNED BY

5

* I : "T" symbolized wall thickness in mm * 2 : YS Yield strength TS = Tensile strength E = Elongation = Form TZ-6AJ3

234 WPB

CONFORMS TO SA

CHUP HSIN ENTERPRISE CO., LTD. 17, TUNG LI ROAD HSIAO KANG, (MILL TEST)

KAOHSIUNG, TAIWAN, R.O.C.

Order No

: 2013/06/25

00100097-1001

Certificate No SIGNED BY

: CI-12-376

NOV 28 2013

#国

Date FAX:(07)821-7500, 831-2942

YEAR MIDED, YOU KED	108# 2013 - 8445 53
2-8440-50	40-13404h

INSPECTION CERTIFICATE

SEAMLESS CARBON STEEL BUTT WELD TRANS AM PIPING PRODUCTS LTD. ASME SA/ASTM A234 WPB-11a

> Customer Product

TEL:(07)831-9157 CSA 245.11-09 Cat I/EN10204 3.1/NACE MR0175-09/ISO 15156-09/MR0103-10

			- 0						_			_	-	_
			Ave.				VRK							- 4
Dimensional Inspection	00	Test	Charpy VNotch Impact Value				REMARK							
ensiona	0009	Impact					ment				9	ALC:UX		
Dim		F	Size of specimen				Heat Treatment	Œ.			Monte of Charles and Club	NOWN. 310 C		
			Test Temp			Hardness	<u>I</u>	. .		197		I	134	
		i d	M	PASS	PASS	Hard	<u> </u>	I		Ħ	1	1	H —	
Visual Inspection	G00D		٥.				ш	*	30		40.5	41	41	
Visual	Ğ		Raw Certificate No.	WYL7883 YYK3056	YYM8314	Tension Test	T.S	P.S.1	00009	95000	71100	9999	00099	
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tion	j		Heat No	JOL8135 J8L7687	JOL6607		NP	X100 X1000 X1000 X100		70	0	0	0	
Specification for Inspection	9-2007		Heat ID	8135	078		>	X1000		80	0	0	0	
stion for	ASME B16.9-2007			00 1	VÕ		Mo			15	2	-1	-	
pecifica	ASN		Quantity	7 4	ιΛ	tion%	გ	X100		40	4	7	m	
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		d	5			Ç	s	X100 X1000 X1000		58	m	m	10	
ial	60		Description				а	X1000		20	00	9	19	
Mater	106 GR.		2	S STD	SX/QTS		Mn	X100	53	135	51	77	25	
Starting Material	ASTIM A106 GR.B			CON RED SMLS STD RED TEE SMLS XS	RED TEE SMLS STD/XS		įS	X100	ន		21	17	21	
S	,			CON RI	RED TE		U	X100		22	17	13	18	
			item	113 199	219		Specifi-	cation	Min.	Мах.	113	199	219	

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

; # 5 u ı ! 9 4 I — I I

CO Gas &

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

Chief of Quality Assurance Section

Spec

: A 8 р

Page 1-of i

CONFORMS TO SA 134 WPB

108 : 1613 - 8440-50

YEAR 2010ED, 2011 (00

Po-133856

6-8440-50

Keddco: Mtr Sheets

Current Date: Tue 30 Apr 2013 14:52:25 10000

Heat Treatment: H.R. Material: C1018

Date: Wed, Feb 27th 2013

CRN: 0A7470,5CR1

Material Test Report

Report Number: 25189

Description: 2" SWAGES & BULL PLUGS

Specification: A234-WPB/SA234-WPB

Year of Revision

Comment: NACE MR0103-07 MR0175/ISO 15156-2-03

Additional

2"X1" SCH 80 PBE CONC SWASE

Chemical Analysis

Heat Code K2624

Heat Number: A130312

0.029 0.160 0.190 0.070 TI 0.001 1.050 0.005 0.150 0.009 0 010 0.060 0.003 0.033 0.230 0.007 Cb/Nb 0.002

Carbon Equivalency Formula Used: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15 CE= 0.43

Tensile PSI: 83500

Reduction of 65

Area %
Brinell Hardness: 163

Mechanical Tests

Yield PSI: 60500

Elongation: 29 % @ 2"

Size: 2 375" RND

This Material Tosi Report moets DIN 50 049/EN 10

Charpy Impact Test

204 3 1,8 Standard 1995

Individual

Values

(V2) fl/lbs

(V3) ft/lbs

who hereby Certify that the material described has been tested in accordance with the specifications, and the results are correct as contained in the records of the Company.

1. 1.

(V1) ft/lbs

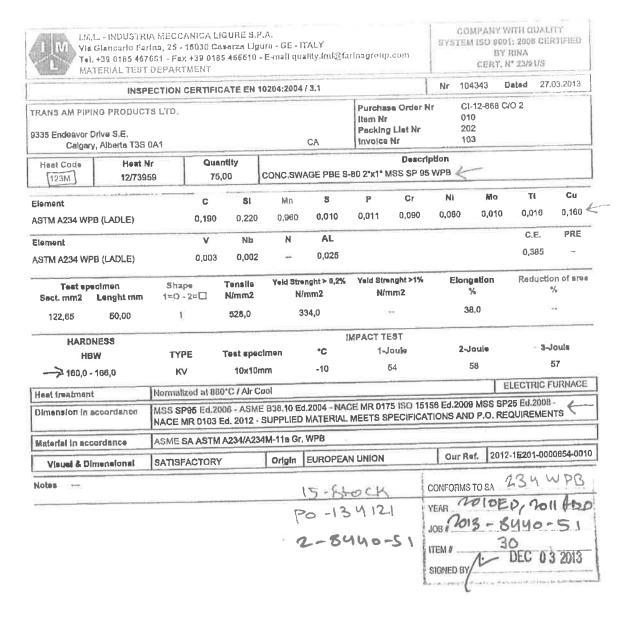
ian Sinekis

Q.A. Manager end Customer Service

EDDCO....

Sarnia Toll Free: 1-888-511-1381 By regular telephone at: 519-336-2960 By fax at 519-344-3181

Melling Address: PO Box 999, 645 Keddoo SL Sarnis, ON N7T 7K6 Edmonton Tall Free: 1-800-661-3800 By regular telephone at: 780-438-4944 By fax at 780-435-3917 Malling Address; 4120 - 78 Av Edmonton, AB T6B 3M8



CANVIL

CERTIFICATE OF TEST

Reference No. 2 JB-0411

02/26/99

Order Number: 0000000-

EMCO DIST. GROUP (WESTLIND EDM)

14940-121A AVENUE

7540841

EDMONTON

AB.

TSV 1A3

Part Number:

5220400000

Description: 2 X 1/2 SCH 80 CONC SWAGED NIF TEE

Specification: ASTM A234 GRADE WPB/ ASME SA234 GRADE WPB

Fitting Trademark: J B SMITH

Chemical Analysis %

Heat No. Ht Code	C 0,15	Y n 1.04	م ۵00 ، ۵	6.00B	Si 0.23	0.01	Ni 0.01	0.04
·	Mo 	V 0.00	05/Nb	* ** ** **	****			

Mechanical Properties

Yield Strength psi : 43,100 | Tensile Strength psi : 67,700 MPa : 297 | MPa : 466

Elongation % 2" : 37.0 | | Red. Area % : 64.0

| Hardness BHN : 128

Heat Treatment:

2-8440-50

CONTRIBUTIONA Z34 WPB YEAR MOIOED, 2014DD JOR # 013 - 8445-50

We certify that this is a true and correct copy of the mill certificate, issued by the manufacturer of the steel employed or the laboratory which has determined it, as retained in the records of the company. CANVIL makes no representation beyond those of the manufacturer or its agent.

CANVIL

Material Test Report

Correct Date for 1672 (2008) To his page

Report Number 7642

Date Tue, Nov 30th 1999

Description 2" SWAGES & BULL PLUGS

Heat Treatment H.R.

Specification: A234-WP8/SA234-WP8
Date of Revision: 0000-00-00 00 00:00

Material C1018

Comment

2" x \ \ " X H SWAGE \ 2" x \ \ \ \ " SIGO SWAGE

Chemical Analysis

Heat Code K444 Heat Number: 10564

C	0.200	Cu	0.200	All	
Мn	0.810	Ni	0.081	Tr	0.000
Ρ	0.013	Cı	0 217		0 000
S	0 020	Mo	0.036		
Si	0.240	٧	0.000		
N	0.000	Nb	0 000		

Carbon Equivalency Formula Used: C+(Mn/6)+(Cr+Mo+V)/5+(Ni+Cu)/15 CE=(0.40)

Mechanical Tests

Yield PSI: 52800

Elongation: 28 % @ 2"

Tensile PSI: \$4900

Reduction of 61

Size: 2.375" RND

Brittell Hardness: 183

Charpy Impact Tast

Individual

Values:

(V1) 0 ft/lbs

(V2) 0 ft/lbs

(V3) 0 fVlbs

This Majorial Teel Report meets DIN 50 049/EN 10 204 3.1 B Standard 1995

We hereby Certify that the material described has been lested in accordance with the specifications, and the results are correct as contained in the records of the Company.

Inn Shields

Q.A. Manager and Customer Service

KEDDCO...

Sarnia Tofi Free 1-866: 511-1381 By regular felephone at 519-335-2960 By fax et 519-344-3181

Mailing Address PO Box 999 645 Keddoo SI Samia, ON N7T 7K6 Edmonton Too Free 1 800-661-3809 By regular telephone al 780-438-4944 By fax at 760-435-3917

Mailing Addrass 4120 78 Av Edmonton AB 16B 3MR

2-8440-51

CONFORMING TO SA 234WPB

YEAR 10ED, NOIL NDD

JOB # 1013 - 8440 - 5 \$

ITEM # 31

SIGNED BY NOV 222010



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

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 EN10204 3.1.

Material: A/SA105N 09

Item Quantity Description 18 50 36-4 X 1.1

50 36 - 4 X 1 1/2 XS BWP

A/SA105N

Chemical Composition

Ladle	С	CIR	CU	MN	MO	NB	NI	P
	0.190	0.08	0.060	1.09	0.007	0.013	0.02	0.008
	8	SI	v					
	0.021	0.21	0.004					
Carbon Equiva	alency:	Ladle		0.40				
Product	С	CIR	CU	101			_	_
			CO	121	MO	NI	P	8
	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000
	SI	٧					6	
	0.00	0.000						

 Tensile PSI
 Yield PSI
 Elong %
 RA %
 Hardness

 Product
 73,449
 50,791
 34.25
 61.83
 132 BHN

Normalized

IAW NACE MR0175/ ISO 15156- 2009

Page 15 of 20

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 258,027

PO#: CI-13-444

Sales Order #: C001311061

Date: 07/26/2013

Certified Material Test Report

Heat Code: 59059

CONFORMS TO SA 105 N YEAR 200 E O , 70 II LOO JOB # 2013 - 6440 - 50 ITEM # 32 SIGNED BY A NOV 2.8 2013

BHN



Manufacturer of Piping and Pressure Vessal Components

4404 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

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 EN10204 3.1.

Material: A/SA105N 09

Item Quantity Description 15 1,500 36 - 1 1/2 X 3/4 3M THP

A/SA105N

0.014

Product

0.24

Chemical Composition

Ladle	C 0.209 8 0.019	CR 0.04 SI 0.24	CU 0.050 V 0.004	M2N 1.02	MO 0,006	NB 0.013	NI 0.02	P 0.008	2-8440-50
Carbon Equiva		Ladle	0.504	0.39					
Product	8 <0.0002	C 0.202	CR 0.04	CU 0.050	MN 1.03	NO 0.007	Nb 0.014	NI 4.	,
	P	9	SI	v					

Tensile PSI Yield PSI Elong % RA % Hardness
Product 74,099 49,441 34.85 56.26 135 BHN

0.39

<0.001

Normalized

Carbon Equivalency:

LAW NACE MR0175/ ISO 15156- 2009

0.005

Page 1 of 1

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 251,948

PO #: CI-13-306

Sales Order #: C001306001

Date: 04/23/2013

Certified Material Test Report

Heat Code: 58880

105N 1010 1010 1011 100 1011 1013 - 8440-50 33 175-Stock

175-Stock Po-132467

135 BHN



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

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 EN10204 3.1.

Material: A/SA105N 09

Item Quantity Description 15 1,500 36 - 1 1/2 X 3/4 3M THP A/SA105N

0.014

Product

0.24

Chemical Composition

Ladle CIR CU МО MB NI 0.209 0.04 0.050 0.006 0.013 0.02 8 SI v 0.019 0.24 0.004 Carbon Equivalency: Ladle 0.39 Product B C CR CU MN MO Nb MI 6 <0.0002 0.03 0.202 0.04 0.050 1.03 0.007 0.014 9 BI

Tensile PSI Yield PSI Elong % RA% Hardness **Product** 74,099 49,441 34.85 56.26 135 BHN

<0.001

0.39

Normalized

Carbon Equivalency:

LAW NACE MR0175/ ISO 15156- 2009

0.005

Page 1 of 1

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR#: 251,948

PO #: CI-13-306

Sales Order #: C001306001

Date: 04/23/2013

Certified Material Test Report

Heat Code: 58880

135 BHN



4404 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bouney Forge Company

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 EN10204 3.1.

Item 4

Quantity

Description

Material: A/SA105N 09

34. 36 - 3/4 X 1/2 3M THP A/SA105N

Chemical Composition

Ladie	C	CR	CU	MN	МО	NB	NI	P from
	0.200	0.04	0.070	1.05	0.005	0.012	0.02	0.009
	8	SI	v					
	0.019	0.20	0.004					
Carbon Equiva	lency:	Ladle		0.39				

Product

Tensile PSI 79,000

Yield PSI 47,700 Elong % 28,00 RA % 63.00 Hardness 159 BHN

163 BHN

Normalized

IAW NACE MR0175/ ISO 15156- 2009

Page 2 of 2

Sold To: TRANS AM PIPING PRODUCTS

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 246,756

PO#: CI-13-124

Sales Order #: C001300902

Date: 02/05/2013

Certified Material Test Report

Heat Code: 58962

CONFORMS TO SA

YEAR POIDED, 2011 (ASS)



Manufacturer of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

This product has not come in direct contact with moreury 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 EN10204 3.1.

Material: A/SA105N 09

Item

Description Quantity

8

36 - 3/4 X 1/2 3M THP

A/SA105N

IAW NACE MR0175/ISO 15156-2009

0.41

Chemical Composition

Ladle NB NI P С ÇU MN CR 0.006 0.03 0.050 1.05 0.000 0.013 0.02 s SI

0.020 0.21 0.003

Carbon Equivalency: Ladle

Hardness Tensile PSI Yield PSI Elong % RA% 163 BHN 163 BHN 31.00 56.00 81,500 53,500 Product

NIONED E

Normalized

Page 2 of 2

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR#: 227,018

PO#: CI-12-213

Sales Order #: C001203284

Date: 03/23/2012

Certified Material Test Report

Heat Code: 58627

CONFORMS TO SA. 105A MON 5 5 5013

50-Stock

Phone (780) 466-4122 Fax (780) 463-5587

KS Manufacturing Enterprises Ltd.

5203-76 Avenue Edmonton, Alberta T6B 0A7

MATERIAL TEST REPORT 25104

5104

Purchaser: ALCO GAS OIL PRODUCTION EQUIPMENT LTD

Purchaser Order No. 133927

Date: 2013-11-14

Distributor:

Distributor Order No:

Products

Item No.	Qty.	Product	Specification	Heat No	Description
1	85	1" X 6" LONG 3000 THRD COUPLING B16.11 CRN# 0A0297.2	A/SA350 LF2	H3270	1-3/4" RD BAR ASTM A105, A576, A350 LF2 CL 1, A696 GR C, A370-05, A29, API 6A PSL 3, ASME SA105, SA350 LF2 CL 1, NACE MR01- 75/ISO 15156, NACE MR01-03, DIN/EN 10204 3.1

Chemical Properties

Heat No. C	Mn	þ	S	Si	Cr	Ni	Мо	Сп	V	Nb	Co	Ν	Al	Sn	ΤΊ
H32 <mark>70 .173</mark>	1.232	.008	.014	.265	.091	.062	.011	.077	.013	.000	-	-	-	*	- <

Mechanical Properties

Item No.	Heat No	Yield	Tensile	Elong % in 2"	RA	B.H.N.	Impact	Remarks
1	H3270	49,442 PSI	75,250 PSI	34	73-2	143-149	88.6-85.6-90.0 @ -50 F. FT/LBS CHARPY	HRS A.C.
				CONFORMS TO	DJ.	SOLFECLI	V NOTCH ULTRASONIC TESTING:100%	C.E.; .411
			85-Stock	YEAR TO IC	13-8	140-SD	SATISFACTORY	
		Pc	-133927		35 N	OV 2 2 2013		
		1	8440-SD	SYGNED ()			.)	

We hereby certify the above results to be correct as contained in the records of the company.

Kwang Y. Lee

Page 1 of 1

MILL TEST CERTIFICATE

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WILL TEST CERTIFICATE

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36 Da Marh 3/4

SIGNED BY ITEM#

Add: 10 Dalixincus, Hengyang

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the field is world; that material herein described has been manufuctured in accordance with the standards and specifications required in your	
The settle and is issued by a compuserized system and it is valid with electronic signature. In case the owner of the cartificate would release a copy of 11,50 and often its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.	Quality Manuger
Acry alteration and American will be subject to the law	
or and the contract the State please do and replicate to contact Hengyang Yulin Steel Tube	
	Certificate-marker: 油魚獅

MANUFACTURER: TIANJIN PIPE (GROUP) CORPORATION ADD: JINTANG ROAD DONGLI DISTRICT, TIANJIN, CEINA TEL: 86-22-24801073 FAX: 86-22-24801291

QUALITY CERTIFICATE

Licence No.:

13061924

QR-11-8.2.4-19

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e: CE(_ ENIT	W)=C+Mj	Note: CE(W)=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15;ALUMINUM KILLED STEEL, EAF-LF- ENHOOM 2 1:68:100)+5/(\+c	Cu+Ni)/15	ALUMI	NUM KI	LLED ST	EEL. E	AF-LF-C(EAF-LF-CONTINUOUS CASTING;	US CAST	ING:			. [NO.	į				A A
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MILL TEST CERTIFICATE

Add: IP Dalixircun, Hongwarg City, Kunam, P. R. China - P. G. :421501

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MILL TEST CERTIFICATE

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	YANGZHOU MILL TEST			5th e	TOTAL LENGTH				16"	Ţ		16"	<u>_</u>	1	91	_	1	co l	HARD- IMPACT	100	TES!	J		1	9	9	ed and	d.	/. EN 10204/3.1 2004 L THICKNESS/HEAT	'ALL	
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	西州田川殿 B 世界公司 WANTED WAR STATE THE STATE OF	EWL	0	A106	BUNDLES	LOT	NO.		13085AR280 AJ06-B/SA106-B,	3		13085AR281 A106-B/SA106-B,			130854 R289 A:06-B/SA106-B,	3			ReL (NLPa)	G.J.	VGTH	S	7245	CI	C1	er)	1. We hereby certify that the products were manufactured and tested strictly according to the applicable specifications and customer's purchase order and specification	2.Melting process of steel: Electric fumace - Fully killed. 6.PkD certification NO 002-2002, 1226, MZ-3 6100 1	35.5/5	EAM	ESE
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	ECNTRALE IN BY EN IN BY	PRODUCT: PRIME NEWLY PRODUCED STEEL PIPE	2 61 4 6	SFEC: ASTIMIASIME A106-B(2011)SA106-B(2010),API 5L-B.PSL-1 45th ed.ANSIM	21	H							-			_					_1	_1	1		6	20		2 [3	AGS. LONTRIN/SEAMLESS/STANDARD AND GRADE/PRE SIZE/WALL THICKNESS/HEAT NUMBER/CFL PO 1020055700/PO EL-4337/MADE IN CHINA	STENCTING TONTRIN/SEAMLESS/STANDARD AND GRADE/PIPE SIZE/WALL THICKNESS/HEAT NUMBER/CFL PO 1020055700/PO	MANAGING REPRESENTATIVE:
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September 10, 2013

HENGYANG VALIN STEEL TUBE CO., LTD

MILL TEST REPORT

Add: 10 Dalixincum, Hengyang City, Bunan, P. R. China P. C.: 421001

E mail: hsiechnysteeltube.com Tel and Fax: +86 734 8873739

ACCEPTABLE ACCEPTABLE ACCEPTABLE ACCEPTABLE S BENDING COLD TEST 2 AICO # Pa 45.713 PACE YSATS 0.71 0.73 0.71 0.73 HARDNESS TEST NACE MR0175 THRC <22 SAMPLE TYPE/ORIENTATION / SIZE(mm/GAUGE LENGTH(mm):SL/19/30 7.0 /1.0/ 2013-5-22 2"×0.218"×20FT RA (%) TOTAL WEIGHT: C201318333-1 田 2011 A JB# 2013 - 8440 - 510 990 田(%) 320 GRAIN TENSILE TEST ASTM A370 31.0 36.0 30,0 ESR ZOIDEU NON METALIC INCLUSION CONFORMS TO SA Rt0.5 E 51185 51185 51475 53070 DATE: YS(Psi) 20053,25 四 DELIVERY CONDITION AV. (T) % SHEAR AREA CERTIFICATE NO. DIMENSIONS 70180 72500 70615 74240 1Stock TS(Pst) TOTAL LENGTH: L/C NO.: 3EAHDS-00278 (ACCORDING TO EN10204 3.1) HEAT TREATMENT NOTCH TYPE/ORIENTATION/TEMPERATURE("CYSIZE (mm) 999 WEIGHT 20.621 11.451 8.714 4.927 M EB 1002 P.O.NO. PO.3213317-OR-2100 SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE. AK2 (J) LENGTH 2161.42 5023.32 3822.53 9045.98 压 IMPACT TEST TOTAL PIECES: PIECES 108 452 251 161 SEE SPECIFICATION NOTE B,X42 띰 BUNDLES N % SHEAR AREA 27 HEAT NO. CE FRANKLIN 1323281 323280V 1323282 1323281 2111000674 Av. (I) TOTAL BUNDLES: 935100416 934302903 934302904 934302905 LOT No. PHOTESTON DNITRACT NO. CUSTOMER CODDUCT RADE Ŋ, ď.

AXIL-ABSORB ENERGY FOR THE FIRST SET NE-KORNGLIZING ROLLED WI-THEORETICAL WEIGHT WZ-ACTUAL WEIGHT

SAMPLE ORIENTATION: L-LONGITUDINAL T-TRANSVERSE SAMPLE TYPE: \$-STRIP C-CLUBBED F-FULL-SECTION Q&T-QUENCHING AND TEMPERING

AK2-ABSORB ENERGY FOR THE SECOND SET

LE-SIDE EXPANSION N-NORMALIZING A-ANNEALING AV.-AVERAGE

HE-HOT EXPANDED HR-HOT ROLLED

71.0 7.07

SOMED BY ON

Po 45319

C1 17 N&T-NORMALIZING AND TEMPERING

HENGYANG VALIN STEEL TUBE CO., LTD

MILL TEST REPORT

Add: 10 Dalixincun, Hengyang City, Honsun, P. R. China P. G.:421001 Tel and Fax: +86 734 8873739

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SKENED BY 34 March 3/14

HENGYANG VALIN STEEL TUBE CO., LTD

MILL TEST REPORT

Add: 10 Dalixiocun, Hengyang Ciry, Runan, P. R. China P. C.:421001 Tel and Tex: +86 734 8873739

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CERTIFICATE NO. C20131833-1 CERTIFICATE NO. DATE: 2013-5-22 PAGE: CAS USE. HEAT TREATMENT DIMENSIONS 2" x 0.218" x 20FT ES: 1002 TOTAL LENGTH: 2003250 FT TOTAL WEIGHT: 45.713	ON O					The second secon	Name of Street, or	
NO. 2711000674 P.O.NO. PO 311317-OR-3100 L.C. NO.: 3FAHDS-00278 DATE: Z013-5-22 PAGE: ATION SEAMLESS CARBON STEEL PIPE FOR OIL AND GAS USE. HEAT TREATMENT REAT TREATMENT HEAT TREATMENT HEAT TREATMENT REAT TREATMENT TOTAL LENGTH: 20033250 FT TOTAL WEIGHT: 45.713	1 OCIC BOLLIEFICE ON ON		CERTIFICATE N	0.		C201318333-1		
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CATION SEE SPECIFICATION NOTE HEAT TREATMENT DIMENSIONS 2"x0218"x20FT BX42 DIMENSIONS 2"x0218"x20FT BUNDLES: 27 TOTAL PIECES: 1002 TOTAL LENGTH: 20033250 FT TOTAL WEIGHT:	FOR OIL AND GAS USE.	g D	DELIVERY CONDITI	ION		Ħ		
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NOTE NACE MR-0175-2009 (FOR HARDNESS ONLY)		
We hereby certify that material betwin described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.	Osality Manager.	2 8 7
This certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.		To the state of th
Any alteration and/or falsification will be subject to the law.		
If you need to assure the authenticity of this certificate ,please do not hesitate to contact Hengyang Valin Steel Tohe CO.,LTD. E-wail: hsiecOMysteelrube.com		
CUSTOMER THIRD PARTY		
	Certificate-maker	刘年亚

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Stock po-135026

YEAR 2010 ED 2011A

CCNTOPASS TO SA 1060

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TENEZANG TALLET NTEEL.

MILL TEST CERTIFICATE

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SIGNED BY DO March 3/14

JOB# 2013 - 8440-50

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HENDRAND VALIDA STEEL TIME CO., LOS

MILL TEST CERTIFICATE

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BUYER:

NIKOPOL STEEL PIPE
"YTIST", CJSCo. 66, TRUBNIKOV
AV., NIKOPOL CITY
DNIPROPETROVSK
REG, UKRAINE, 53201 WWW.STEELPROM. COM FAX:+38-05662-25062

MILL TEST REPORT

IN ACCORDANCE WITH EN 10204/3. 1B

NO. 302-B

A10 # P929 15.08.2006 1 1/2 " SCH 80 SMLS (1.900"x.0.200") SIZE:

8-132 903 SLOCK SPECIFICATION: ASTM A333/ ASME SA 333 NACE MR 0175-2002 Gr6 GRADE:

> PURCHASE ORDER #

	7	NALYSIS-STEEL	-	PROD	CCTC	TEMI	PRODUCT CHEMISTRY %	0		CILLER VALUES	UES
<	2	U	Δ	ů	ž	Cu	Mo	>	CE 0.40 max	Mn/C	Cr+Cu+Mo+Ni+V max 1
- C	0.4.0	0.003	0.018	0.02	0.02	0.02	0.01	×0,01	0,28	2,74	70'0
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		average	45.9	7/01	15,5	1	701	6 2 7	13,0
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			Seat No	2819	2864	100	2837		2834
	FASS	MEAL	NUMBER	244242	042410	613633	20000	072220	573797

Nominal size of longitudinal strip sample for stretching test: width, mm: 12,5+1-0.25, calculated length, mm:50

• I CERTIFY THAT THE MATERIAL HEREIN DESCRIBED HAS BEEN MANUFACTURED WITH THE ORDERED SPECIFICATION AND THAT

THE TEST INFORMATION IS CORRECT AND CONTAINED IN THE RECORDS OF THE COMPANY

Senior control foremen

Prepared by

Mannoamannrohr Sachson Gmbl (An)

Mannesmannrolir Suchaen GmbH Mennesmannatrisse 11 01619 Zeithaln



YALLOUREC & MANNESMANN TUBES

Valloured Group

MATERIAL TEST REPORT (3.1 NACH EN 10204;2004) PARAGRAPH 18, C

[A02]

Mo, : 724292012 Page: 1 (6) Date: 27.06.2012

Ana

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(A01)		(A04.1)		
Mannoumannrohr Sachson Gr	nbH	V&M-Order-No. 85685121		
		1		
		(A08.2)		
		Suborder LA2168		
(A00.1)		41		
Customer		1		
COTF CORPORATION		1		
8407-53RO AVENUE			DA -5-	
CA-T6B3G2 EDMONTON,AB/C	ANADA	H1co:	# PA - 052	6 0
(A08.2)		(AG7.2)		C
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VALLOUREG TUBES CANADA	INC, / SUITE 101	Deta 01.02.2012		
(AU8-3)		(C.70A)	· · · · · · · · · · · · · · · · · · ·	
Client's Clioni		Order-No. 4890987-00		
CCTF CORPORATION			19-140-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	0
(001, 002, 004)	HOT FINISHED SEAMLESS LINE PI		CONFORMS TO SA	272
Description of the product	MAX. 10 % SHORT LENGTHS, NOT RESIDUAL MAGNETISM DOES NOT		VEAR 2010 ED	2011 A
	ENDS PLAIN, SQUARE CUT	THOUSE SO CHOSE	NEAD AUTO	
	TUBE ENDS CLOSED BY PLASTIC		JOB # 2013 - 844	0-50
	OUTSIDE DRY VARNISH	ON	41	
	DEVIATION FROM STRAIGHTNESS	MAX, 4 MM ON 1 M AT EACH END,	ITEM#	1 17/1
	TOTAL DEVIATION OF TUBE LENG		SIGNED BY XA Apri	11//14
	IN BUNDLES OF MAX. 4000 KG, WE 2 BLINGS (NYLON) FOR CONTAINE		Olf BACK Of The Control of the Contr	
	REPORT ELEMENTS:		CLOOK	
32	C, SI, MN, P, S, CU, CR, NI, MO, V, N REFERENCE-NUMBER SKU NO 252		Stock	
	V & M FRANCE NO/ITEM LA2158/03		Po-133965	
	API SPEC, 5 L, PSL 1, 10,2007		(,	
	ASTM A 108 M - 10			
	ASTM A 530 M - 04 A ASME SA 106, EDITION 2010			
	ASME SA 630 M, EDITION 2010	m		
	ASME BOILER AND PRESSURE VE	SSEL CODE, SECTION II, PART A,		
	EDITION 2010 GSA Z 245.1:2009			
	NACE MR 0175/ISO 15156-2:2009/			
	EN ISO 15166-2:2009, ANNEX A.2.1			
	NACE STANDARD MR 0103-2010, P X 42	ARAGRAPH 2.1		
	/ GRADE B (ASTM A 106 M / ASME :	SA 106) / GRADE B (API 5L)		
	/ GRADE 290 (CSA Z245.1, CAT. I)	,		
	AS ROLLED			
	"SOUR SERVICE AS DEFINED IN P.	ARAGRAPH 16 OF CSA-2245.1, BUT		
		PRODUCTS DO NOT CONFORM TO	À.	
	ANNEX H OF API SL." STEEL MANUFACTURER IS HKM, C	DUISBURG, GERMANY		

Mannasmannrohr Suchson GmbH Mannesmannohr Suchson GmbH Mannesmannetraska 11 01619 Zaithuin



VALLOUREC & MANNESMANN TUDES

Valloures Group

MATERIAL TEST REPORT (3.1 NACH EN 10204:2004) PARAGRAPH 16, C

No.: 724292h12 Page: 2 / 6 Dale: 27,08,2012

[A02]

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(AID)	(AIM)	(614)		(010)
V&M Item	Guat. Hom	Item taxt		Ølingle langth
3			, , , , , , , , , , , , , , , , , , , ,	FIXED LENGTH 20 FT SINGLE LENGTH TOLERANCE IN IN + 4.00 / - 0.00

(A13)	(A40)	(aut)	(011)	(E (3)
V&M Itom	Cust. Item	Quantity	Total length	Welght
			ft	lba
3		120	2,400,00	6,914

(071) T CHEMICAL AMALYSIS

(807.1) Heal	(B15) Process	C %	SI %	Mn %	P %	9 %	Al %	- Gu %	Or %	NI %	Mo %
wax	4	0.280	0.100	0.29 1.08	0.030	0.0350		0,400	0.400	0.400	Ó 150
357384	Oxygen (BOF)	0,190	0.200	0.74	0.012	0.0020	0.027	0.040	0.120	0.070	0.020

(807.1) Heat	V %	TI %	Nb/Cb %	Co %	8 %	CQ 24 %	EF 14 %	EF 02 %		
max	0.080	0.0400	0.110		0,0010	.40	1,00	0.15		
357384	0.001	0.0040	0.001	0.0050	0.0002	BE,	0,25	0.01		

CQ 24	CEV=C+F X(MN/6 + SI/24 + CU/15 + NI/20 +(CR+MO+V+CO)/5+5B)	
EF 14	EF = CR + MO + NI + GU + V	
EF 02	EF = V + TI + NB	

Haate	fedly	killad
Ligaria	IGAL	VIIIOO

E-F3=NB+V= MAX, 0,06% E-F3=0,006% (957384)

PRODUCT CHEMICAL ANALYSIS

CONFORMS TO SA 106-B

YEAR 2010 ED 2011 A

2013-8440-50

Mannaumannroin Sachson GmbH

Mannasmannrohr Sachson GnibII Mannosmonnatrasan 11 01619 Zallhain



VALLOUREC & MANNESMANN TUBES

Vallouren Group

MATERIAL TEST REPORT (3.1 NACH EN 1020//2004) PARAGRAPH 16, C

No.: 72429Zh12

(A03)

Page: 37 6 Cale; 27,00,2012

PRODUCT CHEMICAL ANALYSIS

(007.1)	(G00.1)										-
Flant	Tost Place	С	81	Mn	l2	S	Al	Cu	Gr	NI	Mo
		1/1	1/4	%	%	%	%	%	%	%	%
mln		240	0.100	0.29	-	*	-	*	- 00	*	
Kain		0.280	0.500	1.06	0,030	0.0360		0,400	0.400	0.400	0.160
357304		0.169	0.216	0.72	0.012	0.0010	0.020	0.045	0,110	0.070	0.021
357384		0.170	0.217	0,72	0.012	0.0010	0,026	0.045	0.116 .	0.075	0.021

(867,1) Heul	(con.1) Test Place	V %	TI %	Nb/Cb	Co 1%	8	9	
min niax		0.000	0,0400	0,110		0.0010		Ŷ.
357384		0,002	0.0000	0.002	0.0060	0.0002		
357304		0.002	0,0030	0,002	0.0050	0.0002		4

CHECK ANALYSIS ON 2 YUBES PER HEAT

TENSILE TEST RESULTS

Туре (с ю, і)

Test (amparature (cos)

FULL SECTION TEST SPECIMEN ROOM TEMPERATURE

largitudinal .

Direction (corp.

(897.1) Heat	(G00/1) Test Place	(C10) Dimension	(C11) YS	(012) TS	(C11) Elong.	(014.1) Rallo	1-2	
		mm	R _{10,5}	lad L ^w	2" %	R/R _m)	-
mln		-	42000	60000	24,0	-	3.1	
Max			197	-	1.55	5	1 9	
357384	00860	33,50X06,25	46021	71938	46.7	0,58		

HARONESS TEST WITH FREQUENCY AS FOR THE TENSILE LESTS

HARDNESS TEST RESULTS

CONFORMS TO SA 106-B YEAR 2010 ED 2011 A
JOB# 2013 - 8440 - 50 ITEM# SIGNED BY 74 April 17/14 Mannasmannrohr Sachson Gmbll

. . . . ,

Mannesmancrohr Sechson GmbH Monnesmannetraste 11 01619 Zeithatn



VALLOUREC & MANNESMANN TUBES

Valloures Group

MATERIAL TEST REPORT (3.1 NACH EN 10204:2004) PARAGRAPH 18, C

No. : 72429Zh12

(A03)

(/102)

Paga: 4 / 5

Dalo: 27.06,2012

HARDNESS TEST RESULTS

(noz.i) Heat	(C00.1) Test Piece	(G11)	(cal) Value	(CS1) Value		
		HB	Ha	НВ		
min max		200,0	200.0	200.0		
357384	80868	146.0	144.0	140,0		

(0.63)

OTHER TESTS ON PIPE

Test	Conditions	Test rate	Result
HEAT TREATMENT	HOT FINISHED IN THE RANGE OF NORMALIZING TEMPERATURE		
HYDROSTATIC TEST	3000 PSI, HOLDING TIME 6 SEC.	EACH PIPE/ TUBE	NO LEAKAGE
FLATTENING TES T			SATISFACTORY
BENDING TEST			SATISFACTORY
APPEARANCE AND DIMENSIONS (D01)	l k	EACH P(PE) TUBE	SATISFACTORY
VERIFICATION TEST		EACH PIPE /TUBE	SATISFACTORY
HARDNESS TEST		HB MAX. 200,0	
HARDNESS TEST		HRC MAX, 22	GUARANTEED
PIPE PRODUCTION METHOD	SEAMLESS, HOT-ROLLED		

- EDDY CURRENT TEST ACC, TO CSA 2 246,1; SATISFACTORY

- KILLED STEEL

- HYDROSTATIC TEST: 20,7 MPA, HOLDING TIME 5 SEC. EACH PIPE/

TUBE: NO LEAKAGE

(A04, B06)

MARKING, IDENTIFICATION

3



PAINT STENCILED ON ONE SIDE MANUFACTURER MANUFACTURER'S MARK SPEC. 5L API-MONOGRAM 5L0160,5 MONTH/YEAR 33,4 X 6,35 NW 1 X SCHED.16D TERMS OF DELIVERY PSL 1/4(06/SA106/Z245,1-09 X42 / B / B / 250 CAT 1 PROCESS OF MANUFACTURE SMLS SS HEAT-NO, TEST PRESSURE BAR TEST PRESSURE PSI 3000 NDE TUBE/PIPE LENGTH MM TUBE/PIPE LENGTH FT PIPE NO. (TALLY-NR.) 65665121 V&M ITEM-NO 3 WA GERMANY CUSTOMER ORDER-NO, VM2852 ORDER-NO, USER 4600987-00 MANUFACTURER'S NAME

DATE: 03/12

TUBE NUMBER: 1-120

70

The sugplied products are in compliance with the requirements of the order

CONPORMS TO SA 106 - B

YEAR 2010 ED 2011 A

JOB# 2013 - 8440 - 50

IDEM# 4 |

SIGNED BY 08 April 17/14

Mannusmannrohr Suchsen GmbH

Mannesmennrahr Sechson OmbH Mannesmannsträuse 11 01010 Zolthaln



VALLOUREC & MANNESMANN TUDES :

Vallourec Group

MATERIAL TEST REPORT (2.1 NACH EN 10204:2001) PARAGRAPH 16, C

···)

Nu. : 72429Zh12

(A03)

(4.12)

Page: 6 / 6

Dain: 27,08,2012

(A00, 202, 203)

Date	27.00,2012
Validated by	Inspection Representative
	RACZ Rica
Ð	(03525) 792318
G	(00525) 781140
@	ULRIKE.RACZ@9MP-TUBES.DE
Sinmp	

Indication in parameters correspond to stiffs due nocordes to 6N (0.188

This lossification (expectively may melling be moviled new used for extent products. Offences are regarded as interested and conficultive and make an expect to release (expectation).

CONTORNS TO SA 106B YEAR 2013 - 8440-50 JOB # 2013 - 8440-50	SIGNED BY April 17/4	Page 7 / 25	100 months	出火砂 MARALED	电扩放码 TLECTREC FURNACE	880°C+25MIN AIR COGLIMO 2012-66-24	总域语(吨) B4.656 WEIGH (10)S)	帝金編状学語 (記)		<2.5 <2.5 <2.5 <2.5 <2.5 <2.5 <2.5 <2.5	1.0 0.5 0.5 0	会指码完全 METALLOGRAPHIC EXAMINATION	显微组织 品档度 MICROSTRUC- (級)	ייטוס אדעאס פון פון פון פון פון פון פון פון פון פון	F+P	BANKWE TEST	2000	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	ALL TOSTICCIEN
-		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	# 5 m	A 数 NOTTION	程 PROCESS		50. 70 GOTAL		奶 海 Bi As			无道禁伤检验 N. D. E	65 超速波蒸伤 U.T		- 4格 0000	0. 29	10000	No.	STAME OF MILL INSTRU
Stock to 134685.	限 公 ., Ltd.	4		ANTING MELECTE	格族过程 STEEL MAKING PROCESS		总米数 TOTAL METERS		题 能 飲	t t	1		水压试验 GYDROSTATIC TEST B.T B.T		17MPA, 10S 合格 GDOD	製造整運 VALUE(≤0.40)	NATION	检验员 INSPECTOR	
	衛 Stee	武 EST CRITICATE	1338907	NO. DC HCV211526	E1-3117	铝镀静刻 ALUMINUM KILLED STEEL	4287	· · · · · · · · · · · · · · · · · · ·	格 组 纸	0	0,004 0,003 0,001		硬度试验 HARDNESS TEST GY (HB)		137/133/130 6	44 6000 GE VA	mm. RADIATION CONTAMI	TESTED AND TASPET	REQUIREMENTS.
	华友 特 Eluayou Special	Tables .	1.0	CENTIFICATE NO. 信用证号L/C N	合同号	郵管类型 P.P.B. TYP.B	总支数 TOTAL PIECES (PCS)	· · · · · · · · · · · · · · · · · · ·	影響の影響を	30 0.40 0.40	0.007 0.008 0.006	LMPACT TEST	TEST	3 AVG	1	弯曲试验 BENDINC TEST	11、年 HEAT (LEGLE) ANALYSIS; P. PRODUCT ANALYSIS; *2、配件尺寸 SIZE; 中 33.4 mm。 ※1、試験方向の正理がATION: L=数向LONGIYODINAL。※4、SY=0.2%OFFSET。 ※2:対象方向の正理がATION: L=数向 DONAL MADO WITH MATERIALS WHICH ARE PREE FROM RADIATION CONTAMINATION	取样、试验和检验。并符合标准及合同要求。 And transfer trails being trails for the	WE HIGEN CHRISTY THAT THE MATERIALS DESCRIBED REFERENCES BODGS ALONG THAT THE REQUIREMENTS. "OF ACCORDANCE WITH THE CUSTOMER" S SPECIFICATION (S), AND THAT THEY SATISFY THE REQUIREMENTS.
	锡 市 华 Wuxi Elua	品业	1.	CORP		SA 106 B . ISO 15156)	6 In		40000000000000000000000000000000000000	6 0.030	0.49 0.013	冲击试验 IMPACT TEST Aw (1)	试验温度 TEMPERATURE OF 10×10×55(20℃)	1 2	ı	1	H. H. HEAT (LACLE) ANALYSIS, P. PRODUCT ANALYSIS, *2. 定件元寸 S *1. 试验方向 ORIENTATION: L=9.向LONGTYUDINAL, *4, SY=0.2%GFSSI. 许是BEDY COMPIEM THAT OUR PRODUCTS ARE MADE WITH MATERIALS WHICH	以恐者检验。 并免	TON (S), AND THA
	无		- INTERNATIONAL CORP	3 INTERNATIONAL CORP	A B B B B B B B B B B B B B B B B B B B	API SL/ASTM A106 GR. B/ASME SA .CE ARO175 / NACE MRO-0103 & I	4 55mm K 校区 SCH XS LPNGTH	1	18 ×	O O	0.21	ST Stan 3	S. 伸长澤 E.L. A %	30	31/33	压剂过程 FLATTENING TEST	i. P. PRODUCT ANA 與真LONGIYUDINAI RODUCTS ARE MADE	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	KLALS VESCKIBBU F ER'S SPECIFICAT
		に対象	SPECIAL STEEL. KNICHTSPRIDGE INTERNAT	KNIGHTSBRIDGE INTERNAT	CFAC	API 5L/ASTM A106 GR B/ASME SA 106 B (SACE ARO.75 / NACE MRO-0103 & ISO 15156)	製庫 4,55mm ドエ SCB XS		(A) (A) (A) (A) (A) (A) (A) (A) (A) (A)	25	4287	好仲寅齡 TENSILE PEST 家語 GAUGE LENGTH (50,8mm)	L.S. 施服强度 V.S. *4 WPa	245	27	(基) (DOO)	RIENTATION : L=	並证原本表所列产品,均依标准规定制造、	LEY THAT THE MAKE WITH THE CUSTOM
			la l		NSER SP PT		33. 4mm		s'n	TURE NO. HEAL	0 00938 Y56554		*5	Max Min 415	12.5	春 元 春 DIKEN	コ、3、HEAT A A、成後方向 0 379 HEREBY CONF	在证明本表別	SURVETOR IN ACCORDANCE WITH THE CUSTOMER'S SPECT
			の放手に	はいません	中的名称	标 准 SPECIFICATION	상선		Er.		-			-	ě	WISHA	YOTES	1	SURVETO

Tel.: +49.5254.81.0 Fax: +49.5254,13566

Steel/Tube

(DIN EN ISO 9001, ISO/TS-16949 CERTIFIED BY TUEV NORD CERT) Blatt: Page: Page: (PED 97/23/EC CERTIFIED BY TUEV NORD SYSTEMS) ELECTRIC FURNACE Procédé d'élaboration de l'acier: FOUR ELECTRIQUE ELEKTROSTAHL 3ST 12-5585 / Van Leeuwen 45001557 Hersteller: Warmrohrwerk/Zieherei Stamp of the inspection representative: Stempel des Abnahmebeauftragten: Stahlerschmelzungsverfahren: Manufacturer's brand: Marque du producteur Poinçon du contrôleur: Herstellerzeichen: No. du certificat; Inspection No.: Manufacturer: Producteur: 41-718541/001/P TUBES D' ACIER SANS SOUDURE 1578490 4119764 NAHTLOSE STAHLROHRE SEAMLESS STEEL TUBES No. de commande Benteler: No, de commande du client: No. d'avis d'expédition: Benteler Auftrags-Nr.: Versandanzeigen-Nr.: Purchase Order No.: Senteler Order No.: Kunden-Bestell-Nr.: Dispatch Note No.: Dokument-Nr.: No. du document: Document No.: Produkt: Product: Produit: Benteler Steel/Tube GmbH - Positisch 1340 - 33043 Paderborn - Deutschland ABNAHMEPRÜFZEUGNIS EN 10204-3. CERTIFICAT DE RECEPTION EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 VAN LEEUWEN PIPE & TUBE EDMONTON, AB T6P 1R1 2875-64 AVENUE (CANADA) INC. EN 10204:2005-01 CANADA

0 ASME SA-106, ASME Section II Part A Edition 2010 Addenda 2011a, S6, ASTM-A 106-2011, S6, API Specification 5L Forty-Fourth Edition, October 2007, ISO 3183:2007, PSL 1, incl. ADDENDUM 3, CSA Standard Z245.1-07 Category I, Sour Service, ANSIMACE MR0175/ISO 15156-1: 2009, ANSIMACE MR0175/ISO 15156-2: 2009 ieferbedingungen Conditions de livraison: Terms of delivory:

ASME B36.10M-2004, ASME SA-530, ASME Section II Part A Edition 2010 Addenda 2011a, ASTM-A 530-2004a

Maße - Toleranzen:

Dimensions-tolerances:

April 17/14 2011A 2013-8440-50 106-B YEAR ZOID ED 20 CONFORMS TO SA. # BOS TEM# **3RADE 290, GRADE B, GRADE X 42** Hot rolled Dimensions-tolérances: Lieferzustand: Nuance d'acier: Stahlsorte: Steel grade:

PSL1 B/X42/290 SS HEAT-NO. TEST PRESSURE NDE DIMENSIONS WA GERMANY P.O. 45001557 FS: BENTELER Z.245.1-07 - ISO 3183 - A 106-S6 - SA-106-S6 Spec 5L-0151.1 API SIGN 0912

Produktkennzeichnung:

Delivery condition:

État de livraison;

Marquage du produit:

Product marking:

SIGNED BY _

ARZ = Azzinrepeschertung, Erebing in marking, Gravure à l'encie. FK = Enthetienenzeichnung, colour marking, marquege par couleur. FS = Farbschablonlerung, polour marking, marquege par couleur. FS = Farbschablonlerung, polour marking, marquege sur étiquette. FS = Prägestempel, die stemp, marquege par polinçonnage. TS = Tintenstrahlkennzeichnung, lak jet spray marking, imprimante à joi



Benteler Steel/Tube GmbH 33043 Paderborn

Fel: +49,5254.81-0 Fax: +49,5254,13666 Deutschland

BENTELER 🛡

Steel/Tube

Longueurs multiples Vielfachlängen P~ YEAR LOTO ED 2011 A Multiple langths 1068 Blatt: Page: Page: CONFORMS TO SA Série de no. des tubes Rohr-Nr.-Gruppe Alco#P95 Tube number group Pression d'épreuve 2 Test pressure Schmelzen-Nr. Prüfdruck Prüf-Nr.: Inspection No.: No. du certificat: 3000 PSI No. de coulée 573889 Heat No. 41-718541/001/P Gewicht 41562 Weight Poids lbs 19468,77 Longueur Länge Length Dokument-Nr.:
Document No.:
No. du document: feet feat ABNAHMEPRÜFZEUGNIS EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 1" NPS * Sched, 80 CERTIFICAT DE RECEPTION EN 10204-3.1 18 FT - 22 FT Dimensions Dimensions Maße Number Nombre Stück 976 1000 Poste Pos. ftem

24 April 17/14

SIGNED BY

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3000

574021

23700

8358,27

TEM#

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15460,96

JOBA 2013-8440-50

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19888,16

80

1/2" NPS * Sched.

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0002

18 FT - 22 FT

80

3/4" NPS * Sched.

754

0003

18 FT - 22 FT

Po-133198

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3000

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4872,44

1 1/2" NPS * Sched, 40

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18 FT - 22 FT

3/4" NPS * Sched 40

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18 FT - 22 FT

1" NPS * Sched. 160

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18 FT - 22 FT

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10380,71

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3000

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12518

6292,65

160

3/4" NPS * Sched.

294

00100

18 FT - 22 FT

Schmelzenanalyse [%] / Heat analysis [%] / Analyse sur coulée [%]

Pos.	Schmelzen-Nr.											!	i	
Item	Heat No.	ပ	S	NN	۵	တ	S.	MO	Z	CO	>	S S	=	m
Poste	No. de coulée													
0001	573889	0,130	0,200	0,74	0,011	0,002	0,10	0,02	90'0	90'0	0,002	0,011	0,002	0,0001
0000	0002 574021	0,130	0,180	0,76	0,007	0,002	0,13	0,03	60'0	0,08	0,002	0,012	0,001	0,0001
0003		0,120	0,220	0,73	6,008	0,001	0,11	0,03	0,05	90'0	0,002	0,013	0,002	0,0001
00:05		0,130	0,180	0,76	0,007		0,13		60'0	0,08	0,002	0,012	0,001	1000,0
9000		0,140	0,170	0,75	900'0	0,002	0,10		0,08	0,07	0,002	0,011	0,001	0,0001
0007	0007 217117	0,125	0,210 0,73	0,73	0,008	1	0,08	0,03	0,07	0,10	0,002	0,012	0,002	1000'0
0.00	0010 574020	0 140	0 140 0 170 0.75	0.75	0.006		0.10	0.03	0,08	0,07	0,002	0,011	0,001	0,0001

BENTELER 🛡

Steel/Tube

Tel: +49 5254 81-0 Fax: +49 5254,13666

Bonteler Steel/Tube GmbH

33043 Paderborn Postfach 13 40

Deutschland

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1

Dokument-Nr.: No. du document: Document No.:

Prüf-Nr.: Inspaction No.: No. du certificat: 41-718541/001/P

~ (7) Blatt: Page: Page:

1. Formel: CE IIW = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,40 % 2. Formel: CEV = C + F*((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr + Mo + V + Nb)/5) + (5*B)) < = 0,40

3. Formel: 4. Formel:

Formelergebnis

CONFORMS TO SA 106 - B	YEAR 2010 ED 2011A	JOB# 2013 - 8440-50	TEM# 43	4/71 126 12/4	DAGINED BY				
			4. Formel	4. Formula	4, Formule	0,242	0,332	0,252	0,332
			3. Formel	3. Formula	3. Formule	5,692	5,846	6,083	5,846
NAI - 107/1 (07/1			2. Formel	2. Formula	2. Formule	0,263	0,273	0,247	0,273
NO 1 (01/00) F (47/0)	c = 1,00 %	ésultats des formules	1. Formel	1. Formula	1. Farmule	0,286	0,300	0,277	008'0
Ref. CEV = C+F ((MIII)0) + (SIZ4) + (CG(13) + (MIZC) + ((CG(13) + (MIZC) + (CG(13) + (MIZC) + (MI	iel: $Cr + Cu + Mo + Ni + V < = 1,00 \%$	ergebnisse / Formula results / Résultats des formules	Schmelzen Nr	Heat No.	No, de coulée	573889	574021	574179	574021

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

574020

00100

0,282 0,282

5,840 5,357

0,258

0,280 0,301

5,357

0,284

0,282

0,284

0,301

574020 217117

9000

0003 0000

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Poste

Pos. Kom

Pos. Item	Schmelzen-Nr Heat No. No. de coulée	O	S	25	٥	S	CR	MO	Z	no	>	NB NB	E	œ
0001	573889	0,120	0,190	0,73	0,009	0,002	0,10	0,02	0,05	0,05	0,001	0,014	0,002	0,0002
0001	573889	0,120	0,190	0,73	0,009	0,002	0,10	0,02	0,05	0,05	0,001	0,014	0,002	0,0001
0002	574021	0,130	0,180	0,75	900'0	0,002	0,13	0,04	0,08	60'0	0,001	0,015	0,001	0,0001
0002	574021	0,130	0,180	0,76	900'0	0,002	0,13	0,04	80'0	60'0	0,001	0,015	100'0	0,0001
0003	574179	0,130	0,220	0,73	0,007	0,001	0,11	0,04	0,04	90'0	0,001	0,015	0,002	0,0004
0003	574179	0,120	0,220	0,73	0,007	0,001	0,11	0,04	0,04	90'0	0,001	0,015	0,002	0,0004
0005	0005 574021	0,130	0,180	0,75	900'0	0,002	0,13	0,04	0,08	60'0	0,001	0,015	0,001	0,0001
0.05	0005 574021	0,130	0,180	0,76	900'0	0,002	0,13	0,04	0,08	60'0	0,001	0,015	0,001	1000'0
9000	0006 574020	0,150	0,180	0,76	0,006	0,002	0,11	0,03	0,08	0,08	0,001	0,016	0,002	0,0001
900	0006 574020	0,140	0,180	0,75	0,005	0,002	0,11	0,03	0,08	0,08	0,001	0,015	0,002	0,0001

Bentalor Steel/Tube GmbH Postfach 13.40

33043 Paderborn Deutschland

Tel: 149.5254,81-0 Fax: +49.5254,13666

BENTELER 🛡

Steel/Tube

ra-, Blatt: Page: Page: No. du certificat: Inspection No.: Prüf-Nr.: 41-718541/001/P Dokument-Nr.: Document No.: No. du document: ABNAHMEPRÜFZEUGNIS EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1

Produktanalyse [%] / Product analysis [%] / Analyse sur produit [%]

Pos.	Schmeizen-Nr.													
Item	Heat No.	0	SI	NIN	۵	S	CR	MO	Ē	3	>	S S	F	83
poste	Poste No. de coulée													
2007	0007 217117	0,120	0,120 0,200 0,73 0,008	0,73	0,008	0,002	0,08	0,03	0,07	0,12	0,001	l l	0,002	
1000	0007 217117	0,120	0,120 0,200 0,73	0,73	0,008	0,002	0,08	0,03	0,07	0,13	0,001	0	0,002	0,0001
0100	0010 574020	0,150	0,150 0,180 0,76	0,76	900'0	0,002	0,11	0,03	0,08	0,08	0,001	0,016	0,002	0,0001
00100	0000 574020	0,140	0,140 0,180 0,75	0,75	0,005	0,002	0,11	0,03	0,08	0,08	0,001	0,015	0,002	0,0001

CE IIW = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) < = 0,40 %1. Formet:
2. Formet:
3. Formet:
4. Formet:

 $\mathsf{CEV} = \mathsf{C} + \mathsf{F}^*((\mathsf{Mn}/6) + (\mathsf{Si}/24) + (\mathsf{Cu}/15) + (\mathsf{Ni}/20) + ((\mathsf{Cr} + \mathsf{Mo} + \mathsf{V} + \mathsf{Nb})/5) + (\mathsf{5*B})) < = 0,40$

Mn/C > = 3/1

Cr + Cu + Mo + Ni + V < = 1,00 %

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
item	Heat No.	1, Formula	2, Formula	3. Formula	4. Formula
Posto	No, de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0001	573889	0,272	0,243	6,083	0,221
1000	573889	0,272	0,242	6,083	0,221
0000	574023	0,300	0,274	5,769	0,341
0000	574021	0,302	0,275	5,846	0,341
0003	574179	0,288	0,268	5,615	0,251
0003	574179	0,278	0,249	6,083	0,251
0.000	574021	0,300	0,274	5,769	0,341
0000	574021	0,302	0,275	5,846	0,341
9000	574020	0,315	0,304	2,066	0,301
9000	574020	0,303	0,288	5,357	0,301
7.000	217117	0,276	0,245	6,083	0,301
0000	217137	0,277	0,246	6,083	0,311
0010	574020	0,315	0,304	5,066	0,301
00100	574020	0,303	0,288	5,357	0,301
١					

Bentolar Steel/Tube GmbH
Positisch 13 40
33043 Paderborn
- Deutschland
Tel.: +49.5254.81-0 Fax: +49.5254,13666

BENTELER 🛡

Steel/Tube

181: +430::	181. +49.5204.61-U FAX. +49-0204 (3600	2000								
ABNAH INSPECTIO	ABNAHMEPRÜFZEUGNIS EN 10204-3.1 INSPECTION CERTIFICATE EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1	VIS EN 10204-		Dokument-Nr.; Document No.: No. du document:	ress	41-718541/001/P	Prūf-Nr.; Inspection No.; No. du certificat:		Blatt: 5/ Page: Page:	
Prüferget	Prüfergebnisse / Test results / Résultats des essais	Résultats des essais								
Die Rohr The tubes Les tubes	Die Rohre sind auf Dichtheit geprüft durch: The tubes have been submitted to a leak tightness test by: Les tubes ont passé un contrôle d'étanchéité par:	it geprüft durch: s a leak tightness test 'étanchéité par:		Hydrostatic test: acc. pressure/Time-record	test: acc. to CS/ ne-record	Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds, Test pressure/Time-record	ne min 5 second	s, Test	PASSED	
Die Rohr The tubes	Die Rohre wurden zerstörungsfrei geprüft. The tubes are non destructive tested: Lev tubes ont passé un essai non destructif;	ngsfrei geprüft. ted: destructif:		-test: acc	, to CSA Z245.1	ET-test: acc. to CSA Z245.1; for imperfections; drilled hole: 3,20 mm	Irilled hole: 3,20	mm	PASSED	
Augensichtko Visual inspection	Augensichtkontrolle; Visual inspection:	PASSED		Biegeversuch: Bending test:	ü	PASSED	Maßkontrolle: Dimensions exam	Maßkontrolle: Dimensions examination:	PASSED	
Examen visuel: Ergebnisse de	Examen visuel: Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques	en Prüfung / Result	Ess of mechanical	Essai de cintrage: sal testing / Résull	ge: .ultats des essais mé	caniques	Verification	Verification des dimensiones	CONFORMS TO SA 106 - B	H
Die Prob The sampli Uechantilk	Die Probennahme erfolgte an Vielfachlängen. The sempling was carried out on multiple lengths. Uechantillonage etait realise aux fongueurs multiples.	an Vielfachlängen multiple lengths. Iongueurs multiples.								
Zugversu	ich längs Vollprobe	/ Tensile test longitu	dinal Full section	ı test specim	ien / Essai de tractio	Zugversuch längs Vollprobe / Tansila test longitudinal Full section test specimen / Essai de traction longitudinale Eprouvette a section complete	a section complete			
Pos. Item Poste	Proben-Nr. Specimen No. No. de l'éprouvette	Schmelzen-Nr. Heat No. No. de coulée	Probenabmessung Specimen dimensions Dimensions de l'éprouv	essung ensions a l'éprouv.	Streckgrenze Yield strength Limite élastique	Zugfestigkeit Tensile strength Résistance à la traction	Dehnung Elongation Allongement		Einschnürung Area reduction Coefficient de striction	
Anforderungen Roquirements	rungen nts		mm		ReH N/mm²	Rtm N/mm²	A2" %	1, Formel		
Exigences	10000	0000	23 AE V	000	MIN 290	415-625	MIN 30	1. Formule		
0000	000000	574021 ←	111	3,75	3716	501	40			1
0003	000000	574179	26,85 X	4,00	361	482	44			
9000	000001	574020	26,85 X	2,95	379	500	42			

Bontelar Steel/Tube GmbH Postfach 13-40 33043 Paderborn Deutschland Tel: +49,5254,81-0 Fax; +49,5254,13666

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Steel/Tube

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ABNAH	VEPRÜFZEUG	ABNAHMEPRÜFZEUGNIS EN 10204-3.1		Dokument-Nr.:	12	41-718541/001/P	Prüf-Nr.:	Blatt: 6/ 7	
INSPECTION CERTIFICAT	INSPECTION CERTIFICATE EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204 3.1	0204-3.1	No.	Document No.: No. du document:	nt:		No. du certificat:	7 a a a a a a a a a a a a a a a a a a a	
Zugversu	oh längs Gewicht	Zugversuch längs Gewicht und Länge / Tensile test longhudinal Weight	test longitudinal	Weight and	l length / Essai de tre	and length / Essai de trection longitudinale Poids et longueur	et fongueur		
Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	ssung	Streckgrenze	Zugfestigkeit	Dehrung	Einschnürung	
item	Specimen No.	Heat No.	Specimen dimensions	sions	Yield strangth	Tensile strength	Elongation	Area reduction	
Poste	No. de l'éprouvette	e No. de coulée	Dimensions de l'éprouv	'éprouv.	Limite élastique	Résistance à la traction. Allongement	Allongement	Coefficient de striction	
Anforderungen	ungen				ReH	Rm	A2"	1. Formel	4
Requirements	lts.		mm g	8	N/mm²	N/mm²	%	1. Formula	
Exigences					MIN 290	415-625	MIN 30	1. Formule	
0005	000001	574021	1.689,40	408	300	457	48		
0000	100000	217117	1.629,90	411	356	489	54		
0010	000001	574020	1,200,10	403	331	468	44		ľ
Härteprüf	Härteprüfung / Hardness test / Essai da dureté	/ Essai de dureté						CONFORMS TO SA 106-B	
Pos.	Proben-Nr.	Schmelzen-Nr.	Härte					YEAR ZOIO ED ZOIIA	
Item	Specimen No.	Heat No.	Hardness					LOB # 2013 - 8440-50	
Poste	No. de l'éprauv	No. de coulée	Dureté					1. 3	
Anforderungen	ungen		HRC	무	ΛH	HRB	HBW		
Requirements	nts							SIGNED BY OR MARTINIA	
Exigences				MAX 200	001			definition of the person of the farmet full designation of an extension of the	
0001	000001	573889		139					
0000	100000	574021		148					
0000	000001	574179		14.1					
0000	100000	574021		140					
0000	100000	574020		147					
0000	000001	217117		144					
0010	000001	574020		138					

Restmagnetismus / Damagnetize / Démagnétiser

demagnetized tubes; 1 measurement per 4 hours on both tube ends Two readings 180° apart around the circumference. Average value max 3.0 Millitesla (24 A/cm), individual value max 3.5 Millitesla (28 A/cm)

Tel.: +49.5254.81-0 Fax: +49.5254,13666 Bentelar Steal/Tube GmbH 33043 Paderborn Posifach 13 40 Deutschland

Steel/Tube

Blatt:

ABNAHMEPRÜFZEUGNIS EN 10204-3.1 CERTIFICAT DE RECEPTION EN 10204-3.1 NSPECTION CERTIFICATE EN 10204-3.1

Dokument-Nr.: No. du document:

No. du certificat: Inspection No.: Price Nr.:

41-718541/001/P

Page:

Vermerk / Remark / Remargue

NACE Standard: Hardness acc. to ANSI/NACE MR0175/ISO 15156; HRC max 22., The material meets the requirements of NACE MR0103, Region 3, in accordance to Figure 1 and Appendix A.2, ANSI/NACE MR0175/ISO 15156-2:2009; Certificate remarks: The Material is requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out; Bend test: mandrel diameter 12D; contract., This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the ensure that all environmental requirements as well as the requirements regarding engineering, construction and operation of Aluminium deoxydized and inclusion shape controlled with Calcium-Silicon treatment, It is the end user's responsibility to facilities are fulfilled in the country of use. Fit for purpose of the parts as well as homologation is not the scope of this Bending angle: 90 °

003 Heat no. 574179 = 10, Item 005 Heat no. 574021 = 9 - 10, Item 006 Heat no. 574020 = 10, Item 007 heat no. 217117 = 10, Item Grain size; acc. to ASTM-E 112, Grain size 6 and finer; Item 001 Heat no. 573889 = 10, Item 002 Heat no. 574021 = 10-11, Item 010 Heat no. 574020 = 9.

Verkäufer(in) / Salesman/ woman in charge / Personne chargée : Mrs Schöneweis, Tel.: 05254/81-4234, Fax: 4289

Abhahmabauftragter Inspection representative Controleur

Paderborn Schloß Neuhaus, 12.10.2012, TEL.: 05254.81-1765 FAX: 05254.81-1752

THOMAS GOLLAN / GUT

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgüttig. Nous attestons que les produits livrés sont conformes aux stipulations de la commande.Ce document a été établi par traitement électronique de l'information et est valide sans signature. We certify that the supplied products comply with the order specification. This document was prepared by means of electronic data processing and is valid without signature.

SHANGHAI PUFA STAINLESS STEEL PIPE FACTORY MILL TEST CERTIFICATE

7 Hongye Road, Tang Town, Pudong New District, Shanghai, China

REGISTRATION No.: 110703068

According to the complete of	CED TIETO A TE NO 12 7	00					PIRCHASER.	- 1	SC MEG Group	A see Ass	A CHARLES	The state of the s	
DATE OF REPORT: DATE OF REPORT: 20	MODERNO: 13-7	-69 Etalia I and Etal	7	Dollahad +	*:-500C		CONTRAC	T NO . SC	115531	INSTINAM CATABOOM	3	7-0 CM	
## Pieces Feet 20 1875 37,500 31,500 31,500 31,500 31,500 31,500 31,000 16.0–18.0 10.0–14.0 16.65 10.05 30,40 16.47 10.30 16.47 16.47 16.47 16.47 16.47 16.47 16.47 16.47	TEICATION: ASTM	A 213_119/4 CT	VIE SA21	3-08/ASTE	0 520GIIL [A769-10]	Z A W	DATE OF	REPORT-	2013 7 15			124/67.	
Heat No. Lot No. O.D. (in) W.T. (fin) Length (ff) Pieces Feet (YX1302-681] 1/2 0.035 ← 20 1875 37,500 C Ma P S Si Cr Ni C Ma P S Si Cr Ni 0.019 0.73 0.033 0.001 0.40 16.0-18.0 10.05 0.019 0.77 0.035 0.001 0.40 16.47 10.30 0.019 0.77 0.035 0.001 0.40 16.47 10.30 0.022 0.70 0.035 0.001 0.40 16.47 10.30 Psp. 0.022 0.77 0.035 0.001 0.40 16.47 10.30 Psp. 0.022 Rm Inc. 0.05 Inc. 0.05 Inc. 0.05 Inc. 0.05 Inc. 0.05 Psp. 0.02 Rm Inc. 0.00 Inc. 0.00 Inc. 0.00 Inc. 0.00 Inc. 0.00 Psp. 0.02 Rm <td< td=""><td>MICALION: ASIM</td><td>100011-0170</td><td>- And State</td><td>11 CT/00-C</td><td>Dimension</td><td>JS</td><td></td><td></td><td></td><td>;</td><td></td><td>Macroscopi</td><td>Macroscopic Inspection</td></td<>	MICALION: ASIM	100011-0170	- And State	11 CT/00-C	Dimension	JS				;		Macroscopi	Macroscopic Inspection
YX1302-681			ot No.	O.D. (in)	W.T. (in)		Pieces	Feet	Process	Delivery Condition	notibuo	End Cut	Appearance
C Ma P S si cr Ni ≤0.035 ≤2.00 ≤0.045 ≤0.030 ≤1.00 16.0-18.0 10.0-14.0 0.019 0.773 0.033 0.001 0.40 16.65 10.05 0.022 0.770 0.035 0.001 0.40 16.47 10.30 Mechanical Properties Mechanical Properties FL (%) Reduction of Area Properties FL (%) Reduction of Area Properties Non Destructive Test Hydrostatic Test Inter-granular Eddy Current Test Inter-granular Corrosion Test ASTM E 426 / ASTM A262 E Passed / ASTM A262 E Passed / ASTM A262 E Athat the material described here in has been made and tested completely Prepared by:		12-681		1/2	0.035	20	1875	37,500	Cold-Drawn	Solution -Annealed	nnealed	Passed	Passed
C Mn P S Si Cr Ni ≤0.035 ≤2.00 ≤0.045 ≤0.030 ≤1.00 16.65 10.0-14.0 0.019 0.773 0.033 0.001 0.40 16.65 10.05 0.022 0.770 0.035 0.001 0.40 16.47 10.30 Mechanical Properties Mechanical Properties FL (%) Reduction of Area Reduction of Area Reportion No. S. (MPa) T.S. (MPa) FL (%) Reduction of Area Reduction No. Destructive Tests Fd (1/62) / Hydrostatic Test Inter-granular ASTM A262 E ASTM E426 / / / / Inter-the material described herein has been made and tested completed by: Inter-the prove specification and with the requirements of the purchase					Ch	emical Comp	osition (W.	T. %)					
\$\le 0.035 \$\le 0.045 \$\le 0.030 \$\le 0.040 \$\le 0.031 0.040 16.0-18.0 10.0-14.0 0.019		(1)	Ma	Ы	s	Si	Cr	N	Mo	Ti			
0.019 0.73 0.035 0.001 0.40 16.65 10.05 Mechanical Properties Mechanical Properties Mechanical Properties Mechanical Properties F. (%) Reduction of Area F. (%) Reduction of Area Pactor S500/600 61/62 / Non Destructive Tests Hydrostatic Test Inter-granular Eddy Current Test Ultrasonic Test ASTM A262 E Passed / ASTM A262 E Passed / ASTM A262 E Intart the material described herein has been made and tested completely Prepared by:			€2.00	≪0.045	≤0.030	€1.00	16.0~18.0	10.0~14.0	2.00~3.00	/			
V.S. (MPa) T.S. (MPa) EL. (%) Reduction of Area Reduction of Area Properties Y.S. (MPa) T.S. (MPa) EL. (%) Reduction of Area Reduction of Area Properties Y.S. (MPa) F.C. (MPa) EL. (%) Reduction of Area Reduction of Area Properties Passod ⇒515 ⇒35 / Non Destructive Tests Hydrostatic Test / ASTM A262 E Eddy Current Test / ASTM A262 E Passed / ASTM A262 E rhat the material described herein has been made and tested completely Prepared by: rhat the material described herein has been made and tested completely Prepared by:		19	0.73	0.033	0.001	0.40	16.65	10.05	2.04	/			
Y.S. (WPa) Y.S. (WPa) Reduction of Area Rp0.2 Reduction of Area Rp0.2 Reduction of Area 1		22	0.70	0.035	0.001	0.40	16.47	10.30	2.14	/	1		
Y.S. (MPa) T.S. (MPa) EL (%) Reduction of Area In 2 in 2 in 2 (%) Rp0.2 Rm In 2 in 2 (%) Z (%) ≥205 ≥515 ≥35 / 260/270 590/600 61/62 / Non Destructive Test Hydrostatic Test Inter-granular Corrosion Test Eddy Current Test Ultrasonic Test ASTM A262 E ASTM E 426 / ASTM A262 E rhat the material described herein has been made and tested completely Prepared by: the above specification and with the requirements of the purchase ON						Mechanica	Properties						
Rp0.2 Rm In 2 in Z (%) ≥205 ≥515 ≥35 / Z60/270 S90/600 61/62 / Non Destructive Tests Hydrostatic Test Corrosion Test Eddy Current Test Ultrasonic Test ASTM A262 E Passed / OK That the material described herein has been made and tested completely Prepared by:		MPa)	T.S. O	(Pa)	E	(%)	Reduction	of Area	, .	Cold Bend	Flaring	Flattening	Towns Town
≥205 ≥515 ≥35 / Z60/270 590/600 61/62 / Non Destructive Tests Hydrostatic Test Inter-granular Eddy Current Test Ultrasonic Test Corrosion Test ASTM E 426 / ASTM A262 E Passed / OK That the material described herein has been made and tested completely Prepared by: In the above specification and with the requirements of the purchase OC		0.2	· Z	n	Jr	ı 2 in	Z (9	(%)	Hardness	Test	Test	Test	rialige lest
Non Destructive Tests Eddy Current Test ASTM E 426 Passed Ultrasonic Test Passed Whydrostatic Test Hydrostatic Test Corrosion Test ASTM A262 E ASTM A262 E OK hthat the material described herein has been made and tested completely Prepared by:		205	\\ \ \ \ \	15		>35	/		HRB≤80	1	22%	e=0.09	
Non Destructive Tests Eddy Current Test ASTM E 426 Passed That the material described herein has been made and tested completely Prepared by:		/270	290/	009	9	1/62	/		75/77	/	Passed	Passed	Passed
Eddy Current Test Ultrasonic Test Hydrostatic Test Corrosion Test ASTM E 426 / ASTM A262 E Passed / OK that the material described herein has been made and tested completely Prepared by:	Non Des	structive Tests					Inter-gr	anular	Remarks: Materials is]	NACE MR0103	-2007 comp	liant	
Eddy Current Test Ultrasonic Test ASTM E 426 / ASTM A262 E Passed / OK That the material described herein has been made and tested completely Prepared by: In the above specification and with the requirements of the purchase					Hydro	static Test	Corrosio	on Test	Tubes tested	per ASTM A10)16-11a		
ASTM E 426 / ASTM A262 E Passed / OK That the material described herein has been made and tested completely Prepared by: In the above specification and with the requirements of the purchase		rrent Test	Ultrason	iic Test					All tubes and below 800 D	nealed to above eg F in 3 minute	1900 Deg F es- No weld	and water qu repair perfor	enched med
Passed / OK that the material described herein has been made and tested completely Prepared by: the above specification and with the requirements of the purchase		E 426					ASTM.	A262 E	In Complian Materials is]	ce with EN 1020 NACE MR0175	04-3.1 /ISO_L5156-	-2003 compli	ant
that the material described herein has been made and tested completely Prepared by: In the above specification and with the requirements of the purchase		sed				1	[0	K	Tubes Made	in CHINA	CONFOR	CONFURING TO SA X13 TP 316/	TP 316/3161
In the above specification and with the requirements of the punchase	ereby certify that the m	aterial describ	ed herein	has been m	ade and tes	ted completely	Prepared by	<i>\</i> -:	Approved by	,	-	2013-8440-50	40-50
order of contract.	or contract.	specification	AIIU WILLI	me redune	TICITIS OF THE	purcuase	<i>></i>	QC Manager		がでた	FINEW#	5	General Manager

3/8"x 20 BWG Tubing

CONFORMS TO SA - 2 13 TP 316/36L

xxx 2013 - 8440-50

EM 2010 ED 2011 A

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SYCHED BY DA May 1,

REGISTRATION No.: 110703068

MILL TEST CERTIFICATE

7 Hongye Road, Tang Town, Pudong New District, Shanghai, China

SO 9001:2008 MOODY

SHANGHAI PUFA STAINLESS STEEL PIPE FACTORY

General Manager Macroscopic Inspection Appearance Flange Test Passed All tubes annealed to above 1900 Deg F and water quenched Passed below 800 Deg F in 3 minutes- No weld repair performed End Cut Flattening In Compliance with RoHS Directive 2008/35/EC Passed Passed e=0.09 Test Materials is NACE MR0103-2007 compliant Hardness Cold Bend Test Flaring Test In Compliance with Mil-P-24691 / 3 22% Passed Tubes tested per ASTM A1016-08 In Compliance with EN 10204-3.1 Delivery Condition Solution -Annealed なから Tubes Made in CHINA Ξ Approved by: PURCHASER: SC MFG Group DATE OF REPORT: 2011.9.12 50,000 Cold-Drawn 16.0~18.0 10.0~14.0 2.00~3.00 Process HRB≤80 Remarks: 72/74 2.06 2.05 CONTRACT NO.: SC-15310 Mo QC Manager Chemical Composition (W.T. %) 10.28 10.08 Feet Reduction of Area Corrosion Test ASTM A262 E Inter-granular ž Mechanical Properties OK Prepared by: Pieces 16.86 2500 16.52 č W.T. (in) Length (ft) completely in accordance with the above specification and with the requirements ≥1.00 0.53 0.42 Hydrostatic Test SPECIFICATION: ASTM A213-10/ASME SA213-08/ASTM A269-10 EAW 20 We hereby certify that the material described herein has been made and tested ij EL. (%) In 2 in >35 COMIMODITY: Seamless Stainless Steel Tube OD Polished to 240Grit Dimensions ≤0.030 0.003 0.035 0.001 W) 0.D. (in) <0.045 0.035 0.038 3/8 Ultrasonic Test I.S. (MPa) 570/580 >515 Lot No. ≤2.00 0.68 0.64 Mn Non Destructive Tests Eddy Current Test YX1102-529 ASTM E 426 of the purchase order or contract. S (MPa) TERTIFICATE NO.: 11-9-28 Heat No. 270/280 Rp0.2 Passed 0.026 Product Analysis P316/ TP316L adle Analysis Requirements Requirements Requirements Test Results Test Results Steel Grade l'est Item Element Test Item

ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOMER					- 1		KIP II			-15	alva c -					2013-8440-50		
	NADA CORP.	<u> </u>								el Pa	ckage			CODE		2013-0440-30		
DATE:						TECH	INIQU	E#US		D.// 0	DEV.	_		CODE:				
April 3 2014								0100		P#2	REV#	5		B31.3 EDITION: 2012		ADDENDA: -		
MATERIAL:						MAT'	'L THI	CKNE					- 1		100' =			
P1										STD				ACCEPTANCE:	10% RA	NDOM		
	F FILMS PER						101.5	,					004			SINGLE WALL EXPOSURE		
LEGEND:	* - WELDE						- HI LO			S - SI			CRAC		H	DOUBLE WALL EXPOSURE		
	IP - INCOM			RATIO										LIGHT	Ä			
	BT - BURN T	HROUGH	1					R CU			CICLE			EDIUM	X	SINGLE WALL VIEWING		
	IC - INTERN	-						STRIKE			RATER	_	(3) SI	EVERE		DOUBLE WALL VIEWING	LACC	REJECT
Film #	Location	*:	ΙP	S	С	ВТ	LC	UC	HL	P	1	IC				REMARKS	ACC	KEJEGI
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XR2	2" SCH 80	- 8	_		_	_		_					-				~	
XR3	2" SCH 80	36	_						_	1			-				7	
XR4	2" SCH 80	36	-	_		_				-		-	-				-	
XR5	2" SCH 80	8		_	_	_				1		-	-				~	
XR6	2" SCH 80	37			_	_											V	
XR7	2" SCH 80	36		_		_			_			-	-				V	
XR8	3" SCH 40	36		_				_	_	-		-	-				Ť	
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ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOME	₹:					DESC	RIPTI	ON:								ALCO JOB NUMBER:		
	NADA CORP				- 1			- Drair		el Pad	ckage			¥***		2013-8440-50		
DATE:						TECH	INIQU	E#US						CODE:				
JUNE 8 201	14								RT	P#2	REV#	5		B31.3				
MATERIAL	§.					MAT	L TH	CKNE						EDITION: 2012		ADDENDA -		
P1										STD				ACCEPTANCE: 10	% RANE	OOM		
1 NO. C	F FILMS PER	CASSE	TTE					`		0 01			CRA	CV		SINGLE WALL EXPOSURE		
LEGEND	* - WELDE	ER SYMB	OL				- HI LO			S - SI					=	DOUBLE WALL EXPOSURE		
	IP - INCOM			RATIO	ON							T			===	SINGLE WALL VIEWING		
	BT - BURN 7							ER CU		1 -10	RATER			SEVERE	day the	DOUBLE WALL VIEWING		
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XR10	2" SCH 80	8	-		-	-		-	_	2			-				~	
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XR13	3" SCH 40	8	-		-	_	-		_			1					7	
XR14	2" SCH 80	5	-		-	-												
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SERIAL NUMBER:	2013-8440-50					
DESCRIPTION:	HC DRAIN INLET	ISO#'s 1-1	& 1-2			
NAME OF AUTHO	RIZED INSPECTIO	N AGENCY	7:			
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEU	MATIC		ζ		
TEST PRESSURE:	440 psig			ą.		
POSITION OF THE	E UNIT TESTED		RIZONT <i>A</i> RTICAL	AL .		
TEST FLUID:	WATER	TE	ST TEM	PERAT	fURE >	- 60 F
TEST PROCEDUR	E: ALCC) QCP-71				
PRESSURE GAUG	E(S) NUMBER:	G3 & G6				
PRESSURE TEST	CHART RECORDEI): YES	\Box	NO	\boxtimes	
WAS PRESSURE-T	AT THE UNIT BEAR TESTED FOR A PER R DEFECTS WERE	IOD OF			L NUMI AND N	
David Se	15005			3/27/.	2014	
QC INSPECT	ugos (GR/ ALCO GAS & O	IL	•	DATE		
3 RD PAI	RTY INSPECTOR			DATE	2	
AUTHO	RIZED INSPECTOR			DAT	E	



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	HC DRAIN INLET ISO #	1-3	
NAME OF AUTHO	RIZED INSPECTION AG	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC		
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPE	RATURE > 60 F
TEST PROCEDUR	E: ALCO QCP	2-71	
PRESSURE GAUG	E(S) NUMBER: G3 8	& G6	
PRESSURE TEST	CHART RECORDED:	YES N	10
WAS PRESSURE-T	AT THE UNIT BEARING TESTED FOR A PERIOD (R DEFECTS WERE FOUN	OF 1 HOU	RIAL NUMBER R(S) AND NO
David S	Rusgow	3	2/31/2014
QC INSPECT	TOR/ ALCO GAS & OIL	D	ATE
3 RD PAI	RTY INSPECTOR	D	ATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	HP FLARE GAS OUTLE	T ISO #2	
NAME OF AUTHO	RIZED INSPECTION AG	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATI	⊠ □	
TEST PRESSURE:	440 psig		
POSITION OF THI	E UNIT TESTED	HORIZONTA VERTICAL	L 🗮
TEST FLUID:	WATER	TEST TEM	PERATURE > 60 I
TEST PROCEDUR	E: ALCO QCF	P-71	
PRESSURE GAUG	E(S) NUMBER: G3	& G6	
PRESSURE TEST	CHART RECORDED:	YES	NO 🗵
WAS PRESSURE-T	AT THE UNIT BEARING FESTED FOR A PERIOD R DEFECTS WERE FOU	OF 1 HC	SERIAL NUMBER DUR(S) AND NO
Savel &	lugors TOR/ALCO GAS & OIL		3/27/2014
QC INSPEC	TOR/ ALCO GAS & OIL		DATE
3 RD PA	RTY INSPECTOR		DATE
AUTHO	PRIZED INSPECTOR		DATE



SERIAL NUMBER	: 2013-8440-50		
DESCRIPTION:	CONDENSATE OUTLET	ISO#'s 3-1 &	3-3
NAME OF AUTHO	DRIZED INSPECTION AGI	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC		
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTA VERTICAL	
TEST FLUID:	WATER	TEST TEME	PERATURE > 60 F
TEST PROCEDUR	E: ALCO QCP	-71	
PRESSURE GAUG	E(S) NUMBER: G3 &	k G6	
PRESSURE TEST	CHART RECORDED:	YES	NO 🗵
WAS PRESSURE-T	AT THE UNIT BEARING T FESTED FOR A PERIOD O R DEFECTS WERE FOUN) F 1 HO	
David &	Lesgois TOR/ ALCO GAS & OIL		3/31/2014
QC INSPEC	TOR/ ALCO GAS & OIL		DATE
3 RD PA	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER:	2013-8440-50					
DESCRIPTION:	CONDENSATE OU	TLET ISO#	±3-2			
NAME OF AUTHO	RIZED INSPECTION	N AGENCY:				
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEU	матіс 🏻				
TEST PRESSURE:	450 psig					
POSITION OF THE	E UNIT TESTED		IZONTA ΓICAL	Ĺ		
TEST FLUID:	WATER	TES	Т ТЕМІ	PERAT	URE >	60 F
TEST PROCEDUR	E: ALCC	QCP-71				
PRESSURE GAUG	E(S) NUMBER:	G11 & G1	3			
PRESSURE TEST (CHART RECORDED	YES		NO	\boxtimes	
WAS PRESSURE-T	AT THE UNIT BEAR TESTED FOR A PER R DEFECTS WERE	IOD OF			NUMB AND NO	
Nama	90			5/7/20	14	
QC INSPECT	Pesgor FOR ALCO GAS & O	IL	enter Sec	DATE		
3 RD PAI	RTY INSPECTOR		-	DATE		
AUTHO	RIZED INSPECTOR			DATI	E	



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	CONDENSATE OUTLET	ISO #4	
NAME OF AUTHO	RIZED INSPECTION AG	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC	c \square	
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMP	ERATURE > 60 F
TEST PROCEDUR	E: ALCO QCF	P-71	
PRESSURE GAUG	E(S) NUMBER: G12	& G23	
PRESSURE TEST	CHART RECORDED:	YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEARING TESTED FOR A PERIOD OR DEFECTS WERE FOUN	OF 1 HOU	
David Al	ror/ Alco GAS & OIL		4/2/2014
QC INSPEC	ror/ alco gas & oil		DATE
3 RD PAI	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	CONDENSATE OU	ITLET ISO #5	
NAME OF AUTHO	RIZED INSPECTIO	N AGENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEU	MATIC	
TEST PRESSURE:	440 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTA VERTICAL	AL 🔲
TEST FLUID:	WATER	TEST TEM	IPERATURE > 60 F
TEST PROCEDUR	E: ALCO	QCP-71	
PRESSURE GAUG	E(S) NUMBER:	G8 & G25	
PRESSURE TEST	CHART RECORDED	YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEAR TESTED FOR A PER R DEFECTS WERE	IOD OF 1 HO	
David Ale	SOR/ ALCO GAS & OI		4/3/2014
QC INSPECT	OR/ ALCO GAS & OI	IL	DATE
3 RD PAI	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR	=======================================	DATE



SERIAL NUMBER	: 2013-8440-50		
DESCRIPTION:	PSV-1012A GAS RELIE	EF ISO #6	
NAME OF AUTHO	ORIZED INSPECTION AC	GENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMAT	ric 🛛	
TEST PRESSURE:	450 psig		
POSITION OF TH	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPERA	TURE > 60 F
TEST PROCEDUR	E: ALCO QC	P-71	
PRESSURE GAUG	SE(S) NUMBER: G1	1 & G13	
PRESSURE TEST	CHART RECORDED:	YES NO	\boxtimes
WAS PRESSURE-T	AT THE UNIT BEARING FESTED FOR A PERIOD R DEFECTS WERE FOU	OF 1 HOUR(S	AL NUMBER AND NO
asoid go	usgow	5/7/	2014
QC INSPEC	TOR/ ALCO GAS & OIL	DAT	E
3 RD PA	RTY INSPECTOR	DAT	E
AUTHO	RIZED INSPECTOR	DA	ΓE



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	TRUCK-OUT CONN	NECTION ISO #7	
NAME OF AUTHO	RIZED INSPECTION	N AGENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEU	MATIC	
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTA VERTICAL	AL 🖂
TEST FLUID:	WATER	TEST TEM	IPERATURE > 60 I
TEST PROCEDUR	E: ALCO	QCP-71	
PRESSURE GAUG	E(S) NUMBER:	G8 & G11	
PRESSURE TEST	CHART RECORDED	YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEAR TESTED FOR A PER R DEFECTS WERE I	IOD OF 1 He	SERIAL NUMBER OUR(S) AND NO
Devid &	flusgur FOR/ ALCO GAS & OI		4/1/2014
QC INSPECT	FOR/ ALCO GAS & OI	IL .	DATE
3 RD PA	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER	: 2013-8440-50				
DESCRIPTION:	FUEL GAS INLET ISO#	's 8-1 & 8-2			
NAME OF AUTHO	RIZED INSPECTION AG	ENCY:			
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATI				
TEST PRESSURE:	435 psig				
POSITION OF THE	E UNIT TESTED	HORIZONTAI VERTICAL			
TEST FLUID:	WATER	TEST TEMP	PERATURE > 60 F		
TEST PROCEDUR	E: ALCO QC	P-71			
PRESSURE GAUG	E(S) NUMBER: G8	& G11			
PRESSURE TEST	CHART RECORDED:	YES	NO 🛛		
WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.					
David &	Pusewy 7		4/1/2014		
QC INSPECT	TOIV ALCO GAS & OIL		DATE		
3 RD PAI	RTY INSPECTOR	=	DATE		
AUTHO	RIZED INSPECTOR		DATE		



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	VENT GAS CONNECTIO	N ISO #9-1	
NAME OF AUTHO	RIZED INSPECTION AG	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC	C 🗌	
TEST PRESSURE:	435 psig		
POSITION OF THI	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPE	RATURE > 60 F
TEST PROCEDUR	E: ALCO QCF	P-71	
PRESSURE GAUG	E(S) NUMBER: G8	& G11	
PRESSURE TEST	CHART RECORDED:	YES \[\]	10
WAS PRESSURE-T	AT THE UNIT BEARING ' FESTED FOR A PERIOD OR R DEFECTS WERE FOUN	OF 1 HOU	
David &	lengors TOR/ALCO GAS & OIL		1/1/2014 DATE
	RTY INSPECTOR	r	ATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER	: 2013-8440-50		
DESCRIPTION:	VENT GAS CONNECTION	N ISO #9-2	
NAME OF AUTHO	PRIZED INSPECTION AGE	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC		
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTA VERTICAL	L 🔀
TEST FLUID:	WATER	TEST TEM	PERATURE > 60 F
TEST PROCEDUR	E: ALCO QCP-	71	
PRESSURE GAUG	E(S) NUMBER: G12	& G23	
PRESSURE TEST	CHART RECORDED:	YES	NO 🖾
WAS PRESSURE-T	AT THE UNIT BEARING T TESTED FOR A PERIOD O R DEFECTS WERE FOUN	F 1 HO	
Value &	Russon T		4/2/2014
QC INSPEC	Rusgous FOR ALCO GAS & OIL		DATE
3 RD PA	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	HEAT MEDIUM SUPPLY	ISO#'s 10-1	& 10-2
NAME OF AUTHO	RIZED INSPECTION AGE	ENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC		
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTA VERTICAL	L 🛮
TEST FLUID:	WATER	TEST TEMI	PERATURE > 60 F
TEST PROCEDUR	E: ALCO QCP-	71	
PRESSURE GAUG	E(S) NUMBER: G12	& G23	
PRESSURE TEST	CHART RECORDED:	YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEARING T TESTED FOR A PERIOD O R DEFECTS WERE FOUN	F 1 HO	
Drived)	Elusgor		4/2/2014
QC INSPECT	TOR/ ALCO GAS & OIL		DATE
3 RD PAI	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE



SERIAL NUMBER:	2013-8440-50			
DESCRIPTION:	HEAT MEDIUM RETURN	ISO #11		
NAME OF AUTHO	RIZED INSPECTION AGE	NCY:		
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC			
TEST PRESSURE:	430 psig			
POSITION OF THE	C UNIT TESTED	HORIZONTA VERTICAL	AL 🗮	
TEST FLUID:	WATER	TEST TEM	PERATURE > 60 F	
TEST PROCEDURI	E: ALCO QCP-	71		
PRESSURE GAUGI	E(S) NUMBER: G5 &	G19		
PRESSURE TEST (CHART RECORDED:	YES	NO 🛛	
WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.				
David &	Lusgow OR/ALCO GAS & OIL		4/2/2014	
QC INSPECT	OR/ALCO GAS & OIL		DATE	
3 RD PAR	TY INSPECTOR		DATE	
AUTHOR	RIZED INSPECTOR		DATE	



SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	HEAT MEDIUM RETUR	!N ISO#'s 12-1 &	12-4
NAME OF AUTHO	RIZED INSPECTION AC	GENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMAT	TIC [
TEST PRESSURE:	435 psig		
POSITION OF THI	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPI	ERATURE > 60 F
TEST PROCEDUR	E: ALCO QC	P-71	
PRESSURE GAUG	E(S) NUMBER: G1	2 & G23	
PRESSURE TEST	CHART RECORDED:	YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEARING FESTED FOR A PERIOD R DEFECTS WERE FOU	OF 1 HOU	ERIAL NUMBER UR(S) AND NO
David	Glesgold TOR/ALCO GAS & OIL		4/2/2014
QC INSPEC	TOR/ ALCO GAS & OIL		DATE
3 RD PA	RTY INSPECTOR	=======================================	DATE
AUTHO	ORIZED INSPECTOR		DATE



SERIAL NUMBER	: 2013-8440-50	
DESCRIPTION:	HEAT MEDIUM RETU	URN ISO#'s 12-2 & 12-3
NAME OF AUTHO	RIZED INSPECTION	AGENCY:
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUM	IATIC
TEST PRESSURE:	430 psig	
POSITION OF THE	E UNIT TESTED	HORIZONTAL X
TEST FLUID:	WATER	TEST TEMPERATURE > 60 F
TEST PROCEDUR	E: ALCO G	QCP-71
PRESSURE GAUG	E(S) NUMBER:	95 & G19
PRESSURE TEST	CHART RECORDED:	YES NO
WAS PRESSURE-T		NG THE ABOVE SERIAL NUMBER DD OF 1 HOUR(S) AND NO DUND.
Based &	Glusgort FOR ALCO GAS & OIL	4/2/2014
QC INSPECT	FOR ALCO GAS & OIL	DATE
3 RD PAI	RTY INSPECTOR	DATE
AUTHO	RIZED INSPECTOR	DATE



SERIAL NUMBER	: 2013-8440-50		
DESCRIPTION:	INSTRUMENT AIR SU	PPLY ISO #13-1	
NAME OF AUTHO	PRIZED INSPECTION AC	GENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMAT	TIC	
TEST PRESSURE:	435 psig		
POSITION OF TH	E UNIT TESTED	HORIZONTAL VERTICAL	\boxtimes
TEST FLUID:	WATER	TEST TEMPERAT	URE > 60 F
TEST PROCEDUR	E: ALCO QC	P-71	
PRESSURE GAUG	E(S) NUMBER: G8	& G11	
PRESSURE TEST	CHART RECORDED:	YES NO	\boxtimes
WAS PRESSURE-	AT THE UNIT BEARING FESTED FOR A PERIOD R DEFECTS WERE FOU	OF 1 HOUR(S)	
David	Glesgor FOR/ALCO GAS & OIL	4/1/20	14
QC INSPEC	TOR/ ALCO GAS & OIL	DATE	
3 RD PA	RTY INSPECTOR	DATE	
AUTHO	RIZED INSPECTOR	DATE	



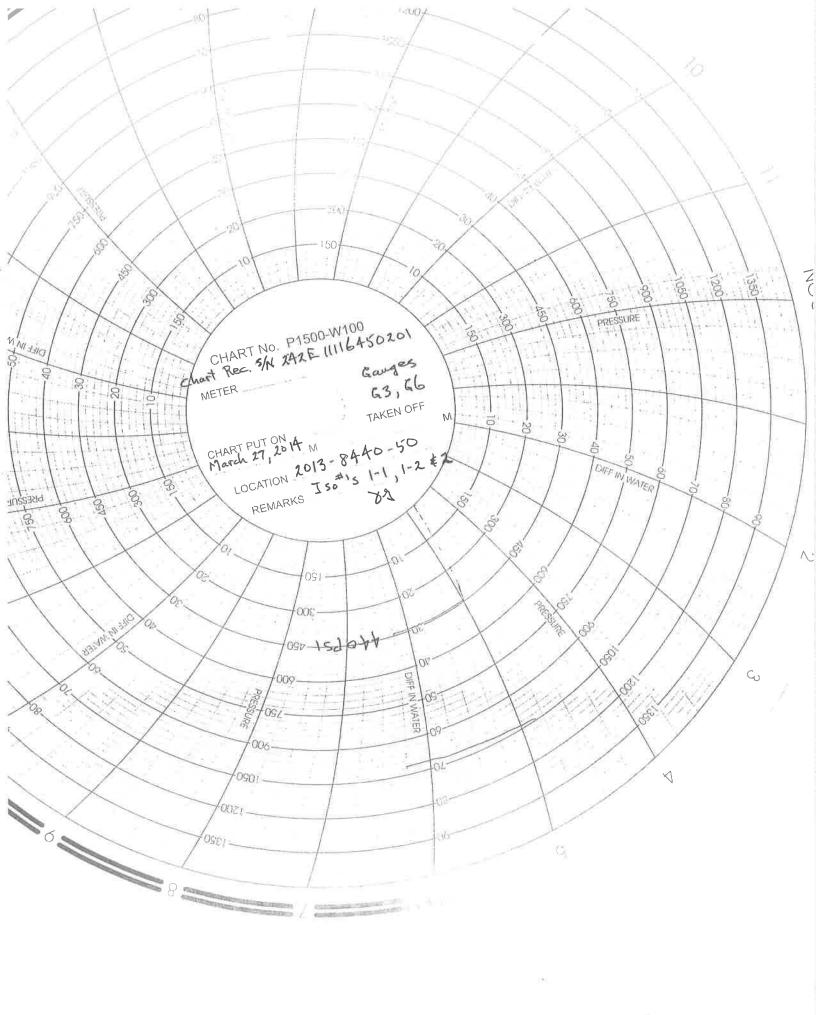
SERIAL NUMBER:	2013-8440-50		
DESCRIPTION:	UTILITY AIR SUPPL	Y ISO #13-2	
NAME OF AUTHO	RIZED INSPECTION	AGENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUM	MATIC	
TEST PRESSURE:	435 psig		
POSITION OF THE	E UNIT TESTED	HORIZONT. VERTICAL	AL 🔲
TEST FLUID:	WATER	TEST TEM	IPERATURE > 60
TEST PROCEDUR	E: ALCO	QCP-71	
PRESSURE GAUG	E(S) NUMBER:	G3 & G6	
PRESSURE TEST	CHART RECORDED	: YES	NO 🛛
WAS PRESSURE-T	AT THE UNIT BEARI TESTED FOR A PERI R DEFECTS WERE F	OD OF 1 H	
David &	lurgow FOR ALCO GAS & OII		3/31/2014
QC INSPECT	TOR ALCO GAS & OI	L	DATE
3 RD PA	RTY INSPECTOR		DATE
AUTHO	RIZED INSPECTOR		DATE

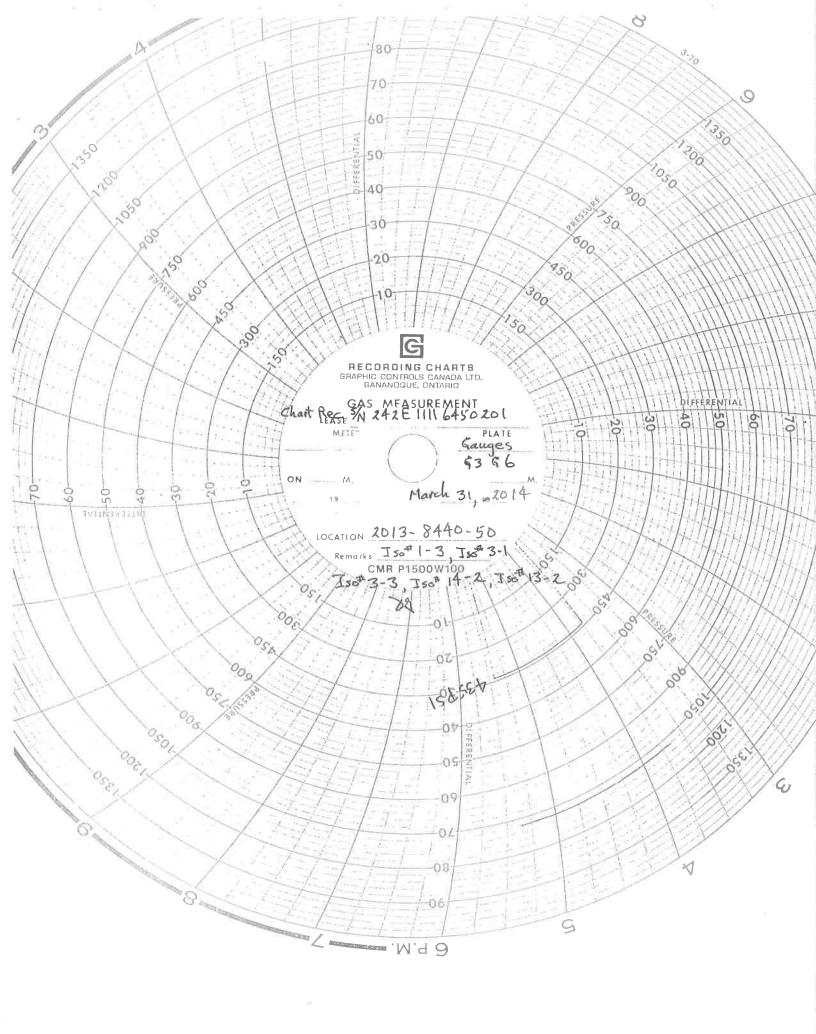


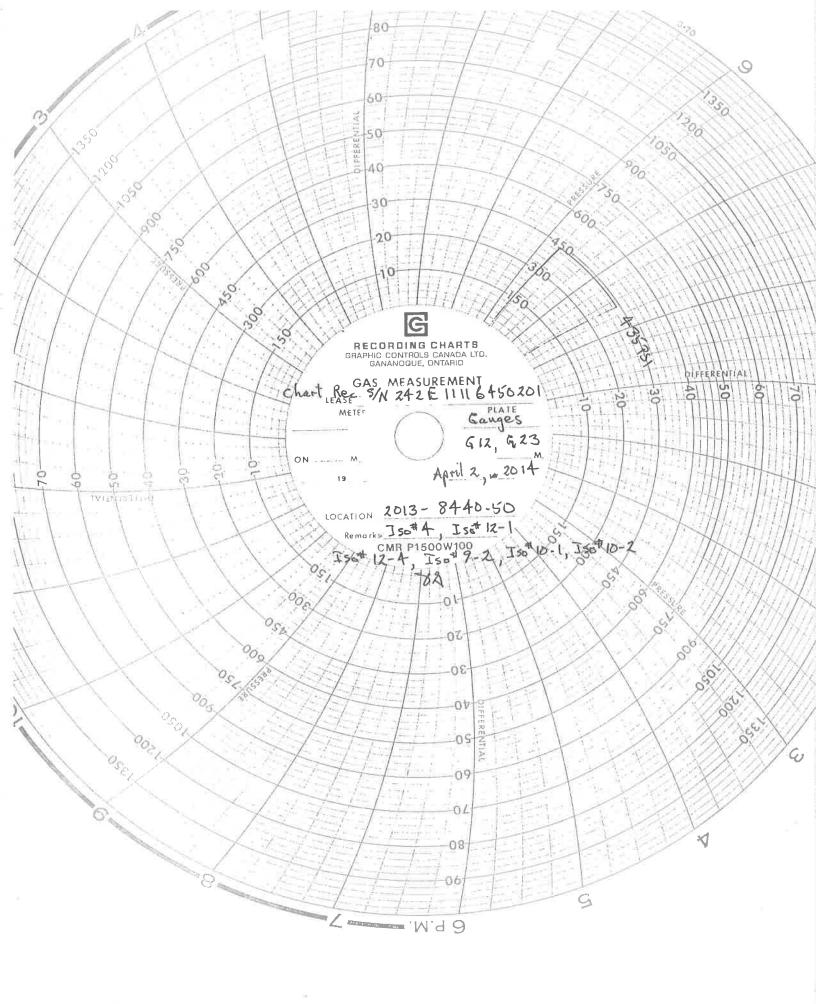
SERIAL NUMBER:	2013-8440-50		
DESCRIPTION : ISO#'s 14-1, 14-3 &	SPOOLS FOR LIT-1010 & 3. 14-4	LIT-1010A	
NAME OF AUTHO	RIZED INSPECTION AGE	NCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC		
TEST PRESSURE:	430 psig		
POSITION OF THE	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPER	RATURE > 60 F
TEST PROCEDUR	E: ALCO QCP-	71	
PRESSURE GAUG	E(S) NUMBER: G5 &	G19	
PRESSURE TEST (CHART RECORDED:	YES N	0 🛛
WAS PRESSURE-T	T THE UNIT BEARING TO ESTED FOR A PERIOD OF R DEFECTS WERE FOUNI	F 1 HOUR	
Daired &	Bergnes	4/	2/2014
QC INSPECT	Persons FOR ALCO GAS & OIL	DA	ATE
3 RD PAI	RTY INSPECTOR	DA	ATE

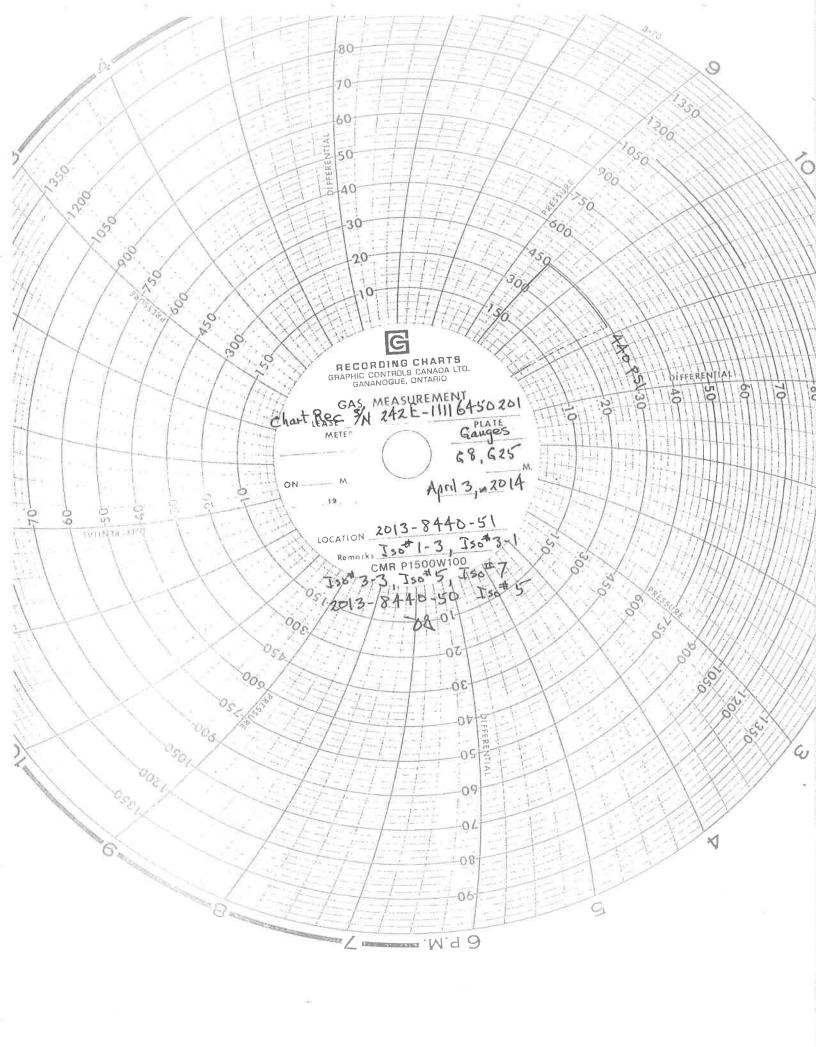


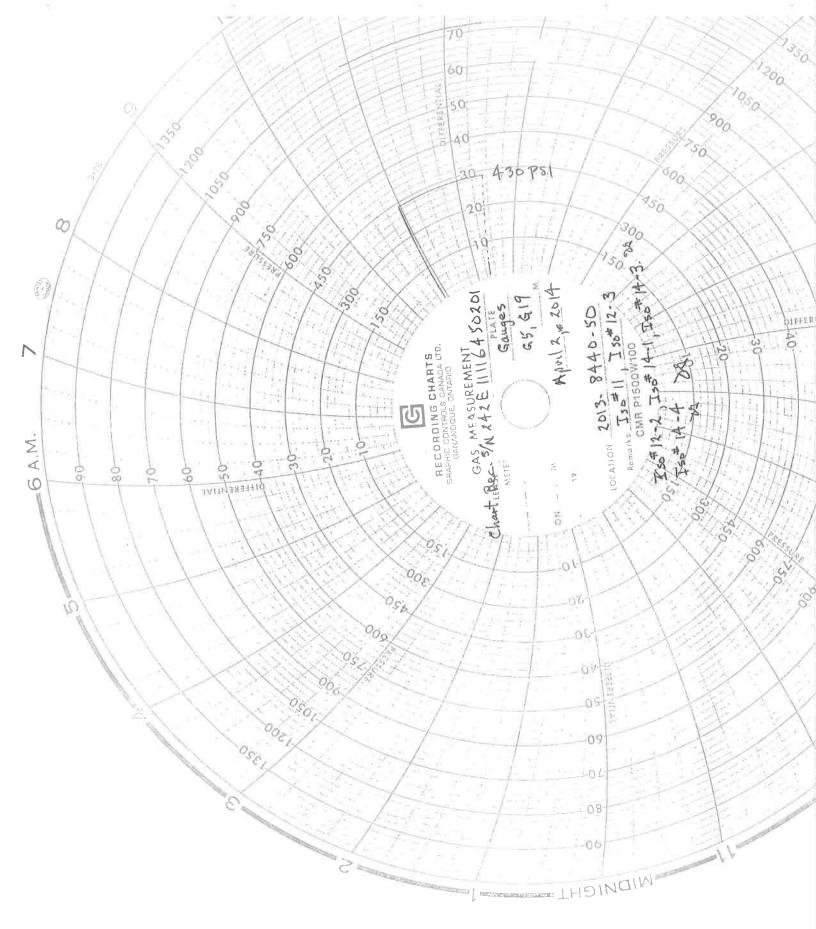
SERIAL NUMBER	: 2013-8440-50		
DESCRIPTION:	SPOOLS FOR LIT-10	110 & LIT-1010A ISO #14-2	
NAME OF AUTHO	RIZED INSPECTION	AGENCY:	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMA	ATIC	
TEST PRESSURE:	435 psig		
POSITION OF THI	E UNIT TESTED	HORIZONTAL VERTICAL	
TEST FLUID:	WATER	TEST TEMPERATURE > 60	F
TEST PROCEDUR	E: ALCO Q	(CP-71)	
PRESSURE GAUG	E(S) NUMBER:	33 & G6	
PRESSURE TEST	CHART RECORDED:	YES NO	
WAS PRESSURE-T		NG THE ABOVE SERIAL NUMBER OD OF 1 HOUR(S) AND NO DUND.	R
Tavid	Glesgow TOR/ALCO GAS & OIL	3/31/2014	
QC INSPEC	TOR/ALCO GAS & OIL	DATE	
3 RD PA	RTY INSPECTOR	DATE	2
AUTHO	RIZED INSPECTOR	DATE	

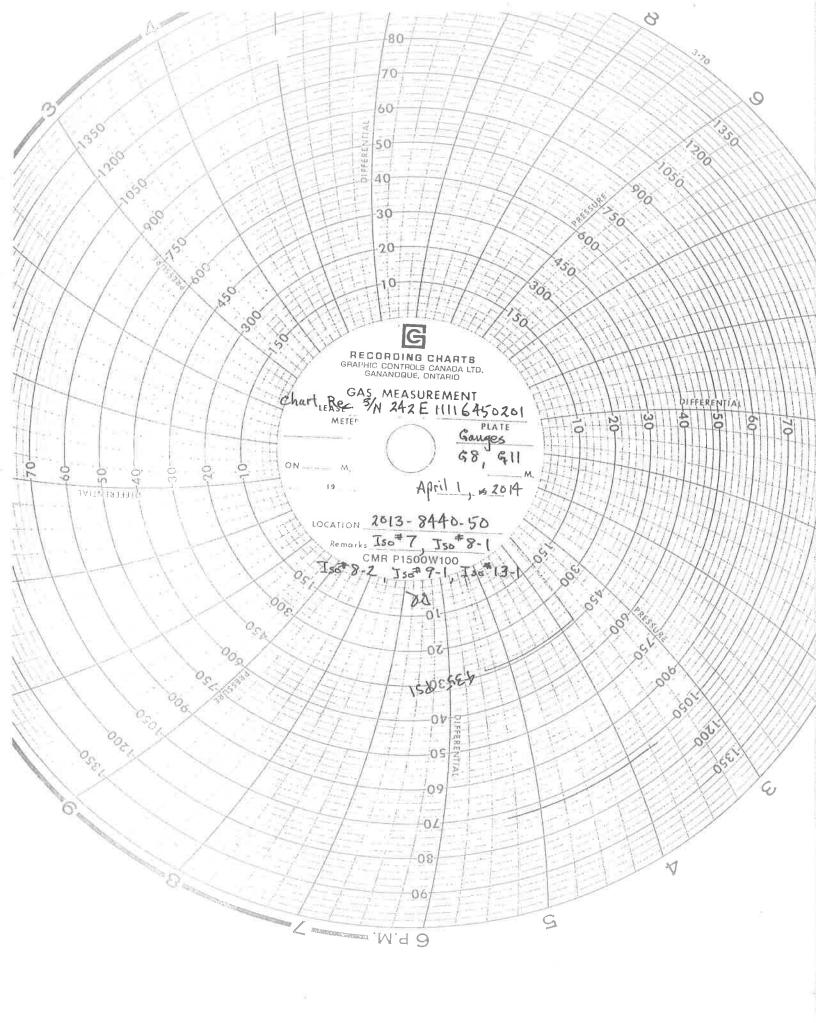


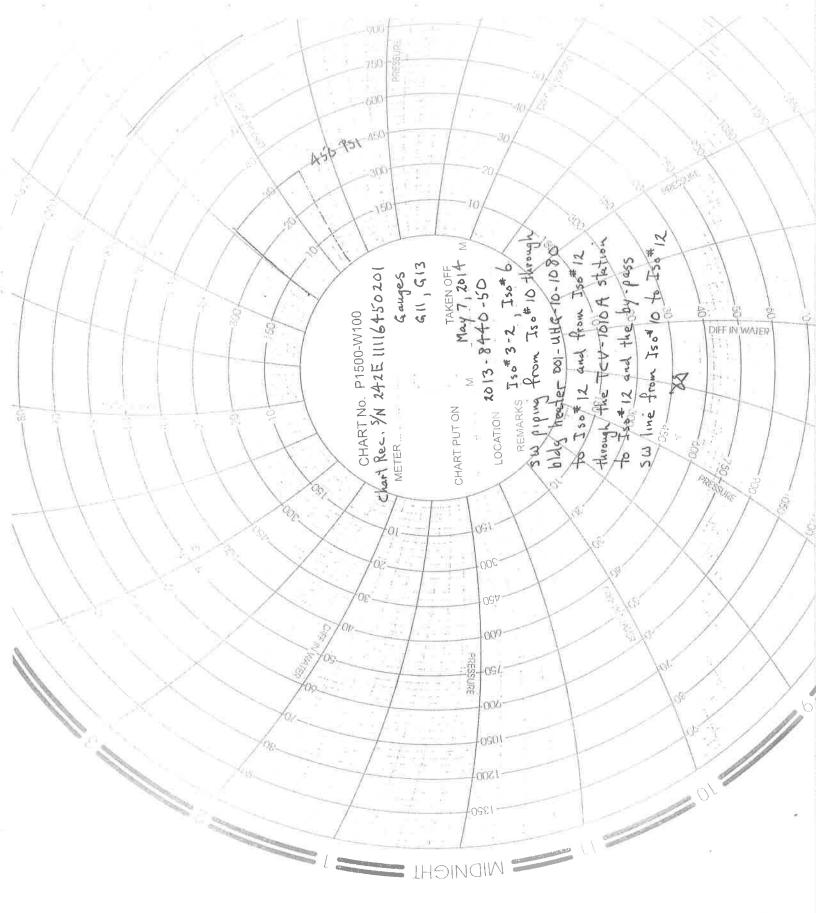












M. #.



3/3

Control Solutions

Consolidated Pressure Safety Valve Test Certificate and Serial Number File

Work Order ID:

SO95093-2

Item ID:

100460

Customer Name:

Alco Gas & Oil

Customer PO ID: Sales Order Writer: 134793 Lale Haines

		888 288	
As appropriate, ensure	all units are	specified as per	customer's requirements.

Model	1-1/2" 1905-00F-1-CC-MS-31-RF-	LA CONSOLIDATED RELIEF VALVE	
Size Designation	1.5 inches	Test Media	Water
Set Pressure	74 psig	Service Media	HC liquids
CDTP	74 psig	O Ring Material	n/a
Superimposed Min BP	0 psig	O Ring Durometer	n/a
Superimposed Max BP	0 psig	Province	AB uv
Total Back Pressure	0 psig	Code Stamp	
Temperature	60 F	Code Case	n/a
Capacity	81.00 GPM Water		
Tag	PSV-2012A		
Shop Requirements			
Comments			
Serial Number	\$884680	Spring Number	0179
	francistani dani shara katari da ana	Spring Range From	74 To 87
Base Heat	Bc8714-0295	702 Manufacturers Hydrostat	ic Test Number:
Nozzle Heat	16048-45894	6/ Nozzle	H
Bonnet Heat	B08715-0295	90 / Base	7
Code Case		Checked By	L3]3
	Conver	sion of Manufacturers Parts	
Part Description		orked Dimension Machined By	Checked By
Tart Description		or Red Dimension materialed Dy	Checker by
Washer Tolerance Accepte	ed 📑	EVT Number	
1	18	Gauge Number	XX 20 E
Washer Machined By	(2)	oauge Itumber	
Stamped/Checked By	BO_		
Assembled By	1-515	Leakage Rate	Meets API 527
Test Pressure 1	74	psia	OR:bubbles/min
Test Pressure 2	74	Back Pressure Test Performance	rmed At
Test Pressure 3	74	30 psig / 205 kPag	
	~~	100 psig / 690 kPa	g
Reseat Pressure	. / (Other	
Blowdown	() =	☐ Not Applicable	
Simmer Point	NA	(0.7
Ring Setting Upper		Tested By	ĠĿ
Ring Setting Lower	(5.1)	Stamping Checked By	100
		Test Date:	MAR/2014
Liquid Trim Popping Pressure (if applicable)	77	Witnessed By	
Comments)		<i>*</i>
	12005 (74		

The valve furnished on the above order has been inspected and found to be in accordance with specifications, drawings, and requirements of this order. Consolidated Pressure Safety Valves are manufactured by Dresser Flow Solutions and assembled by Corix Control Solutions

Form. 105 Rev 12

Phase #:

2013-8440-01B

Phase Title:

Closed HydroCarbon Drain Vessel

TABLE OF CONTENTS

	Title	Availa	bility
		Yes	No
1.	Data Reports	X	
2.	CRN's	X	
3.	Nameplate Copy	X	
4.	Travel Sheet	X	
5.	Impact Test Reports		N/A
6.	Material Control	X	
7.	Material Reports	X	
8.	MTR's	X	
9.	NDE MPT		N/A
	LPT		N/A
	RADIOGRAPHY	X	
	ULTRA SONIC	X	
10.	Stress Relieve Charts		N/A
11.	Hydrotest Report(s)	X	
12.	Hydro Chart	X	
13.	PSV & Valve Cert.		N/A

FORM U-1 MANUFACTURER'S DATA REPORT FOR PRESSURE VESSELS 633714 As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

						_			_									
1.	Manufacture	d and d	ertified b	y:	ALCO	GAS &	OIL PRODU	ICTION E	QUIP	MENT LTD !				DMONTON,	ALBI	ERTA	T6E 5S5, CAN	ADA
2.	Manufacture	d for:				DEVON (CANADA CO	RPORAT	ION -	(Name and ad- SUITE 2000,	400 3 RD	AVENUE	rer) SW,	CALGARY,	AB,	T2P 4I	12	
3.	Location of i	nstallat	ion					FEF		ame and address	(LSD: 1	1-02-03	9-08	W5M)				_
4.	Туре:		HOI	RIZONT	ΓAL			CLOSED	HYDR	(Name a	and addre AIN VES	,					440-01B	
		(Ho 166.2			or sphere)	2440-01-0		Tank, sep		, jkt vessel, hea				(1)	1anufa		's serial number 014)
7	(CI	RN)			(Dr	awing nun	nber)		_	National Bo	ard numi	ber	_	=		(Yea	r built)	
5. /	ASME Code S	ection '	VIII Div 1	_			1a ADDEN enda (date)]	DA		(Code Case)	_	[S	pecial		I/A e per UG-120(d))]
Ĭto	ms 6-11 incl	to be	coninlete	d for si	•			iacketed	vesse	ls, shell of he			or ch	amber of n	nulti-	-cham	ber vessels.	
	Shell (a) Nur						2			(b) Overall Le					20′-0′			
		se(s)			Material		Thickr			Long. Joint ((Cat. A)			m. Joint (Cat	. А, В,	, &	Heat Treat	ment
No.	Diameter	• • •	ength	Spe	ec./Grade o		Nom.	Corr.	Тур		None	Eff.	C) Type	Full, Spot, N		Eff.	Temp.	Time
2	78" ID	1	0′-0″	S	A516-Gr.7	'OMT	0.375"	1/16"	1	FULL	-	100%	1	SPOT		70%	N/A	N/A
7 1	Heads: (a)				SA-516-0	Gr.70MT			(b)			SA	A-516-Gr.70	MT			
/. !	ricads. (d)		Material sp	ec. nun	ber grade	or type) (l	H.T. – time 8	k temp)		,	(Material		mber	grade or typ		.T. – ti		
	Location Bottom, I		Thick			dius	Elliptical Ratio	Coni Apex A		Hemispherical Radius	Flat Diamete	-	ide to ivex	Pressure Concave	Tv	pe	Category A Full, Spot, None	e Eff.
(a)			Min. 0.330"	Corr. 1/16"	Crown N/A	Knuckle N/A		N/		N/A	N/A		/A	CONCAVE		/A	N/A	N/A
(b)			0.330"			N/A		N/		N/A	N/A		/A	CONCAVE		/A	N/A	N/A
If r	emovable, bo	olts use	d (descri	be othe	er fastenin	g) _						N/A						
T.8	ype of jacket	t .				N/A				(Material Jacket closure		ımber gra		ize, number)	N/A			
									N/	٨	_		(Describe as o			bar, etc.) I, describe or	sketch
	If bar, give of	uimensi	OHS														,	SKCCCIT
9.	and the same of th	0 PSIG	_	5 PSIG		nax temp		00°F ernal)	_	300°F xternal)	Min. de	sign me	tal te	mp49	9°F	at	50 PSIG	
10. 1	impact Test		NO-EXEM	IPT PEF	R UCS-66 (CURVE 'D	' & FIG UC	S-66.1, F	LANG	ES PER UCS-6 npact tested]	6(g) & L	JCS-67(a	a)	at test	temp	peratu	re of N/A	-
	I I . B				-	,		•	, ,					N/A	١			
	Hydro., Pneu.	•			-		ATIC 65 F	SIG F	Proof	rest				11/7	1			
Item	is 12 and 13	to be c	ompletea	for tu	be section	ıs.												
12.	Tubesheet		N/				N/A			N/A			N/A		ГАН	tachme	N/A ent (welded or l	holtad\1
			nary (Materi N/A			[Diame	eter (subject N/A			(Nominal thickne N/A		N	/A		[Att	Lacillie	N/A	boiled)]
13 -	Tubes	Floating	(Material s N/A		mber)]		(Diameter) N/A		(Nominal thicknes N/A	ss)	(Corr.	Allow N/A	<i>i</i> .)			(Attachment) N/A	
15.	(M	1aterial s	pec. numbe		or type)		(O.D.)		(1	Nominal thicknes	ss)		umbe	er)		[Тур	e (Straight or L	J)]
Item	ıs 14-18 incl.	. To be	complete	ed for i	inner cha	mbers of	jacketed v	essels or	char	inels of heat e	xchang	ers.						
	Shell (a) Nur		_				(COIL)			o) Overall Leng					80′-10	0 3/4" 9	5/S	
	Cou	rses		1	Material		Thickne	SS		Long. Joint (Ca				Joint (Cat. A			Heat Treat	
No.	Diameter NPS 2		ength 3 7/8"		c./Grade or SA-333 Gr		Nom. 0.344"	Corr. 1/16"	Type S	Full, Spot, No N/A			pe 1	Full, Spot, No NONE	one	Eff 70%	Temp. N/A	Time N/A
2	NPS 2		3'-2"	5	A-312-31	6L	0.218"	0"	S	N/A		5%	1	NONE		70%	N/A	N/A
2	NPS 2	11'-	10 ¼"	5	SA-312-31	6L	0.218"	0"	S	N/A	8.	5%	1	NONE		70%	N/A	N/A
15. l	Heads: (a)				2 CL1 NPS				(b)					CL1 NPS 2 C				
	1						.T. – time &	11.5	. 1					grade or type Pressure	(H.	T. – tin	ne & temp) Category A	
	Location (Bottom, E		Thickn Min.	ess Corr.	Rac Crown	Knuckle	Elliptical Ratio	Conic Apex A		Hemispherical Radius	Flat Diamete		nvex	Concave	Туре	Fu	II, Spot, None	Eff.
(a)				1/16"	N/A	N/A	N/A	N/A	4	N/A	N/A		1/A	N/A	-4		N/A	N/A
(b)			0.344"	1/16"	N/A	N/A	N/A	N/A	4	N/A	N/A	\ \ \ \ \	I/A	N/A			N/A	N/A

If removable, bolts used (describe other fastening)

N/A

FORM U-4 MANUFACTURER'S DATA REPORT SUPPLEMENTARY SHEET As Required by the Provisions of the ASME Boiler and Pressure Vessel Code Rules, Section VIII, Division 1

1. Manufactured and certified by ALCO GAS & OIL PRODUCTION EQUIPMENT LTD. - 5203 75TH STREET, EDMONTON, AB T6E 5S5, CANADA (Name and address of Manufacturer) 2. Manufactured for DEVON CANADA CORPORAITON - SUITE 2000, 400 3RD AVENUE SW, CALGARY, AB, T2P 4H2 (Name and address of Purchaser) 3. Location of installation FERRIER CFP PROJECT (LSD: 11-02-039-08 W5M) (Name and address) 4. Type HORIZONTAL CLOSED HYDROCARBON DRAIN VESSEL 2013-8440-01B (Horizontal vertical, or sphere) (Tank, separator, heat exch., etc.) (Manufacturer's serial number W-3166.2 D-2013-8440-01-001/002 R0 N/A 2014 (CRN) (Drawing No.) (National Board number) (Year built) Nozzles, Inspection, and safety valve openings: Diameter Material Nozzle Thickness Reinforcement Attachment Details Purpose Location No: Туре (Inlet, Outlet, Drain, etc) or Size Nozzle Flange Nom. Соп Material Nozzle Flange Insp. Open UW16.1(c) PRESSURE IND NPS 2 CL300 RFWN SA333-6 0.344'SA350LF2 CL1 1/16 N/A TYPE 1 END HD LEVEL BRIDLE NPS 2 CL300 RFWN 4 SA333-6 SA350LF2 CL1 0.344" 1/16' N/A UW16.1(c) TYPE 1 END HD TIT / TG 2 NPS 2 CL300 RFWN SA333-6 SA350LF2 CL1 0.344" 1/16 N/A UW16.1(c) TYPE 1 END HD MANWAY 1 NPS 24 CL150 RFWN SA516-70MT SA350LF2 CL1 N/A 0.750'1/16 UW16.1(c) TYPE 1 SHELL MANWAY 1 **NPS 24** CL150 RFWN SA516-70MT SA350LF2 CL1 0.750 1/16 N/A UW16.1(c) TYPE 1 END HD Data Report Item Number Remarks MANWAY BLIND 2pc - NPS 24 CL150 RF SA-350LF2 CL1 40pc - 1 1/4"DIA X 7"LG 8UNR-2A SA-193-B7 STUDS c/w 2 SA-194-2H HEX NUTS EACH **BOLTINGS** ITEM # 14 (COIL) 2pc - NPS 2 x 12'-4" LG SA-312-316L x 0.218" THK, 0" C.A., SEAMLESS* 12pc - NPS 2 90° LR ELBOW SA-403-316L x 0.218" THK, 0" C.A., SEAMLESS,* *85% Long Jt. Eff., Type 1 Circ. Jt., RT-NONE, 70% Eff. COIL BREAK FLANGES 2pc - NPS 2 CL300 RFWN S160 SA-350LF2 CL1 6pc - NPS 2 CL300 RFWN XS SA-182-316L **BOLTINGS** 32pc - 5/8"DIA X 3 1/2"LG UNC-2A SA-193-B8 STUDS c/w 2 SA-194-Gr.8 HEX NUTS EACH OCTOBER 7 14259 Expires Certificate of Authorization: Type: No. ALCO GAS & OIL PRODUCTION EQUIPT. LTD Signed Date MAY 29, 2014 Name (Manufacturer) AB 268 NB 13043 A, B the Date MAY 29, 2014 Name Commission [National Board (incl. Endorsement), State, Province and number.) (Authorized Inspector)

9410 - 20 Ave N.W.

Edmonton, Alberta, Canada T6N 0A4

Tel: (780) 437-9100 / Fax: (780) 437-7787

October 28, 2013

Attention: Magdi Ghobrial

ALCO GAS & OIL PRODUCTION EQUIPMENT LTD

5203 75 STREET

EDMONTON, AB T6E 5S5

The design submission, tracking number 2013-07060, originally received on September 18, 2013 was surveyed and accepted for registration as follows:

CRN:

W3166.2

Accepted on: October 28, 2013

Reg Type:

New Design

Drawing No.: D-2013-8440-01-001/002 Rev 0

Description Internal Pressure	MAWP 345kPa	Design Temperature	MDMT -45 °C
External Pressure	103kPa	149 °C	-45 °C
Heating coil	1696 kPa	149 °C	-45 °C

An invoice covering survey and registration fees will be forwarded from our Revenue Accounts.

If you have any question don't hesitate to contact me by phone at (780) 433-0281 ext 3367 or fax (780) 437-7787 or e-mail Onshchenko@absa.ca.

Sincerely.

ONSHCHENKO, TETYANA, P. Eng.

	Certified By
S _M	ALCO GAS & OIL
	THE OPPLICATION FOUNDATION LTD
	PRODUCTION EQUIPMENT LINE OF STREET
	Edmonton, Alberta, Canada
D.W.	
XI CONTRACTOR	Max. Allowable Working Pressure
	Max. Allowable External Working Pressure
	F atpsi
	Minimum Design Metal Temperature
201/1	2() 3// () = () K
Year Built	
CRN W@3166.2	A No. /) / / / / / / / / / / / / / / / / /
NAME (1 0SED WYDROGARSON I)	RATH ASSEL TAG
HEAD SA5 C→ COMT	0 0 10 in G.A. () ()()2 in
HEAD SAS SEE 1084	(10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
SHELLSAST6-70MT	
	h HYDRO psi
	psi
2013-8440-50	psi
	Certified By
2013 - 8940 - 50	Certified By
2013 - 8940 - 50	
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. SPIRITURE GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIE PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIE PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada 246 psi at 300 oF
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIE PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada PSI at 300 °F Max. Allowable Working Pressure
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada 246 psi at 300 °F Max. Allowable Working Pressure
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. 15P OF The ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTINERSHIP Edmonton, Alberta, Canada 2/16 psi at 300 °F Max. Allowable Working Pressure psi at 300 °F Max. Allowable External Working Pressure of at 2/16 psi
2013 - 8440 - 50 (ASME) W	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada 2/16 psi at 300 °F Max. Allowable Working Pressure psi at 300 °F Max. Allowable External Working Pressure of at 2/16 psi Minimum Design Metal Tamperature
2013 - 8940 - 50	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. 15P OF The ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTINERSHIP Edmonton, Alberta, Canada 2/16 psi at 300 °F Max. Allowable Working Pressure psi at 300 °F Max. Allowable External Working Pressure of at 2/16 psi
2014	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. 15P of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada 2/16 psi at 300 °F Max. Allowable Working Pressure 100 °F at 2/16 psi Minimum Design Metal Temperature 2/13-8/1/10-013
2017-8440-50 (AsME) W 2017- Year Built CRN W=37.66-2	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTINERSHIP Edmonton, Alberta, Canada 246 psi at 300 °F Max. Allowable Working Pressure psi at 300 °F Max. Allowable External Working Pressure of at 246 psi Minimum Design Metal Temperature 2013 8440 (1) 3 Serial Number
2017/ Year Built	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. SP OF THE ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTNERSHIP Edmonton, Alberta, Canada 246 psi at 300 oF Max. Allowable Working Pressure 50 psi at 300 oF Max. Allowable External Working Pressure -49 oF at 246 psi Minimum Design Metal Temperature 2013-8/40-013 Serial Number
2017-8440-50 (AsME) W 2017- Year Built CRN W=37.66-2	Certified By ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. GP of the ALCO GAS & OIL PRODUCTION EQUIPMENT LIMITED PARTICESHIP Edmonton, Alberta, Canada 246 psi at 300 °F Max. Allowable Working Pressure psi at 300 °F Max. Allowable External Working Pressure oF at 246 psi Minimum Design Metal Temperature 2013 8440 (1) 3 Serial Number

Thenk den

Date 7019-03-19

DEVON CAN	OMER / LOCATION	L	SERI	AL NUMBER / I	INIT	1	(A) NUME	DED . VI	1 647 / IUP	
DEVON CAN							(A) NOME	DER :	9 875 11 1	
	NADA CORPOR	ATION	2	013-8440-01	3			DRAW	ING NUMBER	
	CPF PROJECT	, AB		11-02-039-08	W5M			3-8440-0	01-001/002 & 0	02/002
DR	O HYDROCARBO RAIN VESSEL ID X 20'-0" S/S	ON	COMMEN	rs:		HOLD Q		CUSTOME	ER HOLD (AGENT)	HOLD A.I.
Repair Procedu			10	11000	1	λ.				
Approved Drawi			V	1-3166.2			E			"PJ814528
Material Checke	ed / Heat Verified		REVIEWE		4 2014	hoff		30/4	25/M	2 814.0-2
MTR Checked			REVIEWE	O APR	2 4 2011	hot		VD/	A 25/14	*12 14 5-28
Impact Test			UCS-66(a)	SEP	2 3 2	13				•
Unit Layout				Apr. 1:	21,2014	P.	<u> </u>			
Weld Procedure	Approved		REVIEWE		3 2013	4/2	-	SD A	25/14	*
Welder(s) Qualif	lications		REVIEWE	APR 2	4 2014	L L		DOB	A25/14	*
Fit-Up: Shell & H	leads		TYPE 1		2014	b	e e	= (0)		*
Nozzles & Fit	tings				4 2014	h	2	D)	An 25/14	
Internals				APR 2	4 2014	ht		TON	for 25/14	
Externals				APR 2	2014	L				
Connections: Lo	ocation			APR 24	2014	14		DD/	An 25/14	
	ating		CL150 CL	300 APR	2 4 20	14 5	-	VD/	m 25/m1	
Internal Inspecti	ion Course 1.2	ENT	10/1814	APR	2 4 20	4 /		DOB	N 25/14	H Fryan
Internals Installe	ed Circle	-' Mw	加州王山	APR	2 4 201	E	2	VD/	m 25/14	
Weld Profile, Siz	es & ID		CHECKED	APR 2	4 2014	74	8	DO A	n 25/14	* Freur
Radiographs			UW-11(a)5	(b), NOZZLE BV	V 100% N	AY I	2 2014	-		* E
Other NDE			UT CAT D	MPI FILLET W	ELDS 🗜	PR 1	8 20145			To Mary In
Stamping			CHECKED	4.4	1 2014	1		1		
External Upon C	completion of Weld	ding	CHECKED	BUT BLOOPE	FEIR FZ	APR	2 4 201	15		*Trupart
Alternative Test					10.7			V		1000
PWHT Charts Ch	necked		NONE							
		VESSEL	65 PSIG G	AGE# B8 , B 9	APP	2 0 2	mØ s			# B 14-4-28
CHART RECORD				AGE# 63,6		1.6 20				*1 4 /
MDR				MAY 2 9		c F	7			* 7 50
Name Plate					2014	M				* 5
	MATERIAL SPEC	THICK	NESS	HEAT NO.	PA	PT V	MATERIA	I SDEC	THICKNESS	HEAT NO.
Heads	SA-516-70MT		0	1570270205	/ Rep		MAISKIA	L SPEC	ITHORNESS	HEAT NO.
	ON STOP OWIT	0.3	00 0 1001	13 107 10400	y veh	uus				
Shell	SA-516-70MT	C,1 0.3		P1-154						
		c.2		PL-179						
					Tub	es				

Heating Cal

Heating Cal: ENT. HT 12 14-3-19

ALCO EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B CUSTOMER: DEVON CANADA CORPORATION DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED	SIZE / RATING MATERIAL HEAT NUMBER MTR LS CS UT CAT D WELDS	"ID X 0.330" MTAF SA-516-70MT G9689-5702702031 V , /	(10'-0"LG X 0.375" THK SA-516-70MT 4094P3-04 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	(10'-0"LG X 0.375" THK SA-516-70MT E3A070-D10 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	"ID X 0.330" MTAF SA-516-70MT G9689-5702702031 V	CL150 XS SA-350 LF2 CL1 83623 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL150 XS SA-350 LF2 CL1 83623 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL150 XS SA-350 LF2 CL1 4573144 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL150 XS SA-350 LF2 CL1 12/73144 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL150 XS SA-350 LF2 CL1 421V2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL150 S160 SA-350 LF2 CL1 4677159 V V V	CL300 S160 SA-350 LF2 CL1 1449/11 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CL300 S160 SA-350 LF2 CL1 4603012 V V V	
			THK SA-516-70MT	78"ID X 10'-0"LG X 0.375" THK SA-516-70MT E3				SA-350 LF2 CL1	SA-350 LF2 CL1					NPS 2 CL300 S160 SA-350 LF2 CL1 46
	ITEM	END HEAD 7	SHELL 7		END HEAD 7	N1 RFWN	N2 RFWN			N7 RFWN	N8 RFWN		N10A RFWN	N10B RFWN

PREPARED BY

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B CUSTOMER: DEVON CANADA CORPORATION DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

				NON	SINDE	VE LEST	NONDESTRUCTIVE LESTING WHEN REQUIRED	JINED
ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	RT	UT CAT D	MPI FILLET WELDS	
N11A RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
N11B RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
N12A RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
N12B RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
N13 RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
N14 RFWN	NPS 2 CL300 S160	SA-350 LF2 CL1	4603012	>	>	>	>	
M1 RFWN	NPS 24 CL150 0.750" THK	SA-350 LF2 CL1	616V2	>				
M1 NECK	24"OD X 7 ⁷ / ₈ "LG X 0.750"THK	SA-516-70MT	365957-97274 (4-2)	>	/ /	>	>	
M1 RF BLIND	NPS 24 CL150	SA-350 LF2 CL1	50803	>	>			
M2 RFWN	NPS 24 CL150 0.750" THK	SA-350 LF2 CL1	616V2	>				
M2 NECK	24"OD X 8 ¹¹ / ₁₆ "LG X 0.750"THK SA-516-70MT	SA-516-70MT	365957-97274 (3-1)	>	>	>	>	
M2 RF BLIND	NPS 24 CL150	SA-350 LF2 CL1	50803	>	>			

PREPARED BY

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-01B CUSTOMER: DEVON CANADA CORPORATION DATE: APRIL 24, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

				NONDESTRUCTIVE LESTING WHEN REGULARD	WHEN KEGUIKED
ITEM	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	
NOZLE NECKS	NPS 6 SMLS PIPE XS	SA-333-6	2201333	>	
	NPS 4 SMLS PIPE XS	SA-333-6	461529	<i>></i>	
	NPS 3 SMLS PIPE XS	SA-333-6	336565	<i>></i>	
	NPS 2 SMLS PIPE XS	SA-333-6	23593	<i>></i>	
	NPS 2 SMLS PIPE S160	SA-333-6	1240365	>	
COIL	NPS 2 CL300 RFWN S80	SA-182-316L	88723 / 12/728 / 12/235	>	
	NPS 2 90° LR ELBOW S80	SA-403-316L	FK1208-120, YY12-90	<i>></i>	
	NPS 2 SMLS PIPE S80	SA-312-316L	11D0892, 1301-048	>	

PREPARED BY

ALCO GAS ** Oil Production Equipment

Serial Number 8440-0(B

Customer: Deven Landa Corporation

Filled By: WILE

Date: APC'1,31,3014

MATERIAL REPORT

Type of vessel

Vertical

Horizontal

	1	Diameter	Item #	ALCO ID #	Heat #	Slab #	Mat'l Spec	MIN INK (IN)
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edmonton exchanger

& manufacturing ltd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9

www.edmontonexchanger.com

tel 780,468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

IFICALE OF COMPLIANCE

Customer ALCO GAS & OIL PRODUCTION

PO 132443-8440-01

Work Order C99355 Date 2013/07/04 CofC# 42122

Page 1 of 1

Item#	Description	Qty	Heat#	Brinell Hardn.	Required Min Thk	Recorded Min Thk	Form. Proc.
н99355-1	HEAD(S) - Semi-Elliptical 2:1 - 0.3750" NOM (0.3100"_MIN) X 78" ID (Material Spec: SA 516-70 Normalized) Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007	4	G9689-5702702031	MTR	0.3100"	0.3450"	1

Forming Procedure:

1. Hot Formed

@ 1650F/899C and Air Cooled

Brinell Equipment:

Newage Calibrated Pin

Brinell Hardness Tester

Supplementary Requirements

Normalized Material Identification Marking:

'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.

'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1.2.

'GT' indicates normalized by Edmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-29, PG-81 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-81. All welders and procedures are qualified to ASME Code Section IX. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.

Supplementary Examination - Items

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CERTIFICA. 2 OF COMPLIANCE **MTR List**

5545-89 Street Edmonton, Alberta Canada T6E 5W9

www.edmontonexchanger.com

tel 780.468.6722 • QC fax 780.466.4668 • sales fax 780.466.5155

Customer ALCO GAS & OIL PRODUCTION

PO 132443 - 8440-01

Work Order C99355 Date 2013/07/04 CofC# 42122

Page 1 of 1

MTR ID	Pages	Heat#	Thickness	Material Grades
16430	9	G9689-5702702031	.375"	SA 516-70 N

Heat#	Material Grades	MTR ID
G9689-5702702031	SA 516-70 N	16430

〒100-8071 東京都千代田区丸の内二丁目6番1巻 2-6-1,MARUNOUCIII,CIIIYODa-KU,TOKYO 100-8071,JAP 〒299-1141 千 葉 県 着 郭 計 着 郭 1 番 地 〒299-1141 千 聚 原 卷 等 折 箱 等 1 番 地 1, KIMHTSU, KIMITSU-CITY, CHIEA-PRER, 299-1141 1APA 2 * * D M * * * * ****** C E W * * 03440 40 Em Sol. C 037 E3001P0701 Mo Nb V TA PAGE: 2 0 0 2 0 0 0 5 COMPOSITION × 100 2011-09-09 00 X EV C P-16084 Ö m 1001 20 CJ U OI C CHEMICAL CA Z N I - 6 đ 証明審番号 CERTIFICATE No. 発行年月日 DATE OF ISSUE X100 × 1000 × 1000 S EX. LO LI TE Mn 1 4 6 46 146 145 本 HEAD OFFICE 看 聲 随 游 KIMITSU WORKS W/TE3 27 37 37 37 37 8 × S ᅊ LC) 2 ic) 親 聚 家 管 理 番 号 CUSTOMER'S CONTROL No. n LES W. TO -0 1 5 4 1 5 4 1 V G 2V - 50F FT. LB 邓均值 做々值 AVG EACH 205 214 216 190 205 228 217 IMPACT TEST 省聯戰勢 INSPECTION CERTIFICATE EXAMPLES EXE ON STANDARD TO SHEET ON THE STANDARD TO SHEET ON THE STANDARD TO SHEET ON THE SHEE TL 7217 TL/7207 T1 721 Nippon Steel Corporation 新田女教職株式會社 96 H 2 4: 毎以 2 6 Ж 温 引張 試験 TTENSILE TEST 引張強さ 7 8 TS 7 8 OSEENTATION OSEENTATION X S 0.2% 57 57 50 444055702702051TC 69689 444045702702181TC G9689TESTED-PL 444055702702041TC PLATE No. 蚺 맫 寫 試駁番号 蚁鋼番号 CAST No. TEST No. 無 要 家 CUSTOMER 2790 2790 2790 ASME SA-516 GRADE 70-E10 MASS 龆 HOT ROLLED STEEL PLATES 缸 PUANT 真真 1-831-H1-5-9-AT01 02 02 228-68511010 HANWA CO. 挺 mm, ':inch, ':feet 0. 375" X120. 5" X480" 0. 375" X120. 5" X480" 375" X120. 5" X480" DIMENSION . 注文者 SHIPPER 注文者照合番号 0

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT. 18430

上記注文品は御指定の規格または仕様に従って製造され、その要求電項を満足していることを証明します。

SEGTOGETOANA

OF SUPPLY 2-6-1, MARUNOUGHI, CHIYODA-KU, TOKYO 100-8071, JAPA 〒299-1141 千葉原書維布魯維1番地 1,KIMITSU,KIMITSU-CITY,CHIBA-PREF,299-1141 JAPA *****CEW** 207 〒100-8071 東京都千代田区九の内二丁目6番1号 40 40 03440 0134)4-01 Com Sol. C Mo No V TA E3001P0701 0 PAGE 012 CVI cu 2 G) C 0.0 00 00 2.01.1-09-09 X 1B P-16084 Ö 8 801× Ç Ź SN S S - C 証明音番号 CERTIFICATE No. 発行年月日 DATE OF ISSUE × 1000 × 1000 × MI X in in us u 10 W 9 TE1 ۵. 100 145 146 146 4 × 100 Σ E3 地 製 間 形 KIMITSU WORKS Ħ HEAD OFFICE 37 2 4 37 37 001 X 法 职 NOTES 🔯 i Location Orientation 位置,方向,T:氯億 Top, B:底師 Botom L: E 建方向 Longitudinal, C: 能约方向 Transverse,Z:板序方向 Through Thickness,R:45 方向 45Deg to the Longitudinal Axis S. z oļr 10 LO. (C) w 能 敏 宗 管 理 番 点 CUSTOMER'S CONTROL No. O d. (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) EDMONTON EXCHANGER GROUP OF C- 儒 要 家 管 理 番 OMPANIES. A V G A V G A V G A A VG EACH A 205 INSPECTION CERTIFICATE TL7203 TU7/217 TL7217 Nippon Steel Corporation 第四分形瓣林以即引 毎に 24 4 Tir % 温 N 湖 其 路 TENSILE TEST 引原語さ 7 8 200 ORIENTATION ORIENTATION OF THE PARTY TANK SX 15 57 57 57 G9689TESTED-PL 444085702702011TC G9689 444055702702061TC 444055702702071TC O|C PLATE No. 品 獃 試驗番号 製鋼番号 票 要 票 CUSTOMER CAST No. TEST No. 2790 2790 27.90 ASME SA-516 GRADE 70-E10 MASS 輯 HOT ROLLED STEEL PLATES 阿 - ALL 宣数 1-831-H1-5-9-AT01 02 228-68511010 HANWA CO. mm, ":inch, ':feet 0. 375" X120. 5" X480" 0.375" X120.5" X480 0. 375" X120. 5" X480" DIMENSION SPECIFICATION 文 幣 命 电 文 帶 每 中DOCUMENT No. SHIPPER 注文者照合器号 CONTRACT No. 商品名 REFERENCE No. 押 蟀 COMMODITY 製物器 女生 粟

上記法文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。 WE WEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

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注 形 NOTES | ※1 Location Orlenstion (位因:方向、正式版 750 km 1、1.30km 70p, B:能版 Bedown, L: 压矩方的 Longludinal, C: 能力方的 Through Thickness, R: 65 万 mm 4/50km 450eg. to the Longludinal c: 200mm 4/18km Pectangular, B: 30mm 4/18km Pectangular, Fedangular, Fedangular, Fedangular, Fedangular, Fedangular, B: 30mm 4/18km Pectangular, Fedangular, Fedangular, B: 30mm 4/18km Pectangular, Fedangular, Fedangul 2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPA *****CEW** () Mach | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | Phase | P 03440 千葉頭 密帶市留部 1 每店 〒100-8071 東京都千代田区丸の内二丁田6番1号 00 | Perm Sol. Ceq | Al 2 | K | 108 | X | 106 4 0 03.4 E3001P0701 Mo No V TA X 100 NEW XIII XIII 5 ₽ PAGE 2 2 N C CHIBA-PREP. CV 000 000 CHEMICAL COMPOSITION 5 HEATE QUALITY CONTROL DEPT.
KIMITSU WORKS CVC O × P-15084 本 中100-8071 班某語千代B HEAD OFFICE 2-6-1, MARUNOUCHI, CHIYOD 智, 達 製 框 所 〒298-1141 千 班 原 密 KMMTSU WORKS 1, KMMTSU, KMMTSU-CITY, 1 2 z s CA || ※7 N:統P Normalized, Q:統入れ Quenched, T:統及し Tempered, C.R:Controlled Rolled, N I C;NIC Process/TMC Z : - 0 đ ×1000 × 1000 × 1000 証明语番号 CERTIFICATE No. 是 有 年 月 BDATE OF ISSUE 001 X S 146 145 146 146 ×100 TE3 Σ 37 37 37 3 7 S 15 ٥ļc LD. L) C 院 要 家 管 理 番 号 CUSTOMER'S CONTROL No. S WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT. 上記注文品は締指定の規格または仕様に従って製造され、その要求専項を満足していることを証明します。 - a 1 5 8 A V G ·A V ZV - 50F 221 196 219 220 184 205 220 184 206 INSPECTION CERTIFICATE T17203 TL 7212 TL7203 Nippon Steel Corporation 新日本製鋼林八冊社 26 E 毎な 24: 25 12 Ж 25 额 TENSILE TEST 引張地は 影響 7.7 7 8 KSI OSHENIATION OSHENIATION OSHENIATION OSHENIATION VS YP-0.2% 23 57 25 444085702702031FC1 69689TESTED-PL 4441157027021917C G9689 444085702702021TC PLATE No. 品 滔 試驗番号 與解番号 10-0hh8-4 CAST No. 龍 駅 駅 CUSTOMER TEST No. Po-132443 2790 27.90 2790 ASME SA-516 GRADE 70-E10 丰 MASS PLATES 袔 QUAN-1-831-H1-5-9-AT01 HOT ROLLED STEEL 0.5 02 JUL 122013 8440-01 228-68511010 CONFORMS TO BE 516-70 MT YEAR JOIGED, JOHNOD HANWA CO. 0.375 X120.5 X480 X 泛 0. 375 X120. 5 X480 mm, ":inch, ':feet 0.375" X120.5" X480" DIMENSION JOB # 2013 MEFERBINGENO. 契格每号 CONTRACT No. # 18 d SPECIFICATION 文 套 看 号 DOCUMENT No. 注文者 SHIPPER 注文者照合番号 \$P 一种侧 COMMODITY 根

| CL 民族原語 Cage Length, A: 50mm 平彦社後片 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm 子彦は松子 Rectangular, B: 50mm よらがmm, B: 50mm ようなない B: 50mm B: 50mm ようなない B: 50mm B: 50 〒209-1141 千 築 県 部 啓 市 部 部 1 - 部 地 i. KiMiTSD KIMITSU-C17Y, CIIIBA-PREF, 299-1141 JAPA 2-6-1, MAKUNOUCHI, CHIYODA-KU, TOKYO 100-8071, JAPA *****CE#** 2 * * D || * * * * * 東京都千代田区丸の内二丁目6巻1号 4 0 Perm Sul Cen. Al 2 Settle Serie X III 4 0 03440 0341 E3001P0701 V FA Mo & > C X 0 A. PAGE 64 6/1 64 CHEMICAL, COMPOSITION 9 500 000 000 2011-09-09 P-15084 001 X Ö ø C1 10 CLC CV LE Z 2 × CA × S - 0 - 0 ā ₹100-8071 証明告告号 CERTIFICATE No. ×1000 発布年月日 DATE OF ISSUE 001 × S u a 0 1 io u ×1000 E1 寺 辰 分 Д, 145 146 146 145 4 3 146 TE3 90 X Ĕ 本 HEAD OFFICE 高 導 駅 衛 形 KIMITSU WORKS 37 37 3.7 4.4 37 × Si 连 釈 NOTES | 🕱 1 Location Orlemation 12 分前,1:30億 Top, 13:86億 Bottom, L:E進分前 Longbudinat, C:66分为19 Transverse, Z;移形为19 Through Thickness, R:46 分前 4509g to the Longbudinal Axis ď۲ P15 2 io 5 親 解 祭 簡 単 報 年 CJSTOMER'S CONTROL No. <u>-</u> <u>a</u> (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) EDMONTON EXCHANGER GROUP OF C- 稿 要 家 管 理 徴 OMPANIES A V G 1 5 7 221: 196: 219: 221 196 219 221: 196: 219: INSPECTION CERTIFICATE TL7212 MI S AVG TL7212 TL 7212 Mippon Steel Corporation 新田女製灣茶水町計 沼 % W 13 24 再び 24 % 25 引源 成 数 TENSILE TEST 引取過さ 11 11 11 'r S ORIENTATION OBJECTION A STATE OF STATE VS -Y-9-57 57 57 G9689 44.4115702702201TC1 G9689 444115702702211TC G9689 444115702702221TC 吹 PLATE No. 财品 試験番号 製鋼海中 CAST No. TEST No. 票数 % CUSTOMER 2,790 2790 2790 ASME SA-516 GRADE 70-E10 卓 MASS HOT ROLLED STEEL PLATES 餌 PITT-負款 1-831-H1-5-9-AT01 02 02 0.2 228-68511010 HANWA CO 戕 0. 375 X120. 5 X480" mm, ':inch, ':feel 375" X120.5" X480" 0. 375" X120. 5" X480 DIMENSION ٠. CONTRACT No. 商 品 名 CONNINDIDITY 超 格 SPECIFICATION 文 售 路 号 REFERENCE NO. 柳 DOCUMENT No. 注文者服合審号 K Hadan EK SG

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T-104-00/1 米-7/8-1 (2014) 19700A-KU, TOKYO 160-8071, JAPA. 7-299-1141 千 萊 県 宮 啓 市 君 郎 1 番 地 1 米 地 I, KINITSU-CITY, CHIBA-PREF, 299-1141 JAPA 2 * * D W * * * * ******CEW** 〒100-8071 東京都千代田区丸の内二丁目6番1号 2.0 03440 ※2 G. 原点距離 Cage Length, A:Somm 半修試数片 Rectangular,B:Somm 北部試験片 Rectangular,B:70mm 平修試験片 Rectangular,B:70mm 平修試験片 Rectangular,B:70mm 平修試験片 Rectangular,B:50mm 平修試験片 Rectangular,B:50mm 和:6.67mm,B:6.7mm,B:8.7mm,B : 8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B:8.7mm,B : 8.7mm,B :8.7mm,B : 8.7mm,B : 8.7mm,B : 8.7mm,B :8.7mm,B : 8.7mm,B : 8. 4 0 03.4 Pem Sol. C Mo No V TAI E3001P07Q1 0 PAGE 012 012 N N 00 50 5 5 2011-09-09 COMPOS 20 P-16084 00 X Ö 8 20 20 2 4 × 100 CA ž Z E đ X 1000 × 1000 × 100 証明部部時后 CERTIFICATE No. 発 有 年 月 培 DATE OF ISSUE S 2001 9 4 Mn P **TE** 1 145 148 146 145 146 00 × TE3 ★ # HEAD OFFICE 岩 製 銀 店 形KIMITSU WORKS 37 37 37 3.7 4.0 Si ×100 ×100 法 取 NOTES | ※1 Location Orientation 位路,方向,下:別語 Top, B:底路 Bottom, L:压底方向 Longitudinal, C: 医约方向 Transverse, Z:低界方向 Through Thickness,R:45 75向 45 Deg. to the Longitudinal Axis 邖 (Z) m co 編 聚 家 管 項 番 FCONTROL No. 1 2 P 1 5 LC2 α. ā (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) EDMONTON EXCHANGER GROUP OF C- 需要家管理番 A V G 1 6 0 A V G A V G 193 198 206 0 0 8 8 193 INSPECTION CERTIFICATE TL 7198 T17199 TL7199 Nippon Steel Corporation 新日本製雞林式會社 % % 25 部の EL 25 25 36 温 引 張 駐 數 TENSILE TEST 引展別さ 7 8 2 S. T. NOTATION OORIENTANDIN OOL MOTATION OOL MOTA × 75 yrp-57 25 24 G9689TESTED-PL 444125702702081TC1 G9689 444125702702091TC 69689 444125702702101TC PLATE No. 品 邷 •• 試験番号 熨鋼番号 調 駅 製 CUSTOMER CAST No. TEST No. 2790 2790 2790 ASME SA-516 GRADE 70-E10 MASS 帽 HOT ROLLED STEEL PLATES 質 OUAN-回数 1-831-H1-5-9-AT01 0.2 228-68511010 HANWA CO. 没 mm, ":inch, ':feet 0. 375 X120. 5 X480" 0. 375" X120. 5" X480" 0.375" X120.5" X480' DIMENSION .. . 契約 格号 CONTRACT No. 商品品名 COMMODITY 規格 文 卷 卷 中DOCUMENT No. + SPECIFICATION NEFERENCE No. 製物 物 品 栭 注文者照合番号 × SHIPPER

| 米丁 | N:統P Normalizad, Q:城入れ Quenched, T:波及し Tempered, C.R.: Comingled Robled, N.I.C.: NIC Process/TMC Process/TMC Process/TMC Process/TMC Process, A.R.: As Holled, T.M.R.: TMR Process/TMC Proces 上記注文品は御指定の規格または仕様に従って製造され、その要求専項を満足していることを証明します。 ME MEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

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2-6-1, NARUNOUCHI, CHIYODA-KU, TOKYO, 100-8071, JAPA 〒299-1141 千葉県音俳市岩群1番地1. 1. KIMITSU-CITY, CHIBA-PREF. 299-1141 JAPA 2 * * D W * * * * * *****CEW** -07 東京都千代田区丸の内二丁目6番1号 21 3.9 Fum Sol. Coq. Al 2 x ize x ize x ize 03340 E3001P07Q1 Mo No V TA X 100 × 100 × 100 × 200 5 頁 PAGE 012 0 ~ CHEMICAL COMPOSITION # 0 0 50 00 0 2011-09-09 22 P-16084 Ò 60 CV C NO CA Z × SN ð 〒100-8071 発 行 年 月 日 DATE OF ISSUE 証明 寄 帝号 CERTIFICATE No. X 1000 S X IE TE1 X 1000 ۵ 145 142 本 HEAD OFFICE 始 讲 赋 随 形 KIMITSU WORKS 146 X 100 Ž TE3 继 3 00 80 60 23 37 37 S a 咋 5 C) 5 2 龍 財 別 質 国 車 ECUSTOMERIS CONTROL No. (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) A V G A V G MPACT TEST OWNER TO A SUB- A 215 202 215 193 198 206 T117202 71,7202 T17199 INSPECTION CERTIFICAT Ç Nippon Steel Corporation % % EDMONTON EXCHANGER GROUP OF OMPANIES. 26 母な E'L 26 Ж 引 張 試 歐 TENSILE TEST 引を強か 7.8 78 7 8 OSERVITON OSERVI 22 20 57 69689 4441257027021111C G9690TESTED-PL 444205702702431TC G9690 444205702702441TC alc PLATE No. 熨品卷 •• 試験番号 以網絡吊 CAST No. 龍 歌 原 CUSTOWER TEST No. 2790 2790 2790 ASME SA-516 GRADE 70-E10 崓 MASS HOT ROLLED STEEL PLATES 翘 THAT 回数 1-831-H1-5-9-AI01 02 228-68511010 HANWA CO. 浜 0. 375" X120. 5" X480" mm, ':inch, ':fee 0.375" X120.5" X480" 0. 375" X120. 5" X480 DIMENSION .. 2 約 報 号 CONTRACT No. 商 品 名 COMMODITY 規 格 SPECIFICATION 文 雜 韓 号 种 REFERENCE No. DOCUMENT No. 注文者照合番号 大 SHPER SHPER

法 釈 NOTES | ※1 Location Orientation @26 - 方向,1:頭筒 Top,13:底筒 Battorn, L. 庄庭方向 Longitudinal, C:16 的方向 Transverse, Z:低型方向 Through Thickness, R:45 分向 45Deg. to the Longitudinal Asia 上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。

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WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

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NDF COUNTRIES AND A STATE OF S 2-6-1, MAQUNOUCHI, CHIYOOA-KU, TOKYO 100-8071, JAP 〒299-1141 千 菜 県 智 群 市 岩 静 1 毎 地 3 程 市 2 章 章 1 番 地 CHIBA-PREF, 299-1141 JAP/ 2 * * D'M * * * * * ***** C E W * * E3001P0701-07 〒100-8071 東京都千代田区丸の内二丁目6番1号 Pern Sol. Ceu, Al 2. Xidii xiii Xiiii 3 39 03340 033 Mo No V TA 0 AGE: 0 N 0 2 50 0 50 50 5 -×100 2011-09-09 P-16084 × 100 - 〒299-1141 千 斑 県 岩 L.KIMITSU, KIMITSU-CITY. Ö മ 0.0 źź ۷) Z . . ð m 明 倍 番 号。 CERTIFICATE No. 発 行 年 月 日 DATE OF ISSUE N X 1800 X 1900 S 00 X 10 TEI 801 X ۵. 1 4 5 4 50 142 本 HEAD OFFICE 名 漢 歐 值 所 KIMITSU WORKS 142 42 45 OI X TE3 Ξ 37 10 00 m 00 m 37 S 注 积 NOTES [※1] Location-Orientalion 位因,访问,T:griff Fop,B:底部 Belon, L:压绝力向 Longludinal, C:配约方向 Transverse, Z:医牙力向 Through Thickness,R:45 分向45Deg, to the Longludinal Axis ďΓ 2 52 5 Ç (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) EDMONTON EXCHANGER GROUP OF C- 需要家管理番 A V G A V G 215 2 1 5 2 0 2 1 8 9 EACH 1 8 9 INSPECTION CERTIFICATE MI AVG T1 72 0 2 TL7206 T1 7202 Nippon Steel Corporation #F日本製鋼林式會計 % % 中な 를 % 26: 26 引張抗聚 TENSILE TEST 引用的さ . 7 7 8 00 CONTON ORIENTATION 57 20 G9690 444205702702461TC 69690 444205702702451TC G9690TESTED-PL 444215702702311TC a)c PLATE No. 贸品格 試験番号 以解卷号 需要家 CUSTOMER CAST No. TEST No. 椒 2790 27.90 2790 ASME SA-516 GRADE 70-E10 蟷 MASS HOT ROLLED STEEL PLATES 短 TITY-1-831-H1-5-9-AT0 02 228-68511010 HANWA CO. 挺 mm, ":inch, ':feet 0.375" X120.5" X480" 0.375" X120.5" X480" 0.375" X120.5" X480 DIMENSION 文 尊 審 号 DOCUMENT No. 双数 格 号 CONTRACT No. 商 品 名CONMODITY SPECIFICATION 文 曾 审 号 REFERENCE NO. 骅 注文者照合番号 SHIPPER SHIPPER

上記法文品は御指定の規格または仕様に従って製造され、その要求専項を満足していることを証明します。 WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.

SEGLOSCOPXX

本 社 〒100-8071 東京都千代田区丸の内二丁目6番1号 **HEAD OFFICE** 2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 106-8071, JAP 電声製電所 〒299-11Al 千葉県音車市書車 番車 KMMITSU WORKS 1, KIMITSU, KIMITSU, CHIRA-PDBS 900-11AA 140 1. KIMITSU, KIMITSU-CITY, CHIBA-PREE, 299-1141 JAP 2 * * D M * * * * * ******CEW** 340 6 E3001P070' S S 등 03 PAGE 012 2 0 0 CHEMICAL COMPOSITION % -0 50 2011-09-09 P-16084 α × 100 CA Ź .. s Q S Mn P S Qu x 1000 x 1000 x 100 証明審審号 CERTIFICATE No. 発行年月日 DATE OF ISSUE 80 × 成分 TE1 145 145 142 142 TE3 俳 ന ന ന 200 23 24 S X Š ന ۵þr. 2 W) 5 能 散 聚 原 型 梅 fc CUSTOMERS.CONTROL No. Ü (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) EDMONTON EXCHANGER GROUP OF C- 需 數 家 管 理 過 OMPANIES. 1 5 4 A V G A V G IH B M 2V - 50F FT. LB· FAMM 網本面 2 2 2 2 2 2 IMPACT TEST 221 185 色野灯彩 AND TEST OF THE T INSPECTION CERTIFICATE 7206 TL 7206 TL 7206 E Nippon Steel Corporation 第四人教職禁以側は % !! 166 ж 25 Ğ, 引 崇 耳 製 TENSILE TEST 引度強さ 7 8 7.8 00 ORIENTATION ORIENTATION ORIENTATION ORIENTATION ORIENTATION ORIENTATION VS YP-2.2 23 29 69690 444215702702321TC1 69690 444215702702331TC G9690 444215702702341TC 岞 PLATE No. 銀 品 卷 製鋼都号 試影番号 編 敬 家 CUSTOMER CAST No. TEST No. 2790 2790 27 9 0 ASME SA-516 GRADE 70-E10 丰 MASS HOT ROLLED STEEL PLATES. . TITY-1-831-H1-5-9-AT01 02 02 228-68511010 HANNA CO. mm, ":inch, ':feet 0.375" X120.5" X480" 0.375 X120.5 X480 0.375" X120.5" X480 DIMENSION ě, 注文者 SkilbPER 注文者關合權号 REFERENCE:NO. atc CONTRACT No. 双档部

注 积 NOTES [※1] Location Orientation 位置,方向,T:如常 Top,Bite Battom, L:茂速方向 Longitudinal, C:直约方向 Triansverse, Z:眨學方向 Thickness,R:45* 方向 450eg. to the Longitudinal Axis

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S.R.: Stress-Relleved/Post Weld Heat Treatment 上記注文品は御指定の規格または仕様に従って製造され、その要求率項を満足していることを証明します。 AGS:オーステナイト教仪 Austanlie Grain Size, FGS:フェライト教仪 Ferrie Grain Size, S.H:矮性被面非 Shear Fincture, C.P.*脑性被面料 Crystallinity Fracture, L.B.:樹歸供 Later避睡xpension,

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WE HEREBY CERTAFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT.



本 〒100-8071 東京都子代田区丸の内二丁目6番1号 HEAD OFFICE '2-6-1, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8071. JA 電 筆 製 鍵 所 〒299-1141 千 葉 県 岩 碑 市 省 篠 1 毎 地 KIMITSU WORKS I, KIMITSU, KIMITSU-CITY, CHIBA-PREF, 299-1141 JA 113E ***** 2 * * D M * * * * * E3001P0701--607 \$~ × X 100 × 101 × 100 × 100 × Pern Sol. C Mo Nb V T. 夏: PAGE Sold Specification of the second COMPOSITION # E _ g 2011-09-09 SPAGA SPAGA o ≅ P-16084 B ×10000 CHEMICAL ž ž C A P S Qu N H 証明备署号 CERTIFICATE No. 発行年月日 DATE OF ISSUE 80 X 学院分 X X ₩ 186 7 E E ¥ Si × 100 注 积 NOTES | ※1 Location Orientation 位位,方向,T:项部 Top, B: 配幣 Beton,L: 压笼方向 Longludinal,C:图外方向 Transverse,Z:板脚方向 Through Thickness,R:45 方向 450eg. to the Longludinal Axis alt O # 能 數 % 管 項 番 fe customers control No. 1 0 M I N (AS PER EN 10204 CERTIFICATE ON MATERIAL TESTS 3.1) HB# CHARPY IMPACT TEST TEMPERATURE (SI):- 4:6C: LADLE CEQ1 = C+MN/5+ (N 1:4C L) / 15+ (CR+MO+V) PRODUCT CEQ1 = C+MN/6+ (N 1:4C L) / 15+ (CR+MO+V) LADLE TEI = CU+N1+CR+MO : 910CX INSPECTION CERTIFICATE X.10000 X10000 HEAT TREATMENT.
PLATE & TEST SPECIMEN NORMALIZING COMPOSITION % : 'EB3' X100 ۲ Mippon Steel Corporation 新四角製物株式會計 % K EDMONTON EXCHANGER GROUP OF OMPANIES 再 EL 96 = CU+N1+CR+路(引 張 試 駁 TENSILE TEST 引起がた = CR+NO SHAPE CONTROL NOTT AT THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION ON THE NOTION OF THE NOTI VS -YP-CHEMICAL CO CHEMICAL CO LADLE TREAT 製品番号 CHEMICAL PLATE No. SULPHIDE LADLE PRODUCT . 試駁番号 編 献 家 CUSTOMER 製鋼番号 CAST No. TEST No. ASME SA-516 GRADE 70-E10 慮 MASS HOT ROLLED STEEL PLATES 瓤 PUAN-1-831-H1-5-9-AT01 228-68511010 HANWA CO. mm, ':inch, ':fee DIMENSION SPECIFICATION 文 樹 瑚 与 卞 契約 器号 CONTRACT No. 商品名 COMMODITY 提格 REFERENCE No. 製物器号 DOCUMENT No. 怖 注文者照合番号 注 文 SHIPPER EEECOSESOPAY

WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE IN ACCORDANCE WITH THE RULES OF THE CONTRACT. 上記注文品は御指定の規格または仕様に従って製造され、その要求事項を満足していることを証明します。

君津製造所厚液管理グループリー名 PLATE QUALITY CONTROL DEPT.
KIMITSU WORKS 1. adachi



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4



Ш HR STEEL PLATE Carbon Multi Cert ASTM A515 GR 70 (10) / ASME SA516 GR 70 (11A) Normalized Normalize Temp 1670 °F 12 min CVNL Req, 20 / 16 FT-LEF at -50.0 F Std Trickness Tol PVQ Top and Bottom Standard Surface Flatness 1/2 A20 Fine Grain Fully Killed ESSAR STEEL ALGONA INC, HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE COMPANYS STANDARD RECORD KEEPING PRACTICES.
THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945-4095 FOR CN (CAD FUNDS) - BCOL 864252 ESA-52058 2013/02/26 - 18:10:47 Cust Use: PVQ M 62007613 / 1 1000032133 80678 Customer PO NO //tem: TC No., Date & Time: Cust.Part No.: BOL NO.: Carrier: 1000032133 2013/02/23 Supplementary Instructions: Test Cort 1:gbeyers@russelmetals.com Test Cert 2: mleahy@russelmetals.com Ship to Customer Name and Address: SCOTFORD, Alberta, Canada RUSSEL METALS INC 99TH STREET 4060 Shipment No.& Date.: AND ENVIRONMENTAL CERTIFICATES AVAILABLE ATWAVM.ESSARSTEBLALGOMA.COM **T6E 3N5** 8007393 000010 2013/02/19 INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT. Insp T/R : Test Report As Par Spec Sold to Customer Name and Address EDMONTON, Alberta, Canada MEETS EN 10204:2004 TYPE 3.1 Customer Specification: RUSSEL METALS INC SO No., Item & Date .: T6E 4T2

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MANAGER METALLURGICAL SERVICES K. UGHADPAGA

MANAGER METALLURGICAL SERVICES

"WARNING" THE TEST RESULTS AND VALUES REPORTED HIGHEN BOILDE ONLY FUT (1) THE PRATICULA STEEL FOR WHICH THIS CERTIFICATE IS ISSUED MEETS THE MINIMUM SPECIFED YIELD STEELFOR AND PHYSICAL PROPERTIES OF SUCH STEEL ARE IN CONFIDENCE THAT THE STEEL FOR ANY SPECIFICATION OTHER THAN THE CHE INDICATED AND CAN NOT BE REALD UPON THE ANY PURPOSE (INCLUDING DESIGN OR CALCULATIONS) AS PEPEESEMING THE ACTUAL STEENCH OF SUCH STEEL.

Date:2013/03/19 Time:12:29:38 Page no:1 of 3



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

מונו	_											
SO No Item & Date:		07393 00	8007393 000010 2013/02/19	3/02/19		Shipm	Shipment No.& Date .:	Date.:	100003213	1000032133 2013/02/23	TC No., Date & Time:	ESA-52068 2013/02/26 - 18:10:4/
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Supplementa	Supplementary Instructions: Test Cert 1:gbeyers@russelmetals.com	Test	ert 1:gbeyt	ers@ns	seimeta	S.com T	est Cert	2: mleahy	Test Cert 2: mieahy@russelmetals.com	ак.сот		
Insp T/R : T	Test Report As Per Spec	Per Spec										Cust Jse: PVQ
ESSAR STEEL COMPANYS ST THIS MILL TES INSTRUCTIONS	ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE COMPANY'S STANDARD RECORD KEEPING PPACTICES. THIS MILL TEST REPORT MAY NOT BE PEPRODUCED EXCENSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.	REBY CERTI TO KEEPING TOT BE REPE TOISPOSAL	FIES THAT T PRACTICES. RODUCED EX OF DOCUME!	HE MATE! CEPT IN F	RIAL HERE	IN DESCRI	BED WAS	MADE AND	SAR STEEL AL	CORAINC IF YOU REC	KULES OF THE SPECIFICATION SHOWN. SEIVE THIS DOCUMENT AND ARE NOT TI	ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION OF THE INTENDED RECEIVER, PLEASE CALL (705)245-4095 FOR THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)245-4095 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.
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Heat No.	Batch No.	SACE	LAB GA	GAUGE	COND	META	DIR LOC	SIZE	TEMP("F)	FULLENERGY(TP-	FOLL AVGINSON	
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4094P3	AD5510	166*	ALG 0.3	0.3750	z	CVN	ca.	3/4	-20	94 90 81	88	
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K UGHADPAGA MANAGER METALLLRGICAL SERVICES

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WARNING THE TEST RESULTS AND VALUES REPORTED HEREIN NUDGATE ONLY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CENTRICATE IS SECULDED. THE METEL THE MEDITE HE MANNING SECULD PROPERTIES OF SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION INDICATED. THE RESULTS OR SUCH STEEL ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE SPECIFICATION OTHER THAN THE ONE OTHER THAN THE ONE SUCH STEEL.

Date:2013/03/19 Time:12:29:38 Page no:2 of 3



ESSAR STEEL ALGOMA INC., 105 West Street, Sault Ste. Marie, Ontario, Canada P6A 7B4

80 No No. 2 Date: 8007393 000010 2013/02/19	Shipment No.8. Date.:	1000032133 2013/02/23	TC No., Date & Time:	ESA-52068 2013/02/26 - 18:10:47
		- 1	1	- 1 C+CCCCCC - 1
Sold to Customer Name and Address:	Ship to Customer Name and Address:	and Address:	Customer PO No Atem:	W 6200/0013 /
RUSSEL METALS INC	RUSSEL METALS INC		BOL NO.:	1000032133
	99TH STREET 4060		Cust.Part No.:	80678
EDMONTON, Alberta, Canada	SCOTFORD, Alberta, Canada	Sanada	Carrier:	CN (CAD FUNDS) - BCOL 864252
T6E 4T2	T6E 3N5			

Customer Specification: HR STEEL PLATE Carbon Multi Cert ASTM A516 GR 70 (10) / ASME SA516 GR 70 (11A) Non Thickness Tol PVQ Top and Bottom Standard Surface Flatness 17, A20 Fine Grain Fülly Killed

	COC Time Cock		AND THE STATE OF THE CONTRACT OF THE CONTRACT OF THE STATE OF THE STAT
Supplementary Instructions: Test Cert 1:gpeyers@nusselmetais.com est Cert 2: miearly@nusselmetais.com		INSD TIR. TIESS REDOIL AS Per Speci	THE STATE OF THE S

u.r

ESSAR STEEL ALGOMA INC. HEREBY CERTIFIES THAT THE MATERIAL HEREIN DESCRIBED WAS MADE AND TESTED IN ACCORDANCE WITH THE RULES OF THE SPECIFICATION SHOWN. ALL RESULTS ARE RETAINED IN ACCORDANCE WITH COMPANYS STANDARD RECORD KEEPING PRACTICES.

COMPANYS STANDARD RECORD KEEPING PRACTICES.

THIS MILL TEST REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL WITHOUT WRITTEN APPROVAL OF ESSAR STEEL ALGOMA INC. IF YOU RECEIVE THIS DOCUMENT AND ARE NOT THE INTENDED RECEIVER, PLEASE CALL (705)945-4035 FOR INSTRUCTIONS ON METHOD OF DISPOSAL OF DOCUMENT.

MEETS EN 10204:2004 TYPE 3.1

						•			MECHANICAL	PROPERTIE		
angua Tacte	010											
Heat No.	Batch No.	SRCE	CAB	GAUGE	COND	METH	DIR	TOC	DIR LOC YIELD(KSI)	TENSILE(KSI) EL SCALE	EL SCALE	ELONG(%)
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K. UGHADPAGA MANAGER METALLURGICAL SERVICES

"WARNING" THE TEST RESULTS AND VALLES REPORTED HEREM RIDICATE DALY THAT (1) THE PARTICULAR STEEL FOR WHICH THIS CERTIFICATE IS ESSED MEETS THE MINIMALM SPECIFIED THE STEEL FOR WHICH THIS CEPTIFIES OF SUCH STEEL MEET ARE IN CONFORMANCE WITH THE PROGRESSING OF THE SPECIFICATION INDICATED. THE RESULTS OR VALLES PERORITIES OF SUCH STEEL MEET CONFORMANCE WITH THE PROGRESSING OF THE SPECIFICATION OF RESIDENCE OF SECURITIES OF SUCH STEEL.

SSAB 12400 Highway 43 North, Axis, Alabama 36505

Test Certificate

Form TC1: Revision 1: Date 31 Oct 2000

CONTINUED ONLY DESCRIPTION OF THE PROPERTY OF
Customer P.O.No.:U01327 & 41-350443 Mill Order No. 41-350444-02 Shipping Man

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Shipping Manifest: AR152216 7 Jan 13 Cert No: 081364956	f 1)	1		BDWTT Tmp %Shr		0000	USA			51470 51470 514-70MT ED 261/400 8440-01	
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Mill Order No. 41-350444-02 16-70(11A) Ship [NACE MR0175 ANNEX A2.1.2 COMPLIANT LCVN 20 FT-LBS @ -50F/A673-P NORMALIZED			Abs. Energy(FTLB) 1 2 3 Avg	80 80	F	1.008	INTENTIONALLY ADDED	6406770 6406776 6406773 6406778		WE HEREBY CERTIFY THAT THIS MATERIAL WAS
N SA516-	2.1.2 CO			Abs. En	80 80	>	0		640 640 640 640 640		WE HEREBY CERTIFY THAT THIS MATERIAL WAS
Customer P.O.No.: U01327 & 41-350443 Mill Ord Product Description: ASTM A516-70(10)/ASME SA516-70(11A)	NACE MR0175 ANNEX A2.1.2 CC LCVN 20 FT-LBS @ -50F/A673-P NORMALIZED	1	_	Average Hardness	П	ŧ	2	AND NO MERCURY WAS	0 D10 0 D10 0 D10 0 D10		Y THAT
Customer P.O.No.:U01327 & 41-350443 Product Description: ASTM A516-70(10)/ASN	R0175 A FT-LBS LIZED	120.0 X 480.0 (IN)		-	156 HBW	ahy	10.	NO MERCURY WAS	E3A070 E3A070 E3A070		CERTIE
J01327	NACE MR017; LCVN 20 FT-L NORMALIZED	X 48(X Tst	F	mical /	.15	D NO L			EREBY
O.No.:l			.,	Elong % 2in 8in	25		4.	STEEL AN PLIANT G X 10 / TES.			WEH
ct Descri		Size: 0.375 X	Tensiles:	%RA			.026 .27	THE STEEL P TICE U)/15 1 COMPLIANT GY AVG X 10 MINUTES.	6177 6177 6221 6221		
Custo		Size:	1	UTS (KSI)	77		7	T OF T PRACTI NI+CU) E 3.1 ENERGY 19 M			
				YS (KSI)				4PONEN SRAIN /S + (IFICAT SRBED SE FOR	1, WGT: 1, WGT: 1, WGT:		
				Tst	-IC 54		<.001 25	MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL DURING THE MANUFACTURE OF THIS PROBUCT KILLED STEEL, PROBUCED TO A FINE GRAIN PRACTICE CEV (IIW) = C + MN/6 + (CR+MO+V)/5 + (NI+CU)/15 MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT CHARPY FULL SIZE EQUIVALENT = ABSORBED ENERGY AVG X 10 NORMALIZED PLATES. HEATED AT 1665F FOR 19 MINUTES.			
	<u> </u>			40	F)	,	.014	LURGIC OF TH TO A + (CR+ ECTION ALENT ALENT ALENT	PCES: PCES: PCES:		
	SALES		eces:	Tested Thickness	0.376 (DISCRT)		J. 88.	METAL ACTURE DDUCED MN/6 4 INSP EQUIV 5. HE	6406774 6406775 6406777		
IMITE	AMUE		Tested Pieces:		0.3		20 1	S NOT A E MANUFA EEL, PRO = C + C 204:2004 LL SIZE LD SIZE ON TAKE	9 /		
SONI	ROAD UGA	2	Į.	Piece	D10		-	MERCURY IS NOT A MEDURING THE MANUFACT KILLED STEEL, PRODICEC (IW) = C + M. MTR EN 10204:2004 CHARPY FULL SIZE EC NORMALIZED PLATES.	070 D10 070 D10 070 D10		
Customer: SAMUEL &	(A DIVISION OF SAMUEL SALES) 2360 DIXIE ROAD MISSISSAUGA	ON L4Y1Z7		Heat	E3A070	Heat	E3A070	MERCURY IS DURING TH KILLED STI CEV (IIW) MTR EN 100 CHARPY FUI NORMALIZE TEST COUP	E3A070 E3A070		

: LPP201205005

3128100017

Order No.

ORIGINAL

MILL TEST CERTIFICATE

: DP3-1-120713-297-002

: Jul. 13, 2012

Certificate No.

DONGKUK STEEL

5(83)

| Postgorn and No. 18-Terrison, C-Hoadway, S-Fraction Analysis. | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Postgorn Analysis | Remarks Chief of Process Control Team STATES OF SEE 23 是の 足の 63.63 SIS 30 Composition(%) ⊋∾ 名号 台市 20 გო m4 60.60 တက Date of issue 212 Chemical 40 22 പത 25 4 記る 들이 86 98 38 550 When using the ordered product for other uses, rather than the above specification use, product donage and selfut accidents, may be caused. **10**4 2 奇花 ON ہا ل ξij __a Jp. O E 124 : DONGKUK INTERNATIONAL, INC. : SALZGITTER Hardness 里 2:134 3:96 A:106 -50.8°F 2:158 3:148 A:151 V Setch ftalbf Impact 83 Ø B WE. 山 尸 Tensile Test 10 76 四 õ ঠ 8 が記 -멍 000 \$072402 7862708 \$272494 Heat No Customer Supplier 덦 9,260 1,862 8,890 1,778 Reight Kg : ASTM A516-70N/ASME SA516-70N Quant I t 4250008-01,02,03,04,05 4280010-01,02,03,04,05 Sub Tola! (30) Sub Total (30) * Tensile Test Olection-Traverse * Impact Test Decuton-Longitudinal * Core — CHAMP (ANION) THE (CA+Mo+V/)5 * Supply Contition — Normalized * Supply Contition — Normalized Chemical Composition Unit: 2-x100, 3-x1000, 4-x10000 4280194-01.02,03,04,05 Sub Total (20) Product No STEEL PLATE .p-06666204-0 .p-06666204-9 .s. Mormal Land: 1688 ° F.20min 12.70.3048-5095 .5-X120.Y240* .Syecimen No :DPO6595204-s. -s Normalized:1888 F,254in ** Normalized: 1688 · F.28min 12.70=2428=7315 5.72=1.7288 *Specimen tip :0P06866506 =. 5"X120"X240" 4 *Specinen No :0P0000550 Dimension Unit inch: ", mm: Space 5" \$120" \$240" Specification Commodity PO No.

po-135030 STOCK

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Surveyor to

Surveyor to

Dangin Works, 400 Harlin-fl. Songak-myson, Dangin-gun, Chungchsongram-do. 243-823, Korsa/Process Control Teem, TEL. 041-351-4554

SSAB 12400 Highway 43 North, Axis, Alabama 36505

Test Certificate

Form TC1: Revision 1: Date 31 Oct 2000

Customer: SAMUEL & SON LIMITED	er No. 41-358	setta 1
SALES))(10)/ASME SA516-70(11A) 5 ANNEX A2.1.2 COMPLIANT BS @ -50F/A673-P	Ship Date: 20 Apr 13 Cert No: 081377828 Cert Date: 20 Apr 13 (Page 1 of 1)
	SPe: 1 000 X 120 0 X 480 0 (NO	DICE 14 0, 11.7
Tested Pieces:	Tensiles: Chamy impact Tests	277
Heat Piece Tested Tst YS UTS	Flong % Tst Average Abs. Energy(FTLB	Tst Tst Tmp Dir
E3D012 C25 1.006 (DISCRT) C 49 74	27 T 149 HBW 114 109 98 107	-50F & 10.
Heat	Chemical Analysis	
ESD512 19 101 010 not 24 055 055	Al Cu Ni Cr Mo Cb V Ti B	ORGE
(AZ) (AZ) (AZ) (AZ)		NSA
METALLURGICAL COMPONENT CTURE OF THIS PRODUCT DUCED TO A FINE GRAIN PR MN/6 + (CR+MO+V)/5 + (NI INSPECTION CERTIFICATE HEATED AT 1665F FOR. N FROM HEAT TREATED PLAT	OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED ACTICE HCU)/12 HCU)/12 44 MINUTES. 15.	
E35012 C25 6429223 PCES: 1, WGT: 16527 E30012 C25 6429221 PCES: 1, WGT: 16523	E3D012 C25 6429222 PCES: 1, WGT:	16523
	1-Shock Po-132728	100 - 100 -
		3 Des 4 10 3 APR 2014
(P) Cust Part #:	WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION SENIOR IS	Justin Ward SENIOR METALLURGIST - PRODUCT

CLIENTE / Customer / Clien

VAN LEEUWEN PIPE AND TUBE -CAN 2875-64TH AVENUE EDMONTON - ALBERTA T6P 1R1 CANADA

CERTIFICADO DE INSPECCION

ISO 10474 / 3.1 Inspection Certificate - Certificat de Réception

HOJA: Page:

152296

°. ġ

30/10/2012

FECHA: Date:

DIN EN 10204 / 3.1









E-mail: ulma@ulmapiping.com Tel: 34 - 943 780552 Fax: 34 - 943 781808

Packing List: 97265

Certified acc. PED 97/23/EC+AD2000-W0 by TÜV Rheinland N.º 01 202 E/Q 02 7/443

DE of.-de 30/08/2012

45001569

SU PEDIDO N.º
Your Order No. 4
Yofra Cde. N.º

FLANGES

PRODUCTO Article - Produit

MATERIAL CORRESPONDIENTE ASTMIASME A/SA350LF2CL1-11

MODO DE FUSION (*) Steel Making - Elaboration de l'acler Y = Oxigeno básico

E = Elec.

Material Correspondent - Qualité

CANTIDAD

PARTIDA Rem

Quantité Quantité

ASME B18.5-09

Requirements - Normes Applicables

NORMAS APLICABLES

MARCA Merk of I Marque

)	
JCANTE			
DEL FABRICANTE	factory	du fabrican	20171010

DEPART

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du fabricant	TAMENTO

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CANTE		
DEL FABRICANTE	actory lu fabricant	Call a Tarte

ASSURANCE Section

		1.
	DUREZA Hardness Dureld HBW	154 162 145 155 164 156 146 155 145 152 151 152 152 156
	10x10mm 10x10mm A A A A A A A A A A A A A A A A A A	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
	CHARPY V 10x10mm MEDIA Average Klaysone CHARPY V 10x10mm	47 75 69 41 60 60 80 35
GE CE		46 67 40 60 60 60 35
QUALITY ASSURANCE	RESILIENCIA Impact lest Résitience Joules	58 71 71 46 65 63 35
LITY A		35 35 35 35
	ESTRICCION Red. Area Striction %	66,30 68,00 62,80 62,80 60,30 55,90 58,30
DEPARTAMENTO Section Département	ALARGAM. ESTRICCION Elongation Red. Area Lo: 4 d Striction % % %	33,50 34,50 25,00 62,00 30,20 26,70 28,00
DEPAR Section Départe		311 353 322 304 305 312
	RESISTENCIA LANTE ELAST T. Strength Y. Strength Resist Rup! 0.2 % Wiran2 Nimm?	505 507 521 508 512 535 535
	COLADA N.º. Heal No N.ºCoulée	342V2 437M2 477V2 238V2 602V2 616V2 617V2
	OBSERVACIONES COLADA M'RESISTENCIA LAME ELAST. Remarks Heel No T. Strength Y. Strength Observations M. "Coulée Resist Rupi 0.2 % (*)	<u> </u>
3.	LOTE	2872 2502 2492 1602 2932 2952 2972
NACE MR0175/ISO15158-2-09 & MR0103-12 Clause 7.2.1.4, Annex A.2 and SSC Region 3. CSA-2245.12-09 GR248 CAT II-99	DESCRIPCION Description Description	BLIND 3 600LB RF A350LF2 WN 8 150LB STD/40 RF A350LF2 WN 8 150LB STD/40 RF A350LF2 WN 8 300LB S160 RF A350LF2 WN 2 300LB S160 RF A350LF2 WN 24 150LB STD/20 RF A350LF2 WN 24 150LB STD/20 RF A350LF2

14 24669 39 22173 39 22173 43 37589 43 37589 66 24525 66 24525

Las dimensiones y la condición superficial se halfaron satisfactortas

 Dimension and surface condition were found acceptable Les dimensions et étais de auriace sont satisfaisants.

Los materiales citados cumplen las normas aplicables

Manufacturing requirements are satisfied.

Les normes applicables sont respectées.

EL INSPECTOR Worká Inspector - L'Inspecteu

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(') OBSERVACIONES:

Remarks Observations

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COLADA N.º Heat No N.ºCoulée

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

Dpto. de Garantía de calidad Quality\Assurance Dept. ULMA-FORMAS COOP. SEP 2 6 2013 CONFORMS TO SA 350 LFLCL 2011 ADO -8440-YEAR LOIDED, 2013 108#

Po-133415 4-8440-01 TEST SPECIMEN: SIZE STANDARD (10X10), ORIENTATION TRANSVERSE. N_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

TEM# 非18 SIGNED BY. VL QA Approved

Page 1 of 2



CERTIFICATE OF COMPLIANCE

& manufacturing Itd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9

www.edmontonexchanger.com

lel 780 468 6722 • QC fax 780 466 4668 • sales fax 780 466 5153

Customer ALCO GAS & OIL PRODUCTION PO 133437 - 8446-01

Work Order C100880 Date 2013/10/11 cofc# 44359

Item#	Description	Qty	Heat#	Brinell Hardn		Proc
S100880-2-1	SHELL(S) - 0.8750" NOM X 24" OD X 60" (Material Spec: SA 516-70 Normalized)	1	G1133-476530707	MTR	WP60U	<u>~1</u>
	Conforms to NACE MR0175 / 180 15156 2 2009 Annex A Conforms to NACE MR0103 2007					1
S100880-3-1	SHELL(S) - 0.7500" NOM X 24" OD X 7.875" (Material Spec: SA 516-70 Normalized)	1	365957-97274	MTR	WP600	4
	Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007	1				
S100880-3-2	SHELL(S) - 0.7500" NOM X 24" OD X 7.875" (Material Spec: SA 516-70 Normalized)	1	380617-99931-02	MTR	WP600	4
	Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007	3		ĺ.		
S100880-4-1	SHELL(S) - 0.7500" NOM X 24" OD X 8.6875" (Material Spec: SA 516-70 Normalized)	1	365957-97274	MTR	WP500	4
	Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A Conforms to NACE MR0103 2007					
S100880-4-2	SHELL(S) = 0.7500" NOM X 24" OD X 8.6875" (Material Spec: SA 516-70 Normalized)	1	365957-97274		WP600	ä
	Conforms to NACE MR0175 / ISO 15156-2 2009 Annex A					

Forming Procedure:

Cold Formed

Brinell Equipment:

Newage Calibrated Pin Brinell Hardness Tester

Supplementary Requirements

Normalized Material Identification Marking:

'MT' indicates normalized by the mill per ASME Code Section II, Part A, SA 20, Paragraph 13.1.1.

'GMT' indicates normalized by Edmonton Exchanger per ASME Code Section II, Part A, SA 20, Paragraph 13.1-2.

'GT' indicates normalized by Édmonton Exchanger per ASME Code Section VIII Division 1, UG-85 or ASME Code Section I, PG-77.4.

The item(s) listed above comply with the requirements of ASME Code Section I, PG-80 and ASME Code Section VIII, Division 1, UCS-79(d), UG-79 & UG-80. All welders and procedures are qualified to ASME Code Section IX. For tacking carbon steel items, roundbar used is 1018 Cold Rolled. Material being supplied conforms to the latest ASME Code Section II, Part A, 2010 Edition, Addenda July 1, 2011.



edmonton exchanger & manufacturing ltd.

5545-89 Street Edmonton, Alberta Canada T6E 5W9 www edmontonexchanger com

tel 780,468,6722 • QC fax 780,466 4668 • sales fax 780 466 5155

CERTIFICATE OF COMPLIANCE

Customer ALCO GAS & OIL PRODUCTION PO 133437 - 8440-01 Supplementary Examination - Items



CERTIFICA I E OF COMPLIANCE

MTR List

5545-89 Street Edmonton, Alberta Canada T6E 5W9

www edmontonexchanger com

tel 780 468 6722 • QC fax 780 466 4668 • sales fax 780 466 515:

Customer ALCO GAS & OIL PRODUCTION PO 133437 -8440-01

Work Order C100880 Date 2013/10/11 ColC# 44359

Email to andy.jutt@alcogasoil.com Email to brenda.abbott@alcogasoil.com Email to nora.henke@alcogasoil.com Email to ship-rec@alcogasoil.com Email to ptaschuk@edmontonexchanger.com

MTR ID	Pages	Heat#	Thickness	Material Grades
16686	14	365957-97274	.75"	SA 516-70 N
17634	6	380617-99931-02	.75"	SA 516-70 N
17943	5	G1133-476530707	.875"	SA 516-70 N

Heat#	Material Grades	MTR ID
365957-97274	SA 516-70 N	16686
380617-99931-02	SA 516-70 N	17634
G1133-476530707	SA 516-70 N	17943

DILLINGER HÜTTE

Effauterungen siehe Rückselle/Explications voir au verso/See reverse for explanations (www.dllinger.de/cetificate)

.000			the section of the section of	analden in the		(append)		A10 Advice of dispatch	A08/. Manufacturer's order/	Sheet
1	INSPECTION	TION CERTIFICATE	CATE 3.1 AS	PER EN	10204:2004				A03 Certificate No	
	INSPECTION	TION CERTIFICATE	CATE 3.1.B. AS	PER EN	10204:1991+A1:	A1:1995 + AS PER	R ISO 10474:1991)1		
	MATERIAL	AL TEST REPORT	RT (MTR)					4.06870-06.12	2.11 369269-002 1/	200.0
A05 Es	A05 Established Inspecting body		A06 Purchaser EDI	EDMONTON STEEL, EDMON	EDMON A07.1	No.	ED10580-J1010-ER		oduct	
<u>ਵ</u>	II.	.u.	Final receiver EDI	EDMONTON STEEL, EDMON	EDMON A07.2	.2 No.			HOT ROLLED PLATES	
B02/ S	Sleel design.	SA51:6-70				SA20-S5				
B03 A	Any supp1.	ASME-II-A:1	0	C					1411	
~	requirements	DIL-HUE-2:R31	-2010-11	-22					999	
	A01-,	A99 Further co	ommercial inform	A01-A99 Further commercial information - Concession req	sion requests	sts				
В14 tвm	B07.2 Heat No.	B07.1 Rof.plate /	B16 Concession request no	equest no. Date	, . 					
No. 0.1	365960	TestiNo. 0 96593-03	-03 1-QZFHQ	80	08.11.11					
	B01-	-B99 Descriptio	B01-B99 Description of the product	*						
B14	B08 Nember	B09 Thirtness	B10	811 engh	B12 Theoretical	B04 Product delivery	B07.2 Heat No	B07.1 A09 Rolled clate No./ Purcha	A09 Purchaser article number	
Š.	of pleces	000000000000000000000000000000000000000	NOH		mass KG	condition				
01	-	0,6250 x	120,50000	x 480,00000	4650	Z	365954	45272-01	ja.ir	
01	7	0,6250 x	120,50000	x 480,00000	4650	N	365954	45272-02		
01	J	0,6250 x	120,50000	x 480,00000		N	365954	45272-03		
0.1	٦	0,6250 x	120,50000	x 480,00000		N	365956	02688-01		
01		,62	120,50000	x 480,00000	4.6	Z	629	02688-02		
0.1		***	120,50000	-		Z	365956	02688-03		
0.1	٦	52	120,5000.0	x 480,00000			365960	96593-01		
0.1	П	0,6250 x	120,50000	× 480,00000	465		365960	63		
01	Н	-	120,50000	-		Z	365960	96593-03		
0.1	П	0,6250 x	120,50000	x 480,00000	465	Z	365960	96595-01		
01	П	,625	120,50000	x 480,00000	465	Z	365960	6595		
01	П	,6250	120,50000		465	Z	365960	96595-03		
0.1	Н	0,6250 x	120,50000	x 480,00000	465	z	365960	96597-01		
10	Н	,625	120,50000	x 480,00000	465	N	365960	65		
0.1	П	-	120,50000	x 480,00000		Z	365960	96597-03		
01	П	0,6250 x	120,50000	x 480,00000	46	Z	365960	96715-01		
01	Н	62	120,50000	w	46	N	365960	96715-02		
01	Н	0,6250 x	120,50000	44	4.6	Z	365960	96715-03		
6	П	0,6250 x	120,50000	× 480,00000	4650	Z	365960	97271-01		<
A04		Z01/Z02/Z03 We h	We hereby certify, that the a	Z01/Z02/Z03 We hereby cerlify, that the above mentioned materials have been	s have been deli	delivered in accordance	1:00	6	AG der Dillinger Hüttenwerke	AUT
	Ţ X	ny.	מפר הפינות המינות			No.	AHB	Postfach 1580, D-66748 Dillingen/Saar	-	
i Wat	Manufacturer:s						B. BALDAUF	Inspector's stamp	Date 07.12.11	
							100			

Erläugerungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

DILLINGER HUTTE

A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	INSPECTION CERTIFICATE 3.1	AS PER EN: 10204; 2004	A10 Advice of dispatch No.7 Date of dispatch	A08/: Manufacturer's order/ A03 Centificate:No.	Sheet
INSPECTION (CERTIFICATE 3.1.	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
MATERIAL TES	MATERIAL TEST REPORT (MTR)		406870-06.12.11	369269-002	2/3 # 4
A05 Established Inspecting body A06 Purchaser	ody A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		B01 Product	
Η̈́O	Final receiver	EDMONTON STEEL, EDMON A07.2 No.		HOT ROLLED PLATES	
B02/ Steel design. SA	SA516-70	SA20-S5			
B03 Any suppl. ASN	ASME-II-A:10				
requirements DII	DIL-HUE-2:R31-2010-11-22	0-11-22			

1						_					-		_	_	. 7				-	-005		ga M	dien	940	-collect
)er							6207 878 51 00		P CLOUX - 24" 00 -8-6875 LONG		Adda - O	No- 133437							CONFORMS TO SA 55 15-75 M.T.	Landy Chora	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100 480f	TEN # 12 # 42 X	SICHED BY COCT 2 8 2013
	A09 Purchaser article number								CSNEII - C	A Cholle 2	Carrier D														
	B07.1 Rolled plate No./ Test No.		97271-02	97271-03		97272-01	97272-02	97272-03	97273-01	97273-02	97273-03	97274.01	97.274-02	97274-03	97275-01	97275-02	97275-03		84632-01	84632-02	84:632-03	87.205-01	87205-02	87205-03	83;86301
	B07.2 Heat No.		365960	365960		365957	365957	365957	365957	365957	365957	365957	365957	365957	365957	365957	365957		365945	365945	365945	365945	365945	365945	365947
	B04 Product delivery condition		N	N		N	Z	Z	N	Z	N	Z	N	Ņ	Z	N	N		N	Z	N	N	N	N	N
	B12 Theoretical mass	KG	4650	4650	97.650	44.69	44'69	4469	4469	4469	4469	4469	4469	4469	4469	4469	4469	53628	6510	6510	6510	6510	6510	6510	6510
	B11 Length		480,00000	4.80,00000		4.80,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000		480,00000	4.8.0,00000	480,00000	480,00000	480,,00000	480, 00000	480:,000000
of the product	B10 Width	INCH	120,50000 x	120,50000 x		x 00005'96	x 00005,96	x 00005,96	x 00005'96	36,50000 x	96,50000 x	x 00005,96	x 00005,96	x 00005'96	x 00005,96	x 00005'96	x 00005,96		120,50000 x	120,50000 x	120,50000 x	120,50000 x	12.0, 50000 x	120,50000 x	120,50000 x
B01-B99 Description of the product	B09 Thickness		0,6250 x	0,6250 x		0,7500 x	0,7500 x	0,7500 x	0,7500 x	0,7500 x	0,7500 x	◆ 0,7500 x	0,7500 x	0,7500 x	0,7500 x	0,7500 x	0,7500 x		0,8750 x	0,8750 x	0:,8750 x	0,8750 x	0,8750 x	0,8750 x	0,8750 x
B01-E	B08 Number of pieces		7	Н	21	Н	П	٦	Н	7	П	7	٦	۲	l	Н	Н	12	H	ᆏ	Ţ	Н	H	1	П
	B14 Item No.		10	0.1	-jr	02	02	02	02	02	03	02	02	0.2	0.2	0.5	02	*	03	03	03	. 03	0.3	03	03

201/202/203 Weitheraby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

A04

D H Manufacturer's mark

AG:der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

Date 07,12,11

Inspector's stamp

B. BALDAUF Test House Manager

DILLINGER HÜTTE

Erläutenungenisiehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

A02 INSPECTIC	ON CERTIF	INSPECTION CERTIFICATE 3.1	AS PER EN 10204:2004	A10 Advice of dispatch No./ Date of dispatch	A08 Mariufacturer's order/ A03 Cartificate/No.	Sheet
INSPECTIC	ON CERTIF	ICATE 3.1.E	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
MATERIAL TEST REPORT (MTR)	TEST REP	ORT (MTR)		406870-06.12.11	369269-002	3/
A05 Established Inspecting body A06 Purchaser	ting body AC	06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		BO1 Product	
HU		Final receiver	EDMONTON STEEL, EDMON A07.2 No.		HOT ROLLED PLATES	
B02/ Steel design	SA516-70		SA20-S5			
B03 Any suppl.	ASME-II-A:10	A:10				
requirements	DIL-HUE-	DIL-HUE-2:R31-2010-11-22	-11-22			

	Ang Purchaser article number																							
	B07.1 Rolled plate No./ Test No.	83863-02	83863-03	84116-01	84116-02	84116-03	841T7-01	84117-02	84117-03	84118-01	841.18-:02	84118-03	84119-01	84119-02	84119-03	84120-01	84120-02	84120-03		-84147-01	84147-02	84147-03	84:149-01	84149-02
	B07.2 Heat:No.	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947	365947		365946	365946	365946	365946	365946
	B04 Product delivery condition	Z	N	N	Ż	N	N	N	N	9 N	N	N	N	N	N	N	N	N		N	N	N	Z	N
	B12 Theoretical mass KG	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	6510	156240	5959	5959	5959	5959	5959
	B11 Length	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	4'80,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000		480,00000	480,00000	480,00000	480,00000	480,00000
B01-B99 Description of the product		120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 ×	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x		x 00005,96	x 00005'96	x 00005'96	x 00005'96	x 00005'96
99 Description	B09 Thickness	0,8750 x		1,0000 x																				
B01-B	B08 Number of pleces	Н	1	Н	Н	П	Н	rH	⊣	H	Н	\vdash	\vdash	\vdash	Н	7	Н	Н	24	Ц	\Box	□	1	П
	B14 Item No.	03	03	03	0.3	03	0.3	03	03	03	03	03	03	03	03	03	03	03	*	0.4	04	0.4	0.4	04

Z01/Z02/Z03 We hereby cerlify, that the above mentioned materials have been delivered in accordance with the terms of order.

Manufacturer's mark

B. BALDAUF Test House Manager

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection Jepartment

A01

Date 07 12.11

Erläulerungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

DILLINGER HÜTTE

e e	A02 INSPECTION	INSPECTION CERTIFICATE 3.1	1 AS PER EN 10204:2004	A10 Advice of dispatch No./	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
AL TEST REPORT (MTR) A06 Purchaser EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER 406870-06.12.11 36 speciing body A06 Purchaser EDMONTON STEEL, EDMON A07.2 No. HOT SA516-70 SA516-70 SA20-S5 HOT ASME-II-A:10 SDIL-HUE-2:R31-2010-11-22 SA20-S5	INSPECTION	1 CERTIFICATE 3.1	1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
specting body A06 Purchaser EDMONTON STEEL, EDMON A07.1 No. EDIO580-J1010-ER B01 P SA516-70 ASME-II-A:10 SA20-S5 HOT SDIL-HUE-2:R31-2010-11-22 SA20-S5 HOT	MATERIAL I	EST REPORT (MTR)		406870-06.12.11	369269-002	4/
SA516-70 ASME-II-A:10 SDMONTON STEEL, EDMON A07.2 No. SA516-70 ASME-II-A:10 SDIL-HUE-2:R31-2010-11-22	A05 Established Inspecting	g body A06 Purchaser	l		B01 Product	
SA516-70 ASME-II-A:10 DIL-HUE-2:R31-2010-11-22	EG.	Final receiver			HOT ROLLED PLATES	
		A516-70	SA20-S5			
		SME-II-A:10				
		JIL-HUE-2:R31-201	10-11-22			

	A09 Purchaser article number										ŝ													
B01-B99 Description of the product	B07.1 Rolled plate No./ Test No.	841.49-03	84511-01	84511-02		84628-01	84628-02	84628-03	84629-01	84629-02	84629-03	84630-01	84630-02	84630-03	84.631-01	84'631-02	84631-03		84146-01	84146-02		93620:-01	9362:0-02:	93,621:-0:1
	B07.2 Heat No.	365946	365946	365946		365945	365945	365945	365945	365945	365945	365945	365945	365945	365945	365945	365945		365946	365946		365962	365962	365962
	B04 Product delivery condition	Z	N	Z		Z	N	N	N	N	N	Z	Ņ	N	N	N	N		N	N		N	N	N
	B12 Theoretical mass KG	5959	5959	5959	47672	744.0	744.0	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	89280	8405	8405	16810	74:87	74.87	74'8'7
	B11 Length	480,00000	480,00000	480,00000		4.80,00000	480,00000	4.80, 00000	4:80,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	480,00000		480,000:00	480,00000		4.8.0,00000	480,00000	480,00000
		x 000005,96	x 00005,96	x 00005,96		120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x	120,50000 x		121,00000 x	121,00000 x		x 000000'16	× 000000,76	× 00000'.
	B09 Thickness	1,0000 x	1,0000 x	1,0000 x		1,0000 x	I,0000 x	1,0000 x		1,1250 x	1,1250 x		1,2500 x	1,2500 x	1,2500 x									
	B08 Number of places	I	\leftarrow	\vdash	ω	T	1	٦	П	I	Н	Н		Η	П	⊣	г	12	Ч	П	N	~1	T	Н
	B14 Item No.	0.4	0.4	0.4	*	0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5	0.5	Ô	0.5	*	90	90	*	0.7	0.4	0.7

Z01/Z02/Z03 We hereby centify, that the above mentioned materials have been delivered in:accordance with the terms of order.

A04

AG:der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

A01

Date 07.12.11

Inspector's stamp

B, BAtiDAUF Test House Manager

РР

Eriauterungen Siehe Rückseite/Explications volr au verso/See reverse for explanations (www.dillinger.de/certificate)

DILLINGER HÜTTE

A02 INSPECTION CE	INSPECTION CERTIFICATE 3.1	A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10 Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/	Sheat
INSPECTION CE	RTIFICATE 3.1.	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
MATERIAL TEST	MATERIAL TEST REPORT (MTR)		406870-06.12.11	369269-002	5/
'A05:Established Inspecting body A06 Purchaser	y A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		B01 Product	
ma ma	Final-receiver	EDMONTON STEEL, EDMON A07.2 No.		HOT ROLLED PLATES	
B02/ Steel design. SA51	SA516-70	SA20-S5		ī	
B03 Any suppl. ASME	ASME-II-A:10				
requirements DIL-	DIL-HUE-2:R31-2010-11-22	0-11-22			

	A09	Rolled plate:No./ Purchaser article number											
	BÓ7.1	Rolled plate:No./	Test No.		93621-02	93622-01	93622-02	94966-01	94966-02	94968-01	94968-02		
	B07:2'	Heat No.			365962	365962	365962	365962	365962	365962	365962		
	B04	Product delivery	condition		N	N	N	N	N	N	N		
	B12	Theoretical	mass	KG	7487	7487	7.487	7487	7487	74.87	74.87	74870	536150
	811	Length			480,00000	480,00000	480,00000	480,00000	480,00000	480,00000	4.80,00000		
of the product		£		INCH.	× 00000'16	97,00000 x	× 00000,76	× 00000,16	× 00000,16	× 00000, 76	× 00000'16		
801-899 Description of the product	B09	Thickness			1,2500 x	1,2500 x							
B01-E	B08	Number	of pieces		I	-	ı	H	1	1	٦	10	6 8
	814	Item	No,		0.7	0.7	0.7	0.7	0.7	0.7	0.7	*	**

B04 Product delivery condition

ITEM NO.: 01-07

N: HT: 1670 GR.F +36 -27 GR.F

SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1,75 MIN/MM (25-45 MIN/INCH) COOLING IN STILL AIR

B06 Marking of the product

ITEM NO.: 01-07

STEEL DESIGNATION SA516 70 MTLTV SA516 60 MFLTV

HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR"S STAMP

- B07-B99 Further information about the product

ITEM NO.: 01-07

THICKNESS REDUCTION RATIO >= 3,0 IS FULFILLED (CF. A/SA20 PAR.

5.3)

Z01/202/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.



B. BALDAUF Test House Manager

Inspector's stamp

Date 07.12.11

A01

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar

Inspection department

AH)B

Echauterungen siehe Rückselle/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate) A02 INSPECTION: CERTIFICATE 3.1 AS PER EN 10204:2004 ENSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991:Al:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR) A05 Established inspecting body A06 Purchaser Enhancement Finance of 10204:1000 End of 10	A08/iMarufacturer,s order/, Sheet	
INSPECTION: CERTIFICATE 3.1 AS PER EN 10204:2004 INSPECTION CERTIFICATE 3.1.B AS PER EN: 10204:1991:Al:1995 + AS PER ISO 10474:1991 MATERIAL TEST REPORT (MTR) Established inspecting body A08 Purchaser EDMONTON STEET EDMON A07.1 No. ED10E 0. 11010 ED	A08/Manufacturer's order, A03 Certificate No.	
EPORT (MTR) A06 Purchaser RDMONNTON STEEL BROWN A07.1 No. ED10500 1110 EP		Sheet
EPORT (MTR) A06 Purchaser RAMONITON STEET ERMON A07.1 No. EP10500 11010 EP		
A06 Purchaser FINAONTRON STREET BENONI	369269-002	9
EDECKION STEED, EDECKI	B01 Product	
D.h. Final receiver EDMONTON STEEL, EDMON A07.2 No.	HOT ROLLED PLATES	
802/ Steel design SA516-70		
BO3 Any suppl. ASME-II-A:10		
requirements DIL-HUE-2:R31-2010-11-22		

	C14-C15	∢ %	L0=2IN																							
		∢ %	L0=8!N	26	28	27	27	26	27	29	28	27	29	28	2.9	29	29	28	2 8	29	28	30	29	29:	28	29
	C12 C13		RM	75,8	75,7	74,1	74,7	74,4	74,8	7.5,0	74', 8	74,8	74,74	75,0	75,1	74,5	74,8	75,1	75,7	75,1	74,7	75,0	7,5,3	7.4,7	75,:0	74', 1
	0 C11	KSI	RP02	51,8	51,6	49,3	50,2	50., 5	50,0	50.,0	49,3	49,4	48,7	49,7	49,7	49,2	8, 05	5.0,5	51,3	51,9	51,0	50,2	50,6	51,2	50,8	49,4
	/ C03 C10	GR.F		RT	RT	RT	RT	RT	:RT	RT	RI															
	C01 C02/	5		K1 Q K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 Q	K1 0	K1 Q	K1 ©	K1 0						
ille test	B05	Kererence (neat) treatment									€															
C10-C29 Tensile test	807.1	Test No.	×	45272	02688	96593	96292	96597	96715	97271	97272	97273	97274	97275	84632	87205	83863	84116	84117	84118	84119	84120	84147	84149	84511	84628
C10	B14 B07:2	item neat no. No.		01 365954	01 365956	01 365960	01 365960	01 365960	0365980	01 365960	02 365957	02 365957	02 365957	02 365957	03 365945	03 365945	03 365947	03 365947	03 365947	03 365947	03 365947	03 365947	04 365946	04 365946	04 365946	05 365945

Z01/Z02/Z03 We heraby cerlify, that the above mentioned materials have been delivered in accordance with the terms of order.

Manufacturer's mark



AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection:department

A01

Dale 07.12.11

QM-System: Certification; as per: ISO 9001 Erauterungen siehe Rücksehe/Explications voir au verso/See it	in as iper IISO 90	QM-System: Certification; as iper:ISO 9001 Eriautenungen siehe:Rückselte/Explications voir au versol/See reverse for explanations (www.dillinger.de/certificate)		DILLINGER HUTTE	
A02 INSPECTION CERT	IFICATE 3.1	INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	'A10 Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
MATERIAL TEST REPORT (MTR)	EPORT (MTR)	Ω. ¢. ⊢	406870-06,12,11	369269-002	7/
A05 Established Inspecting body DH	A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1:010-ER		801 Product	
	Final receiver	EDMONTON STEEL, EDMON A07.2 No.		NOI ROLLED FLAIES	
802/ Steel design. SA516-70	70	SA20-S5			
B03 Any suppl. ASME-I	ASME-II-A:10				
requirements DIL-HU	DIL-HUE-2:R31-2010-11-22	-11-22			

No. No.		C10	C10-C29 Tensile test	sile test											
Note Note Page Note	814		B07.1	B05			C10	C11	C12	C13					
	llem		Rol.plate/	Reference (heat) treatment	S						∢ :		4		
10,50945 84629 84629 8410 RT 60,2 74,5 288 84629 84621 RT 60,2 74,7 74,5 310 84621 84621 RT 60,2 74,7 32 32 36 865245 84621 RT 60,2 74,7 32 32 36 86562 93620 RT QV RT 49,9 74,4 32 35 86562 93622 RT QV RT 49,9 74,4 35 35 86562 93622 RT QV RT 49,9 74,4 35 35 86562 93622 RT QV RT 49,7 74,7 74,7 35 86562 93622 RT QV RT 49,7 74,7 74,7 35 86562 93622 RT QV RT 49,7 74,7 74,7 35 86562 94966 RT QV RT 49,7 74,7 75,0 RT RBM 10/3000 RB 146 147 147 847 845	No		Test No.			GR		KSI	200		% Nin-0:1	_	% NIC=01		
			×						WIII					2	
1		65945	84629			ద	H	-	74,	5	28				
365945 84631 KI Q RT 60,0 74,4 32 36596 84146 KI QV RT 49,9 74,4 32 36596 293620 KI QV RT 49,9 74,0 35 365962 93621 KI QV RT 49,9 74,0 35 365962 93621 KI QV RT 49,9 74,1 35 365962 93621 KI QV RT 69,9 74,1 35 365962 93622 KI QV RT 50,9 74,1 35 365962 93622 KI QV RT 50,9 74,1 35 365962 93622 KI QV RT 52,8 74,1 35 365962 93692 KI QV RT 69,7 74,1 75,0 35 365962 93692 KI QV RT FRHW 10/3000 HB 150 151 149 365960 95593 KI O RT HBW 10/3000 HB 146 147 147 365960 95593 KI O RT HBW 10/3000 HB 148 149 149 149 365960 95715 KI O RT HBW 10/3000 HB 148 148 148 148 365960 97271 KI O RT HBW 10/3000 HB 148 148 148 365967 97272 KI O RT HBW 10/3000 HB 148 148 148 365957 97274 KI O RT HBW 10/3000 HB 149 149 148 365957 97274 KI O RT HBW 10/3000 HB 149 149 148 365957 97274 KI O RT HBW 10/3000 HB 149 149 148 365957 97274 KI O RT HBW 10/3000 HB 147 148 365957 97274 KI O RT HBW 10/3000 HB 149 149 148 365957 97274 KI O RT HBW 10/3000 HB 149 149 149 365957 97274 KI O RT HBW 10/3000 HB 149 149 149		6594	84630			R	H	1	74',	2	30				
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1	90	65946	4				H	-	74,	7	29				
365962 93621 K1 QV RT 50,9 K1 QV RT 50,9 K1 QV RT 50,9 K1 QV RT 50,9 K1 QV RT 50,9 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 52,8 K1 QV RT 64,7 Method of feet Individual values C3C-C39 Hardness test R1 QV RT FIRM 10/3000 HB 150 150 HB 140 147 149 HB 140 149 HB 140 140 HB 141 148 HB 140 140 HB 141 148 HB 140 HB 141 148 HB 140 HB 141 148 HB 140 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 148 HB 141 141 148 HB 141 141 148 HB 141 141 141 HB HB 141 141 HB HB 141 141 HB HB 141 141 HB HB 141 141 HB HB 141 141 HB HB 141 141 HB HB 141 141 HB HB HB HB HB HB HB HB HB HB HB HB HB H	20	6596	362				E	~	74,	4			3.6		
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1	0.7	6596	94966				E	-	74,	7					
C30-C39 Hardness test n. Heat No. Roliplate/ Test No. C01/C01 C02/C01 C03 C30 C30 C31 C35 C31 C3	20	0					⊣	-		Ö					
Heat No. Roll-plate Reference (heat) treatment Leat No. Heat No. Roll-plate Reference (heat) treatment Leat No. Heat No. Leat		C30	-C39 Hard	iness test						·					
n. Rol. platel Reference (heat) treatment Temp. Agricultus Method of feet Individual values 365954 45272 K1 0 RT HBM 10/3000 HB 150 150 365966 96593 K1 0 RT HBM 10/3000 HB 147 147 365960 96597 K1 0 RT HBM 10/3000 HB 148 148 365960 96597 K1 0 RT HBM 10/3000 HB 149 149 365960 96715 K1 0 RT HBM 10/3000 HB 149 149 365960 96715 K1 0 RT HBM 10/3000 HB 149 149 365960 96715 K1 0 RT HBM 10/3000 HB 149 149 365960 97272 K1 0 RT HBM 10/3000 HB 147 <td>314</td> <td>B07.2</td> <td>B(</td> <td></td> <td></td> <td>CO</td> <td></td> <td>1001</td> <td></td> <td>O</td> <td>35 C31</td> <td></td> <td></td> <td>C32</td> <td></td>	314	B07.2	B(CO		1001		O	35 C31			C32	
365954 45272 K1 0 RT HBM 10/3000 HB 150 150 365960 96593 K1 0 RT HBM 10/3000 HB 149 365960 96595 K1 0 RT HBM 10/3000 HB 148 148 365960 96597 K1 0 RT HBM 10/3000 HB 149 149 365960 96715 K1 0 RT HBM 10/3000 HB 149 149 365960 96715 K1 0 RT HBM 10/3000 HB 149 149 365960 97271 K1 0 RT HBM 10/3000 HB 149 148 365957 97274 K1 0 RT HBM 10/3000 HB 147 148 365957 97274 K1 0 RT HBM 10/3000 HB 147	tem.			-	atment						Individua	l values		Меал	
365954 45272 K1 0 RT HBW 10/3000 HB 150 150	ō.			est No.										Value	
36596 02688 K1 0 RT HBW 10/3000 HB 150 151 149 154 365960 96593 K1 0 RT HBW 10/3000 HB 146 147 147 148 365960 96597 K1 0 RT HBW 10/3000 HB 149 149 149 365960 96715 K1 0 RT HBW 10/3000 HB 149 149 149 365960 97271 K1 0 RT HBW 10/3000 HB 146 147 148 365957 97272 K1 0 RT HBW 10/3000 HB 146 147 148 365957 97274 K1 0 RT HBW 10/3000 HB 147 148 148 365957 97274 K1 0 RT HBW 10/3000 HB 147 148 148 365957 97275 K1 0 RT HBW 10/3000 HB 147 148 148 365957 97275 K1 0 RT HBW 10/3000 HB 147 148 148 365957 97275 K1 0 RT HBW 10/3000 HB 147 147 148	01	36595	4	5272		K1	0		HBW		П	150		150	
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365960 96715 K1 0 RT HBM 10/3000 HB 149 149 149 149 149 149 149 148 149 144 144 144 144 144 144	0.1	629		50		Ϋ́	0		HBW			4	147	4	
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365957 97272 KI 0 RT HBW 10/3000 HB 146 147 148 14 365957 97274 KI 0 RT HBW 10/3000 HB 147 148 148 14 365957 97274 KI 0 RT HBW 10/3000 HB 147 147 147 143 148	ī.	LO.		7271		X	0		HBW			14.8	148	4	
365957 97273 K1 ○ RT HBW 10/3000 HB 147 148 148 14 365957 97274 K1 ○ RT HBW 10/3000 HB 147 147 147 14 365957 97275 K1 ○ RT HBW 10/3000 HB 147 147 148 148	2	6595	7	7272		K	0		HBW			147	148	4	
365957 97274 KI © RT HBW 10/3000 HB 147 147 147 1 365957 97275 KI © RT HBW 10/3000 HB 147 148 1	02	6595	7	7273		K	0		HBW			148		4	
2 365957 97275 KI 0 RT HBW 10/3000 HB 147 148	0.5	6595	7	7274		Ϋ́	0		HBW			147		147	
	0.5	6595	7	7275		KI	0		HBW		2000	147	4	147	1

Manufacturer's

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B.;BALDAUF Test House:Manager

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department AHB

A01

Date 07.12.11 Inspector's stamp

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DILLINGER HÜTTE

A02	INSPECTION CERTIFICATE 3.1	FICATE 3.1	AS PER EN 10204:2004	A10. Advice of dispatch No./	A08/- Manufacturer's order/ A03 - Certificate No	Sheet
	INSPECTION CERTI	FICATE 3:1.1	INSPECTION CERTIFICATE 3:1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
	MATERIAL TEST REPORT (MTR)	PORT (MTR)		406870-06.12.11	369269-002	8/
A05	A05 Established Inspecting body A06 Purchaser	A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		B01 Product	
	DH	Final receiver	EDMONTON STEEL, EDMON A07.2 No.		HOT ROLLED PLATES	
1802/	// Steel design, SAS16-70	0,	SA20-S5			
:B03	Any suppl. ASME-II-A:10	-A:10				
	requirements DIL-HUE	DIL-HUE-2:R31-2010-11-22	-11-22			

			B	6	9	7	0.	80	7	9	5	89	٧٥	2	9	N	N	2	9	4	7	4	7	7
	C32	Mean	value	149	146	14	149	148	14	14	14!	14	14	14	14	14	14	14	14	14	14	14	14,	14
				149	148	147	149	148	147	144	145	148	146	145	146	145	146	145	146	1.45	143	144	147	146
		Individual values		149	145	1:47	149	1.48	1.47	146	146	148	144	145	14.6	146	14'5	144	146	143	141	144	147	147
	C35 C31	Individua		HB 148	HB 145	HB 148	HB 150	HB 148	ЙВ 146	HB 147	HB 145	HB 147	HB 147	HB 145	HB 146	HB 145	HB 145	HB 146	HB 147	HB 144	HB 143	HB 145	HB 14'8	HB 147
	C30	Method of test		HBW 10/3000	HBW 10/3000	HBW 10/3000	HBW 10/3000	HBW 10/3000	HBW 10/3000	HBW: 10/3000	HBW 10/3000	HBW 10/3000	HBW 10/3000	HBW 10/3,000	HBW 10/3000	HBW 1.0/3000	HBW 10/3000	HBW 1:0/3000	HBW 10/3000					
	C03 C		GR.F	RT H	RT H	RT H	RT H	RT H	RT H	RT H	RT H	RT H	RT H	RT H	RT HI	RT HI	RT HI	RT HI						
	C02/C01			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Ö	0
	C01			Κ1	Ϋ́	K	K	K1	K1	K1	K	K1	K1	K	K1	K1	KI	K1	.K1	Kl	Ķ1	K1	K1	Κ1
	B05	Reference (heal) trealment																						
C30-C39 Hardness test.	B07.1	/6	Test No.	84632	87205	83863	84116	84117	84118	84119	84120	84147	841:49	84511	84628	84629	84630	84631	84146	93620	93621	93622	94966	94968
- C30-C39	B07.2	Heat No.		365945	365945	365947	365947	365947	365947	365947	365947	365946	365946	365946	365945	365945	365945	365945	3.65946	365962	365962	365:962	365962	365962
	B14	Item.	No.	03	03	03	03	03	03	03	03	04	0.4	0.4	0.5	0.5	0.5	0.5	90	0.7	·07	107	07	07

201/202/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

BuBALDAUF Test Hõuse Manager

AH)B

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

A01

Date :07, 12, 11

Inspector's stamp.

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DILLINGER HUTTE

/6 HOT ROLLED PLATES A08/-Manufacturers order/ A03:-Certificate No. 369269-002 **B01** Product 406870-06.12; PL A10 Advice of dispatch No:/ Date of dispatch EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 ED10580-J1010-ER SA20-S5 A07.1 No. A07.2 No. AS PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON INSPECTION CERTIFICATE 3.1.B AS PER DIL-HUE-2:R31-2010-11-22 INSPECTION CERTIFICATE 3.1 MATERIAL TEST REPORT (MTR) Final receiver A05 Purchaser ASME-II-A:10 SA516-70 A05 Established Inspecting body requirements B02/ Steel design Any suppl. A02 B03

Ī											l h si				7.7	,										
	C43	Mean	160	116	130	151	197	148	126	155	178	144	86	123	109	117	114	136	129	157	148	113	135	9.2	140	113
			141	111	170	193	191	166	123	150	201	131	47	133	122	116	104	138	131	163	103	115	120	101	138	9.7
		il values BF	134	124	129	130	202	140	134	189:	131	66	131	110	83	130	109	162	150	162	188	117	147	115	148	117
	C45 C42	Individual values AV=FT.ĽBF	AV 205	AV 11.4	AV 90	AV 131	AV 197	AV 137	AV 121	AV 126	AV 201	AV 201	AV 11:5	AV 125	AV 121	AV 106	AV 128	AV 108	AV 105	AV 145	AV 152	AV 108	AV 138	AV 69	AV 134	AV 124
	C46	Energy																								
	C44	Testing method																								
	C40	Type of test piece	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-∙V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V
	C41	Width of test plece										V														
	C03	Temp. GR.F	-51	-51	-51	-51	151	-51	-51	-51	-51	-51	-51	-51	-51	-51	-51	-51	-51	-51	~51	-51	-51	-51	-51	-51
	C02/	C01	LV	ΓΛ	ΓV	$\Gamma \Lambda$	$\Gamma \Lambda$	ľΛ	$\Gamma \Lambda$	ΓΛ	LV	ΓΛ	ΓΛ	ΓΛ	$\Gamma \Lambda$	ΓΛ	$\Gamma \Lambda$	$\Gamma \Lambda$	ΓΛ	$\Gamma\Lambda$	$\Gamma \Lambda$	ΓV	ΓΛ	Λ T	·ΓV	ΓΛ
	C01		X	X	K	K1	K1	K1	Z	Z	Z	Z	Z	Z	X	Z	K1	Z	K1	KI	X	Z	KI	K1	K1	K1
	805	Reference (heat) treatment																								
C40-C49 Impact test -	B07.1	Rol.plate/ Test No.	45272	02688	96593	96595	96597	96715	97271	97272	97273	97274	97275	84632	87205	83863	84116	84117	84118	84119	84120	84147	84149	84511	84628	84629
C40-C49	B07.2	Heat No.	365954	365956	365960	365960	365960	365960	365960	365957	365957	365957	365957	365945	365945	365947	365947	365947	365947	365947	365947	365946	36594'6	365946	365945	365945
	B14	Item No.	0.1	01	10	0.1	01	01	01	0.2	0.2	0.2	02	03	0.3	03	03	03	03	03	03	04	04	0.4	0.5	0.5

'Z01/Z02/Z03'We hereby.cerify, that the above mentioned materials have been delivered in accordance with the terms of order.

Manufacturer's mark.

Postfach 1580 D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke Inspection department

A01

Date .07.12.11

Di Cu

B. BALDAUF Test House Manager

Inspector's stamp

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DILLINGER HUTTE

163

Sheet HOT ROLLED PLATES A08/ Manufacturer's order/ A03 Certificate No. 369269-002 B01 Product 406870-06.12.11 A10 Advice of dispatch No./ Date of dispatch + AS PER ISO 10474:1991 ED10580-J1010-ER SA20-S5 EN 10204:1991+A1:1995 A07.1 No. A07.2 No. AS PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON INSPECTION CERTIFICATE 3.1.B AS PER DIL-HUE-2:R31-2010-11-22 INSPECTION CERTIFICATE 3.1 MATERIAL, TEST REPORT (MTR) Final receiver A06 Purchaser ASME-II-A:10 SA516-70 A05 Established Inspecting body requirements B02/ Steel design. B03 Any suppl. HQ .A02.

				er.									
		C43	Mean	value	104	107	96	83	96	114	110	101	
					0.6	98	103	78	8 8	119	130	110	
			values	¥.	125	125	77	119	103	116	113	73	
		C42	Individual values	AV=FT.LBF	86	10	.07	53	96	106	98	20	
		C45 C42								AV]		AV]	
		C46	Energy										
		C44	Testing method										
		C40	Type of	test piece	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	
		C41	Width of	test plece									
		C03	Temp.	GR.F	-51	-51	-51	-51	-51	-51	-51	-51	
		C02/	C01.		ΓV	$\Gamma\Lambda$	ŢΛ	ΓΛ	LV	ΓV	$\Gamma \Lambda$	ΓΛ	
		C01			K	Z	K	X	X	K1	K1	KI	
			Reference (heat) treatment										
		B05	Refer										
Impact test	200	B07.1	Rol.plate/	Test No.	84630	84631	84146	93620	93621	93622	94966	94968	
C40-C49 Impact test		B07.2	Heat No.		365945	365945	365946	365962	365962	365962	365962	365962	
		B14	flem	No.	0.5	0.5	90	0.7	0.7	0.7	0.7	0.7	

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365945	≯	0,176	0,371	1,18	0,008	0,0008	0,0060	0,039	0,023	0,059	0,035	000'0	0,000	0,001	0,000
365946	≯	0,179	0,384	1,19	0,008	0,0011	0,0064	0,030	0,016	0,047	0,028	0,001	000'0	0,001	0,002
365947	×	0,176	0,382	1,19	0,00.7	0,0011	0,0078	0,043	0,022	0,051	0,020	0,001	0,001	0,001	0,002
365954	\geq	0,182	0,372	1,17	0,008	0,0012	0900,0	0,042	0,019	0,071	0,029	0,002	000'0	0,001	0.002
365956	H	0,178	0,375	1,17	0,007	0,0010	0,0084	0,047	0,023	0,071	0,016	0,001	000'0	0,001	0 005
365957	>-	0,177	0,380	1,18	0,008	0,0008	0,0057	0,035	0,015	0,061	0,024	0,001	000'0	0,001	0,002
365960	×	0,189	0,376	1,16	0,009	6000,0	0,0060	0,033	0,016	0,067	0,033	0,001	000'0	000'0	0,002
365962	X	0,171	0,385	1,18	0,008	0,0014	0,0064	0,036	0,015	0,051	0,027	000 60	000'0	00010	0,001

Manufacturer's mark

Z01/Z02/Z03 We hereby certify, that the above mentioned materials; have been delivered; in accordance with the terms of order.

B. BALDAUF Test House Manager

AH)B

Postfach 1580, D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke

A01

Inspection department

Date 07, 12, 11

Erlauteningen stehe Rückseite/Explications voir au verso/See reverse for explanations (www.dllfinger.de/certificate)

DILLINGER HÜTTE

11/ HOT ROLLED PLATES A08/:Manufacturer's order/ A03 Certificate No. 369269-002 B01 Product 406870-06.12.11 Advice of dispatch No./ Date of dispatch A10 PER ISO 10474:1993 ED10580-J1010-ER + AS SA20-S5 EN 10204:1991+A1:1995 A07.1 No. A07.2 No. AS PER EN 10204:2004 STEEL, EDMON EDMONTON STEEL, EDMON EDMONTON PER DIL-HUE-2:R31-2010-11-22 B AS INSPECTION CERTIFICATE 3.1. A02 INSPECTION CERTIFICATE 3.1 MATERIAL TEST REPORT (MTR) Final receiver A06 Purchaser ASME-II-A:10 SA516-70 A05:Established Inspecting;body requirements B02/ Steel design Any suppl. B03

ysis
anal
Heat
%
composition
Chemical
C70-C99
36

	AL-T	0,032	0,034	0,032	0,033	0,031	0,036	0,035	0.040
	CA	0,0027	0,0031	0,001.6	0,0019	0,0027	0,0023	0,0024	0.0030
	60	0,0002	0,0002	0,0002	0,0002	0,0003	0,0003	0,000,0	0.0002
C70		H	χ	\rightarrow	⊼ `	⊱₁	Y	\succ	X
B07.2	Heat	3.65945	3:65946	365947	365954	365956	365957	365960	365962

C94 Heat analysis Carbon equivalent / Alloving restrictions

	0,16	0,12	0,14	0,16	0,16	0,14	0,15	0,,13	
	000'0	0,001	0,002	0,002	0,001	0,001	0,001	000'0	
	FO-51=	FO-51≂	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	
	0,39	0,39	0,39	0,39	0,39	0,39	0,40	0,38	
	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	
B07,2 Heat	365945	365946	365947	365954	365956	365957	365960	365962	
	B07,2 Heat	945 FO-02= 0,39 FO-51= 0,000 FO-55= 0,16	945 FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 946 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12	945 FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 946 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 947 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14	FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,002 FO-55= 0,16	FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,002 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16	FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,002 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16	FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,002 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,40 FO-51= 0,001 FO-55= 0,15	FO-02= 0,39 FO-51= 0,000 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,12 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,002 FO-55= 0,14 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,39 FO-51= 0,001 FO-55= 0,16 FO-02= 0,40 FO-51= 0,001 FO-55= 0,14 FO-02= 0,40 FO-51= 0,000 FO-55= 0,15 FO-02= 0,40 FO-51= 0,000 FO-55= 0,15

8'9 6,4 9'9 6,7 6,1

0,05

0,04 0.,04 0,05

FO-91= FO-91= FO-91= E0 - 91 =FO-91= F0-91 =FO-91= FO-91=

90'0 0,04

C95 Ladle treatment

ITEM NO.: 01-07

HEAT OF THE INDICATED ITEM: VACUUM DEGASSED / SULPHIDE SHAPE CONTROL

Z01/Z02/Z03¹We hereby cerlify, that the above mentioned materials have been delivered in accordance with the terms of order.

Postfach 1580, D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke Inspection department

A01

Date 07.12.11

Inspector's stamp

Test House Manager

B. BALDAUF

				*	
QM-System: Certification as per ISO 9001	n as per ISO 90	01		AN DILLINGER HUTTE	TIE
Edäutenmoen siehe Rückseite/Explin	callons voir au verso/Sa	Ertaurennoen siehe:Rückseite/Explications voir au verso/See reverse for explanations (www.dilinger.de/oertificate).			
A02 INSPECTION CERTIFICATE 3.1	IFFCATE 3.1		A10 Advice of dispatch No./ Date of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
INSPECTION CERT	TFICATE 3.1.	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
MATERIAL TEST REPORT (MTR)	EPORT (MTR.)	, i	406870-06.12.11	369269-002	12/
A05 Established Inspecting body A06 Purchaser	A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		B01 Product	
Н	Final receiver	EDMONTON STEEL, EDMON A072 No.		HOT ROLLED PLATES	
.802/ Steel design. SA516-70	7.0	SA20-S5			
B03 Any suppl. ASME-I	ASME-II-A:10	×			
requirements DIL-HU	DIL-HUE-2:R31-2010-11-22	-11-22			

C95 Further information about ladle treatment -ITEM NO.: 01-07

CALCIUM TREATED

t analysis
% - Product
composition %
Chemical
C70-C99

	C/U-C33 CHEILICAI COINDOSHUNI /0 - FI OCUCI CHICAIS SIS	o liellical	codillos	11 % IIO	סממכי מוום	your I										
B07.2	B07.1	C01													i	i
Heat	Test No.		O	ŝ	MN	۵	S	z	CO	ω		S	>	o Z	Z _V	
365945	84623	K1	0,177	998'0	1,17	0,008	0,0007	0,0055	0,037	0,023	0,058	0,034	000'0	0,000	0,001	0,001
365945	87205	K1	0,178	0,359	1,16	0,008	0,0011	0,0066	0,037	0,023	0,059	0,034	0,000	000'0	0,001	0,001
365946	84147	K1	0,176	0,390	1,18	0,008	0,0011	9900'0	0,029	0,015	0,046	0,027	000'0	000'0	0,001	0,002
365946	84150	K1	0,178	0,384	1,19	0,008	0,0013	0,0067	0,031	0,016	0,047	0,028	100%0	000'0	000'0	0,002
0	84513	KI	0,174	0,383	1,18	0,008	9000'0	0,0054	0,037	0,024	0,059	0,034	000'0	0,001	0,001	0,001
365947	84117	K1	0,175	0,379	1,18	0,007	0,0008	0900'0	0,037	0,018	0,048	0,022	0,001	000'0	0,001	0,002
365954	452	K1	0,179	0,379	1,16	0,007	0,0010	0,0053	0,039	0,026	9/0'0	0,034	0,001	000'0	0,001	100'0
659	0	K1	0,178	0,364	1,15	900'0	0,0008	0,0103	0,045	0,023	0,0.71	0,017	000'0	000,0	000'0	0,002
629	9	K1	0,174	0,375	1,16	0,008	0,0010	0,0053	0,034	0,014	0,062	0,024	0,000	0,000	***	0,002
659		Kl	0,171	0,370	1,15	600'0	6000'0	0,0055	0,033	0,015	990'0	0,031	0,001	000,0	~	0,002
659	9	Kl	0,172	0,377	1,17	0,008	0,0017	0,0063	0,034	0,015	0,055	0,028	000,0	000,0	0,001	0,001
B07.2	807.1	C01														
Heat	Test No.		В	CA	AL-T											
365945	84.629	KI	0,0002	0,0027	0,032											
365945	87205	K1	0,0002	0,0026	0,030											
365946	84147	K1	0,0002	0,0030	0,034											
365946	84150	K1	0,0002	0,0029	0,037											
365946	84513	K1	0,0001	0,0023	0,033											
365947	84117	K1	0,0002	0,0019	0,032											
3.65954	45272	Kl	0,0000	0,0022	0,036											
365956	02688	K1	0,0002	0,0027	0,029									58		
	202	2/11 002/002/1700	The Strategic August and St.	The state of	According to the second	od oved den	good had a fine and a contract of the contract	condance				A. C	Olycomodelin rossilling set Os	Man Litte	Odeono	AC

Manufacturer's mark

A04

201/202/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

8. BALDAUF Test'House Manager

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department AHB

A01

Date 07,12,11

inspector's stamp

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Enauterungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

DILLINGER HUTTE

				Contract of the Contract of th	
A02 INSPECTION (INSPECTION CERTIFICATE 3.1	AS PER EN 10204::2004	A10 Advice of dispatch No./ Date of dispatch	A08/"Manufacturer's order/ A03 Certificate No	Sheet
INSPECTION	TERTIFICATE 3.1.	INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991			
MATERIAL TE	MATERIAL TEST REPORT (MTR)		406870-06.12.11	369269-002	13/
A05 Established Inspecting body A06 Purchaser	ody A06 Purchaser	EDMONTON STEEL, EDMON A07.1 No. ED10580-J1010-ER		'B01 Product	
DH	Final receiver	EDMONTON STEEL, EDMON A07.2 No.		HOT ROLLED PLATES	
B02/ Steel design, SA	SA51.6-70	SA20-S5			
B03 Any suppl. ASN	ASME-II-A:10				
requirements DII	DIL-HUE-2:R31-2010-11-22	0-11-22			

B07.2	B07.1	C01			
Heat	Test No.		8	CA	AL-T
365957	97739	K1	0,0001	0,0021	0,035
365960	96713	Kl	0,0002	0,0020	0,035
365962	93622	K1	0,0002	0,0027	0,036

C70-C99 Chemical composition % - Product analysis

		0,15	0,15	0:,12	0.,12	0,15	0,13	0,18	0,16	0,13	0,15	0,13
ictions -		FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=	FO-55=
ying restri		0.000	000'0	0,000	0,001	00,001	0,001	0,001	000'0	000'0	0,001	0.000
C94 Product analysis Carbon equivalent / Alloying restrictions		FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=	FO-51=
son equiva		0,39	0,39	0,39	0,39	0,39	0,39	0,39	0,39	0,38	0,38	28
ysis Carl		FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02=	FO-02-
duct anal	C01	KI	K1	K1	KI	K1	K1	K1	K1	K1	Κ1	K7
C94 Pro(B07.1 Test No.	8.4629	87205	84147	84150	84513	84117	45272	02688	97739	96713	93622
	B07.2 Heat	365945	365945	365946	365946	365946	365947	365954	365956	365957	365960	365962

1	
Alloying restrictions	
Alloying	
-	
equivalent formula	
Carbon e	
- C34	
1	

= C+(MN/6)+(CR+MO+V)/5+(NI+CU)/15FO-02

= V + NBFO-51

FO-55 = CU+MO+NI+CR FO-78 = CR+MO

= MN/C FO-91

201/202/203 We hereby certify, that the above mentioned materials: have been delivered in accordance with the terms of order.

B. BALDAUF Test House Manager.

AG:der:Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

A01

Date 07, 12, 11

Inspector's slamp

Erläulerungen siehe Rückseile/Explications voir au versoiSee reverse for explanations (www.dillinger.de/certificate)

DILLINGER HUTTE

16

Sheel 14 HOT ROLLED PLATES A08/ Manufacturer's order/ A03 Certificate No. 369269-002 801 Product 406870-06.12.11 A10 Advice of dispatch No./
Date of dispatch INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 ED10580-J1010-ER SA20-S5 A07.1 No. 8 A07.2 AS. PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON DIL-HUE-2:R31-2010-11-22 A02 INSPECTION CERTIFICATE 3.1 (MTR) Final réceiver A06 Purchaser ASME-II-A:10 MATERIAL TEST REPORT SA516-70 A05 Established Inspecting body requirements B02/ Steel design. Any suppl. HO 803

D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01-07

SURFACE, SHAPE AND DIMENSIONS: NO REMARKS RESULT OF MARKING,

AS PER ASME-SA20 AS PER ASME-SA20 THICKNESS SURFACE

AS PER ASME-SA20

LENGTH AND WIDTH

AS PER 1/2-ASME-SA20

FLATNESS



Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

Manufacturer's imark

Postfach 1580, D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke nspection department

A01

Date 07, 12, 11 Inspector's stamp

Test:House Manager

B. BALDAUF

РР

Erfäulerungen siehe Rückseite/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)

DILLINGER HÜT

Sheet 7 A08/ Manufacturer's order/ A03 Certificate No. HEAVY PLATES 380161-002 B01 Product 442736-16.C1.13 A10 Advice of dispatch No./ Date of dispatch EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 ED10609-J1010-ER SA20-S5 A07.1 No. A07.2 No. AS PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON ASME-IIA:2010+ADDENDA-2011A PER DIL-HUE-2:R33-2012-10-01 INSPECTION CERTIFICATE 3.1.B AS INSPECTION CERTIFICATE 3.1 MATERIAL TEST REPORT (MTR) Final receiver A06 Purchaser SA516-70 A05 Established Inspecting body requirements B02/ Steel design. Any suppl. DH B03 A02

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								,	2)	0	Δ	100	and and property	ORANS TO S.	Odest Asset	100	JOB# 1613 - 8446-6	4	-	SIGNED BY
		шрег							0 1	1			<u> </u>	-	SON	5	YEAR	108	mess a	5	SIGN
ŀ		Purchaser article number							000	7											
	A09	Purchase							\in	(
		Rolled plate No./ Test No.	:	-02	5-03		3-01	3-02	3-03	-02.		7-01	7-02	7-03	9-01	9-02	9-03		5-01		
	B07.1	Rolled p		01001-02	99936-03		01148-01	01148-02	01148-03	99931-02		99947-01	99947-02	99947-03	99949-01	99949-02	99949-03		99946-01		
	2	No.		514	517		514	514	514	517		516	516	516	516	516	516		516		
	B07.2	Heat No.		380614	380617		380614	380614	380614	380617		380616	380616	380616	380616	380616	380616		380616		
		livery																			
	B04	Product delivery condition		7.	7.		7	Z	Z	Z		Z	Z	N	Z	z	Z		Z		
		Theoretical		4650 1	4650]	9300	5580 1	5580 1	5580]	5580 1	22320	5214	5214	5214	5214	5214	5214	31284	7133	70037	
	B12	Theor	KG								2							M		7	
				480,00000	480,00000		480,00000	480,00000	480,00000	480,00000		480,00000	480,00000	480,00000	480,00000	480,00000	480,00000		356,00000		
	B11	Length																			
roduct				x 000	× 000		x 000	× 000	x 000	x 000		× 000	x 0000	x 000	x 0000	x 0000	x 0000		x 0000		1
B01-B99 Description of the product	B10	Width	INCH	120,50000	120,50000		120,50000	120,50000 x	120,50000	120,50000		96,50000	96,50000	96,50000	96,50000	96,50000	96,50000		178,000000 x		Total Control of the second of
ption (<u></u>	>	=	×	×		×	×	×	×		×	X	X O	X	X	X		×		livo m
Descri	6	Thickness		0,6250	0,6250		0,7500	0,7500	0,7500	00,7500		0,8750	0,8750	0,8750	0,8750	0,8750	0,8750		0,8750		مام مامادا
11-B99	809		9	,	_{[-1}	CI.	1	7	~	1	.	7	7	1	Н	1	Н	9	Н	3	A Dune
) E	B08	Number	i	, ,	. 1	. 4	, ,		, ,		4							_		П	0
	B14	Item		01	0.1	*	02	02	02	02	*	03	03	03	03	03	03	*	04	*	

--- B04 Product delivery condition

ITEM NO.: 01-05

N: HT: 1670 GR.F +36 -27 GR.F

SOAKING TIME TO ATTAIN THE TARGET TEMPERATURE OVER THE WHOLE SECTION: 1-1,75 MIN/MM (25-45 MIN/INCH) COOLING IN STILL AIR

201/202/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

S SAU

A

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar

A01

Date 17.01.13

Inspector's stamp

B. BALDAUF Test House Manager

PP

Manufacturer's

A08/ Manufacturer's order/ A03 Certificate No. 380151-002 HEAVY PLATES 301 Product 442736-16.01.13 A10 Advice of dispatch No...
Date of dispatch EN 10204:1991+A1:1995 + AS PER ISO 10474:1991 ED10609-J1010-ER A07.1 No. A07.2 No. <u>Erfäulerung</u>en siehe Rückselle/Explications voir au verso/See reverse for explanations (www.dilinger.de/certificate) A02 INC DE/CITION CEDITIE TO A A DED EN 10004-0004 AS PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON PER INSPECTION CERTIFICATE 3.1.B AS INSPECTION CERTIFICATE 3.1 MATERIAL TEST REPORT (MTR) Final receiver A06 Purchaser A05 Established Inspecting body

DILLINGER HÜTTE

Sheet 2/ HEAT NO. / TRADEMARK / ROLLED PLATE NO.-TEST NO. / INSPECTOR'S STAMP SA20-S5 THICKNESS REDUCTION RATIO >= 3,0 IS FULFILLED (CF. A/SA20 PAR. STEEL DESIGNATION SA516 70 MTLTV SA516 60 MTLTV B07-B99 Further information about the product ASME-IIA:2010+ADDENDA-2011A DIL-HUE-2:R33-2012-10-01 B06 Marking of the product CAD COST AND SOCIAL SA516-70 ITEM NO.: 01-05 ITEM NO.: 01-05 requirements B02/ Steel design Any suppl. B03

05	05										
CON Temp. CON Temp. KSI RP02 RM	COJ Temp. COJ Temp. RSI RP02 RM	314 E	307.2	B07.1	805		C03				C14-C15
GR.F KSI RP02 K1 Q RT 51,2 K1 Q RT 50,9 K1 Q RT 50,6 75,7 K1 Q RT 49,6 K1 Q RT 49,7 K1 Q RT 50,2 K1 Q RT 50,2 K1 Q RT 50,2 K1 Q RT 50,2	K1 Q RT 51,2 76,7 K1 Q RT 50,9 75,5 K1 Q RT 50,6 75,7 K1 Q RT 49,6 74,8 K1 Q RT 49,7 75,3 K1 Q RT 49,7 75,3 K1 Q RT 49,7 75,3 K1 Q RT 49,7 75,3	tern h	leat No.	Rof.plate/	Reference (heat) treatment	C04				A	
K1 ♥ RT 51,2 76,7 K1 ♥ RT 50,9 75,5 K1 ♥ RT 49,6 74,8 K1 ♥ RT 49,7 75,3 K1 ♥ RT 50,2 75,3	K1 Q RT 51,2 76,7 K1 Q RT 50,9 75,5 K1 Q RT 49,6 74,8 K1 Q RT 49,7 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,7 75,4 K1 Q RT 49,6 76,4	è.		Test No.			GR.F	KSI		%	
KI Q RT 51,2 76,7 KI Q RT 50,9 75,5 KI Q RT 49,6 KI Q RT 49,7 75,3 KI Q RT 50,2 75,4 KI O RT 49,6 76,4	KI Q RT 51,2 76,7 KI Q RT 50,9 75,5 KI Q RT 49,6 74,8 75,3 KI Q RT 49,7 75,3 KI Q RT 50,2 75,4 KI Q RT 49,6 76,4							RP02	RM	L0=8IN	
380617 99936 K1 Q RT 50,9 75,5 380614 01148 K1 Q RT 50,6 75,7 380617 99931 K1 Q RT 49,6 74,8 380616 99947 K1 Q RT 49,7 75,3 380616 99949 K1 Q RT 50,2 75,4 380616 99946 K1 Q RT 49,6 76,4	K1 Q RT 50,9 75,5 K1 Q RT 49,6 74,8 K1 Q RT 49,7 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,6 76,4	01 3	80614	01001			RT	51,2	76,7	28	
K1 Q RT 50,6 K1 Q RT 49,6 K1 Q RT 49,7 K1 Q RT 50,2 K1 Q RT 49,6 75,4	K1 Q RT 50,6 75,7 K1 Q RT 49,6 74,8 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,6 76,4	01 3	80617	98666			RT	50,9	75,5	27	
K1 Q RT 49,6 74,8 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,6 76,4	K1 Q RT 49,6 77,84 K1 Q RT 49,7 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,6 76,4	02 3	80614	01148			RT	50,6	75,7	28	
K1 Q RT 49,7 75,3 K1 Q RT 50,2 75,4 K1 O RT 49,6 76,4	K1 Q RT 49,7 75,3 K1 Q RT 50,2 75,4 K1 Q RT 49,6 76,4	02 3	80617	99931	1		RT	49,64	74,8	29	
380616 99949 KI Q RT 50,2 75,4 380616 99946 KI O RT 49,6 76,4	380616 99949 KI Q RT 50,2 75,4 380616 99946 KI Q RT 49,6 76,4	03 3	80616	99947			RT	49,7	75,3	29	
6 K1 O RT 49,6	6 K1Q RT 49,6	03 3	91908	9994			RT	50,2	75,4	29	
		04 3	80616	99946			RI	49,6	76,4	30	

		147	141	144	140
	C31 Individual values	147	142	144	142
	C35 C31 Individua		HB 141		
	C30 Weth	IBW	BW	BW	HBW 10/3000
	C03 Temp. 1 GR.F	RT	RT	RT	RT
	C02/C01	0	0	0	0
	C01	ΚŢ	KI	KI	K1
sst	B05 Reference (heat) treatment				1
C30-C39 Hardness test	B07.1 Rol.plate/ Test No.	01001	98666	01148	99931
C30-C35	B07.2 Heat No.	380614	380617	380614	380617
	B14 Item No.	10	01	02	0.5

201/202/203 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

AH)B

Postfach 1580, D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke Inspection department

A01

C32 Mean value

141 144

Inspector's stamp Date 17,01,13

Test House Manager

QM-System: Certification as per ISO 9001	組	DIT I NIGER HITTE	
Erläuterungen siehe Rückseile/Explications voir au verso/See reverse for explanations (www.dillinger.de/certificate)	Ð	DIELINOLIN 110 I	711
A02 INSPECTION CERTIFICATE 3.1 AS PER EN 10204:2004	A10 Advice of dispatch No /	A08/ Man_facturer's order/	leet
INSPECTION CERTIFICATE 3.1.B AS PER EN 10204:1991+A1:1995 + AS PER ISO 10474:1991	במום המשמים וה	AUS CELURCATE NO.	
MATERIAL TEST REPORT (MTR)	442736-16.01.13	380157-002	7
A05 Established Inspecting body A06 Purchaser EDMONTON STEEL, EDMON A07.1 No. ED10609-J1010-ER		801 Product	
Final receiver EDMONTON STEEL, EDMON		HEAVY PLATES	==
B02/ Steel design. SA516-70 SA20-S5			
BO3 Any suppl. ASME-IIA:2010+ADDENDA-2011A			
requirements DIL-HUE-2:R33-2012-10-01			

C30-C39 Hardness test

)3)3)3
C32 Mean	value	145	142	142		C43	Mean	value	123	166	101	146	96	114	120			ī	0,003	0,003	0,003
0 2	A	T							122	189	105	130	76	119	96			SN	000'0	000'0	000'0
							slues		142	115	80	113	101	97	150			S N	000,0	000'0	000'0
		144	143	142		C45 C42	individual values	AV=FT.LBF	106	193	101	195	16	126	113			>	0,001	0,001	TCO'0
values		146 1	140 1	142 1			Energy		AV			CR	0,039	0,040	0,070						
C35 C31 Individual values		145	143	142														ž	0,056	0,041	0,050
S		0 HB	0 HB	0 HB		C44	Testing method											MO	0,025	0,015	0,024
C30 Method of test		W 10/3000	W 10/3000	W 10/3000		C40		test plece	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V	CHP-V			CO	0,031	0,026	0,022
CO3 C30 Temp. Meth		RT HBW	RT HBW	RT HBW		C41	Width of	test piece										z	0,0062	0,0055	0,0060
C02/C01		0	0	0		C02/ C03	C01 Temp.	GR.F	LV -51	LV -51	LV -51	LV -51	LV -51	LV -51	LV -51			S	0,0008	0,0014	9000'0
C01		KI	M	K1		604	0		Kl	K1 L	K1 L	K1 L	K1 L	K1	K1 L	sis		۵	0,011	600'0	600'0
t) treatment							it) treatment									- Heat analy		MN	1,19	1,19	1,18 (
B05 Reference (heat) treatment						B05	Reference (heat) treatment									position %		S	0,368	0,375	0,374
B07.1 Rol.plate/	Test No.	99947	99949	99946	- C40-C49 Impact test -		Je.	lest No.	01001	98666	01148	99931	99947	99949	99946	C70-C99 Chemical composition % - Heat analysis		O	0,184	0,187	0,176
B07.2 Heat No.		380616	380616	380616	C40-C49 I	B07.2	Heat No.	×	380614	380617	380614	380617	80616	80616	380616	C70-C99 (C70		×	>1	≯
			03 3	04 3			_		01	01 3	02 3	02 3	03 3	03 3	04 3		B07.2	Heat	380614	380616	380617

Manufacturer's

A04

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

B. BALDAUF

AH)B

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

A01

DILLINGER HÜTTE Sheet A08/ Manufacturer's order/ A03 Certificate No. 380161-002 HEAVY PLATES B01 Product 歌 442736-16.01.13 A10 Advice of dispatch No./ Date of dispa:ch 6,5 FO - 91 =PER ISO 10474:1991 90'0 ED10609-J1010-ER FO-78= EN 10204:1991+A1:1995 + AS SA20-S5 0,15 A07.1 No. Erfäuterungen siehe Rückseite/Explications volr av verso/See reverse for explanations (www.dillinger.de/certificate) A07.2 No. C94 Heat analysis Carbon equivalent / Alloying restrictions PER EN 10204:2004 EDMONTON STEEL, EDMON EDMONTON STEEL, EDMON C70-C99 Chemical composition % - Heat analysis 0,038 0,034 0,035 ASME-IIA:2010+ADDENDA-2011A PER DIL-HUE-2:R33-2012-10-01 AS AS 0,0015 0,0016 0,0018 INSPECTION CERTIFICATE 3.1.B INSPECTION CERTIFICATE 3.1 MATERIAL TEST REPORT (MTR. Final receiver A06 Purchaser 0,0003 0,0002 0,0002 SA516-70 A05 Established Inspecting body requirements B02/ Steel design. B03 Any suppl. 380616 380614 380614 380617 B07.2 Heat A02

0,12 0,17 FO-55= FO-55= 0,001 0,001 0,001 FO-51 =FO-51= FO-51= 0,40 0,40 0,40 FO-02= FO-02= FO-02= 380616 380617

6.4

FO-91= FO-91=

90'0 0,09

FO-78=

FO-78=

ITEM NO.: 01-05

C95 Ladle treatment -

HEAT OF THE INDICATED ITEM: VACUUM DEGASSED / SULPHIDE SHAPE CONTROL

C95 Further information about ladle treatment

CALCIUM TREATED

ITEM NO.: 01-05

C20-C	C70-C99 Chemical composition % - Product analysis	e compos	ition % - P	roduct an	alysis —										
B07.2 B07.1	C01				,										
Heat Test No.		O	S	MN	۵	S	z	CO	QW	2	E C	>	a	0	F
380614 01001	. K1	0,185	0,381	1,18	0,010	0,0011	0,0059	0,028	0.021	0.051	0.039	0.001	000		1000
380614 01148	K1	0,180	0,351	1,16	0,010	0,0009		0.029	0 033	0,000	0.000	2000			
380616 99940	K1	0.184	0 371	1-17	000	0000					0000	9 6	0 0 0	000,0	500,0
27000 717000		1 1	1	4 / 4		0,000		0,045	0,012	0,038	850,0	0,000	0,000	0,000	0,003
Sever atous	KI	0,184	0,374	1 1 1 8	600,0	0,0017	0,0058	0,026	0,013	0,041	0,059	0,000	0,000	0.000	F00 0
380616 99992	K1	0,183	0,378	1,17	600'0	0,0015		0.025	0.014	0.042	6:0.0	0.001	000		
380617 99931	K1	0,172	0,361	1,15	0,008	0.0005		0.00	0.033	0 0 0	0100	7000	0000		
A04	Z01/Z02/Z03 W	'e hereby certify	/, that the above	3 mentioned ma	Z01/Z02/Z03 We hereby certify, that the above mentioned malerials have been delivered in accordance	n delivered in ac	ccordance		22010	1		7 7 7 7 111		000.	0.003
	IM	with the terms of order.	order.					1:00	1	-	A	der Ullir	AG der Ullinger Huttenwerke	nwerke	2

AHB

Postfach 1580, D-66748 Dillingen/Saar AG der Dillinger Hüttenwerke inspection department

Test House Manager

B. BALDAUF

CL CL

DILLINGER HÜTTE

Erläuterungen siehe Rückseile/Explications voir au verso/Ses reverse for explanations (www.dillinger.de/certificate)	/Explications voir au ve	ifso/See reverse	for explanations	www.dillinger.de/certi	ficate))			1 7 7 0
A02 INSPECTION C	CERTIFICATE 3	.1 AS P	PER EN 102	10204:2004				A10 Advice of dispatch No./	atch No./	A08/ Manufacturer's order/	order/	Sheel
INSPECTION C	CERTIFICATE 3	3.1.B AS P	PER EN 102	10204:1991+A1:	+A1:1995 + AS	PER ISO 104'	10474:1991		5	ספותווסום ואס.		
MATERIAL TEST	2	R)						442736-16.01	.01.13	380161-002	01	5/
A05 Established Inspecting body	dy A06 Purchaser	EDMONTON		STEEL, EDMON A07.1	O	ED10609-J1010-ER				B01 Product		
	Final receiver	er EDMONTON		STEEL, EDMON A07.2	No.					HEAVY PLATES	S	
802/ Steel design. SAS	SA516-70				SA20-S5							
803 Any suppl. ASMI	ASME-IIA:2010+ADDENDA-2011A	DDENDA-20	11A									
requirements DIL-	DIL-HUE-2:R33-2012-10-01	012-10-01										
C70-C99 Ch	C70-C99 Chemical composition % - Product analysis	sition % - P	roduct ana	Vsis								
B07.2 B07.1	C01											
Heat Test No.	O	ïŚ	MN	S	Z	no	MO	N	>	E N	N.	F
380617 99936	Kl 0,187	0,362	1,15	0,008 0,0	0,0010 0,0057	0	Н	47 0,	0	0	000'0	0,003
B07.2 B07.1	C01		;									
,			AL-1									
80616			0,037									
80616 99	K1 0,0002	0,0019	0,036									
80616 99	K1 0,0001	0,0019	0,035									
80617	K1 0,0002	0,0014	0,032									
380617 99936	K1 0,0003	0,0015	0,032									
C94 Product analysis		bon equiva	Carbon equivalent / Alloying restri	ing restrictions								
B07.2 B07.1 Heat Test No.	C01)								
380614 01001	K1 F0-02=	0,40	FO-51=	0,001 FO-55=	5 = 0,14							
380614 01148	K1 F0-02=	0,39	FO~51=	0,001 FO-55=								
380616 99940	K1 F0-02=	0,39	FO-51=									
380616 99952	K1 F0-02=	0,40	FO-51=									
380616 99992	K1 FO-02=	0,39	FO-51=	0,001 FO-55=								
380617 99931	K1 FO-02=	0,39	FO-51=	0,000 FO-55=	5= 0,16							
380617 99936	K1 FO-02=	0,40	FO~51=	F0-	55= 0,16							

× C

A04

Z01/Z02/Z03 We hereby certify, that the above mentioned materials have been delivered in accordance with the terms of order.

S Sulf AH)B
B. BALDAUF

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar

A01

Cr 10 71 ale

Test House Manager

QM-System: Certification as per ISO 9001 Enauterungen siehe Rückselte/Explications voir au verso/See n	on as per ISO 9	QNV-System: Certification as per ISO 19001 Enauterungen siehe Rückselte/Explications volr au verso/See reverse for explanations (www.dillinger.de/certificate)	#GD	DILLINGER HÜTTE	
A02 INSPECTION CERT	UFFICATE 3.1	INSPECTION CERTIFICATE 3.1 AS PER EN 10204;2004 INSPECTION CERTIFICATE 3.1 B AS PER EN 10204;1991+A1:1995 + AS PER ISO 10474:1991	A10 Advice of dispatch:No./ Date:of dispatch	A08/ Manufacturer's order/ A03 Certificate No.	Sheet
MATERIAL TEST REPORT (MTR)	REPORT (MTR)		442736-16.01.13	38,0161:-002	9
A05 Established Inspecting body DH	A08 Purchaser Final receiver	EDMONTON STEEL, EDMON A07.1 No. ED10609-J1010-ER EDMONTON STEEL, EDMON A07.2 No.		:BO1 Product HEAVY PLATES	

SA20-S5

C94 Carbon equivalent formula / Alloying restrictions

ASME-IIA:2010+ADDENDA-2011A

SA516-70

B02/ Steel design.

B03 Any suppl.

DIL-HUE-2:R33-2012-10-01

requirements

C+(MN/6)+(CR+MO+V)/5+(NI+CU)/15FO-02

= V + NBFO-51 FO-55 = CU+MO+NI+CR

= CR+MO FO-78

FO-91 = MN/C

- D01 Marking and identification, surface appearance, shape and dimensional properties

ITEM NO.: 01-05

EXAMINATION OF MARKING, SURFACE, SHAPE AND DIMENSIONS: THE RESULTS MEET THE REQUIREMENTS.

AS PER ASME-SA20 THICKNESS SURFACE

AS PER ASME-SA20

AS PER ASME-SA20 AS PER 1/2-ASME-SA20 LENGTH AND WIDTH

FLATNESS

AG der Dillinger Hüttenwerke Postfach 1580, D-66748 Dillingen/Saar Inspection department

A01

201/202/203 We hereby certify that the above mentioned materials have been delivered in accordance with the terms of order:

Test House Manager B. BALDAUF

				Y.									
	100		ITALY Large D P.o. bes	ortenova (Li e Vecoki 11 : 11		CERTIFIC WORKS C CERTIFIC	ERTIFICA AT D'ESS		N. 8182	22	DAYA/ 11/0		\$1027 / PAGE 1/1
怎!		_	Fex 034	1 - 969496 - 1 1 - 969496 - 1 palanality	183497	DAYA / BATE	00	4MJESSÄ	-				
H. Ray.	Hes TEN	N/OWWITT		E E FORG	11.54	16/11/11 M/DÉMMAT		615		86	orte		
B881 M.	MATERIA	50			24" BL	150 RF		/ STEEL PLANT	/ A CHÉRNE			CERY./	DENT. D'ORNOW
B081		A350LF2 SA350LF2		508	03	ESB ELLW	OOD STEE	L BELGIUM				A. 008	02
H. PAF.							AL ANALYSIS	/ coar-osmo	A CHIMINONI	Cu	I AI	8	n * C.Eq
B80lladle	0,163	Mn 1,158	0,284	0,010		0,153 0	091 0.	0,00	3 0.00	6 0,1	0,040	0,	011 0,409 012 0,413
BBS1Check	0,165	1,158	0,290	0,015	PROVE MISC	CANCHE / MEN	HANICAL TE	036 0,00 ETS/ESSAM AS	BCAWQUEE			-	012 0,413
	Parts.	Cong	ED.	LANTS	RUPTURE		STRICTS			OULO SMARO S	TIPO YEN		Brinell 10-3000-3
				MPA 250,00	MPA 485,0	0 22,0		00 2	7			10 M	
881 M. Mar.	12,70	126,65	50,80	313,70	521,6	0 30,0	TREATMENT	00 44]	4.1 STANDARD		KA -	60	154/158
881	Normal	izzazlon	e/Normal	isation		λ	900°C						
c. DIN50	049 3.1 by ele	B/BN1D20 ctric fu	4 3.1 Su rnace fu	rface and	d dimens	ional che grain pra	ck accor ctice.	ding to re (*) CEq. b	y long	formula	•		
terial a	ec. to	NACE MR	01-75.					pl us add	enda.				
retrail t	ice. Lo	ASPE SAS	1103372 (22	a morali a	ucuzon z						25	OLE	2011
						7-8	MAL	415	CONF	OT SMAC	SA 35	01	
						Po -	133	415			EDI		
									JOB#	201	3-84	40	-01
									ITCAA	生	-		
									1	D BY	we S	EP 2	6 2010
									SIGNI	T	-	-	01000
IYO DRILLE P	ROVE / YES	r mave / Pie	HALTH DANG EL	MADE: FA	VOREVOLE	SATISPAC	TAR YROT	ISFAISANT					
TRADE MARK		P. OFF. A. W	LESI & O.		COLLAVOY	Obe tip.	OR / RIMPEC		ENT	AUTH	ATORE/WEP DAVYEE DE RE	ECETTE CETTE	ADEMCY
						0							



SAN ENG STEEL FORGING CO LTD 311, Jen Hein Road, Jen Wu District Kachslung, Taiwan, R.O.C. TEL.OY-3724249; FAX:07-3712923 URL: www.saneng.com.tw e-mall: saneng@ksis.seed.net.tw

(MILL TEST CERTIFICATE)

Customer: SEYBOLD INTERNATIONAL CORP. EN10204-3.1.B(DIN50049/3.1.B)

Order No.: 7006135(3)-V/L

Date: 01/04/2013 Certificate No.: SE-6135C Page: 4 OF 5

		PRODUCT	UCT				MATERIAL SPECIFICATIONS	AL SP	ECIFI	CATIO	SNS	I		DIM	DIMENSIONAL	NAL	SPEC	SPECIFICATIONS	SNO	
	FORGED	FORGED CARBON STEEL FLANGES	STEEL FLA	NGES			ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1	2-11 CL.1	ASME S	4350 LF2	:-11 CL.1					ASME	ASME B16.5-09 CSA Z245.12	0	9	
							VTITALITY				CH	CHEMICA		PO	F	(%)				П
Item	C C C			1	-		111111	ပ	S	Mn	۵	S	Cn	Z O	Mo	>	g	z)HO	CE(*3)
Š	CODENO		UESC		Z		Max	0.300	0.150	0.600	0.035	0.040	0,400 0.	0.300 0.400	00 0.120	0.080	0.020	62. 6		
31	1 24589-LF2	300 WNR	300 WINRF S160 3" LF2	12			16 PCE	0.208	0.250	1.010	0.013	0.014	0.010 0.	0.014 0.055	55 0.002	0.005	0.005	0.004	0.3	0.386
32		300 WNR	300 WNRF STD 4" LF2	F2		_	169 PCE	0.210	0.200	1.150	0.017	0.005	0.006 0.	0.010 0.010	10 0.001	0.005	0.001	0.005	0.4	0.406
8		300 WNR	300 WINE STO 4" LF2	F2		_	6 PCE	0.200	0.210	1.100	0.011	0.003	0.100 0.	0.060 0.040	10 0.010	0.009	0.001	0.008	0.4	0.408
34		600 WINR	500 WINRF XXS 4" LF2	F2			20 PCE	0.220	0.240	1.180	0.017	_	0.008 0.	0.030 0.010	10 0.004	0.010	0.001	0.007	0.4	0,427
35		300 WNR	300 WARF XXS 4" LF2	F2			20 PCE	0.200	0.210	1.100	0.011	0.003	0.100 D.	D.060 0.040	40 0.010	0.009	0.001	0.008	0.4	0.408
36		300 BLRF 4" LF2	4" LF2				15 PCE	0.220	0.250	1.150	0.015	0.004	0.007 0.	0.010 0.010	_		0.001	0.005	0.4	0.416
37	7 24578-LF2	150 WNR	150 WARF S160 4" LF2	.F2		_	20 PCE	0.210	0.210	1.140	0.017	0.004	0.007 0.	0.020 0.010	10 0.002		0.001	0.008	0.4	0.406
38	8 24590-LF2	300 WAR	300 WARF \$160 4" LF2	LF2			20 PCE	0.220	0.200	1.170	0.012	0.002	0.008 0.	0.010 0.010			0.001	0.006	0.4	0.419
3	39 22172-LF2	150 WNR	150 WNRF XS 6" LF2	ļ			33 PCE	0.210	0.210	1.110	0.013	0.006	_	_	_	_	0.009	0.005	ė	0.424
4	40 22172-LF2	150 WNR	150 WNRF XS 6" LF2	2		_	27 PCE	0.200	0.220	1.100	0.012	0.004	0.150 0.	0.080 0.060	60 0.012	0.009	0.001	0.011	0.4	0.418
N.	1	F	(1.)	Y.S.(*1)	E.L.("1)	Handness	RA("1)		Impact Test	ist.					HEAT	HEAT TREATMENT(*2)	ENT(*2)			
Item			(MPA)	(MPA)	£,	(E)	88	MAR	Temp: 46°C	R°C O Inde		Mater	Materiat Supplier	ا پ	Z					
	,	Max	655.0	200	7.7	197		-	2		60				REMARKS	KS				1
100	31 831274		509.9	325.6	34.8	154/152	65.0	27.0		26.0	37.0	NTMK			890 CX3HRS	SHRS		00700	014	W,
ෆ්	32 4554034		520.0	362.0	34.0	153/151	69.5	72.0		39.0	45.0	ACOMINAS	4S		MD 24	1800 W	10 C 82	CONFORMS WITH NACE MIXOLOG-12 AND LANCE MEDIANGE 2 2 1 A REGION 3	1 A REGIO	(1) 일 건
ශ්	33 80389		539.4	379.5	36.6	155/151	71.3	30.0		61.0	101.0	WEI CHIIH STEEL	1 STEEL		AND ANNEX A.	NEX A		2	1	
Ç	34 4809477		539.0	358.0	31,0	154/151	8.68	96.0		87.0	99.0	ACOMINAS	AS	_	CONFO	RMS WI	TH 2246	CONFORMS WITH Z246.12 CAT II GR248 SOUR	R248 SOUR	ا ہے
G,	35 80399	-	539.4	379.5	36.6	155/151	71.3	30.0		61.0	101.0	WEI CHI	WEI CHIH STEEL	_	SERVIC	E-US AN	D GRZS	SEKVICE-US AND GRESU CATHIMADE SO(FOR USE)	NO SECUL	35
C.3	38 4443573		517.8	363.B	34.6	152/150	71.3	87.0		0.78	0.4	ACOMINAS	AS	-	TEST S	TEST SPECIMEN SIZE: 10X10	N SIZE:	10X10		
(4)	_		543.3	409.0	34.0	157/155	75.4	70.0		84.0	80.0	ACOMINAS	AS		TESTS	PECIME	NORIE	TEST SPECIMEN ORIENTATION: TRANSVERSE	VANSVERSE	ш
43			521.7	357.9	34.0	154/151		20.0		92.0	104.0	ACOMINAS	AS		MFAC	1521	EMP			
63			537.4	399.1	34.4	155/153	Ĺ	90.0		0.7	83.0	WEIGH	WEI CHIIH STEEL	1	ADD THE	/				
ব	40 82004		531.5	387.4	32.6	155/152	4.07	89.0		0.88	64.0	WEI CHIIH STEE	HSTEEL		STATE PUBLIS		/			
# 	: T.S. = Tensils Strength, Y.S.=Yield Strength, E.L.=Elongstion, R.A.=Red	ength, Y.S.=	Yield Stre	ngth, E.L.=i	Elongation, I	R.A.=Reduc	luction of Area.						-		0 16 30		Til.			
ij		=Annealed,	Q=Quench	led, T≐Tem	pered, S.T=	Solution Tre	Treated, S.R=Stress Relieved	ss Relieve	- Norm	-					188	-0.1	10 tol			
	A.C=Air Cooled, F.C=Furence Cooled, W.C=VVater Cooled, O.C=Uil Cooled.	F.Carureno	a Cooled, V	W.C=Water	Cooled, U.C	EOII Coole	ri		CONFC	S OT SMHO	CONFORMS TO SA 350 LF2CL	5				1000	1			
ģi	C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (NI + Cu) / 15	(Mn /6) + (C	% + Mo +√	+ (NI +	Cu) / 15				YEAR	VEAR GODEO	703	Lell	400	1	ADDURANCE.					
We	We hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.	he material I	has been te	ested in acc	ordance wit	Ihe above	specification ar	D	, 80L	0013	3-8	-R440-01	0	Mar	Manager of Quality Assurance Dept	tuality As	surance	Dep't		
						1	0													



TIENS # 28

4-8440-01 Po-133415

SIGNED BY



1121 HARRISON AV PMB 293 WA 98531 3020 FORON RD. CENTRALIA

Customer Order No:

A-59-60, Malegaon MIDC, Sinr Manufactured by: Jindal Saw LTD

Material Test Report

INDIA, AICO #P ACOM 789849.03 99312.00 Scot Order No: Material Supplier: 133352125-001 ALCO GAS & OIL PRODUCTION EQUP

6" SCH XH SA333 G6 HONED

10137004

Part Number: Scot Rec. No:

AB T6E 5S5

EDMONTON

5203 - 75 STREET

15 20 16 FO 20 11 AID 10 9/13-5/02 1800 29.30 CONFORMS TO SA TEM# Po -133352 Meter Rym Stock Dimensions: 6,625" OD 5,753"/5,769" ID X API 5L X42 Description: HFS NORMALIZED STEEL TUBING *MERCURY FREE *NO WELD REPAIR ASTM Spec: A106-B/C /A333-Sother Spec: Grade: Heat Number: [7701333 Scot Spec:

APR

SHORED BY

	1 0.388 ←	
>	0.001	
Mo	0.003	
Cr	600.0	
-LZ		
Cu	0.005	
ST	0.29	
S	900.0	
А	0.012	
Mn	1.13	
U	0.20	
Chemical Analysis		

Mechanical Test Results

ROA:(%) Hardness	758 (BHN)
Elongation:(%) in 2" G.L.	30 96
Tensile Strength:(PSi)	74194
Yield Strength:(PSI)	49407

		Avg	
ıdinal	a (%)	3	
Longitu	Shear Area (%)	2	
ion -		1	
Orientation - Longitudina		Avg	77,33
	ules)	ಣ	00.06
	Energy(Joules)	2	84,00
erav		1	58.00
Charby Impact Energy	, , , ,	Тетр	-45 C

The reported analysis and test results are certified to be the same as furnished to us by our supplier, All records and test reports covering the above materials are on file at Scot Industries and may be examined by your personnel or by any agent authorized by you.

Eddy Current

Quality Assurance 10/21/13



INSPECTION CERTIFICATE

Customer : SEAMLESS LOW TEMPERATURE CARBON

STEEL BUTT WELD FITTINGS

Spec

ASME SA/ ASTM A420 WPL6-10 [DIN 50049/3.1B]EN10204 3.1/NACE MR 0175-03

(MILL TEST) CHUP HSIN ENTERPRISE CO., LTD.

17, TUNG U ROAD HSIAO KANG, KAOHSIUNG, TAIWAN, R.O.C. TEL:(07)831-9157 FAX:(07)821-7500, 831-2942

Certificate No : 00100114-0202

Order No : E000256

: 2013/04/17

Date

									اما ب	12	3	1	5		200	
			Ave.	55.33	117.33	59.33		NO.	1-8440-01 Po-133415	CONFORMETOR 4 25 WPL	Course of a series	CUIT	10-04-0-6100	7	N - CED 9 B 30	JEF 4
ion			otch	8 8	122	% 8		DENAADK	30	7 000	1 16	2	100	# 39		
Dimensional inspection	9	lest	Charpy VNotch Impact Value	8 %	118	82 28			48	Conto	00	1	- I	- 10		SIGNED BY
slonal	0005	Impact I	Char	84 E	112	8 88		tro		5	3 5	Į.	1084	ITEM	č	500
Dimer		lmp	Size of specimen	10 X 5.0 X 55	10 X 7.5 X 55	10 X 5.0 X 55 10 X 10 X 55		Liest Treatm				Normalized:	910 CXO.SHR	AC		
-			Test င်္က	\$ ¥	3	45 th	ess	-		1	_	-	~	10	1	
			2				Hardness	Test	2	1	197	138	138	135	132	138
Vísual Inspection	0009		ö					ш	*	30		41	9	41	육	41
Vísuaí Ir	99		Raw Certificate No.	WW2454	YYK2508	YYK3261 YYM8307	Tension Test	T.S	P.S.I	00009	95000	68000	77600	65400	92900	00689
			Raw C	SUMITOMO BYYM2454	SUMITOMO BYYK2508	SUMITOMO BYYK3261 SUMITOMO BYYM8307		Y.S	P.S.I	35000		47600	52200	42500	40400	46400
			0		-			S.	X100		20	8	35	56	23	8
lon			Heat No	J7L1768	J7L8229	J8L5673 J0L6243		å	X1000 X1000	-	20	0	0	0	0	0
Inspection	-2010		Heat ID	\$ 5	8 8	E 2		>	X1000		80	0	0	0	0	0
ion for	ASME B16.9-2010			92 28	72	5673 8243		Mo	X100		12	1-1	~	7	Н	-
Specification for	ASM		Quantity	22 02	20	30	%uo	ბ	X100	-	30	m	4	m	m	4
S						1	mpositi	Z	X100	1	9	m	4	н	4	m
				4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		40	ical Com	5	X100		40	เก	G	~	9	7
			_				Chemical Composition%	S			40	7	4	60	9	7
-			Description	88.08		٥.,		Q.	X100 X1000 X1000	7	33	51	11	20	11	90
Material	33 GR-6	ASTM A333 GR-6 Description of the state of t	WPL6 STD WPL6 STD WPL6 STD WPL6 STD		Mn	X100	500	135	19	100	52	- 18	76			
Starting	TIM A3		ASTM A333 GR-6 Descr 90 E S/R SMLS WPL6 STD RED TEE SMLS WPL6 STO RED TEE SMLS WPL6 STO RED TEE SMLS WPL6 STO 45 E L/R SMLS WPL6 STO 45 E L/R SMLS WPL6 SS		ız,	X100	53	40	22	22	26	19	24			
Sta	AS			OES/R ED TEE	ED TEE	OES/R SEL/R		U	X100		30	19	18	17	12	13
, S			te .	23 9				Specifi-	cation	Milita	Max.	23		27	个	
-			Ŧ.					Sp	3	2	Σ			1		

C.E. = C+Mn / 6 + (Cr+Mo+V)/5 + (Ni+Cu)/15

We hereby certify that the material herein described has been manufactured, sampled, tested and inspected in accordance with, and was found to meet, the requirements of above specifications and purchaser's order.

L.S. Tsai

Chief of Quality Assurance Section

CLIENTE / Customer / Client

VAN LEEUWEN PIPE AND TUBE -CAN 2875-64TH AVENUE EDMONTON - ALBERTA T6P 1R1

CERTIFICADO DE INSPECCION

Inspection Certificate - Certificat de Réception

HOJA: Page:

151903

å å

19/10/2012

FECHA: Date:

DIN EN 10204 / 3.1 ISO 10474 / 3.1







ULMA FORJA, S.COOP

B° Zubillega, 3 - Apdo. 14 20560 OÑATI (Gipuzkoa) SPAIN E-mail: utma@utmapiping.com Tel.: 34 - 943 780552 Fax: 34 - 943 781808

Packing List: 96872

Certified acc. PED 97/23/EC+AD2000-W0 by TÜV Rheinland N.º 01 202 E/Q 02 7443

DE of. - de 30/08/2012

45001569

SU PEDIDO N.º
Your Order No. 4
Votre Cds. N.º

FLANGES

PRODUCTO Article - Produit

MATERIAL CORRESPONDIENTE ASTMIASME AJSA350LF2CL1-11

ASME B16.5-09

Requirements - Normes Applicables

NORMAS APLICABLES

MARCA DEL FABRICANTE Marque du fabricant Mark of factory

		1,
	DUREZA Hardness Durete HBW	159 164 154 156 154 164 156 161 147 155 148 152 151 151 151 156
	ž ()	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
	CHARPY V 10x10mm MEDIA Average Moyenne	552 63 64 64 65 65 65 65 65
ш	CHARPY	55 61 61 60 60 60 53
QUALITY ASSURANCE	RESILIENCIA Impact test Résilience Joules	8 8 4 8 4 4 7 8 8
LITY AS:	RESILIENC Impact test Resilience Joules	55 50 57 57 58 58
	Red. Area Striction	57,60 55,50 66,90 54,00 66,40 61,40 60,70 60,70
DEPARTAMENTO Section Département	ALARGAIA. ESTRICGION Elongation Altongemen Lo: 4 d %	27,90 26,60 34,20 25,60 34,00 30,20 30,20
DEPARTAME Section Département	Strength A. O.2 %	323 313 325 284 305 315 317
	N S N	5.32 5.23 5.46 5.28 5.02 5.13 5.13 5.13 5.13
	(N. RESISTE T. Streng ée Restst F	П
		233V2 452V2 233V2 417V2 444V2 421V2 455V2 447V2
	OBSERVACIONES Remarks Observations (*)	w w w w w w w w w w w w w w w w w w w
3-10 glon 3.	LOTE	2782 2602 1752 2602 2502 2402 2552 2502 2502 2503
NACE MR0175/ISO15156-2-09 & MR0103-10 Clause 7.2.1.4, Annex A.2 and SSC Region 3. CSA-2245.12-09 GR248 CAT II -SS	SciON on	
Material Carespondent - Qualità MODO DE FUSION (*) Steel Making - Elaboration de facier E = Elec. Y = Oxigeno básico CSA-245,12-09 GR248 CAT II	DESORIPCION Description Description	WN 2 1500LB XS/80 RF A350LF2 WN 3 500LB XS/80 RF A350LF2 WN 3 600LB XS/80 RF A350LF2 WN 4 600LB XS/80 RF A350LF2 WN 4 600LB XS/80 RF A350LF2 WN 4 150LB XS/80 RF A350LF2 WN 6 300LB SY/80 RF A350LF2 WN 6 300LB SY/80 RF A350LF2
icie,	CANTIDAD Quantité Quantité	07 05 105 14 14 14 18 18 18 18 18
Material Conspondent - Qualità Moto DE FUSION (†) Steel Making - Etaboration de Facier E = Elec. Y = Oxigano básico	PARTIDA O Illem G Poste G	5 24550 10 22200 13 24573 16 24625 21 22202 23 22170 34 22188 37 22119

SEP 2 6 2013 YEAR LOIDED / DOIL ADD 10-0448 - 8140-01 | TEM# ##33 4-8440-01 SIGNED BY

0,386

00000

0,035 0,044 0,024 0,021

0,240 0,250 0,270 0,229 0,280

0,001

00000

0,025 0,032 0,040 0,028 0,027

0,10 0,14 0,12 0,12 0,12 0,12 0,12 0,12 0,12

0,003 0,070 0,002 0,170 0,006 0,230 0,004 0,270 0,004 0,080 0,003 0,130

0,008 0,011 0,011 0,014 0,011

0,940

Dpto, de Garantía de calidad Works Inspector - L'Inspecteur Quality Assurance Dept. ULMAPORAS, COOP. EL INSPECTOR 賱 CONFORMS TO SA 350LF1CL

Las dimensiones y la condición superficial se hallaron safisfactorias.

Dimension and surface condition were found acceptable.

Les dimensions et états de surface sont satisfaisants

CEq %

% ≥

7:8

Cu % A!%

%

Ni % No % No %

% 0

% %

%

Mn %

% Š

% O

COLADA N.• Heat No N.ºCoulde

0,006 0,050

0,021

0,930 0,860 0,880

0,195 0,210 0,189 0,187 0,176

233V2 417V2

0,193 0,240 0,240 0,204 0,193 0,193

421V2 444V2 447V2 452V2 455V2

COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE

0,409 0,425 0,432

0,000,0

0,020

Los maleriales citados cumplen las normas aplicables.

 Manufacturing requirements are satisfied. Les normes applicables sont respectées.



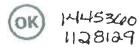
TEST SPECIMEN: SIZE STANDARD (10X10), ORIENTATION TRANSVERSE. N_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

(') OBSERVACIONES:

Remarks Observations

8-133415

VL QA Approved



ingen lannel tuhulars comoration

ibaaa II	infilters s	C INNIDIAN	uu [hama esteria			UBE TEST	Page Lot
ORDER: T136	005	HEAT: 46152		P.O.;	1964769-OR-210	0	PART NO.	
SOLD TO: CE	FRANKLIN				SHIP TO: C	E FRANKL	IN LTD.	
	O. BOX 6776				R	AIL SPUR	8585	
	ATION D	74 700 000			I		TRANSFER	
	LGARY, ALBER				Et Et	DMONTON	I, AB	
SPECIFICATION	CERTIF	STM SA/A333-05 G ED NACE MR0175	2003-12	2-15 & 🗸				
GRADE: 1012 M		4 TYPE 3.1 JAN 20 4.500 X 0.337	DRL DRL	WPF: 15.	00	OHAL ED	CEAN FOR HO	
CONDITION (SPI		ORMALIZE	DIAL	WPF: 10.	od	COALITY	: SEAMLESS HOT	FINISH
		ST METHODS US						
	TEST RES	ULTS CONFORM T	O THE	STANDARDS	AND SPECIFICAT	TION LIST	ED ABOVE.	
		Mn 8 3	7 . 28	Cr 31	Mo Cu A	The second second second	Cb B	
	-47 11	and a fifty of earth is the disappropriate and be of the little of the l	the Country Co	.16 .12	.05 .24 .01	51.001	.002 .0008	
	فالتعاما ا	73 . 006 . 006	bedroitelijstoch.	.16 .12			.002 .0008	
		MATERIAL 1009	MELTE	D AND MAN	UFACTURED IN T	HE USA.		
	Specimen	Yield Tensile	ELNG	C	E. Rockw	rell	Hydrotest	
	ABTIONS	KSI KSI	2 -	RIA	ARTM BIB	Avg		
	1.000 " ST	48.0 67.0 48.4 68.7	44.0 44.0	1 1	67 72	69 70 RB	3000 PSI 5 Sec Hold	
		10.4	44.0				0000102	
					-	Y 13 344 5340	1	
NORMALIZED (₫ 1650 DEGRE	ES F.			CONFORMS TO SA	233-	-11 1	
FOR APPROXI	WATELY 1 HR.	A TEMP.			YEAR 2010	ED Z	Oll ADD PS	
FLAT (S) - SATI	SFACTORY	LONGITUDINAL			JOB # 2013	-844	0-01	
	DD SPEC REV (EPORT LONGIT	DATE - 04/29/2008			ITEM# 34	1	4"	X H
CHARPY - 08/2:		OBINAL			SIGNED BY	少 12	3 APR 2014	
					1	ner projective entre executive entre	INCOMECUTATION	
						Ω	4/ .	
						Lan	e Hight	Anger.
				2 -	DATE	06.110	U CONTRACTOR CONTRACTOR	U
	k.a.	ATERIAL WAS NO	t EABO	SED TO ME	–		R/PRIMARY OPERA	ENONS
	1	NO WELDING OR I	WELD R	EPAIR PERF	ORMED ON THIS	MATERI	ing. AL.	
		MATERI	AL IS FF	REE OF HAR	MFUL RADIATION	V.		
	т.	HIS CERTIFICATIO	ON MAY	NOT BE REF	PRODUCED EXCE	EPT IN FU	ш.	

IPSCO KOPPEL WORKS P.O. BOX 780 BEAVER FALLS, PA 15010 IPSCO AMBRIDGE WORKS P.O. BOX 410 AMBRIDGE, PA 15003

IPSCO BAYTOWN WORKS 2000 SPUR 55 BAYTOWN, TX 77520

ipsco koppel tubulars corporation

TUBE TEST REPORT

Page 2 of:

ORDER: T13629 005 HEAT: 461529 P.O.: 1964769-OR-2100 PART NO.

SOLD TO: CE FRANKLIN
P.O. BOX 6776 RAIL SPUR 8585
STATION D
CALGARY, ALBERTA T2P 2E8 EDMONTON, AB

SPECIFICATION(S): ASME ASTM SA/A333-05 GR 1 & 6

CERTIFIED NACE MR0175 2003-12-15 &

EN 10204 TYPE 3.1 JAN 2005

GRADE: 1012 M SIZE: 4.500 X 0.337 DRL WPF: 15.00 QUALITY: SEAMLESS HOT FINISH

CHARPY TEST RESULTS

ASTM E23

PC#	DIRECTION	SIZE	NOTCH TYPE	TEMP (F)	ENERGY (FT-LBS)	LATERAL EXPANSION (IN)	PERCENT FRACTURE
TK-I	LONGITUDINAL	7MM X 10MM	V	-50	76	0.091	90
TK -2					68	0.087	90
TK-3					82	0,093	90
AVO		9			75		

SAN ENG STEEL FORGING CO LTD 311, Jan Han Road, Jen Wu District Kenbaluny, Talmur, R.J.O.G. TEL.07-3724249; FAXXFI-3712823 4IRI, www.yamorq.com.W 6-meil. seueng@kals, seef. net.tw

FORGED CARBON STEEL FLANGES PRODUCT

TEST CERTIFICATE 3.1.B(DIN5004943.1.B) Custorna **7**

F, FITTINGS & FLANGES (CANADA)

Certificate No : <u>3E103138</u> Date: <u>03/11/2013</u> Page: <u>10F1</u>

DIMENSIONAL SPECIFICATIONS ASME B16.5-09 CSA 2245.12 C.L. 1/ASME SA350 LF2-11 CL.1 Order 7 ASTM A3 & O MAT

							100	00000	Call Morting Council	Ī
1	_			QUANTIT Y		0 0	4		N NP N	DE(*3)
Ęź	CODE NO	DESCRIPTION	PTION		2	300 0300	1.350 0.035	8.040 0.400 0.300 0.400	0.000 0.000	
	- M 4 A 10 M	160 WNRF STD 3"LFZ 160 WNRF XS 3" LFZ 160 WNRF XS 2" LFZ 900 WNRF STGD 2"LFZ 600 WNRF STGD 2"LFZ	 	28 POR 28 POR 38 POR 18 POR 17 POR		0.210 0.210 0.200 0.220 0.220 0.220	1.180 0.021 1.180 0.021 1.180 0.016 1.180 0.016 1.180 0.016	0000 0000 0000 0000 0000 0000 0000 0000 0000	0.020 0.0010 0.0054 0.0054 0.0055 0.0055 0.0055 0.0055 0.0051 0.0055 0.0051 0.0055 0.0051 0.0055 0.0051 0.0055 0.0057 0.0055 0.0055 0.0057 0.0057 0.0055 0.0057 0.0057 0.0057 0.0057 0.0055 0.0057 0.0	0.390 0.530 0.422 0.424 0.424
E d	E c	0. (APA) (APA) (APA) (APA) (APA) 4.50.0 250.0	22.0 22.0	Hardness R.A.(**1) (HB) (96) 197.0		mposa feat Tens46% Minimum: 20.0 Joule	C Joule	Meterial Supplier	HEAT TREATMENT(*2) 83 N REMARKS	
	4573144 4573144 4573144 4 4673012 4 4603012 8 4803012	522.0 622.0 522.0 528.0 629.0 829.0	372.0 34.0 372.0 34.0 373.6 34.0 356.0 35.0 356.0 35.0 356.0 35.0	183/161 68.5 183/161 68.5 183/161 71.3 183/161 71.3 183/161 71.3		82.0 82.0 82.0 93.0 93.0 93.0 90.0 80.0 81.0	78.0 76.0 76.0 76.0 76.0 76.0 76.0 76.0 76	ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS	SACUCKATHA NACE MR0103-12 AND NACE MR0175ASO151592-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH 244.12 CAT II GR248 SOUR CONFORMS WITH 244.12 CAT II GR248 SOUR BLIND FLANGES ONLY) TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION TRANSVERSE IMPACT TEST TEMP: -46°C	AND AND RSE

2-8445-01 B0-133415 HT#4573144 72: N=Normalizad, ArAnnealad, Q=Quenchad, T=Tempand, S.T=Soludon Trashad, S. F-Zuzz (S.S. F-Zuzz (S.Z. A.C.=Atr Gooled, F.C=Furance Cooled, W.C=Water Cooled, O.C=Oll Gooled. We hereby certify that the material has been tested in accordance with the above apacitican £ \$ <> = "= , sine with the recurements categorized for by the above greer.

"3: C.E. Value = C + (Min/B) + (Cr + Ma +V) / 6 + (NI + Cu) / 16

Manager of Quelity Assummon Dept.

(\$(E070)

CONFORMS TO SA 350LF 2CL YEAR GOIDED, ZOIL ADD JY SEP 2 6 2013 JOB# 7613-8440-01 TEM# # 37 SIGNED BY A



V&M FRANCE
TUBERIE SAINT SAULVE
SAINT SAULVE
ZONE INDUSTRIELLE
59860 SAINT SAULVE

(A01)



VALLOUREC & MANNESMANN TUBES

Valloures Group

MATERIAL TEST REPORT -INSPECTION CERTIFICATE

3.1 EN 10204 : 2004

No.: 3645Sv11

(A03)

Page: 1 / 5 Date: 07,04,2011

21715 Stock

(AD1)			
V&M FRANCE		(408.1)	7
		V&M-Order-No. SC0484	1
		1	1
			ł
		(ADS-2)	
(All8.1)		Suborder	Æ
Customer		(AD7.1)	1
VAN LEEUWEN PIPE & TUBE	CANAD	Order-No. VM2527	
2875 - 64TH AVENUE	: (CANAD		T
EDMONTON, ALBERTA TOP	104		1
	IR1		1
(A052) Orderer		(A07.2)	1
		Order-No. VM2527	l .
6G4	INC./BURLINGTON, ONTARIO L7L	Date 16.11.2010	li .
			1
		(A07.3)	1
		Order-No. 45001981	
(B01, 802, B04)	Hot finished seamless pipes for low-ten	riperature service	10.00
Description of the product	Sour service	144	11/418
	Ends beveiled, angle 30" (+5 / -0), root face 1.6 mm (±	0.00	4
	Inside without rust protection	0.8)	
	Outside dry varnish	CONFORMS TO SM 333-6	HT#
	ASTM A 333 - 10	YEAR 20/0 ED 20/1 AIDS	33656
	ASTM A 999 - 048	YEAR ZOTO GO ZOTI AIDO	
	ASME SA 333, Edition 2010 / ASME SA ASME Boiler and Pressure Vessel Code	1999, Edition 2007 JOB, 2013-9440-01	3"80
	Edition 2010	S. Sect. II, Part. A.) 00
	Nace MR 0175 / ISO 15156-2:2003 / CC	7	
	EN ISO 15158-2:2003, Annex A.2.1.2	SIGNED BY WEST 12 3 APR 10	014
	Nace Standard MR 0103-2005, Paragray CSA Z 245.1:2009	ph 2.1	
	Grade 6	777	
	Grade 290 acc. to CSA Z 245.1, Cet. II		
	. Cerbon equivalent = max. 0.40		
	. Mn/C ratio min. 3:1		

A13)	(A09)	(B14)	(B00) Dimensions	(B10)
/&M Item	Cust, Ram	Harri bacct		Single length
2		Item 1	OD-Talerence + 0.031 in - 0.031 in WT-Talerence + 15 % - 12.5 %	Random length from 38 to 44 Ft



VAM FRANCE
TUBERIE SAINT SAULVE
SAINT SAULVE
ZONE INDUSTRIELLE
59880 SAINT SAULVE

(A01)



VALLOUREC & MANNESMANN TUBES

Vallourec Group

MATERIAL TEST REPORT - INSPECTION CERTIFICATE

3.1 EN 10204 : 2004

(A02)

(E0A)

No.: 3845Sv11 Page: 2 / 5

Date: 07.04.2011

(A13)	(A09)	(807.1)	(Boe)	(B11) Total length	(813)
V&M Itom	Cust. Hern	Heat	Quantity		Weight
2		/336565 /	28	1.158,040	11,722

сонголые то ва 333-4	
YEAR	-
JOB #	
NETI	-
SIGNED BY	

(C71)

HEAT CHEMICAL ANALYSIS

For each reduction of 0,01% carbon below 0.30 %, an increase of 0,05% manganese above 1.06 % would be permitted to a maximum of 1,35% manganese.

(807.1)	(815)		I SAMILLE S				1	T	T		
Hest	Process	С	Si	Mn	P	8	Cr	Mo	NI	Cu	Ti
		%	%	%	%	%	%	%	1 %	%	%
min		· *	0,10	0,29		-	-		-	-	
max		0,26	0,50	1,08	0,025	0,01				_	0,11
336565	Oxygen (BOF)	0,12	0,19	1,29	0,011	0,00	0,080	0,010	0,050	0,040	0,01

(B07.1)								1		
Heat	Nb/Cb %	V %	B %	2528	0014 %	1003 %	1099			
min max	0,11	0,11	0,001	3,00	1,00	0,40	0,40			
336565	0,01	0,01	0,000	10.75	0,19	0,36	0,31			

2528	MN/C	
0014	CR+CU+MO+NI+V	
1003	CE = C+MN/6+(CR+MO+V)5+(NI+CU)15	
1099	C+F(MN/6+SI/24+CU/16+NV20+((CR+MO+V+NB)/5)+5*B)	

Heats fully killed

HEAT TREATMENT

NORMALIZED CONDITION MIN 920°C (1688 F) COOLING AIR

TENSILE TEST RESULTS

Туре (сто.т)

Tube strip specimen

Test temperature (Cos)

Room temperature

Direction (cos)

longitudinal

SIMPLE LENGTH

V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59880 SAINT SAULVE

(Allt)



VALLOUREC & MANNESMANN TUBES

Valloures Group

MATERIAL TEST REPORT -INSPECTION CERTIFICATE (A02)

3.1 EN 10204 : 2004

No.: 3645Sv11

(AD3)

Page: 3 / 5 Date: 07.04.2011

TENSILE TEST RESULTS

(807.1) Heat	(C00.1) Test Piece	(C10.2) Dimension	(C11) YS	(C12) TS	(C13.2) Elong.			
		in/sqin	R _{p0,2} psi	R _m psi	2" %			
min max			42000	60000	33,0			
336565	01EC104	0,75x0,31 0,23	45265	66592	39,0			
336565	02EC104	0,76x0,32 0,25	42944	63980	38,0			

(C10.2)		
Dimension	Test piece dimensions	
	Test plece area	00MF0RM8 TO 8A
		YEAR
IMPACT TEST RESULTS		1081
Туре (С40)	A	Charpy V DYEM 8
Test temperature (C03)	(/-	49 F SIGNED BY
Direction (coz)		onplludinal

(807.1) Heat	Test Pleca	(C41) Dimension	(C4z.1) Impact1	(C42.1) Impact2	(C42.1) Impact3	(G43.1) Mean	(C42.2) Shear fr1	(C42.2) Shear 1/2	(C42.2) Shear fr3	(C43.2) Mean
		in/sqin	ft-lbf	ft-libf	ft-lbf	11-151	%	%	%	%
min mex		4	8,9	8,9	8,9	13,3	60	60	60	-
338565	01EC104	0,26x0,39 0,08	170,0	173,8	164,8	169,6	100	100	100	100
336565	02EC104	0,26x0,39 0,08	179,1	178,8	155,7	171,2	100	100	100	100

(C41)		
Dimension	Test plece dimensions	
	Test piece area	W

HARDNESS TEST RESULT:	HARDNESS	TEST.	REST	JLTS	3
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Method of test (coo)

Brinali

V&M FRANCE

TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59880 SAINT SAULVE (A01)



VALLOUREC & MANNESMANN TUBES

Valfoured Group

MATERIAL TEST REPORT -INSPECTION CERTIFICATE

3.1 EN 10204 : 2004

No.: 36455v11

(EDA)

(A02)

Page: 4 / 5 Date: 07.04.2011

HARDNESS TEST RESULTS

(B07.1) Heat	(Cot.1) Test Piece	(C31.1) HB	(C31,1) HB	(C31.1) HB	(C32.1) Mean			
min max		200,0	200,0	200,0				
336566	01EC104	135,0	135,0	135,0	135,0	_		

(C50)

TECHNOLOGICAL AND OTHER TESTS ON SPECIMENS

Test	Conditions	Test rate	Result
Flattening test	Flattening test (specific)		Satisfactory

(D64)

OTHER TESTS ON PIPE

Test	Gonditions	Test rate	Result	
Hydrostatic test	/3000 PSI/ 5 SEC	100% each lot	Satisfactory	
Appearance & Dimensions	Aspect & Dimensions (spécifiq	ue) 100% each lot	Satisfactory	
Eddy Current test	CSA Z245-1	100% each lot	Satisfactory	

(A84, B05)

MARKING, IDENTIFICATION

2 Paint stendled on one side



V & M FRANCE A/SA333 Z245.1-07 6 + 290 CAT II HF SCH 80 S LT 50 F 3 1/2 X 0.300 88.90 X 7.62 SS 20.7 MPA 3000 PSI HT HEAT NU MBER LENGTH LENGTH DATE OF MARKING VM2527 45001381

(201)

The supplied products are in compliance with the requirements of the order

(A05, 202, 203)

07.04.2011
Inspection Representative
Valérie DELACROIX
+ (33) 3 27 23 14 58
+ (33) 3 27 23 15 25
valerie.delacrok@vmtubes.fr

V&M FRANCE TUBERIE SAINT SAULVE SAINT SAULVE ZONE INDUSTRIELLE 59880 SAINT SAULVE

(A01)



VALLOUREC & MANNESMANN TUBES

Vallourec Group

MATERIAL TEST REPORT -INSPECTION CERTIFICATE

(A02)

3.1 EN 10204 : 2004

No.: 3645Sv11

Page: 5 / 5

Date: 07.04.2011

(E0A)

This isostronial and certification nespectively may neither be excited nor used for other products. Offences are reparted as feletication of documents and will be subject to orininel prosecution.

SAN ENG STEEL FORGING CO LTD 311, Jen Hain Road, Jen Wu District Kachstung, Taiswan, R.O.C. TEL-ON-STEARS : FAX:07-3712923 URL: www.asswap.com.is.

1

ONITE DESTRUCIONES ENTOZO4-3.1. BITINARIO APIN 1 FIN

Order No.: 71009516(3)-CCTE Customer.

Date: 05/20/2013 Page: 1.0F.1 Certificate No.: <u>SESS15C2</u>

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u.			(CE(73)	0.420 0.420 0.428 0.418 0.408	1		SOCCIONES CONFORMS WITH NACE MR0103-12 AND NACE MR0173/GCO15 SE 2-09 CLAUSE 7.2.14 REGION 3 MAD ANNIEX A. COMPORAS WITH ZAIG.12 CAT II GREAR SCUR COMPORAS WITH ZAIG.12 CAT II GREAR SCUR COMPORAS WITH ZAIG.12 CAT II GREAR SCUR COMPORAS WITH ZAIG.12 CAT II GREAR SCUR SELVO FLANGES ON 17 TEST SPECUMEN SIZE 10X10 MANT TEST 1 TENT 1 TENT 1 TENT 3.0° MANT TO CLAR TO SERVE TENT 1 TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT TO SERVE TENT 3.0° MANT TO CLAR TO SERVE TENT T	
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e-mail: usmang@keks.used.nel.br	100	STEEL FLA	DES	150 WAIRF STD 3" LF2 150 WAIRF STB0 2" LF2 150 SORF 6" LF2 150 THRF 3" LF2 150 THRF 3" LF2	T.S.(T.) (MPA)		627.0 517.8 541.3 541.3 555.0	-Yield Strey
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CONFORMS TO SA SEOLFICE. 10-0448-8/22 \$HO YEAR 2610ED / POIL ADD ITEM# # HO SIGNED BY 2. N=Normalizad, Ar4smeated, Q=Quenahed, T=Temperad, S.T=Solution Traited, S.R=Stress Relitarity, A.C=Ar Cooled, F.C=Furance Cooled, W:C⇒Water Cooled, O.C=Ott Cooled. 10- ahns -01 We hereby certify that the material has been fested in accordance with the above specification and also with the moutenesses celed for by the above crider. "3: C.E. Value = C + (Nn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 16

Menager of Quality Assurance Dept

Po-133415

SEP 26 2013



23864 CESANA BRIANZA (I.C) - Italy REDE AMERICAN ENVIOLE STABILIMENTO. Tel. +39 D31.655441 Via G. Parini, 28

CERTIFIED BY DNV QUALITY SYSTEM COMPANY WITH = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Doc 5 47		
CA	ALBERTA	TORONTO M4S3B1 CA
	EDMONTON	20 Holly Street, Suite 205
	Dest.: VAN LEEUWEN	SEYBOLD INTERNATIONAL CORP.
Del/Dated	Del/Dated 29.04.2013 Ns.Ord. / Our ref. N.	DDT / Del Note N. 1911 Del/Dated 29.04.2013
Del/Dated 29.04.2013	Del/Dated 30.04.2013 Fattura / Invoice N. 1640	Certif. N. 2475 Del/Dated 30.04.2013

JLA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

WARRAGES & CALLED OF ACCORD COUNTY - ACCAMING WINDOSTDABLLI

quelity mitofermas com

Fax +39 031.655149

ORIGINE / ORIGIN OF EL	68 0,0 FORNO / FURNACE ELECTRIC FURNACE	69 68 FORNO ELECT		46	/ 	EATMENT D IN ST	EAT TRE COOLE	#59,0 - 163,0 TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STII	159,0 MENTO T LIZED A	D TRATTAN NORMA	58,0 10 ADD.	31,0 4. ED. 201	PART /	526,0 SECT. II,	126,60 50,80 1 331,0 526,0 31,0 58,0 159,0 - 163,0 KV IATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A. ED. 2010 ADD. NORMALIZED AT 930 C - COOLED IN STILL AIR	1 RDO A / MATE /SA 350 M - 1	0.0	50,80 Le in acco SME A 350
OUR REF.	N/mm2 >=1,0%	(4)		TIPO/TYPE 10x10mm °C	0x10mm	PO / TYPE 10	F	HBW			*			N/mm2 >=		Š.	_	1=0 2=1
20 are	SNERVAMENTO	Jcm2	- JOULE	RESILIENZA / IMPACT TEST - JOULE/cm2	RESILIENZ/		,	DUREZZA	DDH	JONE OF AREA	CONTRAZIONE REDUCTION OF AREA	ALLUNGAMENTO		ROTTURA TENSILE STRENGHT	NERVAMENTO T	50	FORMA S	67
	0,396 0,000	0,026	0,000	0,002	0,002	0,200	0,020	0,010	0,060	0,100	0,015	0,010	0,970	0,180	1 0,195		L1/2 (LADLE)	STM A350 LF2 CL1/2 (LADLE)
	C.E.% B %	AI%	% N	%qN	%/	%no	%IL	WoW	%!N	Cr%	%	%S	Mn%	%is	%C		IAL	ATERIALE / MATERIAL
SATISFACTORY	ASME/ANSI B16.5 -2009	ASME/ANS					1	LF2CL14		W/N 150 RF 2" XS	W/N 150	69,00			7005408	I.m	44 034 7	12/73/144 034
VIS. & DIMENS.	DIM. ACCORDANCE TO	DIM. ACCOR								TION	DESCRIPTION	Q.T.		NCE	YOUR REFERENCE		ITEM	IEAT CODE HEAT ITEM
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SA Z245.12 GRADE 248 CAT.II SOUR SERVICE

011a

VISIVO E DIMENS. VIS. & DIMENS. SATISFACTORY		Ns.Rif. OUR REF.	ORIGINE / ORIGIN OF STEEL EUROPEAN UNION
			ORIGINE / EUROPE/
TO -2009	B %	SNERVAMENTO YIELD POINT N/mm2 >=1,0% 0,0	CE RNACE
DIM.IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5-2009	C.E.% 0,396	SNE YIE N/mr	FORNO / FURNACE ELECTRIC FURNACE
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ā ā č	%N 0,000	. JouLE/cm	
	Nb% 0,002	RESILIENZA / IMPACT TEST - JOULE/cm2 bx10mm °C 1 2 V -46 63 69	
	/% 0,002	SILIENZA / III	L AIR
	Cu% 0,200	RESILIEN: TIPO / TYPE 10x10mm KV	ATMENT IN STIL
	71% 0,020	£	EAT TRE
LF2CL1	Mo% 0,010	DUREZZA HARDNESS HBW 159,0 - 163,0	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR
LF2	%iN 0,060	DUREZZ HARDNE HBW 159,0 - 1	ENTO TE
ION SF 2" XS	Cr% 0,100	VE AREA	TRATTAM NORMAI
DESCRIZIONE DESCRIPTION W/N 150 RF 2"	P% 0,015	CONTRAZIONE REDUCTION OF AREA %>= 58,0	
Q.TA' Q.TY 81,00	S% 0,010	ALLUNGAMENTO ELONGATION R. %>= 31,0	ED. 2010
	Mn% 0,970		ART A,
띥	Si% 0,180	ROTTURA TENSILE STRENGHT N/mm2 >= 526,0	ECT. II, F
VS.ORDINE YOUR REFERENCE 7005408	C% 0,195	SNERVAMENTO YIELD POINT TEN N/mm2 >=0,2% 331,0	IATERIALE IN ACCORDO A / MATERIAL IN ACC. TO STM/ASME A 350/SA 350 M - 12 ASME CODE SECT. II, PART A, ED. 2010 ADD.
POS. ITEM 034	(LADLE)	SHAPE 1=0 2=0	A/MATER 350 M - 12
₹ 4	IATERIALE / MATERIAL STM A350 LF2 CL1/2 (LADLE)	ROVETTA / TEST SPECIMEN FORMA SEZ mm2 LUNG, mm 1=0 2=[126,60 50,80 1	IN ACCORDO
OD. COL. COLATE HEAT 12/73	STM A35	ROVETTA/TES JEZ. mm2 ECT. mm2 L 126,60	IATERIALE

SA Z245.12 GRADE 248 CAT.II SOUR SERVICE

CONFORMS TO SA 350 LF 2 CL YEAR (LO LOED, LON THOD JOB+ 2013-8440-01 同学中 4-8440-01 133 415

VL QA Approved

2 6 2013

SEP

SIGNED BY.

MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE NOTE 100% MANUFACTURED IN ITALY OTES

N' ENTE UFFICIALE DI COLLAUE INT INSPECTION AUTHORITY		
UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT	JAS. Erigbeta S.	

MANUFACTURER'S SYMBOL **MARCHIO PRODUZIONE**

ENTE UFFICIALE DI COLLAUDO

Tenaris

INSPECTION CERTIFICATE

Page / Páglna: 1/9 Number / Número: 680950

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Manufacturer's Works Order N" / Confirmación de Venta-DA # BEVELLED AT 30 DEG. ASTM INT BARE JEXT VARNISHED Horrinal Weight / Peso Nominal AB 5.02 LB/FT T.48 KG/M 57532/05 Date / Día: September 04, 2012 Customer's Reference / Ref., del Cliente: 10855 KG 23931 LB Quantity / Cantidad: 247 Postpz. Steel Grade / Grado de acero: NA 1/6/359 CAT II SS (BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991) Customer's Order Nan / Orden Cliente - Nam. CARBON STEEL FOR LOW TEMPERATURE SERVICE 1426.73 MTS 4680.87 FT AST#!!ASME AJSA333-10+CSA Z245,1-07 CATII-SS+PSP00374+NACE MR0175/103+IPRO LP-006 45001527-00007 Product Type / Tipo de Produdo: Length / Longitud: Custamer / Cliente: VAN LEEUWEN PIPE & TUBE (CAMADA) IN - VAN LEE SRL (SP) Schedule / Cédula: Standard or Spop Sortion / Normas o Especificaciones. Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED 080 Dimensions / Dimensiones: 3/8 X 0.218 INCH 60.30 X 5.54 MM

Pe-133980 STOR

32.7 33.5 34.7 34.7

300 30.0 30.0

506 507 507 508 509 509 509 510 511 511 509

111,01 110,21

19.43 x 5.70

5 2

21331 21331 21507 21507 21507 21507 21507

1703601

1714013 1714016

1714021 1714022 1724470 1724498

5 3 3 3 3 5 5 7 3

110,55 107,95 109,92 107,58

108,04

107.17

9

Min.

9 %

Req. Max. 0.93

Max: 625

Req. Req. Max

Eul 0.50 %

Dimensiones de la probela

Tamaño Size

ő

Sc

en

Pipe N° Tubo N°

Lote N°

Lol N

Zone Wuestra N° Zona

Sample N°

Colada N° Heel N°

1 SE 1

Condición de la probela Specimen condition

Specimen dimensions

Min: 359 ensayo Max: --

Тетр. dma)

> 108,29 112,88 113,83 100,93 110,29 113,26

18.92 x 5.76 19.13 x 5.54 19.40 x 5.69

116,97

19.51 x 5.86 19.38 x 5.75 18.73 x 5.28 18.91 x 5.71 18.90 x 5.75 19.59 x 5.50 19.41 x 5.57 19.41 x 5.44 19.12 x 5.53 19.14 x 5.62 18,68 x 5.62 19,01 x 5,54

55 85 Egi

25216 25216 25217 25217

25216 25216

1926738 1926739 1926740 1926741 1926742 1926743 1703602 1714008

> 23593 23593 23593 23593 48635 48635 48635 48635 48635 48635

ENSILE TEST / ENSAYO DE TENSION

Elongation / Alargamonto

250

11/12	APR
YEAR 2010 Et 2011A YEAR 2010 Et 2011A JOB # 2013 - 91440 - 01	DEY WE 123

9 9 9 9

50,8

0.86 0.85 0.86 0.91 0.87 0.83 0.83

30.0 300

AMI As manufactured / Según proceso de fabricación	Ls: Location of sample / Ubicación de la muestra	Red, Max: Required maximum / Maximo requerida	U.I.S. Ullin
S Body / Cuerpo	Max; Maximum / Máximo	Req: Required / Requerido	Y.S. Yield s
51 / E2: Ende of Samplep / Extremos de Muestra	Min. Minimum / Minimo	RT: Room temperature / Temperatura ambiente	

Esta certificado de senás modumes statema compatamento y es valudado, con lima esculpera. El espeliesado espres mondo de loga Tenese podo venda, En caso de que el postedor del certificado antidados una cepla, debará garantzar la confermidad con al original haciendoso responsables por cultare se veio legal o indebido. Confejue aternados yos falarbación situata a tila es in ey. Into confiscolers, insured by a communicated spelement if which with sections signals. On the cognitis contrast the backward premiscolated in contrast the communication of the contrast to communicate the communication of the contrast to confirm the communication of the communicatio

strength / Fluencia

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INSPECTION CERTIFICATE

Page / Pagina: 2/9

Number / Número:

Manufacturer's Works Order N° / Confirmación de Yenta. Ends / Extratos: BEVELLED AT 30 DEG. ASTM INT BARE /EXT VARNISHED Nomine Weight / Paso Nominal: Surface / Superficie 5.02 LB/FT 7.48 KG/M 5753205 Date / Día: September 04, 2012 Customer's Reference / Ref. del Cliente: 680950 10855 KG 23931 LB Quantity / Cantidad: 247 Pcs/pz 4680.87 FT Steel Grado / Grado de acaro: 1/5/359 CAT II SS N/A (BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991) Customer's Order Iam / Orden Ollenle - Hem: CARBON STEEL FOR LOW TEMPERATURE SERVICE 1426.73 MTS ASTINIASME AJSA333-10+CSA Z245.1-07 CATIL-SS+PSP00374+NACE MR0175/103+IPRO LP-006 45001527-00007 Product Type / Tipo de Producio: :budgh / Longliud: Customer / Citorio, VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE SRL (SP) Schedule / Cèdula: tandard or Specification / Normas o Especificationes: Manufacturing Process / Process de Manufactura: SEAMLESS HOT ROLLED 080 2 3/8 X 0.218 INCH 80,30 X 5,54 MM

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Charlemen / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA)	UBE (CANADA) IN - VAN LEE	Gustamer's Order Itam'r Orden Glenia - Hom: 45001527-00007	rden Ciento - Itom:	Customar's Reference / Ref., del Cliente: N/A.	Manufacturer's Works Order N°1 Confirmación de Verta: 57532/05	aion da Venta
Manulaching Process / Process de Manulachina: SEAMLESS HOT ROLLED	CARBON ST	Produkt Type / Tipo de Producio: Carbon Steel for Low Temperature Service	JRE SERVICE		Suffects / Superficie	
Standard of Specification i Naturus o Especificacours. ASTRIJASRIE AISA33-10+CSA Z245.1-07 CATILSS+PSP00374+NACE MR0175/103+IPRO LP-006	CATIL-SS+PSP00374+NACE MR0	0175/103+IPRO LP-506	Steel Grade / Grado de acero: 1/6/359 CAT II SS	acero;	Ends / Externos. BEVELLEC AT 30 DEG. ASTM	
Ovinensions / Dimensiones: Schadule 2 3/8 x 0.218 tNCH 080 50.30 X 5.54 MM	Schedule / Cedule: Length / Longitud: 080 SRL (SP)	nd:	Quantity / Contidad: 247 Pcs/pz 4680.87 FT 1426.73 MTS	7 Pcs/pz 23931 LB 10655 KG	Nominal Weight? Feso Nominal: 5.02 LB/FT 7.48 KG/M	

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INSPECTION CERTIFICATE

4/9 Number / Número:

* 10 mm - 10 m Page / Página:

Date / Dia: September 04, 2012 680950 (BS EN 10204 3.1; 2004 - ISO 10474 3.1B; 1991)

Manufacturer's Works Order Nº / Confirmación de Venta: BEVELLED AT 30 DEG. ASTM INT BARE JEXT VARNISHED Ends / Extremos: 57532/05 Customer's Reforence / Raf. del Cliente: Steel Grade / Grado de acero: 1/6/359 CAT II SS MA Customer's Order Item/ Order Clante - Item: Product Type / Tipo de Producio: CARBON STEEL FOR LOW TEMPERATURE SERVICE ASTIMASME AJSA333-10+CSA Z245.1-07 CATILSS+PSP00374+NACE MR0175/103+IPRO LP-006 45001527-00007 Costomor / Clamp VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE Standard or Specification / Normps o Especificaciones Manufacturing Process / Processo, de Manufactura; SEAMLESS HOT ROLLED

7.48 KG/M THROUGH WALL HARDNESS / DUREZA EN EL ESPESOR 23931 LB 10855 KG 1426.73 MTS SRL (SP)

Quantity / Cantidad: 247 Posipz

Largth / Longitud

Schedule / Cédula: 080

2 3/8 X 0.218 INCH

50.30 X 5.54 MM

4680.87 FT

Nominal Weight / Peso Nomina?

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2000	0077024	E	24747	20	ci	*	1700	157.0	162.0	150.0	159.8	165,0	153.0	153.0	143.0	103.0	2.0

Var. Variation / Variación OD; Qutside diameter / Diámetro externo Quad: Quadrant / Cuadrante Min: Minimum / Minimo Ls: Location of sample / Ubicoción de la muestra iD: Internal diameter / Diametro interno Max Maximum / Mapimo Ex / E2 Ends of Sampling / Extremos de Muestra og Avarage / Promedio Body / Cuerpo

The confidence as too by a comparisoned system and it is valid with a locking agenture. On the original confidence we have confidence with a stampton in case the owner of the original confidence would release a copy of it, he must abtain to confidence or the original confidence or the part of the confidence in the fact that the expectable for the fact that the confidence or not altered use. Any arganitor and the individual or be law.

Este resplicação pa ampla mediante astions computantesos pas validados con fama abelidodos. El centrácido copara costes interest el copara forma en presente de que el poseción del centrador pertegas una copar, debará guarafora la conformidad con el ceginal hacidados entecimentes por carácteria escalados. Conferendos Comenciantes abelidos por ballados contratos a que a la lego.

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INSPECTION CERTIFICATE

Page / Pagina: 5/8 Date / Dia: September 04, 2012 Number / Número: 680950

(BS EN 10204 3.1; 2004 - ISO 10474 3.1B: 1991)

		1			the first of the f	The second secon
Continue / Ollenter VAN LEBUWEN PIPE & TUBE (CANADA)	PE & TUBE (CANADA) IN	IN - VAN LEE	Customer's Order Item / Orden Cliente - Nom: 45001527-00007	an Cliente - Item:	Customer's Reference / Ref. del Climite: NJA	Curromat's Reference / Ref., del Cliente: Manufactrer's Works Order Nº / Confirmacion de Venta: N/A.
Manufacturing Process / Process de Manufactura SEAMLESS MOT ROLLED	ufactura	Product Type / Tipo de Producto: CARBON STEEL FOR LOW	Product Type / Typo de Producto: CARBON STEEL FOR LOW TEMPERATURE SERVICE	E SERVICE		Sufeze/Superficie: Int bare / Ext varnished
Signatur or Specification / Normes o Expedificaciones: ASTMIRS ME A/SA333-10+CSA Z245.1-07 CATIL-SS+PSP00374+NACE MR0175/103+IPRO LP-006	utilicationes: 15.1-07 CATII-SS+PSP0037	74+NACE MR0175		Steel Grade / Grado de acero: 1/6/359 CAT II SS	a acero:	Entra / Extramos: BEVELLED AT 30 DEG. ASTM
Dimensions / Dimensiones	Schedule / Cedula:	Length / Longitud	Q. 4	Quantity / Cantidad: 247 Pcs/pz 4680.87 FT	17 Pcs/pz 23931 LB	Nominal Weight / Peso Nombrail 5.02 LB/FT
60.30 X 5.54 MM		SRL (SP)	14	1426.73 MTS	10855 KG	7,48 KG/M

IMPACT TEST / ENSAYO DE IMPACTO

Type-Trop C	harcy V				Criental	rientation/Orientación:	tación: L		UAB / L	Inklad: J	
Posticentes	Cion			Temp55	AD.		Unit/Unidad: 'C	Ind.Min.Re	4 :0	Req.Mic Avg; 7	7 10: 7
Heal N	Sample N*	Lol N°	Pipe N			T.1	Size / Tamaño		Results / Resi	Resultados	
Collida N		1111	Tubo N.	2	S	ပ္	mm	1	2	13	Avg.
23593	-0-	25216	25	8	AM	ģ	10.0 × 3.3	0,89	73,0	71.0	0,17
27593	1926743	25217	108	20	AM	ij	10.0 x 3.3	77,0	70,0	82,0	26,3
48435	1703601	21331	40	02	AM	55.	10.0 x 3.3	73,0	78,0	70,0	73.7
48635	1714000	21507	S	23	AM	ķ	10,0 x 3,3	71,0	74,0	87,0	77,3
48635	172447D	21717	ď	8	AM	ŞŞ	10,0 x 3,3	0.50	78,0	69,0	84,0

Req. Min. Avg. Required minimum average / Promedio Ls: Location of semble / Unicación de la muestra mbrimo requerido Ind. Min. Req: Individual Minimum Required / Requesido Mínimo Individual L. Longludinal / Longhudinal AMI As manufactured / Según proceso de fabricación Avorage / Promadio # Back / Company

FLATTENING TEST / ENSAYO DE APLASTAMIENTO

Sc Specimen condition / Condición de la probeta T.T: Test temperature / Temperatura de ensayo

Temp: Temperature / Temperatura

Stradard	Schritte				Standard / N	oma:				STENDERO I PU	Strike.		
Hoat N° Coloda N°	Lote N"	Sample N° Muestra N°	2	Result	Heat N° Colada N°	Lot N" Lote N"	Sample N® Muestra Nº	Ls	Result Resultado	Colada N° L	Lot N°	Sample N° Muestra N°	ig.
23593	25216	1926726	III.	Good / Blieno	23593	73217	1926742	m	Good / Bueno	48535	21507	1714013	27
23593	25216	1926738	д	Good / Bueno	23593	25217	1926743	Д	Good / Baeno	48635	21507	1714016	pc)
23593	25216	1926739	ça	Good / Boste	48635	21331	1703501	Ф	Good / Bueno	48635	21507	1201121	m
23593	25216	1926740	В	Good / Bueso	48635	21331	1703602	Ш	Good / Bueno	48635	23507	1714022	Д
23593	25236	1926741	n	Good / Bueao	4\$6.15	21507	1714008	В	Good / Bucco	48635	21717	1724470	œ

Good / Burno Good / Buents Good/Burns Good / Burns

Good / Burns Resultado Result

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INSPECTION CERTIFICATE

Page / Pagina: 6/9 Number / Número:

680950

Manufacturer's Works Order Nº / Confirmación do Venta. 57532/05 \$ 2,450 | 250 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 26 BEVELLED AT 30 DEG. ASTM INT BARE JEXT VARNISHED Nominal Weight / Peso Nominal: Ends / Extremos: 5.02 LB/FI 7.48 KG/M Date / Día: September 04, 2012 Customer's Reference / Raf. del Cliente: 23931 LB 10855 KG Quantity / Canlidad: 247 Postpz 4580.87 FT Steel Grade / Grado de acard. 1/6/359 CAT II SS (BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991) Customer's Ordor Item / Order Clierte - Item: 45001527-00007 Product Type / Tipo do Producta: CARBON STEEL FOR LOW TEMPERATURE SERVICE 1426.73 MTS ASTMIASME A/SA333-10+CSA Z245.1-07 CATII-SS+PSP00374+NACE MR0175/103+IPRO LP-006 Length / Longitud: SUSPENSION OF LEEDWEN PIPE & TUBE (CANADA) IN - VAN LEE SRL (SP) Schodule / Cédula: 080 Standard or Specification / Normas o Espacificaciones Marufathung Process / Process de Marufadura SEAMLESS HOT ROLLED правария Прителаголея 2 3/8 X 0 218 INCH 60.30 X 5.54 MM

FLATTENING TEST / ENSAYO DE APLASTAMIENTO

Sample N° Ls Resultado Muestra N° Resultado	172449% B (Good / Bueno
'z z	21717
Standard / Norma: Heat N° Lot Cotada N° Lot	37757

Ls: Location of sample / Ubicación de la muestra

B Sody / Cuerpo

HYDROSTATIC TEST / PRUEBA HIDRAULICA

Results / Resultado		Safefactory / Salastactorio
Time / Timpo	Seconds / Segundos	5 .
Presion	Value / Valor	3,000 7
Pressure / Presion	Unit / Unidad	PSI

HEAT TREATMENT / TRATAMIENTO TERMICO

quanth media of heat treatment process / Madio de enframento del tretamiento térmico: WATER Temperature Temperatura 058 Templantum Scale / Escala de Temparatura calcius Heal tradition() Tratements termino: Pipe / Tubo CUENCHED

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Duración Duration (Mins.)

Tolerancia Tolerancia

2



INSPECTION CERTIFICATE

Number / Número: Page / Página: 680950 7 / 9

\$ 250 - 250 4 (a) 250 (b) 250

Manufacturar's Works Order N" / Confirmación de Venta: BEVELLED AT 30 DEG. ASTM INT BARE /EXT VARNISHED Nominal Weight / Feso Nominal Surface / Superfice: Ends / Extremos: 5.02 LB/FT 7.48 KG/M 57532/05 Dale / Dia: September 04, 2012 Customer's Reference / Ref. del Clente: 23931 LB 10855 KG Cuantity / Cantidad: 247 Pos/pz Steel Grade / Grado de acero: N/A 1/6/359 CAT II SS (BS EN 10204 3.1; 2004 - ISO 10474 3.1B; 1991) Customer's Order Nem / Orden Chante - Nem: Product Type / Tipo de Producio: CARBÓN STEEL FOR LOW TEMPERATURE SERVICE 1426.73 MTS 4680.87 FT ASTREASME AUSA333-10+CSA Z245.1-07 CATIL-SS+P9P00374+NACE MR0175/103+IPRO LP-066 45001527-00007 Length / Langitud: Customer / Cliente: VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE SRL (SP) Schedule / Cédula: ingain or Specification / Normax o Especificationess Manufacturing Process / Proceso de Manufactura: SEAMLESS HOT ROLLED 080 2 3/8 X 0.218 INCH 60,30 X 5,54 MM

HEAT TREATMENT / TRATAMIENTO TERMICO

faes) несителен (Traium ent) tênnau . Pipe (Tubo.) Coend, media of heat breatment process / Media de enfriamenta del tratamiento térmico: WATER (Tampanulue Scale / Escala de Tumpuratura celcius

Type Temperature
Tho Temperatura
TEMPERED 665

Duration Duración

> Tolerance Tolerancia

(Mina.)

SPECIAL REQUIREMENTS / REQUERIMIENTOS ESPECIALES

Description / Descripción 30 GAUSS NON LIFTABLE CLOSED PLASTIC PROTECTOR FOR FLAT / BEVELED PIPE, SUPPLIER METALCENTRO. Pipe residuel megnetism / Magnetismo remanente de tubo End protectors / Protector do extremo

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

Supplementary Information Información Suprementaria

AND THE BOOK OF THE PARTY OF PROPERTY.

ACIERAGE PROCESS*

A FULF AUMINIUM KILLED AND FINE GRAIN

CRAIN

THE EFPROTICE INCLUDES ARGON RINSE AND A FINAL INJECTION OF CALCIUM SILICIDE WIRE FOR MICROARCLUSION SHAPE CONTROL

MATERIAI FREE FROM MFRCURY CONTAMINATION.

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FABRICACIÓN DE ACERO: FUNDICIÓN POR ARCO ELECTRICO Y COLADO CONTINUO - ACERO CALMADO AL ALUMI

FABRICADO POR TENARIS SIDERCA?

PROCESO DE ACERACIÓN" FABRICACIÓN DE ACERO: F PRACTICA DE GRANO FINO

LA PRÁCTICA DE AFINO EN EL HORNO - CUCHARA INCLUYE AGITACION POR ARGON Y UNA INYECCIÓN FINAL DE Y VARILLA DE SILICIURO DE CALCIO PARA OBTENER UNA FORMA GLOBULAR DE EVENTUALES MICROBACLUSIONES

-MATERIAL LIBRE DE CONTAMINACIÓN DE MERCURIO.

FOR03171



INSPECTION CERTIFICATE

Number / Número: Page / Página: **680950 8 / 9**

Manufacturer's Works Order N° / Confirmacion de Venta; BEVELLED AT 30 DEG. ASTM INT BARE JEXT VARNISHED Nominal Weight / Peso Nominal 5.02 LB/FT 7.48 KG/M 57532/05 Date / Dia: September 04, 2012 Customer's Raference / Ref. del Cliente: N/A 10855 KG 23931 LB Quantity / Cardidad: 247 Pcs/pz Steel Grade / Grado de acero: 1/6/359 CAT II SS (BS EN 10204 3.1: 2004 - ISO 10474 3.1B: 1991) Customer's Order Nem / Orden Ofente - Hern's 1426.73 MTS CARBON STEEL FOR LOW TEMPERATURE SERVICE 4680.87 FT ASTMIASME AJSA333-10+CSA Z245.1-07 CATII-SS+PSP00374+NACE MR0175/103+IPRO LP-006 45001527-00007 Product Type / Tipo de Producto: Length / Longitud: Sostamen / Cliente, VAN LEBUWEN PIPE & TUBE (CANADA) IN - VAN LEE SRL (SP) Schedule r Cédula: Manufactuneg Precess / Process de Manufactura 080 SEAMLESS HOT ROLLED imensions / Dimensiones: 2 3/ B X 0.218 INCH 60.30 X 5.54 MM

SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA

FABRICACIÓN DE TUBO: LAMINADO EN CALIENTE Y SIN COSTURA. EDICIÓN DE LA NORMA: NACE MR 01-75 - ISO 15158-2 : 2009 - EDICIÓN DE LA NORMA; NACE MR-01-03 EDICION 2010 -CONTROL VISUAL Y DIMENSIONAL: SATISFACTORYO. *CONDICIONES DEL MATERIAL* EDICIÓN DE LA NORMA; ASME SA 333/ 2010 EDICIÓN DE LA NORMA: ASTM A 353-11 EDICIÓN DE LA NORMA: CSAZZ45: 2007 NO REPARADO POR SOLDADURA. PROCESO DE LAMINACION CONTROLES Supplementary Information Información Suplementaria EDITION OF REGULATION: NACE MR 01-75-190 15156-2 2009 UISUAL AND DIMENSIONAL INSPECTION : SATISFACTORY. SERVICES OF REGULATION: NACE MR-01-03 EDITION 2010 HANUFACTURES PROCESS; SEAMLESS HOT ROLLED. ABILION REGULATION: ASME SA 333/ 2010 EDITION OF REGULATION : CSA 2245 : 2007 EDITION OF REGULATION ASTM A 333-11 NOT REPAIRED BY WELDING MINITERIAL CONDITIONS* *の日本でロンエにか CONTROLS

Additional Information Information Microsonal Information Microsonal Information Microsonal Information Microsonal Information Methods: E.M.J. TRANSV, (EXT.JINT.)

Additional Information Information Adolonal Information Adolonal Information Adolonal Information Adolonal Information Bando ON EACH END.

MARKING / MARCACION

- NANNN = Número de lubo / Nbr of pipe Marcación Marcación - 6 = Napagrama / Managram SiDERCA

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INSPECTION CERTIFICATE

6/6 Number / Número: 680950

11111 Page / Pág na: BEVELLED AT 30 DEG. ASTM

Ends . Extramos:

Namir of Weight / Peso Nominal

5.02 B/FT 7.48 4G/M

23931 LB 10855 KG

1426.73 MTS 4580.87 FT

Quantity / Cantidad: 247 Pos/pz

Length / Langitud

Schadule / Cédula

mensions / Dimensiones 2 3/ B X 0.218 INCH 50,30 X 5.54 MM

080

SRL (SP)

Steel Grade / Grado de acero: 1/6/359 CAT II SS

ASTINIASINE A/SA333-10+CSA ZZ45.1-07 CATII-SS+PSP00374+NACE MR0175/103+IPRO LP-006

Standard or Specification / Normas o Especificaciones

Manufacturer's Works Order N. 7 Confirmación de Venta: VAX VAX INT BARE / EXT VARNISHED 57532/05 Surface / Superice: Date / Dia: September 04, 2012 Customer's Reference / Ref. del Clienie: MA (BS EN 10204 3.1; 2004 - ISO 10474 3.1B; 1991) Product Type / Tipo the Productic CARBON STEEL FOR LOW TEMPERATURE SERVICE 45001527-00007 CUSTOME / CLIBITE VAN LEEUWEN PIPE & TUBE (CANADA) IN - VAN LEE uring Process / Process de Manufactura SEAMLESS HOT ROLLED

MARKING / MARCACION

Marking Markadón	. MMX.YY = Mas/ANo Moout/Yest	Skencting (Fige) Esarcido (Tubo)	SEAMLESS 207KPAX100 NDE CSA 2245.1-97 A5001527 MADE IN AHGENTINA HVXXXXXX MANNIN ULLL HPRPP	This is to contify this the product described here has been manufactured, sampled, feated, and inspected in accordance with Pov et prosesse country this the product described here has been manufactured, sampled, feated, and inspected in accordance with Pov et prosesses country. This certificate is not a declaration of origin nor may it be used as a declaration of origin.
Marcaring Marcarido	LL_s = Longitus / Rongin PPP = Poso / Weight - ill = Longitama / Yonegram / PP	Stancilling (Pipe) Estlando (Tubo)	TETTARIS SIS MALYY ASTIMASIAE AMARIS 60,3 5,54 1,48 2 SCHOJ XS 1,6058 CATILIS HO OT MADOLI 456	This is to consignate product described here has been manufactured, sampled, feated, and inspected in accordance purchasses reconsidered on secondarial or secondarial or so and the present of secondarial or so and the secondarial or so or secondarial or so or secondarial or so or secondarial or so or secondarial or so or secondarial or so or secondarial or so or secondarial or s

TENARIS QUALITY DEPARTMENT SIGNATURE THIRD PARTY

DEPTO, DE CERTIFICACIÓN DE CALIDAD DUALITY CERTIFICATION DEPT.

COMPAÑA DE INSPECCIÓN

INSPECTION COMPANY

CUSTOMER.

Company Name: N/A Employee Name: N/A

GATO Gabriel

RESPONSABLE DEL DEPTO. DE CEFTIFICACIÓN DE CALIDAD C-EB OF QUALITY CHILL CLITICN DEPT AYERBE Eduardo

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FOR03171

Order#: 308583 Seq: 1 PO#: 133509-125-001 Heat#: 1240365 Mill: Chengdu Steel
Part#: P 2 160 S3 S B Part Desc: Pipe 2 (62 3mm O D.) SCH 160 SMLS A/SA333-6 SRL BEVELLED END (344W)

Gr. 6/290 CAT II SS CSST2012/329

CONTRACT No: STEEL GRADE: STANEARD:

MILL TEST CERTIFICATE

CHINA INDUSTRIAL METAL CO., LTD

CLIENT:

PO E1-2886

SHIPPING MARKS:

MARKS:	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2					CSST		MILL	TOUT OF	COKITI CALE	CALLE				STEEL GRADE	ADE	Gr. 6/290 CAT II SS	
DESCRIPTION:		SEAMLESS CARBON STEEL PIPES	STEEL PIPE	S		PANGAR	PANGANG GROUP CHENGDU S IDDEASS CENTRO SICIRIAN GIVIA TELE	P CHEN	GDU ST	FEEL &	Sc VANA	STEEL & VANADIUM CO.,	LTD.		STANEARD:		SMESA33 7/NACES	
CERTIFICATE	No.	2012029002-1				TOTAL	AL:	104	PIECES	3257, 958	METERS	35	35066 113					
			CHAN-II		HEAT NO	BATCHNO	-1		-	No. TO			MPACT TES	1521	-		(%) VE	
Ų.	SIZE	in the second se	METERS	KG	METUNG	DELIVERY	en .		7	0	(%)	MPACT STATE	1(5)	2(1)	+	AVG(J)	2 3 THREAD	
	8"*O 908"*40"	-	346	5570	1280906 EAF+VD	H452040137	37 LON 12.7	320	455	3		V 45°C LON 10X10X55	300	299 302	300	301	-AICO # P975	
C C	2 40 00F = 40°	oć	97.536	10856	1280906 EAF+VD	H452040138		335	160	3	37,5	V-45TC LON 10X10X55	7.50 7.50 7.50 7.50 7.50 7.50 7.50 7.50	305	2000	-	422-6	
	12.00 E00" 640"		19 142	788	1280907 FAF+VD	H452030083	33 LON 38.1	330	485	4	47.5	V 45°C LON 10X10X55	299	-	296 269		15	1
	*** 375" ***	r.		2979	1280740	K632040018		380	485	4	43.5	V 45°C TRA 7. 5X10X55	1 66		89. 9	-	2.0	
	1	9 52		4471	1240365 FAR+VD	H4H2030164		345	485		37	V-45°C LON 6. 67X10X55	174 150	162 150	1559	162	10-0775-502:50	1
	7 7 7 1 1 1 7	1		4335	1240365	-1	35 LON	3455	0.084 0.000	1	1	6. 67X10X55	155	161 149	172	1563	13,10,12,13,14 FF	1
000			256.032	2845	1240365 EAE+VD	H4H2030166		320	485 500	1	1	6. 67X10X55	175	170	165		APR 23 APR	- 4
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125	126/127	112411	ACC.	ACC		398075s	AGC	IITA 3			0110000	22 -> 27 HS 2156 15156 BARNTAND 0103/ISO 15156 2/HRC -> 22	CE MRN175	MR 0103/ISC	H/2 95151 C	3C<= 22		
\$27	1.23	121 712 124	ACC	900		2440,38	ACC	C / II						3				
0	4 500	4	VVC	ACC	1	- 1000/58	ACC	111,13			URENSON KILL	ED STEEL HEA	T TREATME	NT TEMPER	ATURE # 16	OLD TINE	ALUGUSTA KILLED STEEL HEAT TREATMENT TEMPERATURE \$ NOLD TIME 890°C+4:30°C 15MIN AT LEAST	
522	13.57/132	2011.132	Ų.	33W	1	2500/55	ACC	117/1.3		i i								
123	132/133	130/133 141	VICE N	ACC		2500/58	ACC	U1/13		ACC								
	1,111,112,113	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The second second	1000		THE PERSON IN	P CHIAL CITY	103.930,50	7					FILE	ING PROS		DATESTERN TOTS WORTH OF LITE	
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3. THE ORIG	THIS IS TO CERTIFY THAT THE PRODUCT HAS BEEN MEDICATED AS PER RELEVANT SPECIFICATION AS STRUCKED ONLY FOR PEFERANCE. WILL THE DATA IN COMPLIANCE WILL IN STEMPLAND THE ORIGINAL CERTIFICATE IS THE FOUNDATION OF ACCEPTANCE WHITE THE COPY IS NOT ACCEPTANCE VUICHER AND ONLY FOR PEFERANCE. THE ORIGINAL CERTIFICATE IS THE FOUNDATION OF ACCEPTANCE WHITE THE COPY IS NOT ACCEPTANCE WHITE A TRAPPRIOR THE PROPURED THE CALL OF A TRAPPER OF A	THE PRODUCT TE IS THE FOUN	HAS BEEN THE VOATION OF A	SPECTED AS I	PER RELEVANT WHILE THE CO	F SPECIFICATION PY IS NOT ACCE	PTANCE VOU	CHER AND C	MLY FOR RI	FERENCE OT EXPAND	HALLINE DA	A IN COMPLIA	E					
C CONDITIO	N OF SUPPLY: Q	CENCHED AND ning. Defe	TEMPERED-C	Z+1,HO1 FOLL EPTABLE	ED-HK, COENC	HEU-U, NORING	אואוא, אייטקיאן	7,000										
		t																



SAN ENG STEEL FORGING CO LTD 311, Jen Hsin Road, Jen Wu District Kachslung, Talwan, R.O.C. TEL:07-3724249; FAX:07-3712923 URL: www.seneng@ksta.seed.net.tw

MILL TEST CERTIFICATE

Customer: SEYBOLD INTERNATIONAL CORP., Order No.: 7006135(3)-V/L. EN10204-3,1.B(DIN50049/3.1.B)

Date: 01/04/2013 Certificate No.: SE-8135C Page: 2 OF 5

		PRODUCT		MATERIAL		SPECIFICATIONS	TIONS		_	DIMEN	DIMENSIONAL		SPECIFICATIONS	10
	FORGED	FORGED CARBON STEEL FLANGES		ASTM A350 LF2-11 CL.1/ASME SA350 LF2-11 CL.1	2-11 CL.1//	ASME SA3	50 LF2-11 CI	-			ASN	ASME B16.5-09 CSA Z245.12	60 01	
			-	NATION AND ADDRESS OF THE PARTY		9		CHEMIC	CAL CON	COMPOSIT	(%) NOI			
Ham			ð	RUANIIIY	C	50	Mn - P	S	Cu Cu	Z	No N	QN	z	(CE(*3)
Š.	CODE NO	DESCRIPTION		Min	1	. 22	0.0	0		0.400	0.120 0.080	a	x	¥
1	2044A E0	200 bi be 4" i 63		20 DC	+	+	+	$^{+}$	-	0.010	-		0.005	0.408
	_	SUU BLRF I LFZ		10101	0.2.0	_	_		_	2 00	_		0000	7070
12		150 WNRF STD 1" LF2		20 PCE	0.210	_		_	_	0.060	_		con.n	424.0
13	22145-LF2	150 SWRF XS 1 1/2" LF2	_	50 PCE	0.210	0.200	1.150 0.017	_	_	0.010	_	_	0.005	0.406
14	33629-LF2	900/1500 SWRTJ \$180 1 1/2" LF2	-	20 PCE	0.209	0.220	1.020 0.014	0.008	0.008 0.012	0.054	0.002 0.005	5 0.005	0.006	0.387
10		300 HUB BLRF 1 1/2" LF2		25 PCE	0.220	0.200	1.150 0.021	0.003	0.006 0.010	0.010	0.002 0.004	0.001	0.005	0.416
4.0		300 BI RE 1 10"1 E2		15 PCE	0.210	_	_		0.006 0.020	0.010	0.003 0.005	5 0.001	0.007	0.410
7		300 MARE XXS 4 1/2" E9		15 PCE	0.200	_	_		_	0.040	0.015 0.003	3 0.005	0.010	0.407
- 4	_	1400 WART IS180 1 10" I E9		15 PCE	0.222	_		_	_	0.122	0.009 0.015	5 0.005	0.003	0.417
0 0		300 WNRE \$160 2"1 F2		100 PCE	0.220	_			_	0.020	0,005 0.005	100.0	0.007	0.424
20		600 THRF 2" LF2		50 PCE	0.220	0.220	1.180 0.016	900.0	0.007 0.0	0.020 0.020	0.005 0.005	0.001	0.007	0.424
1		10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Descri	O A (*41)		Thousand Too	1							
Hed	Heat No.	(MPA) (MPA)				Temp: -46°C	. O	100	بوااميس امنا		HEAT TREATMEN ("Z)	MENI('Z)		
Š		250.0	_	30.0	Min	Minimum: 20.0 Joule	Joule	INIBILE	waterial Supplier	Z				
2	3.	655.0	197		-	2	8	ı		R	REMARKS			
=	4554034		153/151	1 69.5	72.0	39.0	1 45.0	ACOMINAS	IAS	88	890°CX3HRS			V
12		399.1	155/153	3 68.6	90.0	64.0	83.0		WEI CHIH STEEL	3 3	NFORMS V	WITH NAC	CONFORMS WITH NACE MR0103-12 AND NACE	D NACE
13		362.0	153/151	1 69.5	72.0	39.0	0 45.0	ACOMINAS	MAS	E Z	AND ANNEX A	20.5	20000	
14		511.9 343.2 32.8	155/163	3 66.0	32.0	67.0	28.0	MTM		- -	NFORMS \	MTH Z246	CONFORMS WITH Z246.12 CAT II GR248 SOUR	SOUR
₹£	4553962	535.0 354.0 33.8	154/152	68.6	40.0	37.0	47.0	ACOMINAS	NAS	S	RVICE-09 /	AND GR25	SERVICE-09 AND GR290 CATILM45C SS(FOR USE	(FOR USE
16	3 4522439	535.0 368.0 34.0		_	69.0	90.0			AAS	2	ST SPECIA	NEN SIZE:	10X10	S CINETY
17	37320	348.1		_	23.0	29.0		_		-	ST SPECIA	GEN ORIE	TEST SPECIMEN ORIENTATION: TRANSVERSE	VERSE
18		338.3	_	_	35.0	38.0		-		Σ	PACT TEST	TEMP.:-	48℃ ~	
18		358.0	_	1	90.0	51.0		÷	(AS					
20	7 4803012	529.0 356.0 35.0	163/151	71.3	90.0	51.0	0.4.0	ACOMINAS	MAS	/	A TORPLING	18		
-		T.S Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area	on, R.A.=Red	uction of Area.								1		
5		-Apnealed: O=Ouenched: T=Tempered: S	S.T=Solution	Ineated, S.R=Stre	SB Relieve				STATE OF THE PARTY	C TH	CA 9 PM	6		
i 		A.C=Air Cooled, F.C=Furance Cooled, W.C=Water Cooled, O.C=Oil Cooled.	O.C=Oil Coo	bed.		-		2501 Bri	2501	が、	に同じ	18		
3		30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14				CONFORMS TO SA -	2			1	1		
9		(WILLIA) + (CT + IMO +V) T > + (MI + CL) T :				VEAD	(JODES)	JOH MOD	MOD		ACOURAL TO			
We	nereby certify that the	Whe hereby certify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order.	with the abor	va specification a	рı	* eO:	2013	- A UN D	10-	Manager	3	setty Assurance Dep't	Dep't	
			ř	0hh8-61	10-01	+31°	ツれ井	w/	2					
				Po - 153	33415	¥ 18		d'y	2 6 2013				3	
						SIGNED BY	DBY T	3		nte Pi			THE STATE OF THE S	
							1000	-	The Part of Street, Square, Sq				Co. Continue State of the last	

VL QA Approved

STAMPAGGIO A CALDO OF ACCIAI COMUNI - LEBATE E INOSABABILI PRODOTTI INDUSTRIALI S.P.A.

28861 CESANA BRIANZA (LC) - Italy Via G. Parini, 28 SEDE AMMINISTRATION E STABILINENTO:

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

	Certif, N. 2881	Del/Dated 07.06.2012	Fattura / Invoice N. 1976		el/Dated (Del/Dated 06.06.2012
	DDT / Del Note N. 2303	Del/Dated 06.06.2012	Ns.Ord. / Our ref. N.	۵	Del/Dated	
SEYE	SEYBOLD INTERNATIONAL CORP.	CORP.	Dest.: VAN LEEUWEN			
20 H	20 Holly Street, Suite 205 TORONTO M4S3B1	CA	EDMONTON ALBERTA			CA

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV = 150 9001;2008 = quality.mf@larmas.com Tel. +39 031.655441 Fax +39 031.855149

VISIVO E DIMENS. VIS. & DIMENS. Pag. 10 - 26 SATISFACTORY Ne.Rif. OUR REF. ORIGINE / ORIGIN SNERVAMENTO YIELD POINT N/mm2 >=1,0% 000'0 **ELECTRIC FURNACE ASME/ANSI B16.5 -2009** FORNO / FURNACE DIM. ACCORDANCE TO 0,002 0,000 0,034 0,402 C.E.% DIM.IN ACC. A AI% RESILIENZA / IMPACT TEST - JOULE/on2 69 20 CS 80N Ų 0,120 0,003 NORMALIZED AT 930 C - COOLED IN STILL AIR % TIPO / TYPE 10x10mm TRATTAMENTO TERMICO / HEAT TREATMENT %nO 0,017 % |-|-0,110 0,026 DUREZZA HARDNESS H HBW LF2CL1 166,0 - 170,0 Mo% %<u>!</u>% W/N 300 RF 2" 160 0,003 0,070 နို ပ CONTRAZIONE
REDUCTION OF AREA DESCRIZIONE DESCRIPTION 8 ASTWASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 0,002 ALLUNGAMENTO ELONGATION O.TA' 50,00 % 1,060 Mn% SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT ROTTURA TENSILE STRENGHT Númil >= 0,220 Si% VS.ORDINE YOUR REFERENCE CSA Z245.12 GRADE 248 CAT.II SOUR SERVICE 061,00 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ပိ SNERVAMENTO
YIELD POINT
N/mm/2 >=0,2% 7005408 345.0 ASTM A350 LF2 CL1/2 (LADLE) Pos. PROVETTA / TEST SPECIMEN FORMA SEZ mm2 LUNG.mm SHAPE SECT.mm2 LENGHT mm 1=0 2=0 1449/11 MATERIALE / MATERIAL COLATA HEAT CODE HEAT 50,80 COD. COL. 126,60

VISIVO E DIMENS. VIS. & DIMENS. 5-2009 SATISFACTORY	8 % 00°00 0	SHEKWARENTO NS.RIF. YMELD POWT OUR REF. 0,0	NACE ORIGINE / ORIGIN :URNACE EUROPE
DIM.IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2009	AI% C.E.% 0,029 0,409	, 66	FORNO / FURNACE ELECTRIC FURNACE
DIM	000'0	RESILIBIZA / IMPACT TEST - JOULE/cm2 3	
	%qN 00000	ZA / IMPACT TE	~
	Cu% V% 0,100 0,000	RESILIENZ TIPO/TYPE 10x10mm KV	IN STILL AIF
	口% 0,015 0	LOHL	COOLED
LF2CL1	Ni% Mo% 0,040 0,010	DUREZZA HARDNESS HBW 163,0 - 165,0	TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR
DESCRIZIONE DESCRIPTION S/O 150 RF 2"	P% Cr% 0,010 0,070	CONTRAZIONE REDUCTION OF AREA %>= 60,0	TRATTAM! NORMAL
© .TA' © © YT.© 15,00 S	Mn% S% 1,160 0,007	ALLUNGAMENTO ELONGATION RE %>= 30,0	RT A, ED. 2010
Ģ.	Si% 0,210	ROTTURA TENSILE STRENGHT N/mm2 >= 541,0	SECT. II, PAI
VS.ORDINE YOUR REFERENCE 7005408	C% 0,190	SNERVAMENTO TE VIELD POINT TE NIMME >=0,2%	RIAL IN ACC. TO 11 ASME CODE (
POS. ITEM 022	2 (LADLE)		A 350 M - 1 248 CAT.II
COD. COL. COLATA HEAT CODE HEAT 10/33022	MATERIALE / MATERIAL ASTM A350 LF2 CL1/2 (LADLE)	PROVETTA/TEST SPECIMEN FORMA SEZ mm2 LUNG, mm SHAPE SECT. mm2 LENGHT mm 1=0.2=[126,60 50,80 1	MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA 7245.12 GRADE 248 CAT.II SOUR SERVICE

2 6 2013 CONFORMS TO SA SSOLF 2CL JOB+ JO13 - & 440-0 YEAR ANDED , DON AND SEP TTEM# # SIGNED BY 3-8440-0N 21133415 Š.

> MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 16156-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE NOTE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION NOTES MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 16/15/2/109

MFF

MANUFACTURER'S SYMBOL

MARCHIO PRODUZIONE

ENTE UFFICIALE DI COLLAUDO

INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT



INSPECTION CERTIFICATE & MILL TEST REPORT - EN 10204 3 1

CONFORMS TO SA 182-3161 YEAR LODED, ZOIL ADD JOB# 2013 - 8440-01 WE CERTIFY THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE ORDER/CONTRACT AND IS OF INDIAN ORIGIN 3-8440-01 MANUFACTURER'S SYMBOL



RACTORY: Survey No. 1404, Saravall & G.75, MIDC Tarapur Industrial Area Bossar, Dist. Thane, Maharashtra-401 506. INDIA, Tel.: (491) 9049991036 to 1041 Fax. (4912525) 275337, E-MAIL - Viquational community.

SIGNED BY

TEM# # 65



CHANDAN STEEL LIMITED

(GOVT, OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001 : 2008 CERTIFICATE No. 04 100 011022-E3

AD 2000 - MERKBLATT WO - REGN.No. 07 202 1423 WP 1261 09

PED 97/23/EC-CERTIFICATE No. 07 202 1423 WZ 1261/09

ADM. OFFICE: 504, SUKH SAGAR, N. S. PATKAR MARG,

MUMBAI 400 007, INDIA

Tel.: 91-22-66290600. Fax.: 91-22-66290633/34

Website: www.chandansteel.net Email: csl@chandansteel.net

L/c. No. :---L/c. Date: --- WORKS: Plot No. 35, G. I. D. C., Umbergaon

Dist Valsad, Gujarat - 396 171.

Tel.: 91-260-256 2066 / 4367 / 1166. Fax.: 91-260-256 2287

E-mail : exports@chandansteel.net

F824 QC 09/01/01.06.2010

MATERIAL TEST CERTIFICATE ACCORDING TO EN 10204 - 3.1

UNIFIED ALLOYS (EDMONTON)

8835 - 50 AVENUE,

EDMONTON, ALBERTA,

CANADA T6E 5H4

Test Certificate No. : EXP/0945-09/2011-12

73

75

76

Date of Issue

: 07.03.2012

P. O. No.

: EP-95256 & CP-55627

Invoice No. & Date : EXP/0945/2011-12 Dtd. 07.03.2012

ITEM DESCRIPTION STAINLESS STEEL FORGED & FULLY MACHINED FLANGES

			I				Tr.			Proc	ess Route	
Sr.No.	Heat No.	Pcs	Box No.	Wt.Kgs	Grade		Item					
1	12/262	44	5	338.80	316/L	6" 5	SORF 150 I	LBS).D. Refining,
2	12/235	75	6	262.50	316/L	2" WN	RF 300 LB	S S-80S 🧲	Conti	nuous Ca	sting & Ho	t Forging
3	12/147	9	6	63.90	316/L	4" WN	RF 150 LB	S S-10S				
					CHEMICA	L COMPO	SITION (W	Veight %)		LOUGH		
Sr.No.	С	Si	Mn	P	S	Cr	Mo	Ni	Cu	Ti	N	OTHERS
1	0.027	0.41	1.45	0.037	0.020	17.04	2.02	10.10	9	4	0.0620	- 10-
2	0.025	0.62	1.73	0.038	0.013	16.85	2.02	10.02	<u> </u>	ш	0.0700	—
3	0.025	0,52	1.64	0.036	0.008	16.96	2.03	10.02	п	-	0.0550	Á
					MEC	HANICAL	PROPERT	IES				
Sr.No.		Yield Str /mm² (R _p	_	1	Strength 1 ² (R _m)		gation ⁄₀	Reduct	ion of Area %		Hardnes (B. H. N	

54

55

50

Remarks:

1

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3

- 1. The material is solution annealed at minimum 1050 °C and water quenched.
- 2. Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.
- 3. PMI test 100% satisfactory.

273

266

271

- 4. Micro Structure Reveals Austenitic grains with annealing twins and is free from carbide (At 500 X).
- 5. Inter-Granular Corrosion Test as per ASTM A 262 10 (Pr.E) satisfactory.
- 6. The material conforms to ASTM A 182 11, ASME SA 182 10 & ASME B16.5 09 Specification,

594

- 7. Visual and Dimensions inspection 100% satisfactory.
- 8. The material conforms to NACE MR 0175/ISO 15156-1:2009 (E).





174-178

175-179

181-185

2-8440-01

We hereby certify that, the material described herein, and supplied are in compliance with the requirements of the o

CONFORMS TO SA 182-316L
YEAR LOIDED 2011 ADD

JOB : 2013 - 8440-01

SIGNED BY ACT 0 1 2013

B. S. RAUTELA WORKS INSPECTOR



CHANDAN STEEL LIMITED

(GOVT. OF INDIA RECOGNISED EXPORT HOUSE)

ISO 9001: 2008 CERTIFICATE No. 04 100 011022-E3

AD 2000 - MERKBLATT WO - REGN. No. 07 202 1423 WP 1261 09

PED 97/23/EC - CERTIFICATE No. 07 202 1423 WZ 1261/09

ADM. OFFICE: 504, SUKH SAGAR, N. S. PATKAR MARG,

MUMBAI 400 007, INDIA

Tel.: 91-22-66290600. Fax.: 91-22-66290633/34

Website : www.chandansteel_net Email : csl@chandansteel.net

L/c. No. :--L/c. Date: ---

WORKS: Plot No. 35, G. I. D. C., Umbergaon

Dist Valsad, Gujarat - 396 171.

Tel.: 91-260-256 2066 / 4367 / 1166. Fax.: 91-260-256 2287

E-mail : exports@chandansteel.net

F824 QC 09A / 02 / 28.03.2012

INSPECTION CERTIFICATE 3.1 ACCORDING TO EN 10204

UNIFIED ALLOYS (EDMONTON)

8835 - 50 AVENUE,

EDMONTON, ALBERTA,

CANADA T6E 5H4

Test Certificate No.: EXP/0250-05/2012-13

Date of Issue

: 13.07.2012

P. O. No.

: CP-56575

Invoice No. & Date : EXP/0250/2012-13 Dtd. 13.07.2012

ITEM DESCRIPTION STAINLESS STEEL FORGED & FULLY MACHINED FLANGES

							74			Proc	ess Route	
Sr.No.	Heat No.	Pcs	Box No.	Wt.Kgs	Grade		Item					
1	12/572	10	21	28.80	F 316/L	2" 5	SORF 300 I	BS				
2	12/732	28	21	149.52	F 316/L	3" WN	RF 150 LB:	S S-40S	Electric Inc	duction N	Ielting, A.C	D. Refining
3	12/535	81.	31	216.27	F 316/L	2" WN	RF 150 LB	S S-10S	Conti	nuous Ca	sting & Ho	t Forging
4	12/710	35	31	139.65	F 316/L		SOKUF 150 I				e:	
5	12/728	27	31	99.09	F 316/L		_	S S-80S <	-			
2.11.44					CHEMICAI	COMPOS	M) NOFT	eight %)				
Sr.No.	С	Si	Mn	Р	S	Cr	Mo	Ni	Cu /	Ti	N	OTHERS
1	0.024	0.45	1.71	0.036	0.013	17.15	2,02	10.04	-	(#)	0.0520	
2	0.022	0.43	1.63	0.036	0.020	17.10	2.02	10.02	-	:#0	0.0440	
3	0.028	0.42	1.65	0.043	0.006	17.00	2.02	10.06	-	-	0.0630	
4	0.026	0.43	1.62	0.044	0.017	16.92	2.02	10.05		et.	0.0530	
5	0.024	0.42	1.59	0.035	0.008	17.00	2.04	10.02	-	-	0.0500	- 4
ات	1.				MECE	IANICALI	ROPERTI	ES				
C- No	0.2%	6 Yield Str	ength		Strength	Elong	ation	1	on of Area		Hardnes (B. H. N	-

B. H. N. Sr.No N/mm2 (Rp0.2) $N/mm^2(R_m)$ 169-173 74 51 558 267 1 172-177 76 572 53 269 2 169-173 70 55 566 271 3 169-173 72 56 581 274 4 182-186 76 596 308 5

Remarks:

- 1. The material is solution annealed at minimum 1050 °C and water quenched.
- 2. Material is free from mercury and radio-active contamination and is found within the limits of the background radiation.
- 3. PMI test 100% satisfactory.
- 4. Micro Structure Reveals Austenitic grains with annealing twins and is free from carbide precipitation (At 500 X).
- 5. Inter-Granular Corrosion Test as per ASTM A 262 10 (Pr.E) satisfactory.
- 6. The material conforms to ASTM A 182 11/ ASME SA 182 10 & Dimension confirms to ANSI B16.5 09 Specification.
- 7. Visual and Dimensions inspection 100% satisfactory.
- 8. The material conforms to NACE MR 0175/ISO 15156-1:2009 (E).

3-8440-01 120-133456

We hereby certify that, the material described herein, and supplied are in compliance with the requirements of the or

OCT 0 1 2013

Patro R. Pitel PRATIK R. PATEL WORKS INSPECTOR

FORGING

giyisiDN



SHANGHAI MAX FITTINGS CO., LTD

No. 9885 Puwei Road, Fengxian District, Shanghal, China MILL TEST CERTIFICATE IN ACC.WITH EN 10204/3.1

Cert. No.: 01 202 CHI/Q-10 0410 AD 2000-Merkblatt WC Cert. No.: 01 202 CHI/Q-10 0410 Cert. No.: 01 100 106091 Directive 97/23/EC ISO 9001:2008

Client				UNIFIE	UNIFIED ALLOYS			Certificate No		20130624 -003	-003
Contract No.			MF20130215		PO No.	EP-103638	638	Delivery Conditions	Solution A	Solution Annealed, pickled and passivated	passivated
Product			STAINLESS STI	EEL COLD F(STAINLESS STEEL COLD FORMED BUTT WELD FITTINGS	ELD FITTINGS		Specification	ASME	ASME SA403-10,ASTM A403-10A ASME B16.9-07 MSS SP-25-2008	03-10A 5-2008
Item	Quantity		Síze		Des	Description		Grade	Heat No.	Heat treatment	Quenching
40	11	1/2"	SCH80S		Long Radit	Long Radius Elbows 90°		WP316/316L-S	ZJD1204-331	1050° 15 min.	RWQ
42	241	2"	SCH80S		Long Radit	Long Radius Elbows 90*		WP316/316L-S	WY12-90	1050° 15 min.	RWQ
47	ις.	2"	SCH160		Long Radit	Long Radius Elbows 90°		WP316/316L-S	JMS1109-797	7 1050° 15 min.	RWQ
48	2	ļ.	SCH160		Equ	Equal Tees		WP316/316L-S	JMS1111-1081	1 1050° 15 min.	RWQ
53	11	m m	SCH10S	S	TUB END "TYPE,	STUB END "TYPE A" SHORT PATTERN	KN	WP304/304L-S	11012-061	1050° 15 min.	RWQ
54	11	23	SCH10S		Long Radit	Long Radius Elbows 45°		WP304/304L-S	ZA1211020	1050° 15 min.	RWQ
56	2	12"	SCH10S		Long Radii	Long Radius Elbows 45°		WP304/304L-S	130277	1050° 15 min.	RWQ
					Chemik	Chemical Composition (%)	3		L	1.0	1
Heat No.	S	Mn	ď	ဟ	Si	ర్	Z	Mo	CONF	CONFORMS TO SA 10.0	D- 216L
ZJD1204-331	0.023	0.76	0.038	9000	0.29	16.35	10.04	2.05	or or	ROSED YOU AND	DIL A.O.
YY12-90	0.019	0.99	0.035	0.002	0.46	16.79	10.07	2.06	10	-	Quino.
JMS1109-797	0.020	0.79	0.039	0.002	0.32	16,14	10.05	2.05	# 800	610	5
JMS1111-1081	0.022	0.79	0.039	0.003	0.34	16.37	10.05	2.05	I TEM #	#01	
J1012-061	0.018	1.02	0.031	0.001	0.35	18.08	8.09	9-8440	10-	06	0 1 2013
ZA1211020	0.020	1.18	0.039	0.003	0.37	18.28	8.05	14211	/ Passaven	10	
130277	0.019	1.14	0.038	9000	0.44	4 18.17	8.02	1001-04	D		2501625
	Mex	Mechanical Properties	fies		NACE MB0475	IC Test	Toog Too	Non-destructive Test	DIVI	Visital	Dimoneional
Heat No.	TS(Mpa)	YS (Mpa)	EL(%)longitudinal	Hardness	CALONING HOLVI	ASTM A262E	ווווחמכו ובפו	PT		in the second	Cincipioliai
ZJD1204-331	570	260	65	N/A	ð	ÖK	N/A	OK	OK	OK	ð
YY12-90	560	270	09	N/A	AO	УÓ	N/A	OK	OK	УЮ	OK.
JMS1109-797	565	260	09	N/A	X	λ	N/A	OK	λ	Ж	Š
JMS1111-1081	570	260	65	N/A	X	OK	N/A	OK	òK	OK	š
J1012-061	580	290	63	N/A	Α	ÖK	N/A) OK	, ok	OK	OK.
ZA1211020	565	250	62	N/A	OK	ÖK	N/A	OK NEW	· 为以	OK	Š
130277	565	270	09	N/A	ŏ	οK	N/A	光	HIN OK	OK	X
MARKINGS: MAX - SPEC -GRADE -SIZE - SCH - HEAT NO	X - SPEC -G	RADE -SIZE -		CHINA				かかかい	The County		
A Balantala Can		Part Control	13	It the member	Action Grades			37		+	

1. Materials have been manufactured in complete accordance with the purchasers order

Free of weld repair as per ASTM A 960 Supplementary Requirement S66
 Free of mercury
 Free of radiation

司

100% PMI test
 Material complies with NACE MR0103-2010, NACE MR0175-2009, and ISO 15156-2009
 7. Product also satisfies the requirements of ASTM A 403-10
 8. Manufacturing and inspection process complies with BS EN10204 type "3.1"
 9. We hereby state that the fittings are made in CHINA

Date:



SHANGHAI MAX FITTINGS CO., LTD

No. 9885 Puwel Road, Fengxian District, Shanghai, China MILL TEST CERTIFICATE IN ACC.WITH EN 10204/3.1

Cert. No.: 01 202 CHI/Q-10 0410 AD 2000-Merkbiatt WC Cert. No.: 01 202 CHI/Q-10 0410 Cert. No.: 01 100 106091 Directive 97/23/EC 150 9001:2008

Client			-	UNIFIEL	UNIFIED ALLOYS			Certificate No		20130529 -005	9 -005
Contract No.			MF20130215		PO No.	EP-103638	3638	Delivery Conditions	Solution Ann	Solution Annealed, pickled and passivated	passivated
Product			STAINLESS STEEL		COLD FORMED BUTT WELD FITTINGS	D FITTINGS		Specification	ASME S ASME B	ASME SA403-10,ASTM A403-10A ASME B16.9-07 MSS SP-25-2008	103-10A 25-2008
Item	Quantity	S	Size		Descr	Description		Grade	Heat No.	Heat treatment	Quenching
39	2	27	SCH80S		Short Radius	Short Radius Elbows 90°		WP316/316L-S	3185	1050° 15 min.	RWQ
41	20	1 1/2"	SCH80S		Long Radius	Long Radius Elbows 90°		WP316/316L-S	463	1050° 15 min.	RWQ
41	21	1 1/2"	SCHBOS		Long Radius	Long Radius Elbows 90°		WP316/316L-S	YY12-498	1050° 15 min.	RWQ
42	82	2"	SCH80S		Long Radius	Long Radius Elbows 90"	١	WP316/316L-S	FK1208-120	1050° 15 min.	RWQ
43	27	ස්	SCH80S		Long Radius	Long Radius Elbows 90°		WP316/316L-S	FK1212-134	1050° 15 min.	RWQ
44	22	4"	SCH80S	50	Long Radius	Long Radius Elbows 90°		WP316/316L-S	YD12-396	1050° 15 min.	RWQ
45	11	ģ	SCH80S		Long Radlus	Long Radlus Elbows 45°		WP316/316L-S	HT12-0612	1050° 15 min.	RWQ
					Chemica	Chemical Composition (%)	(9)			/11-2	1110
Heat No.	O	Mn	ď	S	SS	ర్	ž	Mo	CONFO	CONFORMS TO SA	1010
3185	0.019	0.88	0.039	0.003	0.43	16.17	10.06	2.05	YEAR	COLDED,	half Ann
463	0.013	0.98	0.038	0.003	0.44	16.88	10.18	2.09		COR SUM	1000
YY12-498	0.018	0.84	0.035	0.005	0.44	16.3	10.06	2.06	agor	40.1	11
FK1208-120	0.019	0.694	0.033	0.003	0.33	16.22	10.10	2.08	ITEM#	Ţ	
FK1212-134	0.015	0.62	0.039	0.003	0.35	16.37	10.07	2.07 KE - RU	WICON STATE OF). \/\.	0 1 2013
YD12-396	0.016	0.90	0.039	0.005	0.37	16.50	10.05	6	-		
HT12-0612	0.022	1.11	0.044	0.004	0.33	16.11	10.03	2.06	Achaci	11	7 58 4 2
	Mec	Mechanical Properties	ies		A SOCIAL PORTION	IC Test	1 40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Non-destructive Test			
Heat No.	TS(Mpa)	YS (Mpa)	EL(%)longitudinal	Hardness	MACE MIKU 173	ASTM A262E	Impact lest	PT	I I	NSDSI	Umenstonar
3185	565	255	56	N/A	ò	ð	N/A	Xo	NO.	УO	ð
463	580	265	50	N/A	XO	š	NA	χ	Š	YO.	ŏ.
YY12-498	22.2	273	53	N/A	χo	š	NA	χ	Š	Α	Ä
FK1208-120	580	265	90	NA	ð	λO	N/A	OK	OK	Yo.	ΧO
FK1212-134	565	250	09	NA	OK	OK	N/A	OK	OK.	OK	ŏ
YD12-396	580	285	56	N/A	λO	OK	N/A) Xo	一部	ОĶ	ð
HT12-0612	575	295	55	N/A	УO	УÓ	N/A	OK /K	べるが いて	yo	Š
AND CALL TO THE PARTY OF THE PA	CLUC	C LEST						3			

1. Materials have been manufactured in complete accordance with the purchasers order 2. Free of weld repair as per ASTM A 960 Supplementary Requirement S66
3. Free of mercury
4. Free of mercury
6. Red of radiation
7. Took PMI test with NACE MR0103-2010, NACE MR0175-2009, and ISO 15156-2009
7. Product also satisfies the requirements of ASTM A 403-10
8. Manufacturing and inspection process complies with BS EN10204 type "3.1"
9. We hereby state that the fittings are made in CHINA

Signed: Date:



ZHEJIANG STELLAR PIPE INDUSTRY CO.,LTD

XIAOZHI INDUSTRY PARK, GINGTIAN ZHEJIANG 323900 CHINA

MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23

PED Certificate no.:331/2007/MUC

_	ner :	UNIFIED A	ILLO IO						Α.,	THE PERSONS	0.0				
Contrac	ct No. :	EP-93405							A	Co #	Fo	69			
Specifi	cation:	ASTM/ASM	VIE A/SA3	12-2009				C	ert No.	1,2	ST11102	24_48			
Steel C	Grade :	TP316/316	3L						alivery Con	dition .	A&P	-T-40			
Goods		SEAMLES	S STAIN	ESS ST	EEL PIP	ES			ppearance		Solution	Trooted			
	. Carl M					-	Chemica				GOIGLIOIT	Treated			
1	rieat No).	С	Si	Mn	l P	3	C:	Ni.	Mo .	Ti				
		Min.	1						1	P					
S	Spec.	Max.	0.035	1.00	2.00	0.045	0.000	16.00	11.00	2.00 4					
ladle	Analysis		0.020	0.34	1.05	-	0.030	18.00	14.00	3.00					
	ct Analysis	11D0892	0.020	0.37	1.06	0.038	0.004	16.75	11.08	2,06					
	tch No.		Size	0.07	1.00	0.036		17.06	11.09	2.07					
	0712068	2"*50	CH80S*20	'ET &	1 20	DCC		wantity		·		xamination			
0.11	J 12000	- 2200	711003 20		30	PCS	1382	KGS	182.88			OK			
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Тө	st No.	Strength	IV:F		Eion	gation		_			Impact	Hardness			
		MPa	Rat			(0/)	Test			Expanding	Test	Test			
-	Min.	515	20			35		est	Test	Test		HRB			
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f haden		tness Test		Non-des		- 1	Intergran.	ılar Corro	sion Test						
	tatic Test	Eddy Curre	ent Test;	Ultre	sonic T	est				NFORMS TO SA	312	-316L			
	static Test STM A 999	Eddy Curre Acc to AST	ont Test; M E426	Ultre	sonic T	est		ilar Corro	262-E CO	4	200				
	tatic Test	Eddy Curre	ont Test; M E426	Ultre	sonic T	est			262-E CO	IN LOVE	D. D	oii Aso			
	static Test STM A 999	Eddy Curre Acc to AST	ont Test; M E426	Ultre	sonic T	est			262-E COI	10 10 13	-844	oii Aso			
	static Test STM A 999	Eddy Curre Acc to AST	ont Test; M E426	Ultre	sonic T	est E213	Acc to	ASTM A	262-E CO	IN LOVE	-844	oii Aso			
	static Test STM A 999	Eddy Curre Acc to AST	ont Test; M E426	Ultre	sonic T	est E213	Acc to	ASTM A	262-E COI YE/ JOB	10 13 TE 67	-844	0-01			
Acc to A	static Test STM A 998	Eddy Curre Acc to AST GOO	ont Test; M E426	Ultre	sonic T	est E213		ASTM A	262-E COI YE/ JOB	10 10 13	-844	0-01			
Acc to A	static Test STM A 998 /	Eddy Curre Acc to AST GOO	ont Test; M E426	Ultre	sonic T	est E213	Acc to	ASTM A	262-E COI YE/ JOB	10 13 TE 67	-844	0-01			
Add	static Test STM A 998 / ditional Rer	Eddy Curre Acc to AST GOO	ont Test; M E426	Ultre: Acc to	sonic T	est E213	A00 10 3440 - 133	ASTM A	262-E COI YE/ JOB ITEI SIGI	10 13 TE 67	- 844 - 844 8,69, SEP 2	10-01 10-01 4 2013			
Add	static Test STM A 998 / ditional Rer	Eddy Curre Acc to AST GOO	ont Test; M E426	Ultre: Acc to	sonic T	est E213	A00 10 3440 - 133	ASTM A	262-E COI YE/ JOB ITEI SIGI	10 10 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	- 844 - 844 8,69, SEP 2	10-01 10-01 4 2013			
Add Add 1.Country We here	static Test STM A 998 / ditional Ren y of Origin: C	Eddy Curre Acc to AST GOO narks: hina re:1050°C. H	2.No wallold 30m; a	Ultre: Acc to d repair utes.Repio	ASTM (Rest E213 3.100% F Cooling.	Acc 12 8440 - 133	ASTM A	262-E COI YEA JOE ITER SIGN	10 10 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	- 84 4 8 , 69 , SEP 2	10-01 10-01 4 2013 R0103-2003			
Add Add 1.Country We here	static Test STM A 998 / ditional Ren y of Origin: Con Temperature	Eddy Curre Acc to AST GOO narks: hina re:1050°C. H	2.No wallold 30m; a	Ultre: Acc to d repair utes.Repio	ASTM /	Rest E213 3.100% F Cooling.	Acc to Ac	ASTM A	262-E COI YEA JOE ITER SIGN	NED BY AND MACE MR 017	- 84 4 8 , 69 , SEP 2	10-01 10-01 4 2013 R0103-2003			



ZHEJIANG STELLAR PIPE INDUSTRY CO.,LTD

XIAOZHI INDUSTRIAL PARK,QINGTIAN ZHEJIANG 323900 CHINA

MILL TEST CERTIFICATES to EN 10204/3.1 PED 97/23

PED Certificate no. 331/2007/MUC

Customer		ARMOR ALLOY	SLTD						0.000000			military to
Contract No		T13YKZ0419-02	2					Orc	der No.		PE11104	462
Specification	18	ASTM A312/AS	ME SA3	12				C	ert No.	96	ST13052	22-10
Steel Grade		TP316/316L						D	elivery Con	dition *	Solution	Treated
Goods		STAINLESS ST	EEL SE/	AMLESS F	PIPES			A	ppearance		Pickling	
	Lines &	le .					Chemical	Compos	sition (%)			
	Heat N	Ю	С	SI	Mn	Р	S	Cr	Ni	Mo	Tì	
Spec.		Mın.						16.00	11.00	2.00		
Spac.		Max.	0 035	1 00	2.00	0 045	0.030	18 00	14.00	3.00	lay.	
Ladle Anal	ysis	1301-048	0.015	0 43	0.84	0 036	0.001	16.61	11 06	2 06	4	
Product An	alysis	1301-048	0.017	0 38	0 82	0 034	0 003	16.58	11.04	2 03		
Batch N	lo.	Size					Quant	ity			Visual E	Examination
C1304190	050	60 3	3*5.54	1.	68	PCS	3414	KGS	461 61	М		ОК
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	1	Tenedo	Viole (Steen with					M A370)	Duna	lean and	Llandana
Test No		Tensile		Strength IPa		gation 60mm	Flattening	Ring Tensile	Flanng	Ring	Impact	Hardness
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L	eak Tig	htness Test		Non-des	tructive	Testing	Intergrant	ılar Corro	sion Test			
Hydrostatic	Test	Eddy Current	Test	Uitra	sonic T	est	A o o to	ASTM A	162 E	-		
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		marks:							L	SALVEST BY		
Country of On	-)% PMI				3 No weld repa		
Hardness acc	to NAC	E MR 0175 latest	edition /i	SO 15156-	2009	5 S	Solution Temp	erature 10	050℃ Hold :	30minutes Rep	old Water C	Cooling
We hereby cer	rtify that	the material descr	ibed abov	e has beer	tested a	nd compl	es with the te	rms of the	Contract &	the specificat	ion,and we	confirm that
ואו ו וופס הפון י	avii0						546		(4)1.1	EDITON	在門公	1.
				7.		\ug/21/2	U13		TANI ET-S	KILL BILL	- 0	
						Data			- 17	Technology	, 11	
									SPECLA	L BADCE OF C	CALCIL	L 7 6

METALFAR

23861 CESANA BRIANZA (LC) - Italy SEDE AMMINISTRATIVA E STABILLINENTO: Via G. Partni, 28

CONPAIN' WITH QUALITY MANAGEVERY = 150 9001:2008 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE Del/Dated 18,11,2012 DeliDated Deel: TRANS AM PIPING PRODUCTS LTD T3S OA1 Calgary, ALBERTA Del/Dated 16.11.2012 Fatture / Invoice N. 3757 Del/Dated 16.11.2012 Na.Ord. / Our ref. N. 8335 - Endeavor Driva S.E. S TRANS AM PIPING PRODUCTS LTD T3S DA1 CALGARY, ALBERTA 8335 ENDEAVOR DRIVE S.E. Certif. N. 5410 DDT / Del Note N. 4424

SATISFACTORY ORIGINE / ORIGIN OF STEEL VISINO E DIMENS. Pag. 7 - 11 VIS. & DIMENS. **EUROPEAN UNION** ELECTRIC FURNACE ASME/ANSI B16.5 -2009 FORNO / FURNACE DIM.IN ACC. A DIM. ACCORDANCE TO 0,406 AI% C.E.% 0,000 0,025 RESELIENZA / IMPACT TEST - JOULEPoint 22 8 - 20 0,002 ND% 0,180 0,003 NORMALIZED AT 920 C - COOLED IN STILL AIR TPO / TYPE foxform ⋛ TRATTAMENTO TERMICO / HEAT TREATMENT 0,020 0,060 0,020 159,0 - 163,0 A105N SAW 600 RF 1" XXS 0,150 S-S CONTRAZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 58.0 0,015 E S ASTRIVASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD. 600'0 0.TA' 125,00 8% 31,0 0,930 quality.mf@farmes.com M 78 SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT Tel. +39 031.655441 Fex +39 031.655149 ROTTURA 0,210 25°C VS.ORDINE YOUR REFERENCE 0,200 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO WIND PORT CI-12-430 PRODOTTI INDUSTRIALI S.P.A. STANFAGGED A CALDO DI ACCIAI COMINII - LEGATI E INOSSIDABILI FORMA BRADE (+O >C) POS. 12/72687 REC. mmd LUNO, mm section 1-8EC. mmd LENOHT mm 1-126,60 50,80 MATERIALE / MATERIAL ASTM A106 (LADLE) COD. COL. COLATA HEAT CODE HEAT

SATISFACTORY ORIGINE / ORIGIN OF STEEL VISIVO E DIMENS. VIS. & DIMENS. **EUROPEAN UNION ELECTRIC FURNACE** ASME/ANSI B16.5 -2009 FORNO / FURNACE DIM. ACCORDANCE TO 0,397 C.F. 0,025 67 **8**8 REMLIESZA / MPACT TEST - JOURE/cm2 0,000 % % 0,001 ND% v% 9,002 NORMALIZED AT 930 C - COOLED IN STILL AIR TPO / TYPE 10x10mm 0,140 TRATTAMENTO TERMICO / HEAT TREATMENT 28 0,017 <u>پر</u> LF2CL1 0,060 0,020 166,0 - 159,0 Mo% % Ž BLIND 300 RF 2" 0,013 0,140 25 CONTINZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 59,0 ASTM/ASME A 350/SA 360 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD. 8 100,00 0,910 0,009 P.T. 28 MIN TENSALE GTRENG NYMMZ >= 518,0 0,220 **200** YOUR REFERENCE 00,200 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO క్ర VS.ORDINE NERVANIBITO
YIELD POINT
Aums >=0.7% CI-12-476 344,0 ASTM A350 LF2 CL1/2 (LADLE) POS. SHAPE 1:0 2:0 12/30884 MATERIALE / MATERIAL COD. COL. COLATA HEAT CODE HEAT . 50,80 126,60 2011a

344" NPT drill. Ro-133383 10-chh 8-1 P 91 0-0 hh SEP 2 0 2013 2011 100 CONFORMS TO SA 350 F2CL YEAR ZO IGED. 212 SIGNED BY. TEM# 10B #

MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 15196-2009 - SOUR SERVICE NOTE 100% MANUFACTURED IN ITALY NOTES MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATIONS. MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 - SOUR SERVICE 100% MANUFACTURED IN ITALY

¥ E

MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALLTA'
QUALITY CONTROL DEPARTEMENT

Pale.

3 6 1 8 8 r 1 e n m q #09 Hea 118

2 00 0 0 9 d SA

CSA 2245.12 GRADE 248 CAT.I SOUR SERVICE

88 : AB

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CSA 2245,12 GRADE 248 CAT.II SOUR SERVICE

9 9 6

8 4 108 Sde 100

ENG #U. bd::



		-	
PRODUCTION	I EQUIPM	1ENT	LTD.

CUSTOME	N CANADA CORP 78"ID X 20' DRAIN VESSELS														ALCO JOB NUMBER:		
DEVON CA	NADA CORP	5				78"[O X 20	D' DRA	AIN VE	SSEL	_S				2013-8440-01B		
DATE:						TECH	HNIQL	JE#U	SED:					CODE:			
NOV 20 20	13								R	T P#4	REV#	5		SECTION VIII DIV	/1		
MATERIAL						MAT	'L TH	ICKNI	ESS:					EDITION: 2010	ADDENDA, 2011		
P1										3/8"				ACCEPTANCE: UN	V-51 UW-11a FULL		
	F FILMS PER * - WELD IP - INCOM	ER SYME MPLETE F	BOL PENET	RATI	NC	LC						ΓΥ		SLIGHT	X SINGLE WALL EXPOSURE DOUBLE WALL EXPOSURE X SINGLE WALL VIEWING		
	IC - INTER							STRIK			CRATER		, ,	SEVERE [DOUBLE WALL VIEWING		
Film #	Location	I*						UC	-		I	IC	T	L	REMARKS	LACC	REJECT
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8	SOURCE TYPE	-			1		1			HRS		@	-		\$0,0		
	STRENGTH		-		1		-	1	_	8" FI		@	-		\$0.0	_	
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	OFD	_		_	⊢		-			PIPE		@	-		\$0.0 \$0.0		
	FILM TYPE		1105	\SS 1	⊢		-			PIPE		@	-		\$0.0	_	
FOCA	AL SPOT SIZE	:	1330		1		_			PIPE		@	-		\$0.0		
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	COMMENTS	·	_			_		- 10	IALE	XPU:	SUKES:	111			TOTAL COST		
	DACE	1	0.5	1	EV	\	D - D	ARRY	DACA	Heer	N X	1			LEVEL SNT III CGSB II #235	_	
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ALCO EGAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOMER:						DESC	RIPT	ON:								ALCO JOB NUMBER:		
DEVON CAN	ADA CORP.					78"IE	X 20	' DRA	IN VE	SSEL	.S					2013-8440-01B		
DATE:						TECH	NIQU	E#US	BED:					CODE:				
NOV 20 2013									RT	P#4	REV#	5		SECTION VIII D	IV 1			
MATERIAL:						MAT	L TH	CKNE	SS:					EDITION: 2010		ADDENDA: 2011		
P1										3/4"				ACCEPTANCE: L	JW-51 UW	-11a FULL		
LEGEND:	FILMS PER * - WELDE IP - INCOMI BT - BURN T IC - INTERN	R SYMBO PLETE PI HROUGH	OL ENET H CAVIT	ſΥ	NC	LC UC - AS -	UNDE	V COV ER CU STRIKI	T =	I - I			(2) N	ACK SLIGHT MEDIUM SEVERE		INGLE WALL EXPOSURE DOUBLE WALL EXPOSURE BINGLE WALL VIEWING DOUBLE WALL VIEWING		
Film#	Location	•	lΡ	S	С	вт	LC	UC	HL	Р	1_	IC	_		RI	EMARKS	ACC	REJECT
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	URCE TYPE:	11	R 102					0705-5		HRS	S.	@	T			\$	0.00	
	STRENGTH:				T			- 1		8" F		@				\$	0.00	
		1								-	FILM	@				\$	0.00	
										PIPE		@				\$	0.00	
	FILM TYPE:			ASS 1						PIPE		@					0.00	
FOCAL	SPOT SIZE:									PIPE	Ē	@					0.00	
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	COMMENTS							_ TC	TAL I	EXPO	SURES		1				0.00	
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2	PAGE	1	OF	1	EX	AMIN	ER : B	ARRY	RASN	IUSSE	N A				LEVEL	SNT III CGSB II #235		
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ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOMER	MER: DESCRIPTION: CANADA CORP. 78"ID X 20' DRAIN VESSELS														ALCO JOB NUMBER:		
					- 1				IN VE	SSEL	S				2013-8440-01B		
DATE:					_			E#US						CODE:			
NOV 21 201	3								RT	P#4	REV#	5		SECTION VIII DIV 1			
MATERIAL:						MAT	L THI	CKNE	SS:					EDITION: 2010	ADDENDA: 2011		
P1										3/8"				ACCEPTANCE: UW-5	1 UW-11a FULL		
	F FILMS PER	CASSET	ΠΈ														
LEGEND:	* - WELDE	R SYMB	OL				- HI LO			S - S			CRA	CK X	1		
	IP - INCOM	PLETE PI	ENET	RATIO	NC	LC	- LOV	v cov	ER	P -F	OROSI	Υ	(1) S	BLIGHT	DOUBLE WALL EXPOSURE		
	BT - BURN T							ER CU			CICLE		(2) N	MEDIUM X			
	IC - INTERN	IAL CON	CAVIT	Υ		AS -	ARC :	STRIK	E	C - C	CRATER		(3) S	SEVERE	DOUBLE WALL VIEWING	,	T
Film#	Location				С	вт	LC	UC	HL	Р	<u> </u>	IC			REMARKS	ACC	REJECT
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s	OURCE TYPE:		R 192		_		,			HRS		@	-		\$0.0		
	STRENGTH	:;							_8" FI	LM	@	1		\$0.0	_		
	SOD	. 1		_		_			_ 17" F		@	+		\$0.0			
	OFD		750"		_		-			PIPE		@	1		\$0.0	_	
	FILM TYPE	_ AGFA [05 CL/	ASS 1			-			PIPE		@	+		\$0.		
FOCA	AL SPOT SIZE		11"	_						PIPE		@			\$0.0 \$0.0		
	PIPE											@	1		Φ0.1	001	
	COMMENTS: TOTAL EXPOSUR												1		\$0.	00	
	COMMENTS: TOTAL EXPOSUR											101	•		TOTAL COST	ananot-	
	PAGE	1	OF	3	ΕX	AMIN	ER : B	ARRY	RASM	USSE	N A	1/2		LE	VEL SNT III CGSB II #235		
	1.135dh		Ų.		77/7 /4						1						



CUSTOME	R:					DES	CRIPT	ION:							ALCO JOB NUMBER		
DEVON C	ANADA CORF					78"	D X 20)' DRA	NIA VE	ESSE	LS				2013-8440-01B		
DATE:						TEC	HNIQL	JE#U	SED					CODE:	<u> </u>		
NOV 21 20	013								R	T P#4	REV i	# 5		SECTION VIII DIV 1			
MATERIAL	:					MAT	'L TH	ICKNI	ESS:					EDITION: 2010	ADDENDA: 2011		
P1										3/4"				ACCEPTANCE: UW-51	UW-11a FULL		
	OF FILMS PE																
LEGEND:	* - WELD	ER SYME	BOL			HL	- HI L	0		S - S	SLAG		CRA	ACK X	SINGLE WALL EXPOSURE		
	IP - INCO	MPLETÉ P	ENE	TRAT	ION	LC	- LOV	N CO/	/ER	P -	POROSI	TY	(1) \$	SLIGHT	DOUBLE WALL EXPOSURE		
	BT -BURN	THROUG	Н				- UNDI			-	CICLE			MEDIUM X	SINGLE WALL VIEWING		
	IC - INTER	NAL CON			,		ARC				CRATE	۲	(3) 5	SEVERE	DOUBLE WALL VIEWING		
Film #	Location	*:	IP	S	C	ВТ	LC	UC	HL	Р	1	IC	_		REMARKS	ACC	REJEC
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	SOURCE TYPE:	IF	R 192							HRS.		@			\$0.00		
	STRENGTH							1		8" FII		@			\$0.0	5	
		. 19								17" F		@			\$0.0	5	
	OFD		750"							PIPE		@			\$0.0	0	
	FILM TYPE			SS 1						PIPE		@			\$0.0		
FOC	AL SPOT SIZE		11"							PIPE		@			\$0.0		
										PIPE		@			\$0.0		
	COMMENTS	:						ТОТ	TAL E	XPOS	SURES	1			\$0,0)	
											1	/			TOTAL COSTS	3	
	PAGE	1	OF	1	EXA	MINE	R : BA	RRY	RASM	USSE	1 1/2			LEVE	EL SNT III CGSB II #235		
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ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOME	R:					DESC	RIPT	ION:								ALCO JOB NUMBER:		
	NADA CORP.					78"10	X 20	DRA	IN VE	SSEL	S					2013-8440-01B		
DATE:						TECH	INIQU	E#US	SED:					CODE:		A		
MAR 4 201	4								RT	P#7	REV#	5		SECTION VIII DI	V 1			
MATERIAL						MAT	'L TH	ICKNE	SS:					EDITION: 2010		ADDENDA: 2011		
P1										3/8"				ACCEPTANCE: UV	N-51 UW-	11a FULL		
	F FILMS PER	CASSET			_			-		_			_					
LEGEND:	* - WELDI	R SYMB	OI.			HL	- HI LO	0		S - S	LAG		CRA	CK	X SII	NGLE WALL EXPOSURE		
LEGEND.	IP - INCOM	IPI ETE PI	ENET	RATIO	ON							ΓΥ		SLIGHT		OUBLE WALL EXPOSURE		
	BT - BURN			IVAIII	014			ER CU			CICLE			MEDIUM	=	NGLE WALL VIEWING		
				196				STRIKI			CRATER			SEVERE	=	OUBLE WALL VIEWING		
Films #	IC - INTERI	VAL GONG	IP	S	I c	_		uc		_	1	IC	1			MARKS	ACC	REJECT
Film#	Location	2	I IF	3	-	П	1 20	UC	I IIL		1		+		- '\'_			
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1	SOURCE TYPE:		R 192				1			HRS			+			\$0.00	7	
	STRENGTH:		55 Ci		1		-	2		_8" FI		@	+			\$0.0	1	
	SOD:	1.625"		\vdash	-	-	_		17" F		@	-			\$0.0			
	OFD:PIF												+			\$0.0	1	
	FILM TYPE: AGFA D5 CLASS 1 PIPE												-			\$0.0		
FOC	FOCAL SPOT SIZE:11" PIPE												+					
PIPE												@	1			\$0.0	21	
													_		1	20.2	7	
	COMMENTS	3:						то	TAL E	XPO:	SURES	IN.	2			\$0.0		
											K					TOTAL COST	>	
	PAGE	1	OF	1	EX	AMINE	ER : B	ARRY	RASM	USSE	N /W	/			LEVEL :	SNT III CGSB II #235		
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ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOM	R.				/ 1		CRIPT		_									
Entra Resident Control	ANADA CORF								A I I I I I I	-005						ALCO JOB NUMBER:		
DATE:	11710710011					_		0' DR/ JE # U		=99E	LS					2013-8440-01B		
MAR 10 20)14					1,50	THAICEC	JE # 0		T D#7	DEV	4 -		CODE:	5044			
MATERIAL					_	1447	r'i ⊤⊔	IICKN		1 P#1	REV	# 5		SECTION VIII				
P1						lw/	L 111	IICKIN		H 80/1	60			EDITION: 2010		ADDENDA: 2011		
711111111111111111111111111111111111111	OF FILMS PER	20000							301	1 00/1	00			ACCEPTANCE:	UW-51 L	JW-11a FULL		
LEGEND:	* - WELD IP - INCOI BT - BURN IC - INTER	DER SYME MPLETE F THROUG	BOL PENET H		ON	LC UC -	- UNDI	W COV	Т	1 -1	POROS CICLE		(2) N	SLIGHT MEDIUM	X X	SINGLE WALL EXPOSURE DOUBLE WALL EXPOSURE SINGLE WALL VIEWING		
Film#	Location	I.	IP					STRIK			CRATE	-	(3) 8	SEVERE		DOUBLE WALL VIEWING		7
CHILIT#	Location		H	S	C	BI	LC	UC	HL	P		IC	-			REMARKS	ACC	REJEC
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N6	2" SCH 80	11	1		_	_						-	-				V	
N7	4" SCH 80	11			_	-		_				-	-				~	<u> </u>
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N9	2" SCH 160	11			_	_						-	-				~	
N11A	2" SCH 160	11			_	-				-		-	-				~	
N11B	2" SCH 160	11			-	-	_	_		-	_	-	-				~	
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	2" SCH 160	11		-			_	_		_		-	-				~	
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N14	2" SCH 160	11		_								-	_				~	
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S	DURCE TYPE:	IR	192							HRS.		@						
	STRENGTH:		Ci							8" FILM	M	@						
	SOD:	2.0	31"	_	_ 2	2	4"	SCH 8	0	17" FIL	_M	@						
	OFD:	_34	44"		1		3"	SCH 8	0	PIPE		@						
	FILM TYPE:		CLAS	S 1	2		2"	SCH 8	0	PIPE		@						
FOCA	SPOT SIZE:		1"		8		2" 5	SCH 10	50	PIPE		@						
		2		6"	SCH 8	0	PIPE		@									
	COMMENTS							TOT	۸۱ ۲ ۷	DOO	IDEO						1	
	- Jimine ITIO							101/	~L EX	rust	JRES:	53				\$0.00	4	
PAGE 1 OF 1 EXAMINER : BARRY RASMUSSEN											15	1			15/5	TOTAL COSTS		
-			J. 1	- 1	-70'41	10.4F(, DAL	VIX L 18/	TOWICE	POCIA	1		_		LEVEL	SNT III CGSB II #235		

ALCO GAS & OIL RADIOGRAPHY REPORT

PRODUCTION EQUIPMENT LTD.

CUSTOME	TOMER: DESCRIPTION: ON CANADA CORP. 78"ID X 20' DRAIN VESSELS															ALCO JOB NUMBER:		
1						78"10	X 20) DRA	IN VE	SSEL	.S					2013-8440-01B		
DATE:	*							JE # US						CODE:				
MAR 20 20	14									P#10	REV#	5		SECTION VIII	DIV 1			
MATERIAL						MAT	'I TH	ICKNE			71=1			EDITION: 2010		ADDENDA: 2011		
P1	•					IVIZ		101414		3/8"				ACCEPTANCE:	LWA/ 54 I			
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***	F FILMS PER					1.01	ын	^					0.0.4	014		OINOLE WALL EVENCEURE		
LEGEND:						HL				S - S		-	CRA			SINGLE WALL EXPOSURE		
	IP - INCOM			RATI	NC							ΙY		SLIGHT	X	DOUBLE WALL EXPOSURE		
	BT - BURN							ER CU						MEDIUM	X	SINGLE WALL VIEWING		
	IC - INTER	VAL CON	7	_	,			STRIK			CRATER	-	(3) S	SEVERE		DOUBLE WALL VIEWING	T	1
Film #	Location	*	IP	S	С	ВТ	LC	UC	HL	P	<u> </u>	IC				REMARKS	ACC	REJECT
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	14-28																V	
	28-42																~	
	42-56																~	
	56-70																~	
	70-84																~	
	84-98																~	
	98-112																~	
	112-END							İ									~	
L2	0-14	12															~	
	14-28																V	
	28-42										-						V	
	42-56		1					-									V	
	56-70		-					1									V	
	70-84																V	
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	SOURCE TYPE:	. IF	R 192							HRS		@					_	
	STRENGTH:	4	48 Ci							8" FI	LM	@						
		29		5				18		_ _ 17" F	ILM	@						
										- PIPE		@						
	FILM TYPE:		-	ASS 1						- PIPE		@						
FOCA	AL SPOT SIZE:	-								PIPE		@						
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	COMMENTS	111						TO	TAI F	XPO:	SURES	0 10)			\$0.	00	
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ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

CUSTOME	R:					DES	CRIPT	ION:								ALCO JOB NUMBER:		
DEVON CA	ANADA CORP					78") X 20) DRA	AIN VE	ESSEI	LS					2013-8440-01B		
DATE:						TEC	HNIQL	JE#U	SED:					CODE:				
APRIL 20 2	014								R	T P#7	REV#	# 5		SECTION	VIII DIV 1			
MATERIAL						MAT	'L TH	ICKNI	ESS:			_		EDITION: 20		ADDENDA, 2011		
P1										3/8"				ACCEPTAN		2 UW-11a-5b SPOT		
I NO.C	OF FILMS PER	CASSET	TTE		_								_	7.0001 1711	102. 017 02			
	* - WELD					HL	- HI L	0		S - S	SLAG		CRA	CK	[x]	SINGLE WALL EXPOSURE		
LLOLIND.	IP - INCOM			FRATI								TY		SLIGHT		DOUBLE WALL EXPOSURE		
	BT - BURN										CICLE			MEDIUM	×			
	IC - INTER			ΓV				STRIK			CRATER	>		EVERE		DOUBLE WALL VIEWING		
Film#	Location	*	IP	_	10	_	,	UC			I	Ic	(0) C	T		REMARKS	1 400	Inc Ico
	Location		Ë			D1	LC	00	111	H			\vdash			KEIVIAKKO	ACC	REJECT
C1	0.6	20/40		-	Н					-		_	-					
CI	0-6	30/12				-			_	-		-		-				-
	0.0	00440			-	-				-		1	-				-	
C3	0-6	30/12	-	_			-			-			-					
		-		-	-		_			-			-					
			_	_									-					
			_									-	_					
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				-								-	-				_	
					_								<u> </u>					l
								COS	ring									
S	OURCE TYPE:	IR	192							HRS		@						
	STRENGTH:	36	Ci					2		8" F1L	.M	@						
	SOD;	193	625"							17" E	'LM	@						
	OFD;	3	75"							PIPE		@						
	FILM TYPE:	AGFA D5 CLASS 1 PIPE @																
FOCA	L SPOT SIZE:									PIPE		@						
		PIPE @																
	COMMENTS TOTAL EXPOSURES: 2 \$0.00												00					
										00	J. 120.	10				TOTAL COS	- Contract	
	PAGE	1	OF	1	EXA	MINIE	2	RRY R	INAPA	ISSEN	di	/			1 = 1 / 1		, , ,	
	, , , (OL		01		= MM	AUGUST.	DA	INIXI IX	MOIVIL	JOUEIN	11-11-				LEVE	EL SNT III CGSB II #235		
			_		_		_	_										



CUSTOME	MER: DESCRIPTION: I CANADA CORP. 78"ID X 20" DRAIN VESSELS TECHNIQUE # USED:															ALCO JOB NUMBER:		
	NADA CORP.									SSEL	.S					2013-8440-01B		
DATE:						TECH	INIQU	E#US						CODE:				
MAY 11 20										P#7	REV#	5		SECTION VIII I	DIV 1			
MATERIAL:						MAT	L TH	ICKNE						EDITION: 2010		ADDENDA: 2011		
P1									SC	H 160)			ACCEPTANCE: I	UW-51 I	JW-11a FULL		
1 NO. C	F FILMS PER																	
LEGEND:	* - WELDE						- HI LO			S - S			CRA		Щ	SINGLE WALL EXPOSURE		
	IP - INCOM	IPLETE PI	ENET	RATIO								ΓY		LIGHT	X	DOUBLE WALL EXPOSURE		
	BT - BURN	THROUGH	4					ER ÇU						IEDIUM	X	SINGLE WALL VIEWING		
	IC - INTERN	VAL CON		Υ		_		STRIKI		C - (CRATER		(3) S	EVERE		DOUBLE WALL VIEWING		
Film#	Location	*	IP.	S	С	ВТ	LC	UC	HL	Р	1	IC				REMARKS	ACC	REJECT
N10A	2" SCH 160	11															V	
N10B	2" SCH 160	11								1							~	
		4				J.,		COS	TING	_			1.5	No.				
_	OUDOE TARE		100							пре		@						
	OURCE TYPE:		192		Ī					HRS			+					
	STRENGTH:		30 Ci		1					8" FII		@	+				-	
	\$0D:		031"		-					17" F		@						
	OFD:		344"	00 :	-					PIPE PIPE		@	-		-			
		FILM TYPE: AGFA D4 CLASS 1																
FOC/	FOCAL SPOT SIZE: 11" 2 2" SCH 160											@	-					
			Ú		l			PIPE		@					19			
									TA1 -	VEG	NIE EC		,			\$0.	20	
	COMMENTS	_			TO.	IALE	XPO9	SURES:		3		_						
	THEOLOGICAL			1					and the second	Name and the	18/2	1			:-	TOTAL COST	13	
	PAGE	EXA	MINE	R : B/	ARRY	KASMI	JSSE	1				LEVE	EL SNT III CGSB II #235					
											1							

ALCO E GAS & OIL PRODUCTION EQUIPMENT LTD. RADIOGRAPHY REPORT

DEVON							CKIPI				_					ALCO JOB NUMBER:		
DATE:	ANADA CORF	h				_		0' DR/		SSE	LS					2013-8440-01B		
MAR 26 20	14.4					TIEC	HNIQU	JE # U						CODE:				
MATERIAL								101011		I P#7	REV:	^{# 5}		SECTION VIII DIV				
P1						IVIA	LIH	ICKNI		0.1011				EDITION: 2010				
						_				3/8"				ACCEPTANCE: UW-	-52 UW-	11a-5b SPOT		
LEGEND:	DF FILMS PEI	ER SYMB MPLETE P THROUGI	OL ENET H CAVI	ſΥ		LC UC - AS -	ARC		'ER T E	I - I C -			(2) N	LIGHT	De Si	NGLE WALL EXPOSURE DUBLE WALL EXPOSURE NGLE WALL VIEWING DUBLE WALL VIEWING MARKS	LACC	REJEC.
										İ			Î					
C2	0-6	22/19															~	
			H		-					-								
			-															
			-	_	-	-		-				-						
			-	_		_		-										
								-										-
								cos	ΓING									***
s	OURCE TYPE:	IR.	192							HRS		a		1			1	
	STRENGTH:	46	3 Ci					1		8" FIL		@					1	
	SOD:	19	625"						- 12	17" Ff	LM	@					1	
	OFD:	3	75"							PIPE		@						
	FILM TYPE:	AGFA D	5 CLA	SS 1						PIPE		@						
FOCA	L SPOT SIZE:	<u>:</u>	11"							PIPE PIPE		@						
	COMMENTS				M.C.	1		T 0-									1	
	COMMENTS							TOT	AL E	KPOS	URES	101				\$0.000		
3	PAGE	1	OF	1	EXA	MINE	R : BA	RRY R	ASMU	SSEN	P			LE	VEL SI	NT III CGSB II #235		

T H Consulting Services

109 Grand Meadow Crescent Edmonton, Alberta T6L 1X1 Telephone: (780) 909-5470 gord@thcs.net

Report - GU13875

Client	5203 - 75 St.				Page Time	1-1 1:00 PM
Test Method	ASME V Artic	le 4			Date	Mar 21, 2014
Acceptance Criteria	ASME VIII Div	. 1 App. 12			P.O. No.	
Object	Test Method ASME V Article 4 Date Mar 21, 2014 Acceptance Criteria Object Description Descript					
Time 1:00 PM ASME V Article 4 Date Mar 21, 2014						
Instrument Olympus Epo	och 600 S/N 1204	04409	Calibration Due	- 4 Oct 2014	Referenc	e Gain - 64 dB
☑ Panametrics 12.5 S/N	S203 - 75 St. Edmonton, Alberta Time 1:00 PM					
☐ Panametrics 12.5 S/N	Segon					
DAC Block S/N 2253	9 thru 22548 🔲	ASME V Block	k S/N 22608	IIW Block S/N 1109	1 🗆 S	tep Block S/N A03412
Material - P1	Thickness -	3/8" 1	Temp - 10° C to	52°C Surface	e Conditio	n - Clean / As welded
					_	
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mr	n "
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mr	n "
0° Lamination s 60° Full and Hal 70° Full and Hal	S203 - 75 St. Edmonton, Alberta Time 1:00 PM					
No relevant indic	cations were	found.				
					N.	1 1
Operator Gord Sieben		-	St OT	KM	Clien	t Representative
Lands	1		2			. Whi

T H Consulting Services 109 Grand Meadow Crescent

109 Grand Meadow Crescent Edmonton, Alberta T6L 1X1 Telephone: (780) 909-5470 gord@thcs.net

Report - GU14031

Client Test Method Acceptance Criteria Object	Alco Gas & Oil 5203 - 75 St. Edmonton, Alb ASME V Articl	e 4			Page Time Date P.O. No. Job No.	1-1 1:00 PM Apr 09, 2014 2013-8440-01B
Procedure UT- General	and UT- 8 Rev. 4	Calibrati	on Standards	ASME 1/2" T 1/16" N	N (Couplant Light oil
Instrument Olympus Epo	och 600 S/N 12040	14409 Ca	alibration Du	e - 4 Oct 2014		e Gain - 64 dB
☑ Panametrics 12.5 S/N	170279 🛛 Pan		_	Pana-wedges 45/60/		
☐ Panametrics 12.5 S/N	174928	ametrics 12.5 S/N		-		■ Panametrics .25" S/N 97250
DAC Block S/N 2253	9 thru 22548	ASME V Block		IlW Block S/N 110		tep Block S/N A03412
Material - P1	Thickness - 3	3/8" Te	mp - 10° C to	52°C Surfac	ce Conditio	n - Clean / As welded
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mn	n "
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mn	n "
The following Ca 0° Lamination s 60° Full and Half 70° Full and Half Nozzles: N1, N2	scan f skip as avai f skip as avai , N4, N5, N7	lable lable and M1.	d.			
CGSB # 11841 Operator Gord Sieben	<i>P</i>	ASNT II 2	ОТ	КМ	Clien	t Representative

T H Consulting Services

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Report - GU14066

	Alco Gas & Oil 5203 - 75 St. Edmonton, Albo ASME V Article ASME VIII Div.	4				Page Time Date P.O. No. Job No.	1-1 1:00 PM Apr 15, 2014 2013-8440-01B
Procedure UT- General	and UT- 8 Rev. 4	Calil	oration Sta	andards	S ASME 1/2" T 1/16" N		Couplant Light oil
Instrument Olympus Epo	och 600 S/N 12040	1409	Calibrat	tion Du	e - 4 Oct 2014	Reference	ce Gain - 64 dB
Panametrics 12.5 S/N	170279 🛛 Pana	metrics 25 S	/N 677551	×	Pana-wedges 45/60/7	0 ABWM-5	T Other
☐ Panametrics 12.5 S/N	174928	metrics 12.5	S/N 5793	:07 🗖	Panametrics 5x5xD S	/N 505065	☐ Panametrics .25" S/N 97250
DAC Block S/N 2253	9 thru 22548	ASME V BI	ock S/N 22	2608	IIW Block S/N 1109	1 🗆 S	tep Block S/N A03412
Material - P1	Thickness - 3	/8"	Temp -	10° C t	o 52°C Surfac	e Conditio	on - Clean / As welded
Transducer	Frequency	Size		H or %	Scan	Range	
0°	2.25 MHz	12.5 mm	8	0 %	+6 dB	25 mn	
60°	2.25 MHz	12.5 mm	8	0 %	+6 dB	125 mı	n "
70°	2.25 MHz	12.5 mm	8	0 %	+6 dB	200 mi	n "
The following Ca 0° Lamination s 60° Full and Hal 70° Full and Hal Nozzles: N1, N7	scan f skip as avail f skip as avail , N3, N10A a	able able nd N10B					
CGSB # 11841 Operator Gord Sieben	8	ASNT II CGSB II	\$t 0	т	KM	Clie	nt Representative

T H Consulting Services

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Report - GU14065

	Alco Gas & Oi 5203 - 75 St. Edmonton, All ASME V Artic	perta le 4			Time 1 Date A P.O. No.	-1 :00 PM Apr 15, 2014
Procedure UT- General	and UT- 8 Rev. 4	Calib	ration Standard	s ASME 1/2" T 1/16"	'N Co	ouplant Light oil
Instrument Olympus Epo	och 600 S/N 1204	04409	Calibration D	ue - 4 Oct 2014	Reference	Gain - 64 dB
■ Panametrics 12.5 S/N	170279 🛛 Par	nametrics 25 S/	N 677551 D	Pana-wedges 45/6	0/70 ABWM-5T	☐ Other
☐ Panametrics 12.5 S/N	174928 🔲 Par	nametrics 12.5	S/N 579307	Panametrics 5x5xD	S/N 505065 🗖	Panametrics .25" S/N 97250
DAC Block S/N 2253	9 thru 22548	ASME V Blo	ck S/N 22608	IIW Block S/N 11	091 🗖 Ste	p Block S/N A03412
Material - P1	Thickness -	1/2"	Temp - 10° C	to 52°C Surfa	ace Condition	- Clean / As welded
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mm	46
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mm	46
The following Ca 0° Lamination s 60° Full and Hal 70° Full and Hal Nozzles: N1, N7	scan f skip as ava f skip as ava f, N10A and	ilable ilable N10B.	ned.			
CGSB # 11841 Operator Gord Sieben	9	ASNT II CGSB II	St OT	КМ	Client	Representative

T H Consulting Services 109 Grand Meadow Crescent

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Report - GM14142

MAGNETIC PARTICLE INSPECTION REPORT

A	Test Me		Alco Ga 5203 - 7: Edmonto ASME V	SE	Alberta				1 1 1 1	Page Time Date P.O. No lob No.	1-1 11:00 A Apr 18,	2014	
	ocedure-MT-Ge				1 🗆	Pre	Heat Treatment	☐ Post H	eat	Treatme	ent 🗆	Post Hydrotes	st
Te	st Equipment	ES-X Flex i S/N - 16512	Ferrous Pro 2	obe	☐ Blac	klig	ht		1	B/L N	1eter XR-10	000 S/N - 181554	43
Bla	ack on White Co	ntrast - Ma	gnaflux 🗖	W	CP 2 White Cont	rast	Batch #	☐ 7HF Pre	par	ed Bath	Batch #		
Me	dium- Magnafi	их - Туре [□ 14 A	parti	cal h #		carrier batch #		8R	12F00	8	Other	
	Dry Yoke Base Metal wing Light Source terial - P1		nd		Fluorescent Coll Machined Ambient	⊠ ⊠ □ □	Red A/C Painted Trouble Light 10° C to 52°C	Grey D/C Shot Blasted Flashlight Surface Con		B/Wh Cont Cent	ite inuous ral Cond. leter S/N E	Other Residual Demag	
	lo relevant CGSB#1	indicatio			ound.	st	essel were	sted.		Clien	Represen	itative.	
×	Youn	/	<i>\\</i>		ASNT II CGSB II	2			,•.		1		

T H Consulting Services

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Report - GU14127

	Alco Gas & Oil 5203 - 75 St. Edmonton, Albe ASME V Article ASME VIII Div.	4			P.O. No.	1-1 1:00 PM Apr 22, 2014 2013-8440-01B
Procedure UT-General	and UT- 8 Rev. 4	Calibratio	n Standards	ASME 1/2" T 1/16" N	(Couplant Light oil
Instrument Olympus Epo	och 600 S/N 120404	409 Cal	libration Due	4 Oct 2014	Referenc	e Gain - 64 dB
Panametrics 12.5 S/N	170279 🛛 Pana	metrics 25 S/N 67	7551 🛛 🖾 F	ana-wedges 45/60/7	0 ABWM-51	Other
☐ Panametrics 12.5 S/N	174928 🔲 Pana	metrics 12.5 S/N	579307 🔲 I	Panametrics 5x5xD S	/N 505065	Panametrics .25" S/N 97250
DAC Block S/N 2253	39 thru 22548	ASME V Block S	/N 22608 🔀	IIW Block S/N 1109	1 🔲 Si	tep Block S/N A03412
Material - P1	Thickness - 3	/8" Ter	mp - 10° C to	52°C Surface	e Conditio	n - Clean / As welded
Transducer	Frequency	Size	FSH or %	Scan	Range	Cable Type
0°	2.25 MHz	12.5 mm	80 %	+6 dB	25 mm	Coaxial BCM6'
60°	2.25 MHz	12.5 mm	80 %	+6 dB	125 mn	n "
70°	2.25 MHz	12.5 mm	80 %	+6 dB	200 mn	n "
The following C 0° Lamination 60° Full and Ha 70° Full and Ha Nozzles: N6 and	scan If skip as avail If skip as avail d N8.	able able	i.			
CGSB # 11841 Operator Gord Sieben		ASNT II 1	ОТ	КМ	Clier	Representative



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

R#133932 8440-01

DATE: MAY 22/14	LOAD#	MID	TRAILER#
PRODUCT: MANWAY LOVER	.5	PROJECT:	NIA
CUSTOMER: ALCO		OWNER: ウ	EVON
CUSTOMER Ref.No.: 64	134 REVI	NORPOINT F	Ref.No.: 13 - 0261
CUSTOMER REPRESENTATIVE:		NORPOINT F	REPRESENTATIVE: MANDY M'CAFFREY

COMPRESSOR: 900 CFM	DRYER: Desiccant	Testex PRESS-O-FILM™ HT WWW.lestextape.com X-Coarse MICROMSTRE
NO. OF NOZZLES:	PRESSURE @ NOZZLE: 115 psi	MANUATES 15 to 45 mil 4 1 5/N 25 15 to 45 mil 4 1 5/N
ABRASIVE: Silica	SIZE: # 7	20 C 30 (C+XC)/2 64 XC Made in USA 115 µm
CLEAN STND: SSPC - 5P 5	PH W/A	08 15 25 MAY 22/14 45 mll 4.1 MIL

HYDGROMETER	2 12040	77c 088c	TEMP P	robe an	0925130	26-35100-	·K	
ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	52.5.C	13.0°C	26.1.C	21.5%	2.4 · C	BLAST PIT	MAY 22/14	MM.
COAT #1	26.9°C	15.3°C	24.7'0	21.2%	4.5°C	SHUP Z	MI/22 MAM	MM
COAT #2	29.7.6	15.7'C	30.1°C	17.9%	5.5.°C	SHOPZ	MAY 23/14	мм
COAT #3	1		1				1	1.
COAT #4			- 1	1	,	1		

PAINT SYSTEM - ALCO AGOVE CRADE INTERNAL / EXTERNAL .

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR	
COAT # 1	HIGHLAND	74	B- 1404 - 31477	CONVENTIONAL	GREEN	
			C-1401-31242			
COAT # 2	HIGHLAND	74	B- 1464-31477	CONVENTIONAL	GREEN	
	(-	1	C-1401 - 31242		1	
COAT #3			B-			
			C-			
COAT #4			B-	V		
			C-		V.	

DIT GAU		1-140			Tr.								
COATINGS						WFT MEASUREMENTS				DFT MEASUREMENTS			
COAT #1	MIN:	Ø	MAX:	Ø	MIN:	4	MAX:	8	MIN:	5.1	MAX:	6.7	
COAT #2	MIN:	3.1	MAX:	4.7	MIN:	4	MAX:	0.	MIN:	9.4	MAX:	12.1	
COAT #3	MIN		MAX		MIN	- (MAX		MIN		MAX		
COAT #4	MIN	-	MAX	1	MIN	1	MAX	1	MIN		MAX	1	
NUMBER OF REA				DINGS 14			AVGERAGE DFT 1 C			.95			

MIXING	TYPE	AMOUNT	BATCH#	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	740	5./.	1403-31343	Power Mix	VIA	NELSON
COAT #2	740	5.1.	1403-31343	Power Mix	NIA	NEUSON /
COAT #3	1	1	1	Power Mix	1	1
COAT #4				Power Mix		

ENERAL COMMENTS: 2	K Manway Cover	's for Vessel	002-V-10-1010	

FINAL ACCEPTANCE & WORK RELEASE						
Norpoint Acceptance: Manoy Mcassey Mawy	Customer Release: NATHAN KENNEDY ML Q (REVIEW ONLY)					
Date: MAY 27/14 NACE 42852.	Date: MA4. 27 / 2014					



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

DATE: MAY 22/14	LOAD#	NA	TRAILER#		
PRODUCT: MANWAY COV	EKS.	PROJECT: NA			
CUSTOMER: ALCO		OWNER: DEVON			
CUSTOMER Ref. No.: QUOTE 4	86138 REV 1	NORPOINT Ref. No.: 13-0261			
CUSTOMER REPRESENTATIVE:		NORPOINT REPRESENTATIVE: MANDY M'CAFFEE			

COMPRESSOR: 900 CFM	DRYER: Desiccant	Testex PRESS-O-FILM™ HT	MICRUMETER
NO. OF NOZZLES:	PRESSURE @ NOZZLE: 115 psi	MANWAYERS 38 to 115 µm	PNT 673
ABRASIVE: Silica	SIZE: # 7	20 C 38 C+XC)/2 64 XC Made in USA	
CLEAN STND: SSPC - SP 10	PH 2/A	08 15 25 MAY 22/14 45 ml	3.2MIL

Hydrometer 12	040 790	ST. TEM	PROBLE	VN 097	513026-35	100-K		
ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	25.2°C	13.0.C	24.1.0	21.5%	Z.4.C	BLAST PIT	MAY 22/14	ММ
COAT #1	21.1.0	15.5°C	23.2°C	52.31/.	10.9°C	SHOP Z	MAY 24/14	MM ·
COAT #2	1	1	1	1				
COAT #3								
COAT #4			(1			1	

PAINT SYSTEM - ALCO AGOVE GRADE FATERNAL

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR MED. GREY	
COAT # 1	CLOVERDALE	CLOVALINE	B- W1338072	AIRLESS.		
	N.	1	C- WISK8798			
COAT # 2			B-	1		
			C-			
COAT #3			B-			
			C-			
COAT #4			B-			
			C-			

COATINGS	DFT B	EFOR	E THIS COAT	WFT	MEA	SUREMENTS	DFT MEASU	REMENTS
COAT #1	MIN:	Ø	MAX: Ø	MIN:	8	MAX: 10	MIN: 4.1	MAX: 8.7
COAT #2	MIN:	1	MAX:	MIN:	1	MAX: 1	MIN:	MAX:
COAT #3	MIN		MAX	MIN		MAX	MIN	MAX
COAT #4	MIN		MAX	MIN	_	MAX	MIN	MAX
	SE SERVICE DE	NU	MBER OF RE	EADINGS		22	AVGERAGE I	OFT 6.74

MIXING	TYPE	AMOUNT	BATCH#	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	C 25	10.1-	W13K8499	Power Mix	N/A	NELSON
COAT #2		1	1	Power Mix		
COAT #3				Power Mix		
COAT #4	3			Power Mix		

HOLIDAY TEST: Low Volta	ge – 67.5 volts: YES	s: □ no:□	SCAT TE	ST PA	SS < 3 PPM	
		M/1 5	1202 N	1 CA	L DUE O.	1/03/15
GENERAL COMMENTS:	EXTORNAL	MANWAY	COVERS	FOR	VESSEL	002-4-10-1010.
COATING IS ACCI	EPTABLE MA					

FINAL ACCEPTA	ANCE & WORK RELEASE	
Norpoint Acceptance: MANDY MECAPEREY MAM'ULO	Customer Release: NATHAN KENNEDY MAG (REVIEW ONLY)
Date: MAY 27/14 NACE 42952	Date: MAI. 27 / 2014	



QUALITY ASSURANCE INSPECTION SUMMARY (ABOVE-GRADE)

DATE: MAY IT	2013	LOAD#	W/A	TRAILER#			
PRODUCT: VE \$5		if.	PROJECT: NIN				
CUSTOMER: ALCO			OWNER: DRION				
CUSTOMER Ref.No.: Qu	107E 8613	, & REVI	NORPOINT Ref. No.: 13 - 0241				
CUSTOMER REPRESENTATIVE: MIL INSPECTION			NORPOINT REPRESENTATIVE: MANDY M'CAFFREY				

COMPRESSOR: 900 CFM	DRYER: Desiccant	Testex PRESS-O-FILM™ HT	MICROMETER
NO. OF NOZZLES: \	PRESSURE @ NOZZLE: 115 psi	X-Coarse	5/N PNT 473
ABRASIVE: Silica	SIZE: # 7	38 to 115 µm	PRITATO
CLEAN STND: SSPC ->P 5	PH N/A	20 38 64 115 µm 0.8 1.5 2.5 4.5 mll	3.9 MIL

HYDROMETER / ST. TEMP GAUGE SIN 130707672.

ENVIRONMENT	AIR	WET BULB	STEEL	RH %	DEW POINT	WEATHER	DATE	RELEASED BY
BLAST	17.5°C	9.1.0	15.C	41.47	3.9°C	TENT	MAY 15/14	MM
COAT #1	22.2°C	11.8.0	25.7.0	25.4%	1.1.0	ALCOTHOP	MAY 16 /14	MM
COAT #2	21.4'C	10.9°C	22.6.C	23.2%	4.2.6	ALCO SHUP	PI TI PAM	MM
COAT #3	24 .3 C	12.2.C	25.3°C	32.3%	5.1·C	ALCO SHOP	MAY 19/14	MM
COAT #4								

PAINT SYSTEM - ALCO ABOVE GRADE INTERNAL SPEC.

COATING	MANUFACTURER	PRODUCT	BATCH NUMBER	APPLICATION METHOD	COLOR	
COAT # 1	HIGHLAND	74	B-1401 - 31243	AIRLESS + CONVENTIONAL	GREEN	
			C-1404-31475			
COAT#2	HIGHLAND	74	B-1403 -31344	AIRLESS + CONVENTIONAL	RELLOW	
			C-1464-31475			
COAT #3	HIGHLAND	74	B- 1401 - 31243	AIRLESS + CONVENTIONAL	GREEN	
			C-1404_31475			
COAT #4			B-			
			C-			

DET GAUGE 727140.

COATINGS	DFT BEFORE THIS COAT			WF	WFT MEASUREMENTS				DFT MEASUREMENTS			
COAT #1	MIN:	6	MAX: 🟑	MIN:	Ч	MAX:	6	MIN:	3	MAX:	7	
COAT #2	MIN:	3	MAX: 7	MIN:	4	MAX:	بها	MIN:	6	MAX:	12	
COAT #3	MIN	6	MAX 12	MIN	3	MAX	5-	MIN	9.5	MAX	16.5	
COAT #4	MIN		MAX	MIN		MAX		MIN		MAX		
* T = 1 = 155.45	A MICH A	N	UMBER OF RE	ADINGS		1000		AVGEI	RAGE DFT	12.	82	

MIXING	TYPE	AMOUNT	BATCH#	METHOD	SWEAT IN	CHECKED BY, PLEASE PRINT NAME
COAT #1	740	57.	1403-31343	Power Mix	5 min	NELSON
COAT #2	740	57.	1403-31343	Power Mix	5 min	NELSON
COAT #3	740	57.	1401-31143	Power Mix	5 min	NELSON
COAT #4				Power Mix		

HOLIDAY TEST: Low Voltage − 67.5 volts: YES:	NO: - 11 hal Found. Repaired May 21/14.
SCAT TEST PASSED 43PPM. KITAGAW	A TUBE # Z5Z143.
GENERAL COMMENTS: VESSEL OUZ -V-	10 - 1010 ,
	* MANWAY COVERS ARE BEING BLASTED
COATING IS ACCEPTABLE MM	AND COATED AT SHOP (NORPOINT) MAN.

FINAL ACCEPTANCE & WORK RELEASE							
Norpoint Acceptance: MANOY M'CAFFREY M-M'M'.	Customer Release: NOTHAN KENNEDY AKON (REVIEW ONLY						
Date: MAY 22 /14 NACE 42852.	Date: Mai 22 / 9014						



DATE:	MAY	1 20	11	4	I	JOAD	#	b-	11A				TRAILE	R# N/1	}	
PRODUCT:		VESS	ĒL						PR	PROJECT: NIA						
CUSTOMER	. /	ALCO							VO	OWNER: DEVON						
CUSTOMER	Ref.N	lo.: Qu	JTE	86139	& REV)			NO	NORPOINT Ref.No.: 13 - UZGI						
CUSTOMER REPRESENTATIVE: MTC INSOECTION											VE: MANO	Y M'C	AFPERY			
																,
COMPRESSO	DR: 90	00 CFM			DRYE	R: De	sicca	nt			_ Tes	stex	PRESS-O	-FILM™ H1		CEOMETHE
NO. OF NOZ	ZLES	: 1			PRES	SURE	(a) N	OZZLI	E: 115 p	si				4 .0 X-Coa	ITSE 5 mil Pい	5/N2
ABRASIVE:					SIZE:	# 7					EX	, C () 7 (E) () 1 ()	0+XC)/2	38 to 11	5 μm n USA	
CLEAN STN	D: SSI	PC - 5	ו אפ	>	PH	U/A					0.8	38	2.5	MAY EO/	sμm smill 4.	UMIL.
HYDROM						_				W DO	13. 100	Trin		D 4 77 7	Labre	LODD DIL
ENVIRONM	ENT	AIR		WET B		STE		RH %		W PO		_	EATHER	DATE		ASED BY
BLAST		22.2	·c	11,4	٠. ٠.	28.	7.0	25.4	7.	1.1.		BL	LUGI LON	MAY ZU/14	•	1 M
COAT #2										_ -			_			1
COAT #2 COAT #3					_				-			-	-		-	
COAT #4			-		1	1			_	-4		-		1 1		1
	,						SRAT	E Ex	TERNA	- 50						
COATING	_	NUFA			PRODU				UMBEI		A	PPLI	CATION N	METHOD	COL	OR
COAT # 1	CL	UVER	つらい	E C	S32					RUTZ AIRLESS				GREY		
COAT # 2		<u> </u>	=		9 9 2	. 1	B-	WUK	. 6 1-	8	-		-		-	1
COTTINE		-			-		C-						_			
COAT #3							B-		1		_		1		_	
							C-									
COAT #4							B-		4							
							C-						1			
DF"	TCP			7141												
COATINGS				ORE T					Γ MEAS				-	MEASUREM 1	,	
COAT #1		MIN:	Q		MAX:	US		MIN:	Y		C: 10	6	MIN:	5.7	MAX:	9.9
COAT #2	_	MIN:	-		MAX:	-		MIN:	-	MAX		1	MIN:		MAX:	_
COAT #3		MIN	_		MAX			MIN		MAX			MIN		MAX	
COAT #4		MIN	- 1		MAX			MIN		MAX		-	MIN		MAX	
TARREST MATERIAL	10.011			NUM	BER (OF RE	EADI	NGS		٧6.			AVGER	RAGE DFT	1 7	.87
MIXING		YPE	AN	MOUN	т В	ATCI	I #	ME	ETHOD	SW	/EAT	IN	CHECK	ED BY, PLE	ASE PRII	NT NAME
COAT #1	C	25		10.1.	W	13594	189	Pov	wer Mix		1214		NE	hoe		
COAT #2		1				1		Pov	wer Mix		1					
COAT #3								Pov	wer Mix							
COAT #4								Pov	wer Mix		,			l		
HOLIDAY TI			ltage -										23PPM	-KITAGAWY	TUBE	252143
CORTIN	1 Ca 1	S Ac	CEF	PTAB	LE.											

Customer Release: NATHAN KENNEDY

Norpoint Acceptance: MANDY M'CAFFREY M-M'UM

Date: MAY 27 /14



5203-75 Street, Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

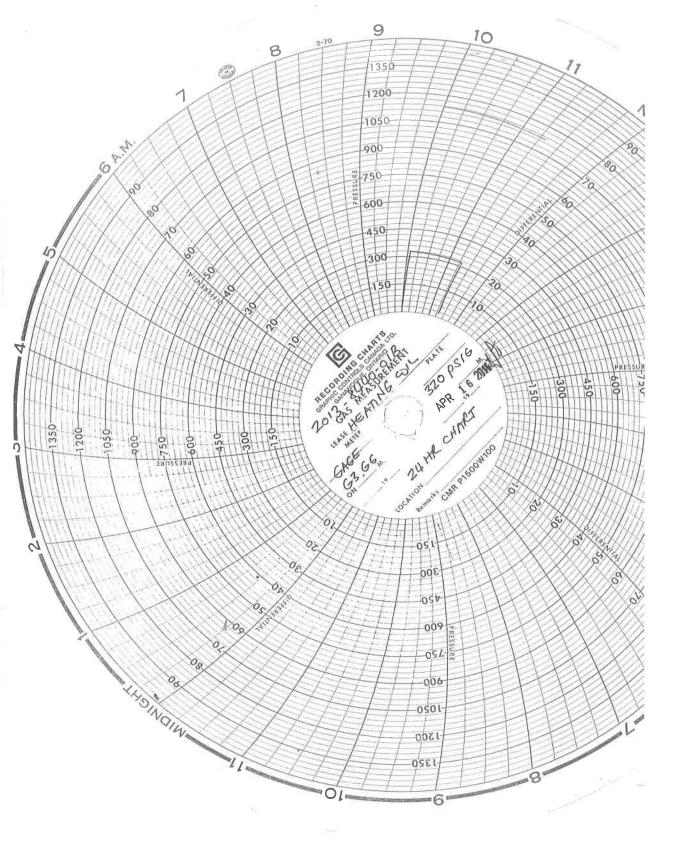
SERIAL NUMBER:	2013-8440-01B								
DESCRIPTION:	CLOSED HYDROCARBON DRAIN VESSEL								
NAME OF AUTHO	RIZED INSPECTIO	N AGENCY:	ABSA						
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEU								
TEST PRESSURE:	65 psig								
POSITION OF THE	E UNIT TESTED	HORIZ VERT	ZONTAL ICAL						
TEST FLUID:	Water	TEST TEME	PERATUR	$\mathbf{E} > 60 \mathrm{F}$					
TEST PROCEDURI	E: ALCO	QCP-71							
PRESSURE GAUGI	E(S) NUMBER:	B8 & B9							
PRESSURE TEST (CHART RECORDEI): YES	NO						
WAS PRESSURE-T	T THE UNIT BEAR ESTED FOR A PER R DEFECTS WERE	IOD OF 1	HOUR	IAL NUMBER (S) AND NO 28/2014					
QC INSPECT	FOR/ ALCO GAS & O	IL	DA	TE					
72/			4/2	28/2014					
3 RD PAR	TY INSPECTOR		DA	TE					
frank	There		4/	/28/2014					
AUTHOR	RIZED INSPECTOR		D	ATE					

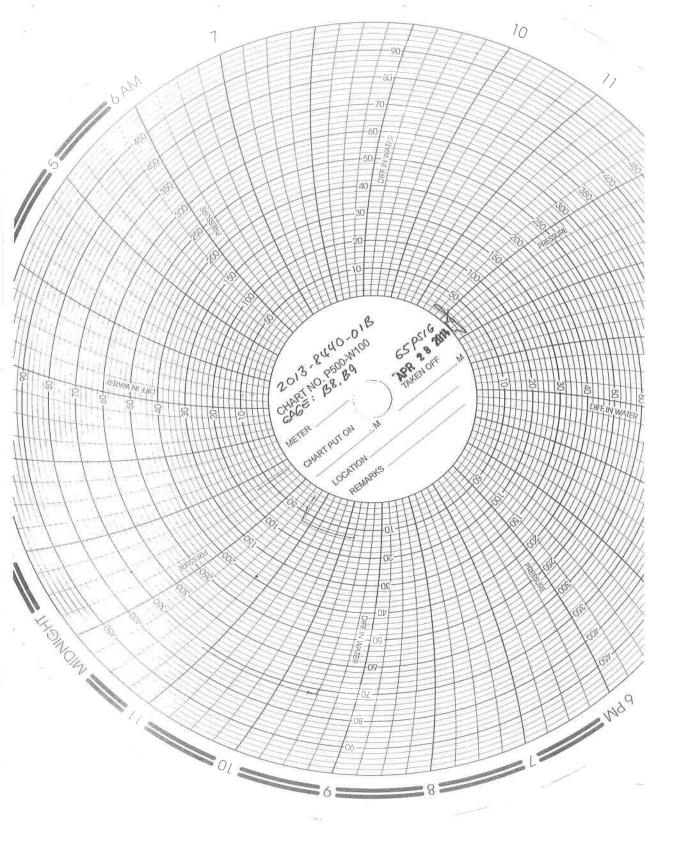


5203-75 Street, Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER:	2013-8440-01B			
DESCRIPTION:	HEATING COIL			
NAME OF AUTHO	RIZED INSPECTION	N AGENCY: A	ABSA	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUM	MATIC [
TEST PRESSURE:	320 psig			
POSITION OF THE	E UNIT TESTED	HORIZO VERTIC		
TEST FLUID:	Water	TEST TEMPE	ERATURE >	60 F
TEST PROCEDUR	E: ALCO	QCP-71		
PRESSURE GAUG	E(S) NUMBER:	G3 & G6		
PRESSURE TEST	CHART RECORDED	YES	NO NO	
WAS PRESSURE-7	AT THE UNIT BEAR TESTED FOR A PER R DEFECTS WERE I	IOD OF 1	OVE SERIAL HOUR(S)	NUMBER AND NO
	10/2		4/16/2	014
QC INSPEC	TOR ALCO GAS & O	IL	DATE	
	000		4/16/2	2014
3 RD PA	RTY INSPECTOR		DATE	
IV0	rent al		4/16/	2014
ATITHO	DIZED INSPECTOR		DATI	\mathbf{E}





Phase # :
Phase Title:

2013-8440-02A Structural Steel Skid

TABLE OF CONTENTS

	Title	Availa	bility
		Yes	No
1.	Data Reports		N/A
2.	CRN's		N/A
3.	Nameplate Copy		N/A
4.	Travel Sheet		N/A
5.	Impact Test Reports		N/A
6.	Material Control		N/A
7.	Material Reports		N/A
8.	MTR's		N/A
9.	NDE MPT	X	
	LPT		N/A
	RADIOGRAPHY		N/A
	ULTRA SONIC		N/A
10.	Stress Relieve Charts		N/A
11.	Hydrotest Report(s)		N/A
12.	Hydro Chart		N/A
13.	PSV & Valve Cert.		N/A

T H Consulting Services

109 Grand Meadow Crescent Edmonton, Alberta T6L 1X1 Telephone: (780) 909-5470 gord@thcs.net

Report - GM14537

MAGNETIC PARTICLE INSPECTION REPORT

	CI	lient	Alco Gas & 5203 - 75 St Edmonton,	· N					_	ige 1-1	
	Test Met	hod		-709-06 / Dr	v Pow	der			Da	ne 11:00 Al	
Ac	ceptance Crit			iv. 1 App. 6						ote May 13,	2014
,		oject	H							b No. 2013-84	40-02A
	cedure-MT-Ge			4 C] Pre	Heat Treatmen	t 	☐ Post He	at T	reatment	Post Hydrotest
Tes	t Equipment S	S-X Flex F 3/N - 16512	errous Probe	□ ві	ackligh	t				B/L Meter XR-10	00 S/N - 1815543
Blac	ck on White Con	ıtrast - Ma	gnaflux 🗖 W	CP 2 White Co	ntrast	Batch #		☐ 7HF Prep	arec	Bath Batch #	
Med	lium- Magnaflu	x - Type	14 A part	ical ch #		carrier batch #		Ø	8R	12F008	Other
×	Dry	□ Wet		Fluorescent	×	Red		Grey		B/White	□ Other
×	Yoke	□ Prod		Coil	X	A/C		D/C	X	Continuous	☐ Residual
図	Base Metal	☑ Groun	nd 🗆	Machined		Painted		Shot Blasted		Central Cond.	☐ Demag
View	ring Light Source	e in exces	s of 100fc. \square	Ambient		Trouble Light	M	Flashlight	X	W/L Meter S/N E	3100448
Mat	terial - P1		Thickness -	1-3/8" Te	mp 1	10° C to 52°C		Surface Con-	ditic	on - Clean	
Т	he (8) Lift L	_ug wel	ds on the	Skid were	teste	ed,					
N	lo relevant	indicati	ons were	found.							
								1		1	
٥-	CGSB # 1 ⁻ perator Gord	1841 Sieben			St	OT F	(M			Client Represe	ntativo
	Ani-	18	\$	ASNT II CGSB II	.5		CIVI	1		Sillar represe	ILGUIYG

2013-8440-03A

Phase #: 2013-8440-03A
Phase Title: Level Transmitter Cage

TABLE OF CONTENTS

	Title	Availa	bility
		Yes	No
1.	Data Reports		N/A
2.	CRN's		N/A
3.	Nameplate Copy		N/A
4.	Travel Sheet	X	
5.	Impact Test Reports		N/A
6.	Material Control	X	
7.	Material Reports	X	
8.	MTR's	X	
9.	NDE MPT	X	
	LPT		N/A
	RADIOGRAPHY	X	
	ULTRA SONIC		N/A
10.	Stress Relieve Charts		N/A
11.	Hydrotest Report(s)	X	
12.	Hydro Chart	X	
13.	PSV & Valve Cert.		N/A

TRAVEL SHEET

Authorized	Inchestor	(Cianoturo)
Authorized	IIISPECTOI .	(Signature)

Date	
------	--

CUSTO	MER / LOCATION		SEF	RIAL NUMBER / UN	llT.		(A) NUME	BER:		
DEVON CAN	ADA CORPORA	TION		2013-8440-03A				DRAWIN	NG NUMBER	L.
FERRIER (CPF PROJECT,	AB	LSD	11-02-039-08 W	/5M			-2013-84	40-03-001/00	1
ITEMS:			COMME	NTS:		INITIALS HOLD QC		CUSTOMER	HOLD (AGENT)	HOLD A.i.
FOR GWR	ANSMITTER CA ROSEMOUNT 5 4 CL300 STD					HOLD QC		COSTOMEN	HOLD (AGENT)	HOLD A.I.
Repair Procedure	e Approved									
Approved Drawin	ngs / CRN									
Material Checked	d / Heat Verified		REVIEW							
MTR Checked			REVIEW	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
Impact Test			EXEMPT	TABLE A-1 SEF	23	2013				
Unit Layout				Mcur. 13.3		do				
Weld Procedure	Approved		REVIEW		2013	W				
Welder(s) Qualifi	cations		REVIEW		2014	W				
Fit-Up: Shell & H	eads		TYPE 1	7.51 DE 10 NO VO VIEW	114 6/4					
Nozzles & Fitt	ings		1	4 MAR 2014	4/M					
Internals										
Externals				1 4 MAR 2014	1					
Connections: Lo	cation			1 4 MAR 20	- 1					
	ating		CL300 (CL3000 7 4 M	AR 20	14 h/d				
Internal Inspection										
Internals Installe				4 a MAD	014 //	/				
Weld Profile, Size	es & ID		CHECKE	ED 1 4 MAR 2 ASME B31.3	014 //	#				
Radiographs				ON FILLET WELD	s MA	R 20	2014 (į		
Other NDE			-			1.5	V	1		
Stamping	1.41 610	•	CHECKE	A . MAD .		19				
Alternative Test	ompletion of Weld	ing	CHECKE	D 14 MAIL /	U14 P	M				
PWHT Charts Ch	oockod		NONE							
Hydrostatic Test	-		75 PSIG GAGE# 81,84 MAR 1 9 2017							
MDR										
Name Plate										
PART	MATERIAL SPEC	THICK	KNESS	HEAT NO.	PA	ART	MATERI	AL SPEC	THICKNESS	HEAT NO.
Heads	SA-420 WPL6	0.237	" NOM	12433101	Rej	pads				
				_						
Shell	SA-333-6	0.2	237"	D-919						
					Tu	bes				
						_				
Tubesheet										

^{*} INDICATES HOLD POINTS TO BE SIGNED OFF BY THE APPLICABLE INSPECTOR.

PRODUCTION EQUIPMENT LTD.

MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-03A CUSTOMER: DEVON CANADA CORPORATION DATE: MARCH 31, 2014

RED												
REGU												
HEN												
ING N												
NONDESTRUCTIVE TESTING WHEN REQUIRED	MPI FILLET WELDS					>						
STRUCI	RT			,	>							
NONDE	MTR	>	>	>	>	>	>	>		>		
~	HEAT NUMBER	4401629	12/34030	12H33101	4120885B	58912	12/30722	12/30722	-	59172		
	MATERIAL	SA-350 LF2 CL1	SA-350 LF2 CL1	SA-420 WPL6	SA-333-6	SA-350 LF2 CL1	SA-350 LF2 CL1	SA-350 LF2 CL1		SA-350 LF2 CL1		
	SIZE / RATING	NPS 4 CL300	NPS 4 CL300 STD	NPS 4 STD	NPS 4 STD	NPS 2 STD	NPS 2 CL300 STD	NPS 2 CL300 STD	NPT 1 ¹ / ₂	NPT 1/2 CL3000		
	ITEM	#1 RF HUB BLIND	#4 RFWN (N1)	#6 WELD CAP	#7 SMLS PIPE	#11 WOL	N2A RFWN	N2B RFWN	C1 DRILL & TAPPED	C2 TOL		



ALCO GAS .. Oil Production Equipment

Serial Number 8440 - 034

Customer: Devon Canaile

Filled By: Jams

Date: 11 March 2014

MATERIAL REPORT

Type of vessel

Vertical

Horizontal

Min Thk (in) 518-420-WPLC SR- 333 GR. · Mat'l Spec Slab # -12H 33101 Heat# ALCO ID# Item # 0 Diameter 7. Z Z Miscellaneous Skirt / Saddle Nozzle Repad Head Shell Title

2440-03x2

Customer: WE.F.EITTINGS & FLANGES (CANADA) SAN ENG STEEL FORGING CO LTD 311, Jen Hsim Road, Jen Wu District Kaohsiung, Taiwan, R.O.C. TEL: 47:-372249 ; FXx.07-3712523 URL: www.sanang.com.tw e-mail: sanang@ksts.seed.neLtw

MILL TEST CERTIFICATE EN10204-3,1.B(DIN50049/3,1.B)

Order No.: E000117

Date: 12/19/2011 Certificate No.: SE101455 Page: 30F 4

0.415 0.415 0.405 0.405 CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15156.2.03
TEST SPECIMEN SIZE: 10X10
TEST SPECIMEN ORIENTATION: TRANSVERSE
MPACT TEST TEMP:: 46°C DIMENSIONAL SPECIFICATIONS 0.007 0.005 0.005 0.005 0.007 0.007 0.007 0.00 6000 ASME B16.5-09 0.001 0.00 0.00 0.001 0.001 0.00 0.001 0.001 0.004 ■ HEAT TREATMENT("2) 0.001 *(\$30.0.3) 0.004 0.004 0.00 0.004 0.010 0.010 0.003 0.004 0.010 0.010 0.002 0.004 0.010 0.002 0.003 0.010 0.002 0.003 0.010 0.010 0.003 0.004 0.010 0.002 0.004 CHEMICAL COMPOSITION (% 0.002 0.120 0.003 0.010 0.010 0.003 0.010 0.002 Z 0.010 0.010 0.010 0.300 0.010 0.010 0.010 0.020 0.020 **Material Supplier** CONFORMS TO SA 350LF 2CL 0.000 0.007 0.008 0.007 0.007 0.008 0.008 0.007 0.008 0.007 ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS 0.004 0.00 0.006 9000 9000 0.006 0.008 0.008 0.004 ASTM A350 LF2-11 CL. 1/ASME SA350 LF2-11 CL.1 4.0 76.0 76.0 0.035 0.015 0.019 0.020 44.0 76.0 0.015 0.015 0.019 0.019 0.019 0.020 MATERIAL SPECIFICATIONS Minimum: 20.0 Jaule 1.150 .150 1.150 1,150 1.120 1.120 1,150 1,150 .150 97.0 97.0 97.0 97.0 97.0 Impact Test 0.220 0.250 0.250 0.250 0.220 0.220 0.220 0.220 102.0 102.0 102.0 N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieve A C=Air Cooled, F:C=Furance Cooled, W.C=Water Cooled, O.C=Oi Cooled. 0.220 0210 0.210 0.210 0210 0.210 0.220 0210 Max X 25 PCE 25 PCE 31 PCE 25 PCE 25 PCE 10 PCE 25 PCE 10 PCE 10 PCE RA(11) QUANTITY 11. T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area 70.4 70.4 70.4 70. 148/151 152/150 153/151 153/151 153/151 153/151 152/150 152/150 148/151 Ê 197 EL (3) (%) 22.0 34.0 34.6 34.6 34.0 34.0 34.0 300 THRE 4"X1 1/2" A105N/LF2N DESCRIPTION 150 THRF 4"X1 1/2" A105N/JF2N 150 THRF 2"X1 1/2" A105N/LFZN 360 THRF 2"X1/2" A105N/LF2N 300 THRF 2"X1" A105N/LF2N 150 THRF 4"X1" A105N/LF2N 150 THRF 4"X2" A105NALF2N 150 THRF 4"X3" A105N/LF2N 150 THRE 2"X1" A105N/LF2N 300 THRF 4"X1" A1D5NALF2N Y.S.(*1) (MPA) 250.0 363.8 363.B 363.8 373.6 373.8 373.6 373.6 365.B FORGED CARBON STEEL FLANGES (MPA) (485.0 517.8 517.8 517.8 517.8 523.7 523.7 PRODUCI 655.0 523.7 523.7 Heat No. CODE NO 4401629 4443573 4443573 4443573 4443561 444356:1 4443561 444358 2222222222

0 2 2013 Mall LDD 8440-02 OCT YEAR TOIO ED 7613 SIGNED BY ITEM # 10B # 8440-03 Whe thereby certify that the majerial has been tested in accordance with the above specification and also with the requirements called for by the above order. 133431

Pol

2 6 0 1 1 p 8 4 8

100 #

E5 BEDNCI 3 2 0 C H D S E

лрс 6 0 5 Q

"3- C.E. Value = C + (Mn.16) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

f #Oq 189H Hans Tans T.O.q

STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI METALFAR PRODOTTI INDUSTRIALI S.P.A.

23861 CESANA BRIANZA (LC) - Italy SEDE AMMINISTRATIVA E STABILIMENTO: Tel. +39 031.655441 Via G. Parini, 28

Fax +39 031.655149

quality.mff@farmas.com

CERTIFIED BY DNV COMPANY WITH QUALITY SYSTEM

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Del/Dated 11.02,2013 S Del/Dated Dest.: TRANS AM PIPING PRODUCTS LTD Calgary, ALBERTA Del/Dated 12.02.2013 Fattura / Involce N. 577 Del/Dated 11.02.2013 Ne.Ord. / Our ref. N. 9335 - Endeavor Drive S.E. T3S OA1 Calgary, ALBE 3 TRANS AM PIPING PRODUCTS LTD 9335 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA Certif, N. 899 DDT / Del Note N. 670

Pag. 1 - 5 **= ISO 9001 =**

SATISFACTORY VISINO E DIMENS. ORIGINE / ORIGIN OF STEEL VIS. & DIMENS. Na. Rif. OUR REF. **EUROPEAN UNION** ELECTRIC FURNACE **ASME/ANS! B16.5 -2009** 0 FORNO / FURNACE DIM. ACCORDANCE TO 0,385 C.E.% DIM IN ACC. A AF% 0,025 82 RESELENZA / UMPACT TEST - JOULDIONZ 8 0,000 7 0,003 NP% 20 Gu% v% 0,140 0,002 NORMALIZED AT 920 C - COOLED IN STILL AIR TIPO / TYPE toxiban ⋛ TRATTAMENTO TERMICO / HEAT TREATMENT 0,019 138 0,010 163,0 - 165,0 Mo% A105N 0,050 SIN. W/N 160 RF 2" XS 060'0 င်္ဝ CONTRAZIONE MEDUCTION OF AREA DESCRIZIONE DESCRIPTION 0,015 ASTRIASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD. 8 0,010 729,00 Š 0,940 Mn% ROTTURA
TENGRE STRENGHT
NYBRZ >=
530,0 Sr% 0,220 VS.ORDINE YOUR REFERENCE 0,195 CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE WATERIALE IN ACCORDO A / MATERIAL IN ACC. TO క్ర CI-12-294 325.0 SHAPE 1-0 2-0 POS. 12/72869 MATERIALE / MATERIAL ASTM A105 (LADLE) COLATA HEAT CODE HEAT **20'80** COD COL 126.60

VISIVO E DIMENS. SATISFACTORY ORIGINE / ORIGIN OF STEEL VIS. & DIMENS. **EUROPEAN UNION** ONERVAMENTO
VIELD POINT
NAME >=1,5%
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NATER >=0.2% VS.ORDINE CI-12-311 34,0 ASTM A350 LF2 CL1/2 (LADLE) TEM FORMA BHAPE 1=0 2=0 022 12/34030 MATERIALE MATERIAL COLATA PROVETTA / TEST SPECIMEN SEZ, mm2 LUNG, mm SECT, mm2 LENGHT mm HEAT CODE HEAT 50,80 COD. COL

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> MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
> MATERIAL IN ACCORDANCE WITH NACE MR-0178/2009 ISO 16166-2009 - SOUR SERVICE
> MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR SERVICE 100% MANUFACTURED IN ITALY NOTE

UFFICIO CONTROLLO QUALITA'
QUALITY CONTROL DEPARTEMENT S. Erlgoton a

MFF

MANUFACTURER'S SYMBOL

ENTE UFFICIALE DI COLLAUDO
INSPECTION AUTHORITY

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INSPECTION CERTIFICATE

TRANS-AM PIPING PRODUCTS LTD.

Purchaser

58 Soi Watkrunai, Bangkru, Prapadaeng, Samutprakern, 10130 Thailand. Thai Benkan Co., Ltd.

外官等以事事

20/09/2012 T -D WE Y 中名米山倉事 ECLIO...
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The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements. NORMALIZING 910 C X 0.5 HR. AIR COOLING

Ringiaja Kenpiranon
Rungiaja Kenpiranon
Oualify Assurance Manager
Thai Benkan Co. Ltd.

The fittings was manufactured, sampled, tested, and inspected in accordance was the manufactured, sampled, and inspected in accordance with the specifications concerned.

C.E. = C+Mn/6+(C+Mo+V)/5+(Ni+Cu)/15

MAGNETIC PARTICLE EXAMINATION FOR THE ONLY.

We hereby certify that the product described herein has been manufactured in acceptance with the specifications concerned.

* 1 : "F" symbolized wall thickness in mm. * 2 : YS Yield strength TS.= Tensile strength E.= Elongation Form TZ 6C/?

Material Manufacturer



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产品质量证明书 (EN10204.3.1) MILL TEST CERTIFICATE

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STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INDSSIDABILI METALFAR

23861 CESANA BRIANZA (LC) - Italy SEDE AMMINISTRATIVA E STABILIMENTO: Via G. Parini, 28

CERTIFICATO DI COLLAUDO SECONDO. EN 10204 - 3.1 INSPECTION CERTIFICATE

Dest.: TRANS AM PIPING PRODUCTS LTD 9335 - Endeavor Drive S.E. T3S OA1 Cagary, ALBERTA

3

Del/Dated 31.08.2012 Del/Dated VISINO E DIMENS. SATISFACTORY ORIGINE / ORIGIN OF STEEL Pag. 3 - 32 VIS. & DIMENS. **EUROPEAN UNION** DeliDated 03.09.2012 Fetture / Invoice N. 2772 DeliDated 31.09.2012 Na.Ord. / Our ref. N. **ELECTRIC FURNACE ASME/ANSI B16.5 -2009** FORNO / FURNACE DIM.IN ACC. A
DIM. ACCORDANCE TO C.E.% 0,387 0,026 "3 A5% 3 RESULENZA / IMPACT TEST - JOIL BIONZ 99 0,000 % N 3 TRANS AM PIPING PRODUCTS LTD 0,002 7 ND% T3S 041 CALGARY, ALBERTA Ş 9335 ENDEAVOR DRIVE S.E. Certif. N. 4071 DDT / Del Note N. 3244 % 0,00,0 NORMALIZED AT 930 C - COOLED IN STILL AIR TIPO / TYPE 10x10mm ≥ TRATTAMENTO TERMICO / HEAT TREATMENT 0,120 SE SE 0,019 11% COMPANY WITH QUALITY HANAGENERY
SYSTEM CERTIFIED BY DW
= 150 9001;2008 = 0,050 0,010 166,0 - 159,0 LF2CL1 Mo% DUREZZA HARONESS Z. W/N 300 RF 2" STD 0,100 800 CONTRAZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 0,012 ž ASTN/ASME A 360/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 132,00 800'0 Q.T. 8% 0,950 Mrn% SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT Fax +39 031.655149 Tel. +39 031.655441 ROTTURA TENSRE OTRENOHI Wmm2 >= 0,230 Sign Sign VS.ORDINE YOUR REFERENCE 人 0,195 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ပ္ပိ CI-12-311 340.0 PRODOTTI INDUSTRIALI S.P.A. ASTM A350 LF2 CL1/2 (LADLE) **CSA 2245.12 GRADE 248 CAT.II** POS. PROVETTA / TEST SPECIALEN FORMA SEZ. HTM2 11MG. IDM SHAPE SECT. HTM2 LENGHT HTM 1=0.2-[] 12/30722 MATERIALE / MATERIAL COLATA HEAT CODE HEAT 50,80 COD. COL 126,60

SATISFACTORY VISIVO E DIMENS. ORIGINE / ORIGIN OF STEEL VIS. & DIMENS. **EUROPEAN UNION ELECTRIC FURNACE ASME/ANSI B16.5-2009** FORNO / FURNACE DIM ACCORDANCE TO 0,390 C.E.% DIM: IN ACC. A A1% 0,025 . 62 RESILIENZA / IMPACT TEST - JOULE Schill 000'0 99 3 0,001 ္နမ္ **0,005** NORMALIZED AT 930 C - COOLED IN STILL AIR TIPO / TYPE 10x10mm \$ 0,140 TRATTAMENTO TERMICO / HEAT TREATMENT 28 ™ 0,017 0,060 0,010 159.0 - 163.0 Mo% LF2CL1 % Ž W/N 300 RF 8" STD 0,010 0,100 REDUCTION OF AREA క్ర DESCRIZIONE DESCRIPTION 8 **ASTN/ASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010** 54,00 0,007 Q.TA 88 0.960 Mn% TENSILE STREMONT
Numr >=
519,0 Si% 0,220 VS.ORDINE YOUR REFERENCE 0,195 င်္ပ SMERVAMENTO YELD POINT Nimez >=0,2% 340,0 CI-12-311 MATERIALE IN ACCORDO A / MATERIAL IN ACC. **CSA Z245.12 GRADE 248 CAT.II** ASTM A350 LF2 CL1/2 (LADLE) POS. PROVETTA / TEXT 0 PECIMEN FORMA SEZ min2 LUNG, mm SHAPE SECT, mm2 LENGHT mm 1=0 2=[] 024 12/32023 COD. COL. COLATA
HEAT CODE HEAT MATERIALE / MATERIAL 50,80 126,60

4-8440-03 Po- 133431

128/8 0 2 2013 CONFORMS TO SA 350 LF2 CL 2011 AOC no13-8440-03 OCT 中一の一井 YEAR MIDED SIGNED BY ITEM # 10B #

> MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0175/2009 ISO 19156-2009 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 100% MANUFACTURED IN ITALY NOTES

F

MANUFACTURER'S SYMBOL

MARCHIO PRODUZIONE

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

UPFICIO CONTROLLO QUALITA'
QUALITY CONTROL DEPARTEMENT

PO# 133431 Heat Number Trans Am Pi Trans Am Pi 6 M 1 2 n 9 bd: 1

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uper of Piping and Pressure Vessel Components

4404 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

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 EN10204 3.1.

Material: A/SA350 00a LF2 CL1

Item

Quantity

Description

28

50

A350LF2 CL1

6-31/2 X 2 STD BWP

Chemical Composition

Ladle

Product

Ç CU 0.195 0.04 0.090 0.007 0.03

s SI 0.021 0.20 0.003

Tensile PSI

73,292

Carbon Equivalency:

Ladle

0.39

Yield PSI

48,638

Elong % 29.15 RA % 61.34

Hardness 130 BHN

Test Temperature:

-50 F

FT LBS: 49/43/29

% Shear: NB/NB/NB

MILE: NB/NB/NB

Normalized

Charpy V-Notch Properties:

IAW NACE MR0175/ ISO 15156- 2009

Page 30 of 32

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 248,632

PO#: CI-13-217

Sales Order #: C001303122

Date: 03/04/2013

Certified Material Test Report

Heat Code: 58912

350 LF 20 0 2 2018 SIGNED BY

BHN



famifacturer of Pining and Pressure Vessel Commonent

4404 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

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 EN10204 3.1.

Material: A/SA350 11 LF2 CL1

Item Quantity Description 48 300 36 - 3/4 X 1/2 3M THP

A350LF2 CL1

Chemical Composition

Ladle

CR CU NB NI 0.210 0.03 0.050 1.04 0.005 0.016 0.02 0.004 SI

0.018 0.20 0.003

Carbon Equivalency: 0.40 Ladle

Tensile PSI Yield PSI Elong % RA% Hardness Product 79,000 50,000 28.00 65.00 163.BHN Charpy V-Notch Properties: -50 F Test Temperature:

MLE: NB/NB/NB FT LBS: 45/32/23 % Shear: NB/NB/NB

Normalized

IAW NACE MR0175/ ISO 15156-2009

Page 42 of 48

Sold To: TRANS AM PIPING

PRODUCTS LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR#: 261,037

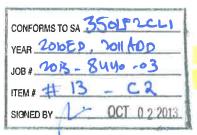
PO #: CI-13-502

Sales Order #: C001313455

Date: 09/12/2013

Certified Material Test Report

Heat Code: 59172



BHN

165

T H Consulting Services

109 Grand Meadow Crescent Edmonton, Alberta T6L 1X1 Telephone: (780) 909-5470 gord@thcs.net

Report - GM13827

MAGNETIC PARTICLE INSPECTION REPORT

	C	lient	Alco Gas & 5203 - 75 St.						Pá	age 1-1	
			Edmonton,		_				Ti	me 11:00 A	M
	Test Me		ASME V SE			der			Da	ate Mar 18,	2014
Ac	ceptance Cr		ASME VIII	DIV. 1 App.	5				-	O. No.	
	0	bject 							ήo	b No. 2013-84	40-03
			MT-1V Rev. 4	F [Pre	Heat Treatmen	t	Post He	at T	reatment 🔲	Post Hydrotest
Tes	t Equipment	ES-X Flex S/N - 1651	Ferrous Probe 2	□ Bla	ekligh	nt				B/L Meter XR-10	000 S/N - 1815543
Blac	ck on White Co	ntrast - Ma	gnaflux 🗖 Wo	CP 2 White Co	ntrast	Batch #		☐ 7HF Prep	arec	Bath Batch #	
Med	ium- Magnaflo	іх - Туре	☐ 14 A partio	cal h#		carrier batch #			8R	12F008	Other
×	Dry	□ Wet		Fluorescent	×	Red		Grey		B/White	☐ Other
X	Yoke	□ Prod		Coil	X	A/C		D/C	X	Continuous	☐ Residual
X	Base Metal	☐ Grou	nd 🗆	Machined		Painted		Shot Blasted		Central Cond.	☐ Demag
View	ing Light Sourc	e in exces	s of 100fc. 🛘	Amblent		Trouble Light	×	Flashlight	X	W/L Meter S/N I	3100448
Mat	erial - P1		Thickness -	Ter	np.	10° C to 52°C		Surface Cond	ditic	n - Clean / As	welded
Α	better thai	n 10% (of the fillet v	welds on t	he L	evel Transr	nitte	er Cage we	ere	tested.	
N	o relevant	indicati	ons were fo	ound.							
0	CGSB # 1				_			ŀ		M 1	
Spe	rator Gord	Sieben	<i></i>	ASNT II CGSB II	St 1	от к	M			Client Represe	ntative



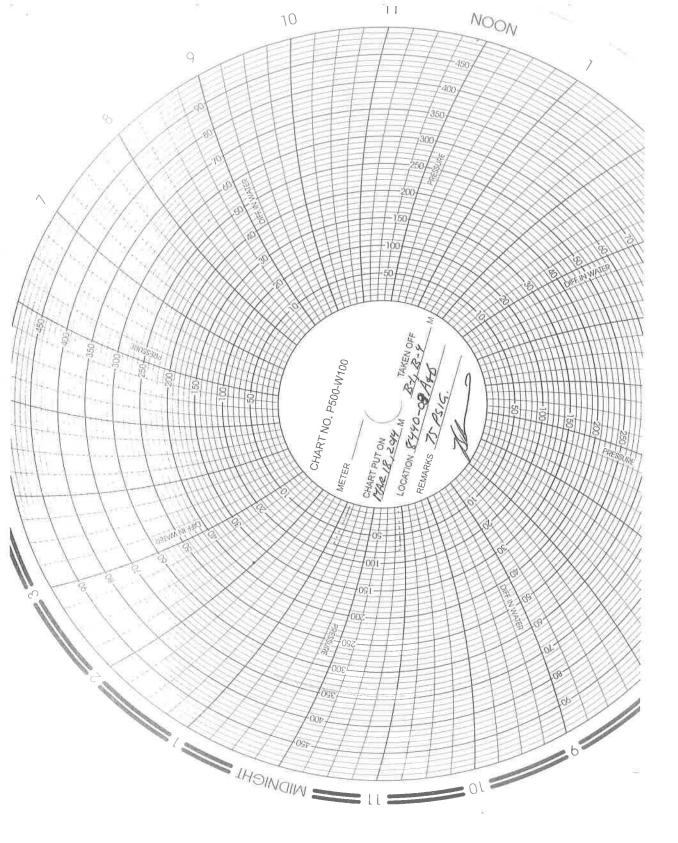
ALCO JOB NUMBER: DEVON CANADA CORP. 4" CL300 LEVEL TRANSMITTER CAGE 2013-8440-03 DATE: TECHNIQUE # USED: CODE: MAR 13 2014 RT P#2 REV # 5 B31.3 MATERIAL EDITION: 2012 ADDENDA = MAT'L THICKNESS: P1 STD ACCEPTANCE: 10% RANDOM 1 NO OF FILMS PER CASSETTE LEGEND: * - WELDER SYMBOL HL - HILO SINGLE WALL EXPOSURE S - SLAG CRACK IP - INCOMPLETE PENETRATION LC - LOW COVER P - POROSITY (1) SLIGHT X DOUBLE WALL EXPOSURE BT - BURN THROUGH UC - UNDER CUT I - ICICLE (2) MEDIUM X SINGLE WALL VIEWING AS - ARC STRIKE IC - INTERNAL CONCAVITY C - CRATER (3) SEVERE DOUBLE WALL VIEWING Film# IP S C BT LC UC HL P REMARKS ACC REJECT Location IC 4" SCH 40 XR1 14 V COSTING SOURCE TYPE: ____ IR 192 HRS: @ STRENGTH: 51 CI 8" FILM @ SOD: 4,263" 17" FILM @ OFD: 237" PIPE @ FILM TYPE: AGFA D4 CLASS 1 4" SCH 40 @ PIPE FOCAL SPOT SIZE: 11 PIPE @ PIPE COMMENTS TOTAL EXPOSURES: \$0.00 TOTAL COSTS PAGE 1 OF I EXAMINER BARRY RASMUSSEN LEVEL SNT III CGSB II #235



5203-75 Street, Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER:	2013-8440-03A			
DESCRIPTION:	4" CL300 LEVEL TE	RANSMITTER	R CAGE	
NAME OF AUTHO	RIZED INSPECTION	N AGENCY:	N/A	
TYPE OF TEST:	HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUM	MATIC		
TEST PRESSURE:	75 psig			
POSITION OF THE	E UNIT TESTED	HORIZ VERTI	ZONTAL CAL	
TEST FLUID:	Water	TEST TEMP	ERATURE	> 60 F
TEST PROCEDUR	E: ALCO	QCP-71		
PRESSURE GAUG	E(S) NUMBER:	B-1 & B-4		
PRESSURE TEST (CHART RECORDED	: YES	⊠ NO	
WAS PRESSURE-T	T THE UNIT BEAR ESTED FOR A PERI R DEFECTS WERE F	IOD OF 1		AL NUMBER) AND NO
SIM	,		3/18	/2014
QC INSPECT	OR/ ALCO GAS & OI	L	DAT	E
			3/18	/2014
3 RD PAF	RTY INSPECTOR		DAT	E
AUTHOR	RIZED INSPECTOR			TE



Phase #: 2013-8440-04A

Phase Title: Level Transmitter Cage

TABLE OF CONTENTS

	Title	Availal	bility
		Yes	No
1.	Data Reports		N/A
2.	CRN's		N/A
3.	Nameplate Copy		N/A
4.	Travel Sheet	X	
5.	Impact Test Reports		N/A
6.	Material Control	X	
7.	Material Reports	X	
8.	MTR's	X	
9.	NDE MPT	X	
	LPT		N/A
	RADIOGRAPHY	X	
	ULTRA SONIC		N/A
10.	Stress Relieve Charts		N/A
11.	Hydrotest Report(s)	X	
12.	Hydro Chart	X	
13.	PSV & Valve Cert.		N/A

|--|

CUSTO	MER / LOCATION		SE	RIAL NUMBER / U	NIT		(A) NUMI	BER :		
DEVON CAN	NADA CORPORA	TION		2013-8440-04A				DRAWI	NG NUMBER	
FERRIER	CPF PROJECT,	AB	LSD	: 11-02-039-08 V	V5M			C-2013-84	140-04-001/00	1
ITEMS:			COMME	NTS:		INITIALS	-	OUDTONE	LIOLD (ACCUT)	LIOLD A L
FOR GWR	RANSMITTER CA ROSEMOUNT 5 4 CL300 STD					HOLD QC		CUSTOMER	R HOLD (AGENT)	HOLD A.f.
Repair Procedu	re Approved									
Approved Draw	ings / CRN									
Material Checke	ed / Heat Verified		REVIEW	ED 14 MA	IR 201	1 1 4h				
MTR Checked			REVIEW	7 1 17 11		W'	12			
Impact Test			EXEMPT	TABLE A-1 SE	P 23	2013	1			
Unit Layout				Mar. 13,		Sec)			
Weld Procedure	Approved		REVIEW			J				
Welder(s) Quali			REVIEW			W.				
Fit-Up: Shell & I	Heads		TYPE 1	1 4 MAR 21		144				
Nozzles & Fit	ttings			14 MAR 2	20124	₩0				
Internals				1 5 MAD 0	11	<i>i</i> —				
Externals				1.0	014 V	V				
Connections: Lo					2014 1	MAR	18 20	4		
	tating		CL300 (CL3000		Targers Laves	e 0			
Internal Inspect										
Internals Installe			CHECKE	D 4 A MAD	2014	44				
Weld Profile, Siz	zes & ID			ED 1 1 MAR ASME B31.3	71114	MAR	2014			
Other NDE				ON FILLET WELD	os MA	1000				
Stamping			CHECKE		w		1 8 2014			
	Completion of Weld	ina	CHECKE		4	MAR 1	8 2014			
Alternative Test		9		-	A	110.11.1				
PWHT Charts C		_	NONE							
Hydrostatic Tes CHART RECOR	t-		1	GAGE#D12, D-10	D	MAR	1 8 201			
MDR	No.									
Name Plate										
PART	MATERIAL SPEC	THICH	KNESS	HEAT NO.	PA	\RT	MATERI	AL SPEC	THICKNESS	HEAT NO.
Heads	SA-420 WPL6	0.237	" NOM	12 433101	Rep	oads				
Shell	SA-333-6	0.2	237"	P-912						
					Tu	bes				
Tubesheet										

^{*} INDICATES HOLD POINTS TO BE SIGNED OFF BY THE APPLICABLE INSPECTOR.



MATERIAL CONTROL & NDE LIST

SERIAL NUMBER: 2013-8440-04A CUSTOMER: DEVON CANADA CORPORATION

DATE: MARCH 31, 2014

NONDESTRUCTIVE TESTING WHEN REQUIRED

#1 RF HUB BLIND NPS 4 CL300 SA-350 LF2 CL1 4401629 V #4 RFWN (N1) NPS 4 CL300 STD SA-350 LF2 CL1 12/34030 V #5 WELD CAP NPS 4 STD SA-333-6 12/133101 V #7 SMLS PIPE NPS 4 STD SA-333-6 12/133101 V #11 WOL NPS 2 STD SA-350 LF2 CL1 58912 V N2B RFWN NPS 2 CL300 STD SA-350 LF2 CL1 12/30722 V C1 DRILL & TAPPED NPT 1/2 CL3000 SA-350 LF2 CL1 59172 V C2 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C3 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C4 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 58337 V C5 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C5 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C6 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C7 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C7 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C8 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C8 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8337 V C9 TOL NPT 3/4 CL3000 SA-350 LF2 CL1 S8-350 LF2 CL1 S8-	SIZE / RATING	MATERIAL	HEAT NUMBER	MTR	R	MPI FILLET WELDS	
TD SA-350 LF2 CL1 12/34030 SA-420 WPL6 12H33101 SA-333-6 4120885B SA-350 LF2 CL1 58912 TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 59172 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337		350 LF2 CL1	4401629	>			
SA-420 WPL6 12H33101 SA-333-6 4120885B SA-350 LF2 CL1 58912 TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 59172 SA-350 LF2 CL1 59172 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337		350 LF2 CL1	12/34030	>			
SA-333-6 4120885B SA-350 LF2 CL1 58912 TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 12/30722 SA-350 LF2 CL1 58172 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337		120 WPL6	12H33101	>	,		
SA-350 LF2 CL1 58912 TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 58172 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 58337 SA-350 LF2 CL1 SA-35		333-6	4120885B	>	>		
TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 12/30722		350 LF2 CL1	58912	>		>	
TD SA-350 LF2 CL1 12/30722 TD SA-350 LF2 CL1 12/30722							
TD SA-350 LF2 CL1 12/30722		350 LF2 CL1	12/30722	>			
SA-350 LF2 CL1 SA-350 LF2 CL1 SA-350 LF2 CL1		50 LF2 CL1	12/30722	>			
SA-350 LF2 CL1 SA-350 LF2 CL1 SA-350 LF2 CL1							
SA-350 LF2 CL1 SA-350 LF2 CL1 SA-350 LF2 CL1		₽ (1)					
SA-350 LF2 CL1 SA-350 LF2 CL1		50 LF2 CL1	59172	>			
SA-350 LF2 CL1		50 LF2 CL1	58337	>			
		50 LF2 CL1	58337	>			



ALCO GAS ** Oil Production Equipment

Serial Number: 8440-04 A

Customer: Devoy (anoda

Filled By: July

Date: 11 March 2014

MATERIAL REPORT

Horizontal

Vertical

Type of vessel

Min Thk (in) SIE SB-333 6R 6 - Mat'l Spec SA. 420- WY. Slab# 12 H33 101 Heat # ALCO ID# 612 Item # Diameter 7 Skirt / Saddle Nozzle Repad Tead Shell Title

2x40AOAHS

Miscellaneous

CONFORMS WITH NACE MR0103-07 AND NACE MR0174/SO16156.2-03
TEST SPECIMEN SIZE: 10X10
TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP. -48°C. 0.405 0.405 0.405 0.402 0.415 0.405 0,415 DIMENSIONAL SPECIFICATIONS Date: 12/19/2011 Certificate No.: SE101455 Pege: 30F4 0.009 0.005 0,007 0.007 0.007 0.007 0.009 0.005 ASME B16.5-09 0.000 0.001 0.001 0.001 0.001 HEAT TREATMENT("2) 0.001 0.00 0.001 0.010 0.010 0.002 0.004 0.001 0.004 0.003 0.004 0.003 0.004 0,004 0.120 0.080 0.003 0.004 0.010 0.010 0.002 0.004 90.0 890 C X3HRS REMARKS 0.010 0.002 0.010 0.002 0.003 0.003 0.003 0.010 0.002 0.010 0.002 Z 0.010 0.010 0.400 0.010 0.010 0.010 COMPOS 0.00 0.00 0.010 0.020 0300 0.010 0.020 Material Supplier 0.400 0.007 9000 0.008 0.008 0.008 0.007 0.007 0,007 0.007 CHEMICAL ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS ACOMINAS 0.040 0.006 0.008 0.006 0.008 0.008 0.008 0.004 0.004 0.004 Customer: 17Th ELEITINGS & FLANGES (CANADA) ASTIM A350 LF2-11 CL 1/ASME SA350 LF2-11 CL 1 76.0 44.0 44.0 44.0 76.0 26.0 96.0 0.019 9100 0.020 0.035 0.015 0.015 0.015 0.010 0.019 0.020 MILL TEST CERTIFICATE MATERIAL SPECIFICATIONS Impaid Test Temp: -48°C Minimum: 20.0 Joule EN10204-3.1.B(DIN50049/3.1.B) Mn 0.800 1.350 1.120 1.150 1.150 1.150 1.150 1.150 1.120 1,150 1.150 97.0 97.0 97.0 97.0 97.0 0.250 0.220 0.220 0.220 0.150 0.300 0.220 0.250 0.250 0.220 0.250 102.0 102.0 87.0 87.0 102.0 65.0 Order No.: E000117 0.210 0.210 0.210 0.210 0220 0.210 0.220 Max Max 25 PCE 31 PCE 25 PCE 10 PCE 25 PCE 25 PCE 10 PCE 10 PCE RA.(7) QUANTITY 1; T.S. a Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, R.A. = Reduction of Area 70.4 70.4 6.4 48/1514 Handness (HB) 153/151 152/150 152/150 152/150 153/151 153/151 148/151 153/151 52750 34.6 34.6 34.6 34.0 34.0 300 THRE 4"X1 1/2" A105NAFZN & DESCRIPTION SAN ENG STEEL FORGING CO LTD 311, Jen Hain Road, Jen Wu Districk Kachsiung, Tawan, R.O.C. TEL.07-3724249; FAX:07-3712923 150 THRE 4"X1" A105NLF2N 150 THRE 4"X1 1/2" A105NLF2N 150 THRF 2"X1 1/2" A105NUFZN 300 THRF 2"X1/2" A105N/LF2N 300 THRF 2"X1" A105N/LF2N 300 THRF 4"X1" A105NALF2N URL: www.sarieng.com.tw e-mail: saneng@ksts.seed.net.tw 50 THRE 2"X1" A105N/LF2N 150 THRF 4"X2" A105N/LF2N 150 THRF 4"X3" A105N/LF2N Y.S.(**) (MPA) 250.0 363.8 363.8 363.8 363.8 373.6 373.8 373.6 373.6 365.8 FORGED CARBON STEEL FLANGES 7.S.(*1) (MPA) 485.0 655.0 517.8 PRODUCT 517.B 517.8 517.8 -523.7 523.7 523.7 523.7 Min Heat No. 0 4443573 4401629 4443573 4443573 4443551 4443561 4443561 4443561 4443573 CODE 2 2 2 2 3 2 2 2 3 2 3 222222222

Manager of County Lacoration Dept CONFORMS TO SA 350 LF 2CL れの一のちの 0 2 2013 Toll ADA OCT YEAR TO IDE D. 2013 SIGNED BY ITEM # N=Nomtalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Reliev. A.C=Air.Cooled, F.C=Furance Cooled, W.C=Water Cooled, O.C=Of Cooled. 40-0hh8 Whe thereby cardify that the material has been tested in accordance with the above specification and also with the requirements called for by the above order. 133431 100 3. C.E. Value = C+ (Mn /8) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

0 H ¥ 3 LF2 Reducing 2

6 2 9 1 0 d 0

EF-13 : # | d | i

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METALFAR PRODOTTI INDUSTRIALI S.P.A.

23861 CESANA BRIANZA (LC) - Italy Via G. Partni, 28 RATIVA E STABILIMINTO Tel. +39 031.655441

quality mff@famas.com

Fax +39 031.655149

SALA PROVE E ANALISI MATERIALI / MATERIAL TEST DEPARTMENT

COD. COL.

STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV = ISO 9001 =

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Del/Dated 11,02,2013 3 Pag. 1 - 5 Deta07Jed Dest.: TRANS AM PIPING PRODUCTS LTD 9335 - Endeavor Drive S.E. T3S OA1 Calgary, ALBERTA Del/Dated 12.02.2013 Fattura / Invoice N. 577 Del/Dated 11.02.2013 Ns.Ord. / Our ref. N. 8 TRANS AM PIPING PRODUCTS LTD 9336 ENDEAVOR DRIVE S.E. T3S 0A1 CALGARY, ALBERTA DDT / Del Note N. 670

VIS. & DIMENS. SATISFACTORY VISIVO E DIMENS. ORIGINE / ORIGIN OF STEEL **EUROPEAN UNION** ELECTRIC FURNACE ASME/ANS| B16.5 -2009 FORNO / FURNACE DIM.IN ACC. A
DIM. ACCORDANCE TO AUS. C.E.% 0,025 0,385 82 NESS MINGA / HAPACT TEST - JOULINGHO 0,000 88 3 No% 0,003 200 0,002 NORMALIZED AT 920 C - COOLED IN STILL AIR TIPO / TYPE (Oxtoner ⋛ 0,140 TRATTAMENTO TERMICO / HEAT TREATMENT 0,019 Ě 0,010 163,0 - 165,0 Mo% DUPERZA A105N 0,050 N 5% W/N 160 RF 2" XS 060'0 Š CONTRADONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 58,0 0,016 ASTINIASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD. % 0,010 729,00 Q.77 8 0,940 MITS TEMBLE STRENGHT
NUMBER
530,0 SFX 0,220 YOUR REFERENCE 0,195 MATTERIALE IN ACCORDO A / MATERIAL IN ACC. TO క్ర VS.ORDINE SMERVALMENTO YELD POINT When 2 >=0,2% CI-12-294 325,0 POS 1272669 MATERIALE / MATERIAL ASTIM A105 (LADLE) COLATA MCVETTA / TEST SPECIALEN SEZ. avn. 2 LENG. man SECT. man 2 LENGHT man HEAT CODE HEAT 60,80

SATISFACTORY VISIVO É DIMENS. ORIGINE / ORIGIN OF STEEL EUROPEAN UNION ELECTRIC FURNACE DIM.IN ACC. A
DIM. ACCORDANCE TO
ASME/ANSI 816.5 -2009 FORNO / FURNACE 0,406 C.E.% 0,026 8 **8**% MESILINZA / INPACT TEST - JOHLStens 0000 8 %× 3 0,002 ND% P & 0,002 NORMALIZED AT 930 C.: COOLED IN STILL AIR TPO/TYPE floriform 0,180 TRATTAMENTO TERMICO / HEAT TREATMENT CLES 0,017 É NF% Mo% 0,070 0,020 156,0 - 159,0 LF2CL1 W/N 300 RF 4" STD 0,010 0,120 Crit CONTRAZIONE REDUCTION OF AREA DESCRIZIONE DESCRIPTION 69,0 ASTM/ASME A 350/9A 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 ADD. % 0,008 Q.TA 150,00 8% 0,960 Mn% 623,0 × 0,240 **%**55 YOUR REFERENCE CSA Z246.12 GRADE 248 CAT.II SOUR SERVICE 0,200 Š MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO VS.ORDINE MARKYAMBENTO
VIELD POINT
NIMERIZ >=0,236 CI-12-311 344,0 ASTM A360 LF2 CL1/2 (LADLE) POS. -0 % O 022 HEAT CODE HEAT WATERIALE MATERIAL COLATA TROVETTA / TEST SPECKEN 50,80 COD. COL 126,60

CONFORMS TO SA 350 LF2 CL ROIGED, LOUISON 0.2 2013 1013 - 8440 - 04 00 SIGNED BY ITEM # YEAR 108# 8440-04 -13343 00

> MATERIAL IN ACCORDANCE WITH NACE MR-0178/2009 ISO 16168-2009 - SOUR SERVICE MATERIAL IN ACCORDANCE WITH NACE MR-0103/2012 - SOUR BERVICE MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION 100% MANUFACTURED IN ITALY NOTES NOTE

S. Erlandia

E E

MANUFACTURER'S SYMBOL

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

UFFICIO-CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT

MARCHIO PRODUZIONE

¥320-FE 0 M\N E CINGE 5 BOE Cr 3 3 OIS 4 8

128,60

88 : Kg р Rev. 13 - 1105 ogners Frq 030

34 t 100 : 1 e p i q p e g

Heart Humb Trans Amr Tranglas

Ł

CSA Z245.12 GRADE 248 CAT.I SOUR SERVICE



_ INSPECTION CERTIFICATE

TRANS-AM PIPING PRODUCTS LTD.

Purchaser

,

58 Soi Watkrunai, Bangkru, Prapadaeng, Samutprakam, 10130 Thailand.

生育所管理以来方

Thai Benkan Co., Ltd.

10 Living 2011 TO EN10204 3.1 tral

19.

東海東

©ertificate No 2012080859 - 48-Ye (4) 20/09/2012 Job No 1 2 3 Purchase Order No. CI-12-258 C/O:1

Specification for inspection Visual Examination Dimensional Inspection	ASME B16.9.2007, B16.25-2007	Hardress Actual Data		2 H O A		Tension Test	E. T.S. E	NF2 A WEST WAS A WAY ON THE WAY WAS COMMON TOOL WAY WAS COMMON TOOL WAY WAS COMMON WAY WAS A WAY WAS A WAY WAY WAY WAY WAY WAY WAY WAY WAY W
Specification for Material Specification Made from Seamless Pipe	ASKIE SA420-10 RIPLS ANSINACE MR0175/S016188-22008	MFG. No. (Heat Identification No.)	(12H33101) CONFORMSTOSA	Material Manufacturer Material Heat No. 1813 - 8 uv.	J2K3479 # 6	Chemical Composition %	i- C Si Min S Cu Ni Cr. Mo Al W	X X X X X

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C.E. = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

WAGNETIC PARTICLE EXAMINATION FOR TEE ONLY.
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. The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was

Quality Assurance Manager Thai Benkan Co., Ltd. Rungmapa Kampiranon 新学品を

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* 1 : "T" symbolized wall thickness in mm. * 2 : VS Yield strength TS = Tensile strength E = Elongation Fråm TZ 6C/2and also with the purchaser's requirements and that the test results shown herein are correct-

Wall



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LADOLDNIA BERN TERMS STEERS TO THE EXPERIMENTAL

产品质量证明书 (EN10204.3.1) MILL TEST CERTIFICATE

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23861 CESANA BRIANZA (LC) - Italy Via G. Parini, 28 TRATIVA E STABILIMENTO

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Del/Dated 31.08,2012 S Pag. 3 - 32 Del/Dated Dest.: TRANS AM PIPING PRODUCTS LTD 6335 - Endenyor Drive S.E. T3S CA1 Calgary, ALBERTA Del/Dated 03.09.2012 Fattum / Invoice N. 2772 Del/Dated 31.08.2012 Ns.Ond. / Our ref. N. 3 Certif. N. 4071 DDT / Del Note N. 3244

VISIVO E DIMENS. SATISFACTORY

VIS, & DIMENS.

quality,mit@farmas.com STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INDSSEDABLU

ASME/ANSI B16.5 -2009 DIM ACCORDANCE TO 0,387 C.E.% DIMIN'ACC. A 0,002 0,000 0,028 **"**2 ¥ REPAREMENZA / BIPLICT TEST - JOULE/CHZ 2×2 TRANS AM PIPING PRODUCTS LTD 7 NO% 9335 ENDEAVOR DRIVE 8.E. T3S 0A1. CALGARY, ALBERTA 0,120 0,001 \$ TPO / TYPE 18x16mm SE SE 0.019 35 COMPANY WITH QUALITY HANGGHENT SYSTEM CERTIFIED BY DNV = 150 9001;2008 == 0,050 0,010 LF2CL1 Mo% Š WAN 300 RF 2" 8TD 0,100 ž CONTRAZIONE DUCTION OF AUEA DESCRIZIONE DESCRIPTION 0,012 ž 0,009 132,00 5% 0,950 12× SALA PROVE E ANALISI MATERIAL! / MATERIAL TEST DEPARTMENT Fax +39 031.655149 Tel. +39 031.655441 ROTTURA TEMBLE STRENOHT Wrant >= 0,230 S3% YOUR REFERENCE ₩ 0,195 Š SNETVAMENTO THELD POINT NIEME >=4,2% VS.ORDINE CI-12-311 PRODOTTI INDUSTRIALI S.P.A. ASTM A350 LF2 CL1/2 (LADLE) POS. 10 V O T 010 HEAT CODE HEAT MATERIALE / WATERIAL COLATA PROVETTA / TEST SPECIALIN BEZ. mm2 LÁNG. mm BECT. mm2 LENGHT mm

VISIVO E DIMENS. VIS. & DIMENS. **ELECTRIC FURNACE** DIM.IN ACC. A **WORMALIZED AT 930 C - COOLED IN STILL AIR** DESCRIZIONE ASTIWASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010 CSA Z245.12 GRADE 248 CAT.II

ORIGINE / ORIGIN OF STEEL

FORNO / FURNACE

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TRATTAMENTO TERMICO / HEAT TREATMENT

186,0 - 159,0

58.0 68.0

EUROPEAN UNION

SATISFACTORY

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EUROPEAN UNION

ELECTRIC FURNACE

NORMALIZED AT 930 C - COOLED IN STILL AIR

ORIGINE / ORIGIN OF STEEL **ASME/ANS! B16.6-2009** FORNO / FURNACE DIM ACCORDANCE TO Ar% C.E.% 0,025 0,390 . 62 RESERVED A / BREACT TEST - JOULDON! 99 0,000 ž 2 0,001 20% , **3** 0,002 \$ TIPO / TYPE 16x18mm \$ 0,140 TRATTAMENTO TERMICO / HEAT TREATMENT SCENT CO 0,017 0,060 0,010 159,0 - 163,0 Mo% LF2CL1 %.Z W/N 300 RF 8" STD 0,100 Š CONTRADONE REDUCTION OF ANGA DESCRIPTION 58.0 0,010 ž 5% 0,007 0.TX 0.TX 0,960 252 DOTURA
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519,0 0,220 25 YOUR REFERENCE 0,195 MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ŝ SMERYAMENTO YIELD POSIT N/mar2 >=4,2% 340,0 VS.ORDINE Cl-12-311 ASTM A360 LF2 CL1/2 (LADLE) POS. SHAPE 1+0 2-0 12/32023 MATERIALE / MATERIAL COLATA PROVETTA / TEST BPECKEN BEZ_mes LUNG.ms BECT, nord LENGHT mm HEAT CODE HEAT 50,80 COD. COL. 128,60

CONFORMS TO SA 350 LF2 CL1 YEAR LOIDED, LOILADD 40-0448 - EIOL# 801 130 ITEM##10 40-04 h8-4 Po- 133431

0 2 2013

SIGNED BY.

MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION MATERIAL IN ACCORDANCE WITH NACE MR-0176/2008 ISO 15156-2009 MATERIAL IN ACCORDANCE WITH NACE MR-0103/2010 100% MANUFACTURED IN ITALY NOTES

MFF

MARCHIO PRODUZIONE MANUFACTURER'S SYMBOL

ENTE UFFICIALE DI COLLAUDO INSPECTION AUTHORITY

UFFICIO CONTROLLO QUALITA' QUALITY CONTROL DEPARTEMENT

2 2 7 0 2 2 2 0 1 - 2 1 #: 15 360 ... pq e P S 1 1

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO

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ASTWASME A 350/SA 350 M - 11 ASME CODE SECT. II, PART A, ED. 2010

CSA 2245.12 GRADE 248 CAT.II

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4 7 4 7 - 0 S E V CLANGE 5 € 30

COD. COL.



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

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 EN10204 3.1.

Material: A/SA350 00a LF2 CL1

Item Quantity Description
28 50 6-3 1/2 X 2 STD BWP

A350LF2 CL1

Page 30 of 32

Sold To: TRANS AM PIPING PRODUCTS

LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 248,632

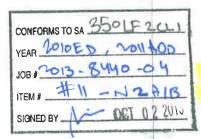
PO #: CI-13-217

Sales Order #: C001303122

Date: 03/04/2013

Certified Material Test Report

Heat Code: 58912



4-8440-04

Chemical Composition

Ladle	С	CR	CO	HRE	MO	NB	NI	P
	0.195	0.04	0.090	1.05	0.007	0.015	0.03	0.012
	8	SI	v					
	0.021	0.20	0.003					
Carbon Equiv	alency:	Ladle		0.39				

Tensile PSI Yield PSI Elong % RA % Hardness

Product 73,292 48,638 29.15 61.34 130 BHN 130 BHN Charpy V-Notch Properties: Test Temperature: -50 F

FT LBS: 49/43/29

% Shear: NB/NB/NB

MLE: NB/NB/NB

Normalized

IAW NACE MR0175/ ISO 15156- 2009



Commischer of Pining and Pressure Vessel Commoner

4404 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

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 EN10204 3.1.

Material: A/SA350 11 LF2 CL1

Item Quantity Description 48 36 - 3/4 X 1/2 3M THP 300 A350LF2 CL1

Page 42 of 48

Sold To: TRANS AM PIPING

PRODUCTS LTD

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR#: 261,037

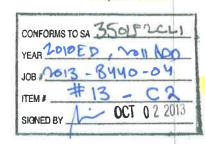
PO #: CI-13-502

Sales Order #: C001313455

Date: 09/12/2013

Certified Material Test Report

Heat Code: 59172



Po-133431

BHN <

Chemical Composition

Ladle	C 0.210 s	CR 0.03 SI	0.050 V	NON 1.04	MO 0.005	NB 0.016	NI 0.02	0.004
	0.018	0.20	0.003					
Carbon Equi	ivalency:	Ladle		0.40				

Yield PSI Hardness Tensile PSI Elong % RA% 163 BHN Product 79,000 50,000 28.00 65.00 Charpy V-Notch Properties: -50 F← Test Temperature:

MLE: NB/NB/NB

FT LBS: 45/32/23

% Shear: NB/NB/NB

Normalized

IAW NACE MR0175/ ISO 15156- 2009



Manufactures of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022 Phone: 713-695-3633 Fax: 713-695-3528 A Bonney Forge Company

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 EN10204 3.1.

Material: A/SA350 00a LF2 CL1

Item 40

Description

36 - 1 1/2 X 3/4 3M THP

A350LF2 CLI

Chemical Composition

Ladle C CU CR 0.210 0.04 0.080 s SI 0.017 0.19 0.004 Carbon Equivalency: Ladle 0.40

Tensile PSI Product 81,250 Charpy V-Notch Properties:

FT-LBS: 30/68/35

Yield PSI 51,875 Elong % RA % 31.00 64.20

NB

0.012

Test Temperature:

% Shear: NB/NB/NB

Page 15 of 25

Sold To: TRANS AM PIPING PRODUCTS

9335 ENDEAVOR DRIVE S.E. CALGARY AB T3S 0A1

MTR #: 219,786

PO#: CI-11-671

Sales Order #: C001115548

Date: 12/01/2011

Certified Material Test Report

Heat Code: 58337

0.008

Hardness 153 BHN

-50 F MLE: NB/NB/NB

CONFORMS TO SA

Normalized

LAW NACE MR0175/ ISO 15156- 2009

T H Consulting Services

109 Grand Meadow Crescent Edmonton, Alberta T6L 1X1 Telephone: (780) 909-5470 gord@thcs.net

Report - GM13828

MAGNETIC PARTICLE INSPECTION REPORT

	Client	Alco Gas & 5203 - 75 S Edmonton	it.					-	age 1-1	0.444	
l	Test Method	ASME V S	E-709-01 / Dry	Pov	wder			-		0 AM	4.6
	Acceptance Criteria	ASME VIII	Div. 1 App. 6	;						18, 20	14
ı	Object					_			O. No.	0440	
ŀ								20	ob No. 2013	-8440	-04
	Procedure-MT-General and		- Inned	Pre	Heat Treatment	t	☐ Post He	at 7	reatment	☐ P	ost Hydrotest
L	Test Equipment ES-X Flex F S/N - 16512	errous Probe	☐ Blad	cklig	ht				B/L Meter XI		S/N - 1815543
-	Black on White Contrast - Mag	naflux 🗖 W	/CP 2 White Cor	ıtrast	Batch #		☐ 7HF Prep	_	d Bath Batch #		
	Medium- Magnaflux - Type] 14 A part			carrier batch #			8R	12F008		Other
	⊠ Dry □ Wet		Fluorescent	×	Red						
	⊠ Yoke □ Prod		Coil	X			Grey	_	B/White		Other
	☑ Base Metal ☐ Ground		Machined		A/C		D/C	M	Continuous		Residual
V	Viewing Light Source in excess				Painted		Shot Blasted		Central Con		Demag
	Billiota at a to make	Thickness -			Trouble Light 10° C to 52°C	X	Flashlight Surface Cond	X	W/L Meter S/		
	A better than 10% of	the fillet	welds on th	e L	evel Transm	nitt	er Cage we	ere	tested.		
	No relevant indication	ns were fo	ound								

ALCO GAS & OIL RADIOGRAPHY REPORT PRODUCTION EQUIPMENT LTD.

CUSTOME	DES	ESCRIPTION: ALCO JOB NUMBER:																	
DEVON CA		4" CL300 LEVEL TRANSMITTER CAGE 2013-8440-04																	
DATE:		TECHNIQUE # USED: CODE:																	
MAR 13 2014									R	Г Р#2	REV #	ŧ 5		B31.3	B31.3				
MATERIAL:							'L TH	ICKNI	ESS:					EDITION: 2012	ADDENDA:				
P1										STD				ACCEPTANCE: 10% RANDO	OM				
1 NO. OF FILMS PER CASSETTE							·												
							HL - HI LO S - SLAG CRACK SINGLE WALL EXPOSURE												
IP - INCOMPLETE PENETRATION						LC	- LO\	N COV	/ER	P - F	POROSI	TY	(1) S	SLIGHT X DOUBLE WALL EXPOSURE					
BT - BURN THROUGH						UC -	- UND	ER CU	Т	1 -1	CICLE		(2) N	EDIUM X SINGLE WALL VIEWING					
IC - INTERNAL CONCAVITY							ARC	STRIK	E	C - 0	CRATER	1	(3) S	SEVERE D					
Film #	Location	*	IP	S	С	ВТ	LC	uc	HL	Р	- 1	IC		RE	MARKS	ACC	REJEC		
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	SOURCE TYPE	: IF	R 192							HRS		@	Ī						
STRENGTH: 51 Ci										-	B" FILM @					1			
SOD: 4.263"									17" F	1LM	@								
OFD: .237"									PIPE		@								
FILM TYPE: AGFA D4 CLASS 1 1 4 SCH 40 PIPE @																			
FOCAL SPOT SIZE: 11 PIPE @																			
PIPE @																			
																7			
	COMMENTS: TOTAL EXPOSURES: 3 \$0.00																		
	TOTAL COSTS																		
	PAGE	1	OF	1	EXA	AMINE	R : B/	ARRY	RASM	USSE	N/5/	-	-	LEVEL S	SNT III CGSB II #235				
										/	,								



CUSTOME		1	CRIPT			NO.	TTC0 0					ALGO JOB NUMBER:							
DEVON CA		4" CL300 LEVEL TRANSMITTER CAGE 2013-8440-04																	
DATE:		TECHNIQUE # USED: CODE: RT P#2 REV # 5 B31.3																	
MAR 13 2014								OLANI		P#2	KEV#	5		B31.3 EDITION: 2012 ADDENDA:					
MATERIAL:							LIH	ICKNE		OTD									
P1 STD										510				ACCEPTANCE	10% RANI	JOM			
BT - BURN THROUGH IC - INTERNAL CONCAVITY						HL -HILO S - SLAG LC - LOW COVER P - POROSIT UC - UNDER CUT I - ICICLE AS - ARC STRIKE C - CRATER									X	SINGLE WALL EXPOSURE DOUBLE WALL EXPOSURE SINGLE WALL VIEWING DOUBLE WALL VIEWING			
Film#	Location	•	IP	S	С	ВТ	LC	UC	HL	Р	1	IC			F	REMARKS	ACC	REJECT	
XR2	4" SCH 40	17								1							~		
	l		1		<u> </u>			cos	TING								1		
SOURCE TYPE: IR 192 STRENGTH: 49 Ci SOD: 4 263"			HRS. 8" FILM 17" FILM						0 0										
OFD: .237" FILM TYPE: AGFA 04 CLASS 1 FOCAL SPOT SIZE: .11"			PIPE 1 4" SCH 40 PIPE PIPE						0 0										
	COMMENTS	·						то	TAL E	PIPE XPOS	SURES:	@ 	3			\$0.0			
	PAGE	1	OF	1	EXA	MINE	R : B/	RRY I	RASMU	JSSEN	A	<u>L</u>			LEVEL	TOTAL COST			



5203-75 Street, Edmonton, Alberta, Canada T6E 5S5

CERTIFICATE OF PRESSURE TEST

SERIAL NUMBER	2013-8440-04A									
DESCRIPTION:	4" CL300 LEVEL T	RANSMITTER C	CAGE							
NAME OF AUTHO	RIZED INSPECTIO	N AGENCY: N	/A							
TYPE OF TEST:	TYPE OF TEST: HYDROSTATIC PNEUMATIC HYDROTATIC-PNEUMATIC									
TEST PRESSURE:	75 psig									
POSITION OF THE	NTAL 🖂									
TEST FLUID:	Water	TEST TEMPER	RATURE > 60 F							
TEST PROCEDUR	E: ALCC	QCP-71								
PRESSURE GAUG	E(S) NUMBER:	D-12 & D-10								
PRESSURE TEST (CHART RECORDER	YES 🗵	NO 🗌							
WE CERTIFY THAT THE UNIT BEARING THE ABOVE SERIAL NUMBER WAS PRESSURE-TESTED FOR A PERIOD OF 1 HOUR(S) AND NO LEAKS OR OTHER DEFECTS WERE FOUND.										
N	1/2		3/18/2014							
QC INSPECT	OR/ ALCO GAS & O	L	DATE							
			3/18/2014							
3 RD PAF	RTY INSPECTOR		DATE							
AUTHOL	RIZED INSPECTOR		DATE							

