

AUG 18 2010

3" SCH 40 pipe

HT-1288-1

HC

"TIST" JASCO
66, TRUBNIKOV AV., NIKOPOL
CITY DNIPROPETROVSK
REG., UKRAINE, 53201
FAX: +38-05652-26062
WWW.STEELFROM.COM



MILL TEST REPORT

No 84

IN ACCORDANCE WITH EN 10204/3.1B

BUYER:



SIZE:

3" SCH 40 SMLS (3.500" x 0.216")

DATE: 01.09.2008

PURCHASE ORDER #

200735

SPECIFICATION: API 5L/ASTM A-106-06/ASME SA 106-06, NACE MR - 0175/94

GRADE: X 42 / B

LADLE ANALYSIS-STEEL

HEAT NUMBER	C	SI	Mn	S	P	Cr	NI	Cu	Mo	V	CE	Mn/C	Cr+Cu+Mo+Ni+V
1288-1	0.09	0.24	0.47	0.011	0.008	0.07	0.06	0.10	<0.01	<0.01	0.17	4.66	max 1
													0.23

PRODUCT CHEMISTRY %

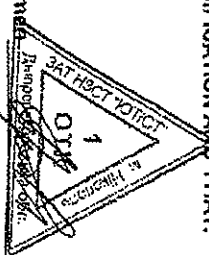
OTHER VALUES

MECHANICAL PROPERTIES

HEAT NUMBER	Beat No	YIELD STRENGTH (PSI)	TENSILE STRENGTH (PSI)	Elongation%	FLATTENING TEST	BEND TEST	HYDROSTATIC TEST (PSI)	NON-DESTRUCTIVE TEST METHOD USED	HARDNESS TEST
1288-1	219	45400	61500	34	GOOD	NONE	3000	EDDY CURRENT	<22HRC

Notional size of longitudinal strip sample for stretching test: width, mm: 25.4 calculated length, mm: 50.8.
* 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.
Quality Management System is certified acc. to ISO 9001:2000 TUV CERT certificate №78 100 3367.

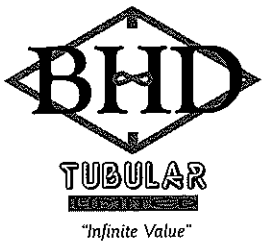
Senior control foreman



Prepared by

[Signature]

41390

**EDMONTON**HEAD OFFICE
PHONE: (780) 434-7850 FAX: (780) 436-3768

DATE _____

BUNDLES _____

ORDER LOC. 8" XXH 14106

LOOSE _____ CROPS _____

PULLED BY _____

PAGE 1 OF 1MTR ATTACHED YES NO

504' Nikopol

MAT SPEC. A106 - SRL
STD

MAT SPEC. _____

CUSTOMER/MFG RJV - VegrevillePO# 114428BHD REF # 60311

MAT SPEC. _____

MAT SPEC. _____

SIZE	3" X	216 W
PCE	LENGTH	HEAT#
1	24 pcs @	293-1
2	21	1288-1
3		
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25		

5040

TOTALS

SIZE	X	W
PCE	LENGTH	HEAT#
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24		
25		

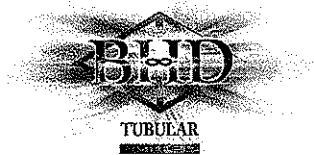
TOTALS

SIZE	X	W
PCE	LENGTH	HEAT#
1		
2		
3		
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TOTALS

SIZE	X	W
PCE	LENGTH	HEAT#
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22		
23		
24		
25		

TOTALS



Tuesday, 17-Aug-2010

From:

BHD TUBULAR
6903 72 Ave
EDMONTON, ALBERTA, CANADA
T6B 3A5
Phone : 780-434-7850
Fax : 780-4363768
Email : marcel.doolittle@bhd.ca
Web Site : www.bhd.ca

To:

RJV GAS FIELD SERVICES
KATHY
4901 - 47 STREET
VEGREVILLE, AB
T9C 1C3
Phone : (780) 632-7774
Fax : (780) 632-6820

RE:

Document Summary Page

The MTR's are printed in the following order:

#	Heat	Sku	Description
1	293-1	P3216S6SB	3" STD SMLS A106B SRL BE
2	1288-1	P3216S6SB	3" STD SMLS A106B SRL BE

2" A106B Sch 80 pipe

736435

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Deutschland
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Stahl/Rohr

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
INSPECTION CERTIFICATE EN 10204-3.1
CERTIFICAT DE RECEPTION EN 10204-3.1
EN 10204:2005-01

Benteler Stahlrohr GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

Westlund - Edmonton
5105 - 75th Street
EDMONTON, AB T6E 5S5
KANADA

Dokument-Nr.: 65-269977/001/P	Prüf-Nr.:	Blatt: 1 /
Document No.:	Inspection No.:	Page:
No. du document:	No. du certificat:	Page:
Kunden-Bestell-Nr.: 05-5421	Hersteller: Warmrohrwerk Dinslaken	
Purchase Order No.:	Manufacturer: ISO/TS 18849 (ISO 9001) DNV CERT-13706-2003	
No. de commande du client:	Producteur: PED 97723EC TÜV Cert 07 202 4111/2/5001/1/H	
Benteler Auftrags-Nr.: 1127218	Herstellerzeichen: 	
Benteler Order No.:	Manufacturer's brand:	
No. de commande Benteler:	Marque du producteur:	
Versandanzeigen-Nr.: 6558262	Stempel des Abnahmebeauftragten: WA	
Dispatch Note No.:	Stamp of the inspection representative:	
No. d'avis d'expédition:	Timbre du contrôleur:	
Produkt: NAHTLOSE STAHLROHRE	Stahlschmelzungsverfahren: ELEKTROSTAHL	
Product: SEAMLESS STEEL TUBES	Steelmaking process: ELECTRIC FURNACE	
Produit: TUBES D'ACIER SANS Soudure	Procédé d'élaboration de l'acier: FOUR ELECTRIQUE	

Lieferbedingungen: CSA Standard Z245.1-02 Category I, API Specification 5L Forty-Third Edition, March 2004, PSL 1, ASTM-A 106-2004b, S5, ASME SA-106, ASME Section II Part A Edition 2004, S5, NACE MR0175-03

Conditions of delivery: ASME B36.10M-1996, ASME SA-530, ASME Section II Part A Edition 2004, ASTM-A 530-2003

Maße - Toleranzen: Dimensions-tolérances: Dimensions-tolérances: GRADE 290, GRADE B, GRADE X 42

Stahlsorte: Steel grade: Nuance d'acier: Hot rolled

Lieferzustand: Delivery condition: État de livraison: see attachment product marking

Produktkennzeichnung: Product marking: Marquage du produit:

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielzahl
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple
Poste	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueu
		feet	feet	lbs		PSI		
0002	162	1 1/2" NPS * Sched. 40 18 FT - 22 FT	3307,12	8794	527031	3000	5	
		2520249						
0003	100	3" NPS * Sched. 40 38 FT - 42 FT	4120,70	31149	736199	3000	5	
		2520031						

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65-269977/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 2/
Page:
Page:

Pos.	Stück	Maße	Item	Number	Dimensions	Poste	Nombre	Dimensions	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachl
									Longth	Weight	Heat No.	Test pressure	Tube number group	Multiple le
									Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs
								feet	feet	lbs		PSI		
0007	77	1 1/2" NPS * Sched. 80	18 FT - 22 FT						1590,58	5829	527032	3000	5	
0008	750	2" NPS * Sched. 80	18 FT - 22 FT						14799,87	74285	736435	3000	5	
0009	111	2" NPS * Sched. 80	38 FT - 42 FT						4540,22	22950	736436	3000	5	
0010	38	4" NPS * Sched. 80	38 FT - 42 FT						1462,34	21854	736410	3000	5	
0011	170	1" NPS * Sched. 160	18 FT - 22 FT						3518,67	10188	736390	3000	5	
0012	73	2" NPS * Sched. 160	18 FT - 22 FT						1564,57	11737	527218	3000	5	

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0002	527031	0,130	0,210	0,80	0,006	0,002	0,07	0,03	0,07	0,12	0,001	0,010	0,002	0,1
0003	736199	0,135	0,215	0,81	0,007	0,003	0,08	0,03	0,07	0,13	0,001	0,010	0,003	0,1
0007	527032	0,140	0,220	0,82	0,007	0,003	0,08	0,03	0,06	0,14	0,001	0,010	0,003	0,1
0008	736435	0,130	0,220	0,83	0,010	0,003	0,13	0,04	0,14	0,17	0,001	0,010	0,003	0,1
0009	736436	0,120	0,220	0,82	0,009	0,004	0,15	0,04	0,14	0,20	0,001	0,010	0,003	0,1
0010	736410	0,140	0,195	0,81	0,012	0,004	0,18	0,04	0,15	0,17	0,001	0,010	0,003	0,1
0011	736390	0,135	0,205	0,84	0,007	0,003	0,11	0,03	0,12	0,19	0,001	0,010	0,003	0,1
0012	527218	0,160	0,180	0,80	0,013	0,003	0,20	0,04	0,15	0,16	0,001	0,010	0,003	0,1

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

65-269977/001/P

Prof-Nr.:
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No. du certificat

Blatt: 3/
Page:
Page:

1. Formel: $CE_{IIV} = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) \leq 0,40 \%$
2. Formel: $CEV = C + F^*(Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr + Mo + V + Nb)/5) + (5*B) \leq 0,40$
3. Formel: $Mn/C \geq 3/1$
4. Formel: $Cr + Cu + Mo + Ni + V \leq 1,00 \%$

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
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0002	527031	0,296	0,271	6,154	0,291
0003	736199	0,306	0,289	6,000	0,311
0007	527032	0,312	0,295	5,857	0,311
0008	736435	0,323	0,292	6,385	0,481
0009	736436	0,318	0,275	6,833	0,531
0010	736410	0,341	0,317	5,786	0,541
0011	736390	0,324	0,303	6,222	0,451
0012	527218	0,362	0,353	5,000	0,551

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Poste	No. de coulée	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
0002	527031	0,140	0,200	0,81	0,007	0,001	0,08	0,03	0,07	0,11	0,001	0,010	0,002	0,
0002	527031	0,140	0,200	0,81	0,007	0,001	0,08	0,03	0,07	0,11	0,001	0,010	0,002	0,
0003	736199	0,130	0,240	0,80	0,008	0,005	0,10	0,01	0,09	0,11	0,001	0,010	0,003	0,
0003	736199	0,140	0,240	0,82	0,008	0,005	0,09	0,01	0,09	0,12	0,001	0,010	0,003	0,
0007	527032	0,130	0,200	0,82	0,007	0,002	0,09	0,03	0,07	0,13	0,001	0,010	0,002	0,
0007	527032	0,130	0,200	0,82	0,007	0,002	0,08	0,03	0,07	0,13	0,001	0,010	0,002	0,
0008	736435	0,130	0,190	0,81	0,009	0,002	0,12	0,04	0,15	0,19	0,001	0,010	0,002	0,
0008	736435	0,130	0,200	0,81	0,009	0,002	0,12	0,04	0,15	0,19	0,001	0,010	0,002	0,
0009	736436	0,130	0,190	0,81	0,009	0,002	0,12	0,04	0,15	0,19	0,001	0,010	0,002	0,

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Document No.:
No. du document:

65-269977/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat

Blatt: 4/
Page:
Page:

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0009	736436	0,130	0,200	0,81	0,009	0,002	0,12	0,04	0,15	0,19	0,001	0,010	0,002	0,0
0010	736410	0,140	0,200	0,83	0,011	0,005	0,17	0,04	0,14	0,16	0,002	0,010	0,002	0,0
0010	736410	0,130	0,190	0,82	0,011	0,005	0,16	0,04	0,14	0,16	0,002	0,010	0,002	0,0
0011	736390	0,130	0,200	0,84	0,007	0,002	0,08	0,03	0,07	0,17	0,001	0,010	0,002	0,0
0011	736390	0,130	0,200	0,83	0,007	0,002	0,08	0,03	0,07	0,17	0,001	0,010	0,002	0,0
0012	527218	0,140	0,190	0,82	0,011	0,005	0,16	0,04	0,14	0,16	0,002	0,010	0,002	0,0
0012	527218	0,130	0,190	0,82	0,011	0,004	0,16	0,04	0,14	0,16	0,002	0,010	0,002	0,0

1. Formel: $CE\ IIW=C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15)\leq 0,40\%$
2. Formel: $CEV=C+F*((Mn/6)+(Si/24)+(Cu/15)+(Ni/20)+((Cr+Mo+V+Nb)/5)+(5*B))\leq 0,40$
3. Formel: $Mn/C\geq 3/1$
4. Formel: $Cr+Cu+Mo+Ni+V\leq 1,00\%$

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr.	1. Formel	2. Formel	3. Formel	4. Formel	Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula	Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule	Formule
0002	527031	0,309	0,292	5,786	0,291	
0002	527031	0,309	0,292	5,786	0,291	
0003	736199	0,299	0,274	6,154	0,311	
0003	736199	0,311	0,295	5,857	0,311	
0007	527032	0,304	0,277	6,308	0,321	
0007	527032	0,302	0,275	6,308	0,311	
0008	736435	0,320	0,289	6,231	0,501	
0008	736435	0,320	0,289	6,231	0,501	
0009	736436	0,320	0,289	6,231	0,501	
0009	736436	0,320	0,289	6,231	0,501	
0010	736410	0,341	0,318	5,929	0,512	

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Dokument-Nr.: 65-269977/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 5 /
Page:
Page:

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel	Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula	Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule	Formule
0010	736410	0,327	0,295	6,308	0,502	
0011	736390	0,308	0,281	6,462	0,351	
0011	736390	0,307	0,279	6,385	0,351	
0012	527218	0,337	0,314	5,857	0,502	
0012	527218	0,327	0,295	6,308	0,502	

Prüfsergebnisse / Test results / Résultats des essais

Die Rohre sind auf Dichtheit geprüft durch: **Hydrostatic test acc. to CSA Z245.1, holding time min 5 seconds, Test** **PASSED**
The tubes have been submitted to a leak tightness test by: **pressure/time-record**

Les tubes ont passé un contrôle d'étanchéité par:

Augensichtkontrolle:	PASSED	Biegeversuch:	PASSED	Maßkontrolle:	PASSED
Visual inspection:		Bending test:		Dimensions examination:	
Examen visuel:		Essai de cintrage:		Vérification des dimensions:	
		POS. / Item / Poste: 0002, 0007, 0008, 0009, 0011, 0012			

Ringfaltversuch: **PASSED**
Flattening test:
Essai d'aplatissement:
POS. / Item / Poste: 0003, 0010

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.
The sampling was carried out on multiple lengths.
L'échantillonnage eût été réalisé aux longueurs multiples.

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Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 6 /
Page:
Page:

Zugversuch / Tensile test / Essai de traction

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Ref
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Ref
Anforderungen								
Requisiments								
Exigences			mm	MPa	MPa	%	1. Formel	
0002	000001	527031	12,70 X	3,60	400	511	34,00	
0002	000002	527031	12,70 X	3,60	417	507	34,00	
0003	000001	736199	25,40 X	5,50	327	452	43,00	
0003	000002	736199	25,40 X	5,50	324	451	42,00	
0007	000001	527032	12,70 X	5,10	347	472	36,00	
0007	000002	527032	12,70 X	5,10	345	473	35,00	
0008	000001	736435	19,00 X	5,50	349	475	37,00	
0008	000002	736435	19,00 X	5,50	353	474	39,00	
0009	000001	736436	19,00 X	5,50	353	480	38,00	
0009	000002	736436	19,00 X	5,50	348	479	37,00	
0010	000001	736410	25,40 X	8,40	337	485	38,00	
0010	000002	736410	25,40 X	9,20	354	496	38,00	
0010	000003	736410	25,40 X	8,40	339	487	38,00	
0011	000001	736390	12,70 X	7,20	340	468	34,00	
0011	000002	736390	12,70 X	7,20	334	460	32,00	
0012	000001	527218	19,00 X	8,70	345	489	38,00	
0012	000002	527218	19,00 X	8,70	349	492	38,00	

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Document No.:
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Prüf-Nr.:
Inspection No.:
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Blatt: 7 /
Page:
Page:

Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte			
Item	Specimen No.	Heat No.	Hardness			
Poste	No. de l'éprouv.	No. de coulée	Dureté			

Anforderungen

Requisiemnts

Exigences

			HB	HV	HRB
0002	000001	527031	156		
0003	000001	736199	136		
0007	000001	527032	138		
0008	000001	736435	150		
0009	000001	736436	149		
0010	000001	736410	137		
0011	000001	736390	141		
0012	000001	527218	137		

Restmagnetismus / Demagnetize / Démagnétiser

residual magnetic field intensity max 3,5 millitesla

Pos.	Ihr Zeichen	Kundenmaterial	Kundenbestell-Nr.
Item	Your reference	Customer's Material No.	Purchase Order No.
Poste	Votre référence	No. de matière du client	No. de commande du client
0002		P.O. 9100941-2520249	05-5421
0003		P.O. 9100941-2520031	05-5421
0007		P.O. 9100941-2520397	05-5421
0008		P.O. 9100941-2520400	05-5421
0009		P.O. 9100941-2520046	05-5421
0010		P.O. 9100941-2520050	05-5421
0011		P.O. 9100941-2520524	05-5421
0012		P.O. 9100941-2520540	05-5421

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

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

65-269977/004/F

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 8 /

Vermerk / Remark / Remarque

Vermerk / Remark / Remarque	2007	2008	2009	2010	2011	2012	2013	2014	2015
	0007	0008	0011, 0012	0007, 0009, 0012, 0007, 0011, 0012, 0007, 0009, 0008					

Pos. / Item / Posite: 0002, 0008, 0011, 0009, 0012, 0007, 0013, 0004, 0005, 0006, 0003, 0001, 0002, 0003, 0004, 0005, 0006, 0007, 0008, 0009, 0010, 0011, 0012, 0013, 0014, 0015, 0016, 0017, 0018, 0019, 0020, 0021, 0022, 0023, 0024, 0025, 0026, 0027, 0028, 0029, 0030, 0031, 0032, 0033, 0034, 0035, 0036, 0037, 0038, 0039, 0040, 0041, 0042, 0043, 0044, 0045, 0046, 0047, 0048, 0049, 0050, 0051, 0052, 0053, 0054, 0055, 0056, 0057, 0058, 0059, 0060, 0061, 0062, 0063, 0064, 0065, 0066, 0067, 0068, 0069, 0070, 0071, 0072, 0073, 0074, 0075, 0076, 0077, 0078, 0079, 0080, 0081, 0082, 0083, 0084, 0085, 0086, 0087, 0088, 0089, 0090, 0091, 0092, 0093, 0094, 0095, 0096, 0097, 0098, 0099, 0100, 0101, 0102, 0103, 0104, 0105, 0106, 0107, 0108, 0109, 0110, 0111, 0112, 0113, 0114, 0115, 0116, 0117, 0118, 0119, 0120, 0121, 0122, 0123, 0124, 0125, 0126, 0127, 0128, 0129, 0130, 0131, 0132, 0133, 0134, 0135, 0136, 0137, 0138, 0139, 0140, 0141, 0142, 0143, 0144, 0145, 0146, 0147, 0148, 0149, 0150, 0151, 0152, 0153, 0154, 0155, 0156, 0157, 0158, 0159, 0160, 0161, 0162, 0163, 0164, 0165, 0166, 0167, 0168, 0169, 0170, 0171, 0172, 0173, 0174, 0175, 0176, 0177, 0178, 0179, 0180, 0181, 0182, 0183, 0184, 0185, 0186, 0187, 0188, 0189, 0190, 0191, 0192, 0193, 0194, 0195, 0196, 0197, 0198, 0199, 0200, 0201, 0202, 0203, 0204, 0205, 0206, 0207, 0208, 0209, 0210, 0211, 0212, 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0223, 0224, 0225, 0226, 0227, 0228, 0229, 0230, 0231, 0232, 0233, 0234, 0235, 0236, 0237, 0238, 0239, 0240, 0241, 0242, 0243, 0244, 0245, 0246, 0247, 0248, 0249, 0250, 0251, 0252, 0253, 0254, 0255, 0256, 0257, 0258, 0259, 0260, 0261, 0262, 0263, 0264, 0265, 0266, 0267, 0268, 0269, 0270, 0271, 0272, 0273, 0274, 0275, 0276, 0277, 0278, 0279, 0280, 0281, 0282, 0283, 0284, 0285, 0286, 0287, 0288, 0289, 0290, 0291, 0292, 0293, 0294, 0295, 0296, 0297, 0298, 0299, 0300, 0301, 0302, 0303, 0304, 0305, 0306, 0307, 0308, 0309, 0310, 0311, 0312, 0313, 0314, 0315, 0316, 0317, 0318, 0319, 0320, 0321, 0322, 0323, 0324, 0325, 0326, 0327, 0328, 0329, 0330, 0331, 0332, 0333, 0334, 0335, 0336, 0337, 0338, 0339, 0340, 0341, 0342, 0343, 0344, 0345, 0346, 0347, 0348, 0349, 0350, 0351, 0352, 0353, 0354, 0355, 0356, 0357, 0358, 0359, 0360, 0361, 0362, 0363, 0364, 0365, 0366, 0367, 0368, 0369, 0370, 0371, 0372, 0373, 0374, 0375, 0376, 0377, 0378, 0379, 0380, 0381, 0382, 0383, 0384, 0385, 0386, 0387, 0388, 0389, 0390, 0391, 0392, 0393, 0394, 0395, 0396, 0397, 0398, 0399, 0400, 0401, 0402, 0403, 0404, 0405, 0406, 0407, 0408, 0409, 0410, 0411, 0412, 0413, 0414, 0415, 0416, 0417, 0418, 0419, 0420, 0421, 0422, 0423, 0424, 0425, 0426, 0427, 0428, 0429, 0430, 0431, 0432, 0433, 0434, 0435, 0436, 0437, 0438, 0439, 0440, 0441, 0442, 0443, 0444, 0445, 0446, 0447, 0448, 0449, 0450, 0451, 0452, 0453, 0454, 0455, 0456, 0457, 0458, 0459, 0460, 0461, 0462, 0463, 0464, 0465, 0466, 0467, 0468, 0469, 0470, 0471, 0472, 0473, 0474, 0475, 0476, 0477, 0478, 0479, 0480, 0481, 0482, 0483, 0484, 0485, 0486, 0487, 0488, 0489, 0490, 0491, 0492, 0493, 0494, 0495, 0496, 0497, 0498, 0499, 0500, 0501, 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0511, 0512, 0513, 0514, 0515, 0516, 0517, 0518, 0519, 0520, 0521, 0522, 0523, 0524, 0525, 0526, 0527, 0528, 0529, 0530, 0531, 0532, 0533, 0534, 0535, 0536, 0537, 0538, 0539, 0540, 0541, 0542, 0543, 0544, 0545, 0546, 0547, 0548, 0549, 0550, 0551, 0552, 0553, 0554, 0555, 0556, 0557, 0558, 0559, 0560, 0561, 0562, 0563, 0564, 0565, 0566, 0567, 0568, 0569, 0570, 0571, 0572, 0573, 0574, 0575, 0576, 0577, 0578, 0579, 0580, 0581, 0582, 0583, 0584, 0585, 0586, 0587, 0588, 0589, 0590, 0591, 0592, 0593, 0594, 0595, 0596, 0597, 0598, 0599, 0600, 0601, 0602, 0603, 0604, 0605, 0606, 0607, 0608, 0609, 0610, 0611, 0612, 0613, 0614, 0615, 0616, 0617, 0618, 0619, 0620, 0621, 0622, 0623, 0624, 0625, 0626, 0627, 0628, 0629, 0630, 0631, 0632, 0633, 0634, 0635, 0636, 0637, 0638, 0639, 0640, 0641, 0642, 0643, 0644, 0645, 0646, 0647, 0648, 0649, 0650, 0651, 0652, 0653, 0654, 0655, 0656, 0657, 0658, 0659, 0660, 0661, 0662, 0663, 0664, 0665, 0666, 0667, 0668, 0669, 0670,

Pos. / Item / Poste: 0003, 2010, 2010, 2010
 1. NACE Standard MPO175 HRC max 22. The material meets the requirements of NACE

NACE Standard: hardness acc. to NACE Standard MR0175-2 (HRC max. 22)
 MR0103; Certificate remarks: This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-02 meets the requirement for micro hardness of max. 248 HV 500.

Beiblatt Produktkennzeichnung / Attachment product marking / Supplément marquage du produit

Pos.	Produktkennzeichnung
Item	Produktkennzeichnung
Poste	Marquage du produit
0002	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520249
0003	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520031
0007	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520397
0008	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520400
0009	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520046
0010	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520050
0011	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520524
0012	FS: BENTELER Z.245.1, Spec.5L-PSL1, A/SA-106 S5 B/X42/290 HEAT-NO. TEST PRESSUR E DIMENSIONS SCHEDULE WA GERMANY P.O. 9100941-2520540

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Deutschland

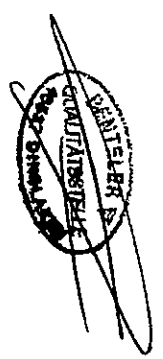
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ABNAHMEPRÜFZEUGNIS EN 10204-3.1	Dokument-Nr.:	65-269977/001/P	Blatt:	9 /
INSPECTION CERTIFICATE EN 10204-3.1	Document No.:		Page:	
CERTIFICAT DE RECEPTION EN 10204-3.1	No. du document:		No. du certificat:	

FK = Farbkennzeichnung, colour marking, marquage par couleur FS = Falschablenzeichnung, psin scalling, marquage par peinture FSD = Falschablenzeichn. Cokur /et pmer, Imprimante à jet d'encre de couleur LS = Längsabhlenzeichnung, longitudinal scalling, longitudinal par peinture PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette PS = Prägestempel, die stamp, marquage par poinçonnage TS = Tiefenstrahlkennzeichnung, Ink jet spray marking, imprimante à jet d'encre

Verkäufer(in) / Salesman/ woman in charge / Personne chargée : Mr Seelbach, Tel.: 05254/81-4281, Fax: 4289



Dinslaken, 13.05.2005, TEL.: 02064.623-571 FAX: 02064.623-575

Abnahmebeauftragter
Inspection representative
Contrôleur
JAN FREEERKS / WIL

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.
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.
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.

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1.B
INSPECTION CERTIFICATE EN 10204.3.1.B
CERTIFICAT DE RECEPTION EN 10204-3.1.B
EN 10204 - 1991 + A1: 1995

Benteler Stahl/Rohr GmbH - Postfach 1340 - 33043 Paderborn - Deutschland

BHD Tubular Ltd.
6903 - 72nd Ave.,
EDMONTON, AB T6B 3A5
KANADA

Dokument-Nr.:	65-189714/001/P	Prüf-Nr.:		Blatt:	1 /
Document No.:		Inspection No.:		Page:	
No. du document:		No. du certificat:		Page:	
Kunden-Bestell-Nr.:	04-5198	Hersteller:	Wärmrohrwerk Dinslaken		
Purchase Order No.:		Manufacturer:	EN ISO 9001 DINV Cert.-11141-2001		
No. de commande du client:		Producteur:	FED 87/23/EG TÜV Cert 072024111Z/ISO9001/141		
Benteler Auftrags-Nr.:	1106904	Herstellerzeichen:			
Benteler Order No.:		Manufacturer's brand:			
No. de commande Benteler:		Marque du producteur:			
Versandzeigen-Nr.:	6516757	Stempel des Sachverständigen:	WA		
Dispatch Note No.:		Inspector's stamp:			
No. d'avis d'expédition:		Polynôme de l'expert:			
Produkt:	NAHTLOSE STAHLROHRE	Stahlschmelzungsverfahren:	ELEKTROSTAHL		
Product:	SEAMLESS STEEL TUBES	Steelmaking process:	ELECTRIC FURNACE		
Produit:	TUBES D'ACIER SANS SOUDURE	Procédé d'élaboration de l'acier:	FOUR ELECTRIQUE		

Lieferbedingungen: ASTM-A 333-1999-HF, ASME SA-333-HF, ASME Section II Part A Edition 2001 Addenda 2003, CSA Z245.1-98 Category II, NACE Standard MR0175-03

Terms of delivery:

Conditions de livraison:

Maße - Toleranzen: ASME B36.10M-1996, ASME SA-530, ASME Section II Part A Edition 2001 Addenda 2003, ASTM-A 530-2003

Dimensions-tolerances:

Dimensions-tolérances:

GRADE 290, GRADE 6

Stahlsorte:

Steel grade:

Normalized

Lieferzustand:

Delivery condition:

État de livraison:

Produktkennzeichnung: see attachment product marking

Product marking:

Marquage du produit:

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachläng
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple length
Posto	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs mul
		feet	feet	lbs		PSI	s	
0001	230	2" NPS * Sched. 40 18 FT - 22 FT	4948,75	17908	726828	3000	5	
0002	127	2" NPS * Sched. 40 38 FT - 42 FT	5263,42	18995	726827	3000	5	

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Dokument-Nr.:
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65-189714/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 2/
Page:
Page:

Pos. Item Poste	Stück Number Nombre	Maße Dimensions Dimensions	Länge Length Longueur	Gewicht Weight Poids	Schmelzen-Nr. Heat No. No. de coulée	Prüfdruck Test pressure Pression d'épreuve	Rohr-Nr.-Gruppe Tube number group Série de no. des tubes	Vielfachläng Multiple length Longueurs mul
		feet	feet	lbs		PSI		s
0003 269	2" NPS * Sched. 80 18 FT - 22 FT		5302,40	26202	726797	3000	5	
0004 101	2" NPS * Sched. 80 38 FT - 42 FT		4215,52	20845	726796	3000	5	
0006 53	2" NPS * Sched. 160 38 FT - 42 FT		2210,73	16327	518096	3000	5	
0007 40	2" NPS * XXS 38 FT - 42 FT		1655,97	14753	518053	3000	5	
0009 102	3" NPS * Sched. 40 38 FT - 42 FT		4225,07	31348	726808	3000	5	
0011 50	3" NPS * Sched. 80 38 FT - 42 FT		2053,12	20726	517791	3000	5	
0012 107	3" NPS * Sched. 160 18 FT - 22 FT		2133,69	29965	518053	3000	5	
0013 51	3" NPS * Sched. 160 38 FT - 42 FT		2047,57	28777	518053	3000	5	
0014 38	3" NPS * XXS 38 FT - 42 FT		1573,52	28834	726667	3000	5	
0016 76	4" NPS * Sched. 40 38 FT - 42 FT		3054,17	33217	517900	3000	5	
0018 21	4" NPS * Sched. 80 38 FT - 42 FT		848,62	12516	726753	3000	5	
0019 9	4" NPS * Sched. 160 38 FT - 42 FT		374,51	8298	518053	3000	5	
0020 29	4" NPS * XXS 32 FT - 36 FT		1033,07	27802	726681	3000	5	

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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 11 /
Page:
Page:

Kerbschlagbiegeversuch / Notched bar impact test / Essai de flexion par choc (résilience) [CHARPY-V]

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Probenlage	Prüftemperatur	Kerbschlagarbeit	Kerbschlagfähigkeit	Verf.-Bruchhant
Item	Specimen No.	Heat No.	Specimen dimensions	Specimen position	Test temperature	Absorbed energy	Impact strength	Shear fracture
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouvette	Position de l'éprouvette	Température d'essai	Energie absorbée	Résistance au choc	Rupture ductile
Anforderungen	Länge	Breite	Höhe	längs (L)		einzel	mittel	
Requirements	Length	Width	Height	longitudinal (L)		single	average	single
Exigences	Longueur	Largeur	Hauteur	longitudinal (L)		individuelle	moyenne	average
	mm	mm	mm	quer (Q)	GRAD	J	J	%
	55	10,00	8,00	transversal (Q)	°C	MIN 027		min. 50%
0007 000001	518053	55	10,00	8,00	L	-0045	187	70
			10,00	8,00			164	70
			10,00	8,00			174	70
0012 000001	518053	55	10,00	8,00	L	-0045	175	85
			10,00	8,00			155	85
			10,00	8,00			168	85
0013 000001	518053	55	10,00	8,00	L	-0045	197	85
			10,00	8,00			197	85
			10,00	8,00			198	85
0014 000001	726667	55	10,00	8,00	Q	-0045	146	70
			10,00	8,00			143	70
			10,00	8,00			169	85
0019 000001	518053	55	10,00	8,00	Q	-0045	126	85
			10,00	8,00			89	85
			10,00	8,00			121	85
0020 000001	726681	55	10,00	8,00	Q	-0045	152	85
			10,00	8,00			154	85
			10,00	8,00			147	85



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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 12 /
Page:
Page:

Kerbschlagbiegeversuch / Notched bar impact test / Essai de flexion par choc (résilience) [CHARPY-V]

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung			Probenlage	Prüftemperatur	Kerbschlagarbeit			Kerbschlagzähigkeit			Verf.-Bruchant
Item	Specimen No.	Heat No.	Specimen dimensions			Specimen position	Test temperature	Absorbed energy			Impact strength			Shear fracture
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouvette			Position de l'éprouvette	Température d'essai	Energie absorbée			Résistance au choc			Rupture ductile
Anforderungen			Länge	Breite	Höhe	längs (L)	GRAD	einzel	mittel	einzel	mittel	single	average	
			Length	Width	Height	longitudinal (L)		single	average	single	average			
Requirements			Longueur	Largeur	Hauteur	longitudinal (L)		individuelle	moyenne	individuelle	moyenne			
Exigences														
			mm	mm	mm	quer (Q)	°C	J	J	J/cm²	J/cm²	%	%	
			55	7,50	8,00	transversal (Q)	-0045	MIN 020				min. 50%	min.	
0006	000001	518096	55	7,50	8,00	L	-0045	141				85		
				7,50	8,00			140				70		
				7,50	8,00			131	137			70	75	
0018	000001	726753	55	7,50	8,00	L	-0045	119				85		
				7,50	8,00			135				85		
				7,50	8,00			129	128			85	85	

Kerbschlagbiegeversuch / Notched bar impact test / Essai de flexion par choc (résilience) [CHARPY-V]

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung			Probenlage	Prüftemperatur	Kerbschlagarbeit			Kerbschlagzähigkeit			Verf.-Bruchart
Item	Specimen No.	Heat No.	Specimen dimensions			Specimen position	Test temperature	Absorbed energy			Impact strength			Shear fracture
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouvette			Position de l'éprouvette	Température d'essai	Energie absorbée			Résistance au choc			Rupture ductile
Anforderungen	Requirements	Exigences	Länge	Breite	Höhe	längs (L)	einzel	mittel	einzel	mittel	single	average	single	average
			Length	Width	Height									
			Longueur	Largeur	Hauteur	longitudinal (L)	individuelle	moyenne	individuelle	moyenne	single	average	single	average
						quer (Q)	GRAD							
			mm	mm	mm	transversal (Q)	°C	J	J	J/cm²	J/cm²	%		
			55	6,67	8,00	transversal (Q)	-0045	MIN 018					min. 50%	min. 6
0011	000001	517791	55	6,67	8,00	L	-0045	95					70	
				6,67	8,00			87					70	
				6,67	8,00			68		83			60	66



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Blatt: 13 /
 Page:
 Page:

Kerbschlagbiegeversuch / Notched bar impact test / Essai de flexion par choc (résilience) [CHARPY-V]

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ABNAHMEPRÜFZEUGNIS EN 10204-3.1.B
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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 14 /
Page:
Page:

Kerbschlagbiegeversuch / Notched bar impact test / Essai de flexion par choc (résilience) [CHARPY-V]

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung			Probenlage	Prüftemperatur	Kerbschlagarbeit	Kerbschlagzähigkeit	Verf.-Bruchante			
Item	Specimen No.	Heat No.	Specimen dimensions			Specimen position	Test temperature	Absorbed energy	Impact strength	Shear fracture			
Poste	No. de l'éprouv.	No. de coulée	Dimensions de l'éprouvette			Position de l'éprouvette	Température d'essai	Energie absorbée	Résistance au choc	Rupture ductile			
Anforderungen			Länge	Breite	Höhe	längs (L)		einzel	mittel	einzel	mittel	single	average
Requements			Length	Width	Height	longitudinal (L)		single	average	single	average		
Exigences			Longueur	Largeur	Hauteur	longitudinal (L)		individuelle	moenne	individuelle	moenne		
			mm	mm	mm	quer (Q)	GRAD	J	J	J/cm²	J/cm²	%	
			55	2,50	8,00	transversal (Q)	°C	MIN 007				min. 50%	min.
0001	000001	726828	55	2,50	8,00	L	-0056	36				85	
				2,50	8,00			34				85	
				2,50	8,00			36	35			85	
0002	000001	726827	55	2,50	8,00	L	-0056	34				85	
				2,50	8,00			31				85	
				2,50	8,00			32	32			85	85

Wärmebehandlung / Heat treatment / Traitement thermique

Pos. / Item / Poste: 0001, 0014, 0013, 0019, 0009, 0018, 0003, 0020, 0007, 0016, 0002, 0006, 0012, 0004, 0011, 0003, 0016, 0004, 0006, 0012, 0011, 0007, 0002,
0019, 0020, 0014, 0013, 0018, 0009

Normalized: 890 °C, Holding time: 10 min

Pos.	Ihr Zeichen	Kundenmaterial	Kundenbestell-Nr.
Item	Your reference	Customer's Material No.	Purchase Order No.
Poste	Votre référence	No. de matière du client	No. de commande du client
0001		P.O. 103173	04-5198
0002		P.O. 103173	04-5198
0003		P.O. 103173	04-5198
0004		P.O. 103173	04-5198
0006		P.O. 103173	04-5198
0007		P.O. 103173	04-5198
0009		P.O. 103173	04-5198
0011		P.O. 103173	04-5198



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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 15 /
Page:
Page:

Pos.	Ihr Zeichen Your reference Votre référence	Kundenmaterial Customer's Material No. No. de matière du client	Kundenbestell-Nr. Purchase Order No. No. de commande du client
0012		P.O. 103173	04-5198
0013		P.O. 103173	04-5198
0014		P.O. 103173	04-5198
0016		P.O. 103173	04-5198
0018		P.O. 103173	04-5198
0019		P.O. 103173	04-5198
0020		P.O. 103173	04-5198

Vermerk / Remarque

Pos. / Item / Poste: 0001, 0002, 0003, 0004, 0006, 0009, 0011, 0012, 0013, 0016, 0018, 0019, 0007, 0014, 0020

NACE Standard: hardness according to NACE Standard MR0175 HRC max 22; Certificate remarks: The seamless line pipes meet the requirement for micro hardness of max 248 HV 500

Beiblatt Produktkennzeichnung / Attachment product marking / Supplément marquage du produit

Pos.	Produktkennzeichnung Item Produktkennzeichnung Poste Marquage du produit
0001, 0002, 0003, 0004, 0006, 0009, 0011, 0012, 0013, 0016, 0018, 0019	
FS: BENTELER Z.245.1-A/SA-333 6/290 CAT II HEAT-NO. M45C S HN DIMENSIONS SCHE DULE WA GERMANY P.O. 103173	
0007, 0014, 0020	
FS: BENTELER Z.245.1-A/SA-333 6/290 CAT II HEAT-NO. M45C S HN DIMENSIONS WEIG HT CLASS WA GERMANY P.O. 103173	

FK = Farbkennzeichnung, colour marking, marquage par couleur FS = Farbschablonierung, paint stencilling, marquage par peinture FSD = Farbstrahldrucker, Colour jet printer, imprimante à jet d'encre de couleur LS = Längeschablonierung, longitudinal stencilling, mar longitudinal par peinture PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette PS = Prägestempel, die stamp, marquage par poinçonnage TS = Transstrahlkennzeichnung, ink jet spray marking, imprimante à jet d'encre

Verkäufer(in) / Salesman/woman in charge / Personne chargée : Mr Seelbach, Tel.: 05254/81-4281, Fax: 4289

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

65-189714/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 16 /
Page:
Page:

Dinslaken, 18.03.2004, TEL.: 02064.623-572 FAX: 02064.623-575

Der Werkssachverständige

Work's inspector

L'expert d'usine

JAN FREEERKS / WAG



Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.
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.
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.

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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 3/
Page:
Page:

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

Pos. Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item Heat No.													
Poste No. de coulée													
0001 726828	0,125	0,205	0,81	0,012	0,003	0,15	0,03	0,10	0,15	0,001	0,010	0,004	0,000
0002 726827	0,125	0,200	0,81	0,012	0,003	0,15	0,03	0,10	0,19	0,001	0,010	0,003	0,000
0003 726797	0,125	0,195	0,82	0,011	0,004	0,14	0,03	0,09	0,19	0,001	0,010	0,004	0,000
0004 726796	0,125	0,197	0,82	0,011	0,004	0,13	0,03	0,09	0,19	0,001	0,010	0,004	0,000
0006 518096	0,130	0,260	1,17	0,009	0,003	0,10	0,03	0,09	0,11	0,060	0,013	0,019	0,000
0007 518053	0,130	0,260	1,25	0,007	0,002	0,11	0,04	0,08	0,08	0,058	0,015	0,019	0,000
0009 726808	0,125	0,195	0,81	0,010	0,003	0,14	0,03	0,08	0,17	0,001	0,010	0,003	0,000
0011 517791	0,130	0,210	0,82	0,010	0,004	0,13	0,03	0,09	0,21	0,001	0,010	0,003	0,000
0012 518053	0,130	0,260	1,25	0,007	0,002	0,11	0,04	0,08	0,08	0,058	0,015	0,019	0,000
0013 518053	0,130	0,260	1,25	0,007	0,002	0,11	0,04	0,08	0,08	0,058	0,015	0,019	0,000
0014 726667	0,120	0,270	1,22	0,013	0,003	0,11	0,05	0,09	0,15	0,060	0,014	0,020	0,000
0016 517900	0,130	0,200	0,81	0,010	0,004	0,11	0,02	0,08	0,16	0,001	0,010	0,003	0,000
0018 726753	0,125	0,260	1,23	0,009	0,003	0,11	0,04	0,09	0,12	0,058	0,014	0,019	0,000
0019 518053	0,130	0,260	1,25	0,007	0,002	0,11	0,04	0,08	0,08	0,058	0,015	0,019	0,000
0020 726681	0,125	0,260	1,23	0,009	0,003	0,11	0,04	0,09	0,12	0,058	0,014	0,019	0,000

1. Formel: $CEV = C + (Mn/6) + ((Cr + Mo + V)/5) + ((Cu + Ni)/15) \leq 0,42 \%$
2. Formel: $CEV = C + F * ((Mn/6) + (Si/24) + (Cu/15) + (Ni/20) + ((Cr + Mo + V + Nb)/5) + (5 * B)) \leq 0,40$
3. Formel: $Mn/C \geq 3/1$
4. Formel: $Cr + Cu + Mo + Ni + V \leq 1,00 \%$

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
Poste No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0001 726828	0,313	0,283	6,480	0,431
0002 726827	0,316	0,285	6,480	0,471
0003 726797	0,315	0,284	6,560	0,451

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

65-189714/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 4 /
Page:
Page:

Formellegebnisse / 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
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0004	726796	0,313	0,282	6,560	0,441
0006	518096	0,376	0,337	9,000	0,390
0007	518053	0,391	0,349	9,615	0,368
0009	726808	0,311	0,281	6,480	0,421
0011	517791	0,319	0,289	6,308	0,461
0012	518053	0,391	0,349	9,615	0,368
0013	518053	0,391	0,349	9,615	0,368
0014	726667	0,383	0,327	10,167	0,460
0016	517900	0,307	0,279	6,231	0,371
0018	726753	0,386	0,344	9,840	0,418
0019	518053	0,391	0,349	9,615	0,368
0020	726681	0,386	0,344	9,840	0,418

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0001	726828	0,140	0,180	0,80	0,014	0,005	0,14	0,03	0,11	0,18	0,001	0,010	0,002	0,000
0002	726827	0,140	0,180	0,80	0,014	0,005	0,14	0,03	0,11	0,18	0,001	0,010	0,002	0,000
0003	726797	0,130	0,190	0,81	0,010	0,003	0,14	0,04	0,09	0,20	0,002	0,010	0,002	0,000
0004	726796	0,120	0,190	0,79	0,010	0,003	0,15	0,05	0,08	0,19	0,001	0,010	0,003	0,000
0006	518096	0,130	0,240	1,16	0,010	0,003	0,10	0,04	0,10	0,10	0,063	0,014	0,018	0,000
0007	518053	0,120	0,240	1,24	0,008	0,001	0,11	0,05	0,09	0,08	0,062	0,016	0,019	0,000
0009	726808	0,130	0,170	0,78	0,010	0,002	0,15	0,05	0,07	0,16	0,001	0,010	0,002	0,000
0011	517791	0,140	0,190	0,84	0,011	0,003	0,16	0,04	0,10	0,19	0,002	0,010	0,002	0,000
0012	518053	0,120	0,230	1,22	0,008	0,001	0,11	0,05	0,09	0,08	0,061	0,016	0,018	0,000
0013	518053	0,130	0,240	1,23	0,008	0,001	0,11	0,05	0,09	0,07	0,063	0,017	0,019	0,000

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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 5 /
Page:
Page:

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

Pos. Schmelzen-Nr. Item Heat No.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Poste No. de coulée													
0014 726667	0,130	0,240	1,20	0,010	0,003	0,11	0,05	0,09	0,14	0,060	0,014	0,019	0,000
0016 517900	0,140	0,180	0,83	0,009	0,003	0,10	0,02	0,07	0,15	0,001	0,009	0,004	0,001
0018 726753	0,130	0,230	1,23	0,008	0,001	0,11	0,05	0,09	0,08	0,061	0,015	0,019	0,000
0019 518053	0,120	0,240	1,22	0,008	0,002	0,11	0,05	0,09	0,08	0,061	0,015	0,018	0,000
0020 726681	0,130	0,240	1,25	0,008	0,001	0,11	0,05	0,09	0,08	0,061	0,017	0,019	0,000

1. Formel: $CEV=C+(Mn/6)+((Cr+Mo+V)/5)+((Cu+Ni)/15) \leq 0,42 \%$
2. Formel: $CEV=C+F*((Mn/6)+(Si/24)+(Cu/15)+(Ni/20)+((Cr+Mo+V+Nb)/5)+(5*B)) \leq 0,40$
3. Formel: $Mn/C \geq 3/1$
4. Formel: $Cr+Cu+Mo+Ni+V \leq 1,00 \%$

Formelergebnisse / Formula results / Résultats des formules

Pos. Schmelzen-Nr. Item Heat No.	1. Formel 1. Formula 1. Formule	2. Formel 2. Formula 2. Formule	3. Formel 3. Formula 3. Formule	4. Formel 4. Formula 4. Formule	Formel Formula Formule
Poste No. de coulée					
0001 726828	0,327	0,306	5,714	0,461	
0002 726827	0,327	0,306	5,714	0,461	
0003 726797	0,321	0,290	6,231	0,472	
0004 726796	0,310	0,269	6,583	0,471	
0006 518096	0,377	0,338	8,923	0,403	
0007 518053	0,382	0,326	10,333	0,392	
0009 726808	0,316	0,285	6,000	0,431	
0011 517791	0,340	0,318	6,000	0,492	
0012 518053	0,379	0,323	10,167	0,391	
0013 518053	0,390	0,349	9,462	0,383	
0014 726667	0,389	0,347	9,231	0,450	
0016 517900	0,317	0,302	5,929	0,341	
0018 726753	0,391	0,348	9,462	0,391	

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Dokument-Nr.: 65-189714/001/P
Document No.:
No. du document:

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 6 /
Page:
Page:

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel	Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula	Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule	Formule
0019	518053	0,379	0,324	10,167	0,391	
0020	726681	0,394	0,352	9,615	0,391	

Prüfsergebnisse / Test results / Résultats des essais

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:

Die Rohre wurden zerstörungsfrei geprüft:

The tubes are non destructive tested:

Les tubes ont passé un essai non destructif:

Augensichtkontrolle:

PASSED

Maßkontrolle:

PASSED

Ringfaltversuch:

PASSED

Visual inspection:

Dimensions examination:

Flattening test:

Examen visuel:

Vérification des dimensions:

Essai d'aplatissement:

Ergebnisse der mechanischen Prüfung / Results of mechanical testing / Résultats des essais mécaniques

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'échantillonnage était réalisé aux longueurs multiples.

Zugversuch / Tensile test / Essai de traction

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re/Rt
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Re/Rm
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Re/Rm
Anforderungen								
Requisitements			mm	ReH	Rm	A2"	1. Formel	
Exigences				PSI	PSI	%	1. Formule	
				MIN 42061	MIN 60191	MIN 30	1. Formule	
0001	000001	726828	19,00 X	3,80	54679	72519	35,00	
0001	000002	726828	19,00 X	3,80	53374	70924	35,00	
0002	000001	726827	18,90 X	4,00	52939	70198	34,00	
0002	000002	726827	18,90 X	3,90	58885	72954	36,00	

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

65-189714/001/P

Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 7 /
Page:
Page:

Zugversuch / Tensile test / Essai de traction

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re/Rm
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Re/Rm
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Re/Rm
Anforderungen			mm	ReH	Rm	A2"		
Requrements				PSI	PSI	%		
Exigences				MIN 42061	MIN 60191	MIN 30		1. Formel 1. Formula 1. Formule
0002	000003	726827	18,90 X	4,10	53374	70198	34,00	
0003	000001	726797	19,20 X	5,20	51779	70924	36,00	
0003	000002	726797	19,20 X	5,20	50038	68458	36,00	
0004	000001	726796	19,00 X	5,40	51198	68893	36,00	
0004	000002	726796	19,00 X	5,40	51343	70053	36,00	
0006	000001	518096	19,30 X	8,50	61786	77595	36,00	
0006	000002	518096	19,30 X	9,00	57290	76435	40,00	
0007	000001	518053	19,30 X	11,00	54099	73534	40,00	
0007	000002	518053	19,30 X	11,40	61786	76435	40,00	
0009	000001	726808	24,90 X	5,40	49893	66862	36,00	
0009	000002	726808	24,90 X	5,10	49748	67878	38,00	
0009	000003	726808	24,90 X	5,50	49748	67298	40,00	
0009	000004	726808	24,90 X	5,60	50618	66862	38,00	
0009	000005	726808	25,00 X	5,50	47282	65702	36,00	
0009	000006	726808	25,00 X	5,40	48298	66717	38,00	
0011	000001	517791	24,40 X	7,70	50038	68893	40,00	
0011	000002	517791	24,40 X	7,60	48588	67878	42,00	
0011	000003	517791	24,40 X	7,60	47717	67298	38,00	
0012	000001	518053	25,40 X	10,90	57725	74985	41,00	
0012	000002	518053	25,40 X	10,90	57725	75130	41,00	
0013	000001	518053	25,10 X	10,90	60336	76580	40,00	
0013	000002	518053	25,50 X	10,60	61206	78611	38,00	
0013	000003	518053	25,50 X	10,70	58740	75855	40,00	

Benteler Stahl/Rohr GmbH
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33043 Paderborn
Deutschland
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BENTELER
Stahl/Rohr

ABNAHMEPRÜFZEUGNIS EN 10204-3.1.B
INSPECTION CERTIFICATE EN 10204.3.1.B
CERTIFICAT DE RECEPTION EN 10204-3.1.B

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

65-189714/001/P

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Blatt: 8 /
Page:
Page:

Zugversuch / Tensile test / Essai de traction

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re/Ri
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Re/Ri
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Re/Ri
Anforderungen			mm	ReH	Rm	A2"		
Requisitements				PSI	PSI	%		1. Formel
Exigences				MIN 42061	MIN 60191	MIN 30		1. Formule
0014	000001	726667	25,40 X 15,80	63962	78175	46,00		
0014	000002	726667	25,40 X 15,00	59611	76725	46,00		
0014	000003	726667	25,40 X 15,30	59320	76145	48,00		
0016	000001	517900	25,40 X 6,10	48878	65847	39,00		
0016	000002	517900	25,40 X 6,10	48733	66717	40,00		
0016	000003	517900	25,40 X 6,10	48008	67008	40,00		
0016	000004	517900	25,40 X 6,10	49023	67298	38,00		
0016	000005	517900	25,40 X 6,10	49313	67298	40,00		
0018	000001	726753	25,10 X 8,40	67008	82527	32,00		
0018	000002	726753	25,40 X 8,50	64107	79191	34,00		
0018	000003	726753	25,40 X 8,50	65557	80351	34,00		
0019	000001	518053	25,40 X 13,60	53229	72229	44,00		
0019	000002	518053	25,40 X 12,90	52359	71359	42,00		
0020	000001	726681	25,00 X 16,80	51924	72229	56,00		
0020	000002	726681	25,20 X 16,20	51343	72084	54,00		

Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte			
Item	Specimen No.	Heat No.	Hardness			
Poste	No. de l'éprouv.	No. de coulée	Dureté			

HRC

HB

HV

HRB

Anforderungen

Requisitements

MAX 200

0001	000001	726828	147			
0001	000002	726828	146			

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Prüf-Nr.:
Inspection No.:
No. du certificat:

Blatt: 9 /
Page:
Page:

Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte			
Item	Specimen No.	Heat No.	Hardness			
Poste	No. de l'éprouv.	No. de coulée	Dureté			

Anforderungen	HRC	HB	HV	HRB
---------------	-----	----	----	-----

Requirements	MAX 200			
--------------	---------	--	--	--

Exigences				
-----------	--	--	--	--

0002	000001	726827	144	
0002	000002	726827	149	
0002	000003	726827	145	
0003	000001	726797	137	
0003	000002	726797	138	
0004	000001	726796	137	
0004	000002	726796	137	
0006	000001	518096	157	
0006	000002	518096	156	
0007	000001	518053	159	
0007	000002	518053	159	
0009	000001	726808	147	
0009	000002	726808	146	
0009	000003	726808	148	
0009	000004	726808	147	
0009	000005	726808	148	
0009	000006	726808	147	
0011	000001	517791	147	
0011	000002	517791	148	
0011	000003	517791	147	
0012	000001	518053	159	
0012	000002	518053	158	
0013	000001	518053	156	

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Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte			
Item	Specimen No.	Heat No.	Hardness			
Poste	No. de l'éprouv.	No. de coulée	Dureté			
Anforderungen				HRC	HB	HV
Requirements						HRB
Exigences					MAX 200	
0013	000002	518053		159		
0013	000003	518053		157		
0014	000001	726667		163		
0014	000002	726667		164		
0014	000003	726667		161		
0016	000001	517900		145		
0016	000002	517900		147		
0016	000003	517900		146		
0016	000004	517900		146		
0016	000005	517900		145		
0018	000001	726753		176		
0018	000002	726753		175		
0018	000003	726753		176		
0019	000001	518053		151		
0019	000002	518053		152		
0020	000001	726681		149		
0020	000002	726681		150		

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SHO FLANGE

27370

CLIENTE / Customer / Client
MRC MIDFIELD SUPPLY
802 - 25TH AVENUE
MISQUILAB TPE 0105
CANADA

CERTIFICADO DE INSPECCION
Inspection Certificate - Certificat de Réception

DIN EN 10204 / 3.1
ISO 10674 / 3.1

FECHA:
Date:

10/09/2010

N.º
No.

132963

HOLIC:
Page: 1

D01 1022114

D01 0042234

S01 001 0047

ULMA FORJAS S.COOP.

ULMA

PRODUCTO
Article / Product:

FLANGES

SU PEDIDO N.º
Your Order No.

D000093 - MIDFIELD

DE
dt. de 20/09/2010

Certified acc. PED 9723/EC-MD2000-WH
by TUV Rheinland
N.º 01 202 EQ 02 746

Br. 26/09/03 - Apdo. 1º
20050 QUALITY (Qualité) SPAN
Tel. 34 - 943 780255
Fax 34 - 943 781801
E-mail: ulma@imgpimg.com

NORMAS APLICABLES
Regulations - Normes Applicables:

ASME B16.5-09

MATERIAL CORRESPONDIENTE
Material Correspondant - Qualité:

ASTMA105N-09

MODO DE FUSION
Steel Making - Elaboration de l'acier:

MACE MR010303 & MR017003
CANCSA-2246.12 G.248 CAT 1
(WN & BLIND FLANGES ONLY)

DEPARTAMENTO QUALITY ASSURANCE
Department

MARCA DEL FABRICANTE
Mark of factory



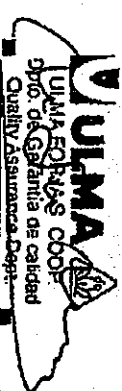
78550

PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations	COLADA N.º Head No N.º Coule	T. Strength Tensile Tensile	Y. Strength Yield Yield	AL. REQ. Aluminum Aluminum	ESTRUCION Red. Area Red. Area	RESISTENCIA Impact test Resistance	ACERA Average Average	C °C	DUREZA Hardness Dureté
1 0ND003101	5	WN 6 1500LB S40 RTJ A105N	NE	16040	508	312	28.80	64.00				148 156
3 01A008221	1,440	WN 2 300LB S40 RTJ A105N	NE	36470	517	305	29.00	64.00				148 157
8 01A008211	210	WN 3 300LB S40 RTJ A105N	NE	28870	519	305	29.30	64.00				150 157
9 01A008221	510	WN 3 300LB S40 RTJ A105N	NE	36170	518	304	29.50	62.00				150 155
10 01A008311	28	WN 3 600LB S40 RTJ A105N	NE	11570	508	302	28.80	62.70				147 155
10 01A008311	280	WN 3 600LB S40 RTJ A105N	NE	22370	516	302	28.80	64.00				150 155
10 01A008311	9	WN 3 600LB S40 RTJ A105N	NE	970	518	297	28.10	51.20				150 156

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

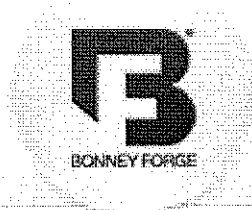
Head No N.º Coule	C %	Si %	Mn %	P %	S %	C %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	Ceq %
11570	0.180	0.180	0.820	0.018	0.014	0.080	0.080	0.020	0.005	0.001	0.350	0.000	0.000	0.000	0.365
16040	0.200	0.180	0.840	0.012	0.006	0.080	0.110	0.020	0.002	0.005	0.260	0.027	0.000	0.000	0.385
22370	0.180	0.170	0.840	0.014	0.014	0.080	0.130	0.020	0.003	0.001	0.360	0.000	0.000	0.000	0.387
28870	0.200	0.180	0.830	0.016	0.016	0.080	0.130	0.020	0.004	0.001	0.380	0.000	0.000	0.000	0.389
36170	0.180	0.180	0.830	0.015	0.018	0.080	0.120	0.020	0.000	0.002	0.350	0.000	0.000	0.000	0.381
36470	0.200	0.180	0.850	0.012	0.016	0.080	0.100	0.020	0.000	0.002	0.220	0.000	0.000	0.000	0.382
970	0.190	0.170	0.820	0.015	0.020	0.080	0.090	0.010	0.005	0.001	0.340	0.000	0.000	0.000	0.367

REMARKS: N.º NORMALIZED AT 800 C AND ALLOWED TO COOL IN STILL AIR



EL INSPECTOR
Works Inspector - Inspection

- Las dimensiones y la condición superficial se miden satisfactoriamente
- Dimension and surface condition were found acceptable
- Las dimensiones el final del trabajo son satisfactorias
- The dimensions of final the work are satisfactory
- Los materiales cubren con los requisitos aplicables
- Manufacturing requirements are satisfied
- Los nombres especificados son respetados

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Bonney Forge
14496 Croghan Pike
Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

Midfield 11/05/10

LOT NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS

4698

1" 6M A105N Hexagon Plug Threaded

C	0.200	MN	0.990	P	0.010	S	0.021	SI	0.210
NI	0.050	CR	0.040	MO	0.010	CU	0.150	CO	0.004
V	0.004	AL	0.023	N	0.004	Sn	0.010		
CE(LONG FORMULA) = 0.389									
T/S(PSI) 71250 Y/S(PSI) 50625 EL(%) 33.850 RA(%) 65.400									
BRINELL HARDNESS(BHN): 135									

1. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
2. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE WITH EN DIN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT.
3. CERTIFYING ASTM A105-09 / ASME SA105-07 EDITION.
4. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

1" 6M Hex Plug
4698

EBP

2" Hex Plug

SEYBOLD INTERNATIONAL CORP.		Certificate No. 16942	Dated 13.08.2008
20 Holly Street, Unit 205		Invoice No. 577	Dated 12.08.2008
TORONTO M4S 3B1 CANADA		Del. Note No. 1037	Dated 12.08.2008
CA			

INSPECTION CERTIFICATE EN 10204:2004 / 3.1

COMPANY WITH QUALITY SYSTEM ISO 9001:2000
CERTIFIED BY RINA

INDUSTRIA MECCANICA LIGURE SPA

16030 CASARZA LIGURE - Genova - Italy - P.zza Marco Caspelli, 4 - Tel. 0185.457651 - Fax 0185.466510 / MATERIAL TEST DEPARTMENT This certificate has been generated by computer and need not to be signed for validity according to DIN EN 10204 Page 11 - 14

HEAT CODE		HEAT	ITEM	YOUR P.O.	OUR REFERENCE	Q.TY	DESCRIPTION										DIM. ACC. TO	VISUAL & DIMENS.																		
G29	76305	079	5143	2005-2E209-0003058-079	6		FITTING 90 ELB. SW 6M 1.1/2" A105N CODE: 26244										SEE NOTE	SATISFACTORY																		
	75945	082	5143	2005-2E209-0003058-082	75		FITTING 90 ELB. THRD NPT 3M 1/2" A350/LF2 CODE: 8419										SEE NOTE	SATISFACTORY																		
	79376	085	5143	2005-2E209-0003058-085	15		FITTING 45 ELB. THRD NPT 3M 1" A350/LF2 CODE: 9079										SEE NOTE	SATISFACTORY																		
	75751	093	5143	2005-2E209-0003058-093	12		FITTING CROSS THRD NPT 2M 2" A105N CODE: 3915D29.05.06 -> N. 28 PCS NOT SHIPP...										SEE NOTE	SATISFACTORY																		
	79957	093	5143	2005-2E209-0003058-093	16		FITTING CROSS THRD NPT 2M 2" A105N CODE: 3915D29.05.06 -> N. 28 PCS NOT SHIPP...										SEE NOTE	SATISFACTORY																		
	70061	094	5143	2005-2E209-0003058-094	375		FITTING HEX.H.PLUG THRD NPT 2" A105N CODE: 4009D29.05.06 -> TOTAL N. 765 PCS N...										SEE NOTE	SATISFACTORY																		
	79427	010	5143	2005-2E209-0003058-010	100		FITTING 45 ELB. THRD NPT 3M 1/2" A105N CODE: 3978D04.21.2008 : ADDED 50 PCS. NOT...										SEE NOTE	SATISFACTORY																		
TN3	78749	013	5143	2005-2E209-0003058-013	200		FITTING TEE THRD NPT 23M 1/4" A105N CODE: 4033										SEE NOTE	SATISFACTORY																		
HEAT CODE		HEAT	ITEM	MATERIAL		C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	OTHER ELEMENTS															
G29	76305	079	ASTM A105	ASTM A105		0.190	0.180	0.910	0.017	0.010	0.090	0.060	0.010	0.006	0.220	0.001	0.001	0.000	0.010	0.381																
	75945	082	ASTM A350 LF2 cl.1	ASTM A350 LF2 cl.1		0.210	0.200	0.900	0.025	0.020	0.110	0.060	0.010	0.005	0.210	0.002	0.000	0.000	0.013	0.402																
	79376	085	ASTM A350 LF2 cl.1	ASTM A350 LF2 cl.1		0.190	0.210	0.870	0.023	0.020	0.140	0.070	0.010	0.010	0.280	0.003	0.000	0.000	0.005	0.389																
	75751	093	ASTM A105	ASTM A105		0.190	0.190	0.930	0.012	0.017	0.090	0.060	0.010	0.005	0.200	0.010	0.000	0.000	0.011	0.384																
	79957	093	ASTM A105	ASTM A105		0.180	0.190	1.030	0.025	0.017	0.110	0.060	0.010	0.010	0.240	0.003	0.001	0.000	0.005	0.396																
	70061	094	ASTM A105	ASTM A105		0.190	0.220	0.910	0.025	0.015	0.100	0.070	0.010	0.002	0.230	0.002	0.000	0.000	0.012	0.384																
	79427	010	ASTM A105	ASTM A105		0.185	0.190	0.890	0.021	0.010	0.010	0.080	0.050	0.013	0.190	0.002	0.000	0.000	0.006	0.364																
TN3	78749	013	ASTM A105	ASTM A105		0.195	0.250	0.990	0.009	0.013	0.090	0.040	0.010	0.021	0.160	0.020	0.000	0.000	0.024	0.397																
HEAT CODE		HEAT	ITEM	TEST SPECIMEN	YIELD POINT	TENSILE STRENGTH	ELONGATION	REDUCTION OF AREA	HARDNESS HB	BEND TEST	FLATTENING TEST	TYPE SECTION	IMPACT TEST	JOULE/Energy	SHAPE	YIELD POINT																				
G29	76305	079	122,65	50,00	534,0	34,0	57,0	160 - 164	0,0	0,0	0,0	KV	20	105	100	97	1	1	0,0																	
	75945	082	122,65	50,00	522,0	31,0	57,0	156 - 164	0,0	0,0	0,0	KV	-46	55	50	59	1	1	0,0																	
	79376	085	122,65	50,00	533,0	34,5	58,5	153 - 160	0,0	0,0	0,0	KV	-46	59	62	57	1	1	0,0																	
	75751	093	122,65	50,00	530,0	34,0	60,0	163 - 165	0,0	0,0	0,0	KV	20	106	100	96	1	1	0,0																	
	79957	093	122,65	50,00	530,0	40,0	60,0	152 - 160	0,0	0,0	0,0	KV	20	106	100	102	1	1	0,0																	
	70061	094	122,65	50,00	548,0	31,0	54,0	160 - 166	0,0	0,0	0,0	KV	20	104	100	105	1	1	0,0																	
	79427	010	122,65	50,00	529,0	31,0	54,0	160 - 166	0,0	0,0	0,0	KV	20	96	104	105	1	1	0,0																	
TN3	78749	013	122,65	50,00	509,0	30,0	56,0	160 - 168	0,0	0,0	0,0	KV	20	106	100	108	1	1	0,0																	
HEAT CODE		HEAT	ITEM	MATERIAL IN ACCORDANCE TO										HEAT TREATMENT										STEEL MILL		Our Ref.										
G29	76305	079	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	051275										
	G26	75945	082	ASME SA ASTM A350-04a Gr. LF2 cl.1										Normalized at 900°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	051249									
	H14	79376	085	ASME SA ASTM A350-04a Gr. LF2 cl.1										Normalized at 900°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	041298									
	DIF	75751	093	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	052099									
	BUA	79957	093	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	052023									
	EBP	70061	094	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	052023									
	HC6	79427	010	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	041296									
TN3	78749	013	ASME SA ASTM A105-05										Normalized at 880°±20°C / Air Cool										ELECTRIC FURNACE		RIVA ACCIAI	041296										
HEAT CODE		NOTES ASME B16.11/05 - ANSI B31.1/B31.3 - IML STD - ANSI B1.1-B18.2.2 - NACE MR0175 ISO 15156/1 - MSS SP 83 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS										INSPECTION AUTHORITY										QUALITY CONTROL DEPARTMENT										MANUFACTURER'S SYMBOL		MANUFACTURER'S SYMBOL		
												BORIS FIZZOTTI																				FITTINGS		IML	STUDBOLTS	

94757

CERTIFIED MILL TEST REPORT



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CUSTOMER: CCTF CORPORATION

Date 07/14/05

CUSTOMER'S Order No.: 4018957-00

Bonney Order No. 1014198

SHIPPED TO: CCTF CORPORATION

311419

1387 CORNWALL RD

OAKVILLE, ONTARIO, L6J7T5 CANA

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION	MECHANICAL ANALYSIS	PHYSICAL PROPERTIES	REMARKS
SA/A105N						
010	25	56418	7522991	1 3M A105N 45 EL T		
				C .180 MN 1.000 P .009 S .018 SI .240		
				NI .020 CU .140 CO .003 CR .040 MO .011		
				V .023 AL .001 NB .001		
				CE(LONG FORMULA) = 0.37		
				T/S 76256 Y/S 52513 EL 33.35 RA 67.29		
				BRINELL HARDNESS1: 137 HARDNESS2: 144		
		56462	7522991	1 3M A105N 45 EL T		
				C .190 MN .990 P .008 S .025 SI .250		
				NI .040 CU .190 CO .003 CR .070 MO .011		
				V .023 AL .001 NB .001		
				CE(LONG FORMULA) = 0.39		
				T/S 76875 Y/S 52250 EL 32.65 RA 65.60		
				BRINELL HARDNESS1: 147 HARDNESS2: 144		
017	150	3137	7520131	3/4X1/2 3M A105N REDU T		
				C .180 MN 1.040 P .010 S .017 SI .240		
				NI .030 CU .100 CO .004 CR .060 MO .010		
				V .022 AL .001 NB .002		
				CE(LONG FORMULA) = 0.38		
				T/S 76375 Y/S 54125 EL 31.80 RA 68.15		
				BRINELL HARDNESS1: 144 HARDNESS2: 153		
033	25	56342	7520850	1 1/4 X1 1/4 X1 3000 A105N TEE S		
				C .200 MN 1.020 P .008 S .023 SI .260		
				NI .020 CU .110 CO .002 CR .030 MO .006		
				V .025 AL .001 NB .000		
				CE(LONG FORMULA) = 0.39		
				T/S 75425 Y/S 51750 EL 32.50 RA 64.70		
				BRINELL HARDNESS1: 144 HARDNESS2: 144		

***** CONTINUED ON NEXT PAGE *****

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by 
Chris Childers

CMTR: REV 1

QUALITY PROCESS MANAGER

Elbow 1" 3M 45° 56462

CERTIFIED MILL TEST REPORT



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All The Time.**

LOG NO. 220774 PAGE 2
BONNEY FORGE
P.O. BOX 330 • U.S. RTE 522 SOUTH • MOUNT UNION, PA 17066-0330
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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

Date 07/14/05

CUSTOMER'S Order No.: 4018957-00

Bonney Order No. 1014198

SHIPPED TO: CCTF CORPORATION

311419

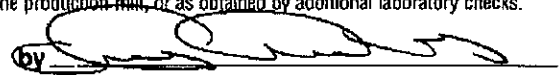
1387 CORNWALL RD.

OAKVILLE, ONTARIO, L6J7T5 CANA

ITEM	QUANTITY	LOT NO	GRADE OR SPEC. CONTROL NO.						
			CHEMICAL ANALYSIS THROUGHOUT THE ENTIRE PL. (TABLE)						
			SA/A105N						
045	25	1186	7520793	1/8 3M/4M A105N RDPL T					
				C .190 MN .950 P .008 S .023 SI .260					
				NI .054 CU .110 CR .067 MO .013 V .020					
				CB .013					
				CE(LONG FORMULA) = 0.38					
				T/S 78500 Y/S 55375 EL 34.70 RA 63.25					
				BRINELL HARDNESS: 144					
053	20	56172	7520014	3/4 3M A105N/GALV 45EL T					
				C .200 MN 1.070 P .006 S .026 SI .250					
				NI .010 CU .060 CO .002 CR .040 MO .005					
				V .024 AL .001 NB .000					
				CE(LONG FORMULA) = 0.40					
				T/S 77625 Y/S 51875 EL 31.90 RA 65.60					
				BRINELL HARDNESS1: 144 HARDNESS2: 141					
055	25	2991	7520024	1/2 3000 A105N/GALV COUP T					
				C .180 MN .980 P .009 S .030 SI .240					
				NI .040 CU .200 CO .003 CR .050 MO .011					
				V .025 AL .001 NB .000					
				CE(LONG FORMULA) = 0.38					
				T/S 77375 Y/S 54250 EL 29.85 RA 64.50					
				BRINELL HARDNESS1: 144 HARDNESS2: 141					

***** CONTINUED ON NEXT PAGE *****

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by 
Cris Childers

CMTR: REV 1

QUALITY PROCESS MANAGER

CERTIFIED MILL TEST REPORT



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LOG NO. 220774 PAGE 3

BONNEY FORGE
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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

Date 07/14/05

CUSTOMER'S Order No.: 4018957-00

Bonney Order No. 1014198

SHIPPED TO: CCTF CORPORATION

311419

1387 CORNWALL RD.

DAKVILLE, ONTARIO, L6J7T5 CANA

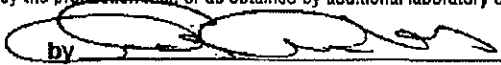
ITEM	QUANTITY	LOT NO.
------	----------	---------

GRADE OR SPECIFICATION CHEMICAL ANALYSIS TENSILE YIELD ELONGATION BENDING IMPACT
--

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
3. CERTIFYING ASTM A105-03 / ASME SA105-04 EDITION.
4. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
5. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE WITH EN DIN 10204 3.1. B.

***** END OF CERTIFICATION *****

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.

by 

Cris Childers

CMTR: REV 1

QUALITY PROCESS MANAGER

Elbow
1" 3M 90°

I.M.L.

INDUSTRIA MECCANICA LIGURE SPA

INSPECTION CERTIFICATE EN 10204:2004 / 3.1
COMPANY WITH QUALITY SYSTEM ISO 9001:2000
CERTIFIED BY RINASETGOLD INTERNATIONAL CORP.
20 Hwy. Sme. Unit 205
TORONTO M4S 3B1 CANADACertificate Nr. 16878
Invoice Nr. 979
Del. Note Nr. 1502Date
20.08.2005
Date
14.08.2005
Date
14.09.2005

16000 CASARZUA LIGURE - Genova - Italy - P.zza Marco Cappella, 4 - Tel.010.85.467081 - Fax 010.85.468510 / MATERIAL TEST DEPARTMENT This certificate has been generated by computer and need not to be signed for validity according to DIN EN 10204 Page 0 - 14

HEAT CODE	HEAT	ITEM	YOUR P.O.	OUR REFERENCE	Q.TY	DESCRIPTION	DIM. ACC. TO	VISUAL & DIMENS.															
UU	16836	027	5246	2005-2E209-0003083-027	1515	FITTING UNION F/F THRD NPT 3M 2" A105N CODE: 5468	SEE NOTE	SATISFACTORY															
UP0	74379	029	5246	2005-2E209-0003083-029	645	FITTING UNION F/F THRD NPT 3M 2" A105N CODE: 5609UD6.23.2006 : ADDED 200 PCS. N...	SEE NOTE	SATISFACTORY															
A391	78041	016	5246	2005-2E209-0003083-016	1125	FITTING 90 ELB. THRD NPT 3M 1" A105N CODE: 3989	SEE NOTE	SATISFACTORY															
HG7	79023	016	5246	2005-2E209-0003083-016	390	FITTING 90 ELB. THRD NPT 3M 1" A105N CODE: 3989	SEE NOTE	SATISFACTORY															
UP4	73847	028	5246	2005-2E209-0003083-028	30	FITTING UNION F/F THRD NPT 3M 1 1/4" A105N CODE: 5802	SEE NOTE	SATISFACTORY															
L12	77951	029	5246	2005-2E209-0003083-029	112	FITTING UNION F/F THRD NPT 3M 2" A105N CODE: 5609UD6.23.2006 : ADDED 200 PCS. N...	SEE NOTE	SATISFACTORY															
EEA	77178	042	5246	2005-2E209-0003083-042	156	FITTING RED TEE THRD NPT 3M 2"x1" A105N CODE: 11017	SEE NOTE	SATISFACTORY															
EEA	73847	045	5246	2005-2E209-0003083-045	50	FITTING M/F ELB. THRD NPT 3M 3/4" A105N CODE: 3984	SEE NOTE	SATISFACTORY															
HEAT CODE	HEAT	ITEM	MATERIAL	C%	Si%	Mn%	S%	P%	C%	Ni%	Mo%	TT%	Cu%	V%	Nb%	N%	Al%	C.E.%	OTHER ELEMENTS				
UU	16836	027	ASTM A105	0.202	0.260	0.980	0.002	0.007	0.130	0.130	0.020	0.002	0.140	0.003	0.001	0.000	0.027	0.414					
UP0	74379	029	ASTM A105	0.190	0.220	0.920	0.019	0.013	0.120	0.080	0.010	0.014	0.230	0.002	0.000	0.000	0.005	0.389					
A391	78041	016	ASTM A105	0.190	0.170	0.930	0.019	0.013	0.100	0.050	0.020	0.005	0.160	0.002	0.001	0.000	0.007	0.383					
HG7	79023	016	ASTM A105	0.180	0.290	1.090	0.020	0.010	0.090	0.050	0.010	0.005	0.150	0.002	0.001	0.000	0.023	0.405					
UP4	73847	028	ASTM A105	0.185	0.210	1.010	0.023	0.020	0.150	0.080	0.010	0.013	0.280	0.002	0.001	0.000	0.006	0.408					
L12	77951	029	ASTM A105	0.180	0.210	0.860	0.018	0.013	0.090	0.050	0.010	0.005	0.170	0.001	0.000	0.000	0.011	0.358					
EEA	77178	042	ASTM A105	0.185	0.160	0.890	0.021	0.012	0.080	0.050	0.010	0.005	0.160	0.001	0.000	0.000	0.011	0.366					
EEA	73847	045	ASTM A105	0.185	0.210	1.010	0.023	0.020	0.150	0.080	0.010	0.013	0.280	0.002	0.001	0.000	0.006	0.408					
HEAT CODE	HEAT	ITEM	TEST SPECIMEN	YIELD POINT	TENSILE STRENGTH	ELONGATION	REDUCTION OF AREA	HARDNESS HB	BEND TEST	FLATTENING TEST	TYPE TACHING	IMPACT TEST - JOULE	SHAKE	YIELD POINT									
UU	16836	027	122.65	50.00	564.0	31.0	54.0	160 - 168	0.0	0.0	KV	20	115	108									
UP0	74379	029	122.65	50.00	520.0	34.0	59.0	160 - 165	0.0	0.0	KV	20	96	103									
A391	78041	016	122.65	50.00	563.0	31.0	56.0	160 - 166	0.0	0.0	KV	20	105	107									
HG7	79023	016	122.65	50.00	553.0	34.0	57.0	162 - 170	0.0	0.0	KV	20	104	109									
UP4	73847	028	122.65	50.00	549.0	32.0	56.0	160 - 168	0.0	0.0	KV	20	104	109									
L12	77951	029	122.65	50.00	496.0	33.0	58.0	158 - 166	0.0	0.0	KV	20	100	108									
EEA	77178	042	122.65	50.00	519.0	32.0	58.0	159 - 163	0.0	0.0	KV	20	89	94									
EEA	73847	045	122.65	50.00	529.0	33.5	57.0	159 - 164	0.0	0.0	KV	20	103	109									
HEAT CODE	HEAT	ITEM	MATERIAL IN ACCORDANCE TO											FURNACE				STEEL MILL				Our Ref.	
UU	16836	027	ASME SA ASTM A105-05											ELECTRIC FURNACE				ABS				051107	
UP0	74379	029	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				051411	
A391	78041	016	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				051073	
HG7	79023	016	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				051045	
UP4	73847	028	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				060204	
L12	77951	029	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				082065	
EEA	77178	042	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				051045	
EEA	73847	045	ASME SA ASTM A105-05											ELECTRIC FURNACE				RIVA ACCIAI				051045	
NOTES ASME B16.11/05 - ANSI B31.1/BS1.3 - IML STD - ANSI B1.1-B16.2.2 - NACE MR0175 ISO 15156/1 - MSS SP 63 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS																			INSPECTION AUTHORITY	QUALITY CONTROL DEPARTMENT	MANUFACTURER'S SYMBOL	MANUFACTURER'S SYMBOL	STUDBOLTS

406 11^m 3^m Union



COMPANY WITH QUALITY SYSTEM ISO 9001-2000
CERTIFIED BY RINA

8235 Endeavor Drive S.E.
Calgary, Alberta T3S 0A1

Certificate Nr 20450
Invoice Nr
Del. Note Nr 38

Dated	14.01.2014
Dated	
Dated	14.01.2014

Page 1 - 3

[illegible]



METALFAR

PRODOTTI INDUSTRIALI S.P.A.
23851 CESANA BRIANZA (LC) ITALY
Tel. 031.655441 - Fax 031.655149
MATERIAL TEST DEPARTMENT
SALA PROVE ED ANALISI MATERIALI

COMPANY
WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001 : 2000 =
FORGED FLANGES & FITTINGS LTD
CASTLE HOUSE - STATION ROAD
NEW BARNET/HERTF. GB

INSPECTION CERTIFICATE EN 10204/3.1

CERTIFICATO DI COLLAUDO

N. 1614/
INVOICE / FATTELLA: 1182/
S. 58102
DEL. NOTE / BOLLE: 2069/
23/04/2009

AUG 18 2010
RSV

2" 1500 RF x S
FLange

HT → 74330

DESCRIPTION DESCRIZIONE										DIM. ACCORDANCE TO DIM. IN ACCORDO A		VISUAL & DIMENSIONAL VISIVO E DIMENSIONALE											
HEAT CODE OD. COLATA	HEAT COLATA	ITEM POS.	YOUR P.O. VS. ORDINE	OUR REFERENCE NS. ORDINE	QUANTITY QUANTITÀ						ASME/ANSI B16.5		SATISFACTORY										
74330		0022	3545	09001227 0035	90	W/H 1500 RF 2" XS A105 7531788																	
HEAT CODE OD. COLATA	HEAT COLATA	ITEM POS.	MATERIAL MATERIALE	C %	SI %	Mn %	S %	P %	Cr %	Ni %	Mo %	TI %	Cu %	V %	Nb %	N %	Al %	C.E. %	ORIGIN ORIGINE				
74330		0022	ASTM A 105	0.200	0.220	0.960	0.013	0.013	0.070	0.050	0.010	0.008	0.160	0.002	0.001	0.000	0.023	0.390	EUROPE				
HEAT CODE OD. COLATA	HEAT COLATA	ITEM POS.	TEST SPECIMEN SECTION PROVETTA LUNGHEZZA	YIELD POINT Sovrammento N/mm² 0.2 %	TENSILE STRENGTH Rottura N/mm² 2	ELONGATION Allungamento % 2	REDUCTION OF AREA Riduzione % 2	HARDNESS Durezza Hv	BEND TEST Pieghe	FLATTENING TEST Schacciatura	IMPACT TEST - Resistenza Joule / cm²												
74330		0022	126.60	50.80	334.0	540	33.0	58.0	164-166	0.0	0.0	U.M.	TIME 1st/10 min	° C	1	2	3	SHAPE FORMA 1 - 0 2 - □	S	W	X	YIELD POINT Sovrammento N/mm² 0.2 %	OUR REF

F2: CHARPY TEST SPECIMEN RESULT AS 10X10MM
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003
009

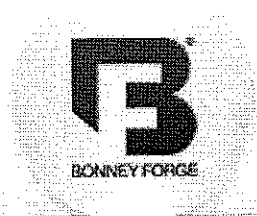
QUALITY CONTROL DEPARTMENT
UFFICIO CONTROLLO QUALITÀ

INSPECTION AUTHORITY
ENTE UFFICIALE COLLAUDO

MANUFACTURER'S SYMBOL
MARCHIO PRODUZIONE

BRACCHI / PIAVIO





MILL TEST REPORTS

Bonney Forge
14496 Croghan Pike
Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

Midfield 11/10/10

LOT NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS

57345

36-3/4 X 1/2" 3M A105N Elbolet Threaded

C	0.200	MN	1.020	P	0.006	S	0.022	SI	0.210
NI	0.020	CR	0.060	MO	0.010	CU	0.090	CO	0.003
V	0.000	AL	0.022	Nb	0.012				
CE(LONG FORMULA) = 0.391									
T/S(PSI) 75000 Y/S(PSI) 50250 EL(%) 32.750 RA(%) 66.750									
BRINELL HARDNESS(BHN): 130									

1. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
2. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE WITH EN DIN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT.
3. CERTIFYING ASTM A105-09 / ASME SA105-07 EDITION.
4. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

1/2" 3m
Elbow
Lot.
57345

HEAT NUMBER : 57689

TRANS AM PIPING PRODUCTS - REV'D BY: 

Shipment/Seq #: S 9 - 1196 3

3/4X1-36 CL 3000 FS SCRD ELBOW
PIPET A105N

Manufacturer of Piping and Pressure Vessel Components

4407 Haygood St - Houston, TX 77022

Phone: 713-695-3633 Fax: 713-695-3528

A Bunney Forge Company

Page 2 of 2

Sold To: TRANS AM PIPING PRODUCTS
LTD
9335 ENDEAVOR DRIVE S.E.
CALGARY AB T3S 0A1

Mtr #: 168,623

PO #: CI-09-192

Sales Order #: C000903239

Date: 04/03/2009

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 01

Certified Material Test Report

Heat Code: 57689 

Item	Quantity	Description
1		36 - 1 X 3/4 3M TEP A/SA105N



Chemical Composition

Ladle	C	CR	CU	MN	MO	Nb	NI	P
	0.210	0.03	0.080	1.05	0.010	0.011	0.02	0.007
	S	SI	V					
	0.020	0.20	0.002					
Carbon Equivalency:	Ladle			0.40				



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

Product	Tensile PSI	Yield PSI	Elong %	RA %	Hardness
	74,375	50,250	32.10	63.50	130 BHIN

1. IN ACCORDANCE WITH NACE SPEC MR0175-2002

NORMALIZED @ 1650 DEG F & AIR COOLED

Marie Dehmer
Quality Assurance Representative

1" X 3/4" 3M# Elbow
57689

311 90

015835

Purchaser: CCIF CORPORATION
Order No.: 4027286
Invoice No.: ZXL10A0260C

INSPECTION CERTIFICATE

ZIBO WEL-FIT METAL PRODUCTS CO., LTD
NO. 16, LUSHAN ROAD, LMCZ, ZIBO, P.R.CHINA 255418

Date: AUG 02 2010
Certificate No: ZXL10A0260C
Certificate to: EN10204-2004 3.1

Material Specification
ASTM A234-07/ASME SA234
WPB NACE MR0175-05

Specification for Inspection
ASME B16.9-07

Visual and Dimensional
Inspection
GOOD

Hardness
Max 197HB
<197HB

Cu+Ni+Cr+Mo
<0.01=1.00%
RT(R): KGC(R): PM(R):

Cr+Mo
<0.01=0.32%
MT(R):GOOD

ORIGINAL

Product Description	Heat I.D.	Quantity (Pcs)	Tension Test (1)													Chemical Composition %										Heat Treat-ment (3)	Raw Material	
			YS Mpa	TS Mpa	E %	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	V	Nb	CE(2)	Type (4)	Manu- facturer (5)									
LR 45 ELBOW XS WPB 6860020	3/4	00521	20	325	505	32	0.20	0.21	0.52	0.010	0.006	0.060	0.002	0.030	0.050	-	0.30	HF	1	XSP								
LR 45 ELBOW XS WPB 1400	1	00628	15	325	505	32	0.22	0.21	0.52	0.008	0.006	0.060	0.001	0.010	0.050	-	0.32	HF	1	XSP								
LR 45 ELBOW XS WPB 1425	1 1/4	00731E	15	305	505	30	0.18	0.23	0.53	0.009	0.006	0.030	0.005	0.010	0.030	-	0.28	HF	1	XSP								
LR 45 ELBOW XS WPB 1442	1 1/2	00937	100	310	505	30	0.20	0.22	0.51	0.015	0.007	0.040	-	0.040	0.090	-	0.30	HF	1	XSP								
LR 45 ELBOW XS WPB 1469	2	01182	100	305	505	31	0.20	0.30	0.58	0.012	0.019	0.054	-	0.020	0.018	-	0.31	HF	1	LCP								
LR 45 ELBOW XS WPB 1485	2 1/2	01362E	50	315	515	30	0.20	0.23	0.53	0.011	0.007	0.030	0.01	0.010	0.030	-	0.30	HF	1	XSP								
LR 45 ELBOW XS WPB 1507	3	01579	60	330	560	32	0.18	0.20	0.55	0.008	0.006	0.050	-	0.020	0.030	-	0.29	HF	1	LHP								
LR 45 ELBOW XS WPB 1524	5	02281	10	305	505	30	0.18	0.17	0.50	0.017	0.016	0.053	-	0.031	0.077	-	0.28	HF	1	XSP								
LR 45 ELBOW XS WPB 1582	6	02562J	15	245	485	30	0.19	0.25	0.52	0.010	0.004	0.030	-	0.020	0.060	-	0.29	HF	1	TJP								
LR 45 ELBOW XS WPB 1604	8	03003	5	270	470	30	0.19	0.24	0.49	0.009	0.006	0.030	0.010	0.020	0.080	-	0.29	HF	1	TJP								
LR 45 ELBOW XS WPB 0810	10	03419	5	330	495	30	0.21	0.24	0.51	0.010	0.007	0.040	0.020	0.020	0.060	-	0.31	HF	1	TJP								
LR 90 ELBOW STD WPB 0233	1/2	00462	100	305	490	30	0.19	0.21	0.51	0.016	0.015	0.060	-	0.060	0.190	-	0.30	HF	1	XSP								
LR 90 ELBOW STD WPB 0250	3/4	00519	150	320	495	30	0.20	0.24	0.42	0.013	0.013	0.020	0.004	0.010	0.020	-	0.28	HF	1	XSP								
LR 90 ELBOW STD WPB 0276	1	00618E	200	310	500	32	0.20	0.21	0.51	0.011	0.060	0.060	0.001	0.010	0.030	-	0.30	HF	1	XSP								
LR 90 ELBOW STD WPB 0292	1 1/4	00744J	3000	315	500	30	0.19	0.22	0.55	0.010	0.007	0.040	0.010	0.010	0.060	-	0.30	HF	1	XSP								
LR 90 ELBOW STD WPB 0314	1 1/2	00852J	1400	355	510	31	0.19	0.21	0.52	0.010	0.001	0.030	0.001	0.010	0.100	-	0.29	HF	1	XSP								
LR 90 ELBOW STD WPB 0314	1 1/2	00951J	400	315	515	30	0.21	0.23	0.55	0.014	0.008	0.030	0.007	0.010	0.030	-	0.31	HF	1	XSP								
LR 90 ELBOW STD WPB 0381	3	01583J	1074	355	515	30	0.19	0.26	0.51	0.010	0.003	0.070	0.001	0.030	0.110	-	0.30	HF	1	XSP								
LR 90 ELBOW STD WPB 0381	3	01583	6	300	500	31	0.19	0.24	0.42	0.012	0.023	0.060	-	0.020	0.024	-	0.27	HF	1	LCP								
LR 90 ELBOW STD WPB 0403	3 1/2	01824	25	315	490	30	0.19	0.19	0.52	0.009	0.005	0.050	-	0.040	0.110	-	0.30	HF	1	XSP								

Note: (1) YS=Yield Strength TS=Tensile Strength E=Elongation (2) CE=C-Mn-Si-(Cu+Ni+V)-S-(H+O)/15
Note: (3) HF: Hot formed (620-980 °C) and cooled in still air. S: Cold formed and normalized (900 °C±5Hr), cooled in still air. SA: Cold formed and solution annealed at 1050 °C±10°C, water quenched.
(4) 1-Seamless Pipe 2-Welded Pipe 3-Steel Plate. Note: (5) IGC=Intergranular Corrosion Test to ASTM A262 E
PIM=Positive Material Inspection RT=Radiographical Test MT=Magnetic Particle Test
Note: (6) XSP=XISHAN PIPE CORP LCP=LANCHENG XINGTIA LHM=Laocheng Jintong TJP=TPCO

General Note: The analysis for the elements with an amount of less than 0.02% is reported as "<0.02" represented by a "<"



We hereby certify that the products detailed herein have been manufactured and inspected in accordance with the specifications concerned and also with purchaser's requirements and that the test results shown herein are correct. The material was manufactured, tested, and inspected without any artificial contamination.

SEP 13 2010

SEP 20 2010

3' S 40 ELBOW

097004

Purchaser: NATIONAL OILWELL VARCO

INSPECTION CERTIFICATE

Final

MB-831

Purchase Order No. _____

Job No.

TO EN10204 3.1

И

Certificate No

08/04/2010

T-2010140134

[illegible]

(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 plate) S: Stress Relieving 675°Cx0.5 HR, Air Cooling The witness was manufactured, examined fasted and heat-treated in accordance with the specification, and was found to meet the requirements.

$$\text{C.E.} = \text{C} + \text{Mn}/6 + (\text{Cr} + \text{Mo} + \text{V})/5 + (\text{Ni} + \text{Cu})/15$$

MAGNETIC 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.

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

109982 Quality Assurance Manager
Thai Benkan Co., Ltd.

AUG 18 2010
R502" Sch 160 #1# 7G4995
ELBOWPURCHASER : SEYBOLD
STANDARD : ASTM A234 WPB-07
ASTM A234 WPB-04INSPECTION CERTIFICATE
Reid INDUSTRIES CO., LTD.

DATE: 2007-11-26

ORDER NO: 6560/480365

MATERIALS : ASTM A106 Gr.B (SEAMLESS PIPE)

INSPECTION SPEC : ASME B16.9-03

ACCORDING TO EN10204/DIN50049/3.1

CERTIFI. NO: 608

8, MEI-CHUNG RD, NIAP-SONG,
KAOHSIUNG HSIEN, 83301 TAIWAN
TEL 886-77310527-8
FAX 886-77315987

P.I. NO: 7E05-2

ITEM NO.	PRODUCT & SIZE	QUANTITY PCS	MFG NO.	VISUAL & DIMENSIONAL INSPECTION	HARDNESS MAX 197 HB	HEAT TREATMENT (NOTE)	MAGNETIC PARTICLE EXAMINATION	IMPACT TEST (J)
1	ELL 90 LB 2"	100	764995	GOOD	129 - 135	A	GOOD	7515146
2	CONRED 3X1 1/2"	20	762850	GOOD	126 - 130	N	GOOD	7513194
3	TEE 1 1/4"	25	7F1515 (7F)	GOOD	142 - 146	N	GOOD	7511698
4	TEE 8"	60	7A1891	GOOD	140 - 171	N	GOOD	7511876
5	TEE 10"	80	7H4279	GOOD	159 - 163	N	GOOD	7511892
6	ELL 90 SR 4"	360	7D3078	GOOD	137 - 138	A	GOOD	7510730

ITEM NO.	MATERIAL CHARGE NO.	C x100	SI x100	Mn x100	P x1000	S x1000	Cu x100	Ni x100	Cr x100	Mo x100	V x100	Nb x1000	Y S KSI	T S KSI	E %	C.E. X100
1	0723195	18	25	70	9	58	40	40	40	15	8	20	55.1	79.1	33.5	50
2	318050	18	25	56	9	3	7	3	1	1	1	<1	47.0	71.1	34.0	28
3	0710215	14	25	66	13	7	9	3	2	2	<1	<1	42.8	66.0	32.5	26
4	J818191	11	27	125	13	4	2	11	11	<1	<1	<1	47.6	69.7	44.8	34
5	0730479	15	18	70	10	9	8	3	4	<1	<1	<1	46.4	76.5	38.0	28
6	J614978	12	28	134	13	3	2	3	12	1	<1	<1	50.9	71.9	61.0	37

(NOTE) A. HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620C-880C, AIR COOLING.
N. NORMALIZING AT TEMPERATURE 880C X 3HR, AIR COOLING.
NACE MR-01-75 & NACE MR 0103: 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

Qu E Lan
MANAGER OF Q.A. DEPT

103841

SEP 08 2010

R350

2" 1500/400 xxs
Flange
381A9

CLIENTE / Customer / Client
CCTF CORPORATION (EDMONTON)
5407 - 53 AVENUE NW
EDMONTON, AB T6B 3G2
CANADA

CERTIFICADO DE INSPECCION
Inspection Certificate - Certificat de Réception
DIN EN 10204 / 3.1
ISO 10474 / 3.1

RECHA: 02/02/2010
N.º 128932
HOLA: Page: 1
ULMA FORSLA S.COOP.
87 Zaldapa, 3 - Ateka, 14
20560 OKATI (Gipuzkoa) SPAIN
Tel.: 34 - 943 705652
Fax: 34 - 943 701806
E-mail: ulma@ulmaforsla.com

PRODUCTO: FLANGES
SU PEDIDO N.º: 4807141-00
Your Order No.
Vócher Cde. N.º

DE: 01/11/2009
dt. de 01/11/2009

Certified acc. PED 97/23/EC
by TDV (Gipuzkoa)
N.º 01 202 E/D 02 7443

NORMAS APLICABLES: ASME B16.5-09
Regulamentos - Normas Aplicables
MATERIAL CORRESPONDIENTE: ASTM A105N-05
Material Correspondent - Qualité: ASME SA105N-05
MODO DE FUSION (°): NACE MR0175 / ISO 15156-2 : 2005
Steel Making - Elaboracion de Acero: NACE MR0103 : 2007
E = Efic. V = Origine Valido

DEPARTAMENTO: QUALITY ASSURANCE
Sección: Department

70564

PARTIDA	CANTIDAD	DESCRIPCION	DESCRIPCION	COLODA N.º	REVISION	UNIDAD	ALMACEN	ENTREGA	RESISTENCIA	NOTAS	DATOS
Item	Quantity	Description	Description	Heat No	T. Shown	Line Item	Storage	Ref. Area	Impact test	Temp	Drawn
10	2	WN 16 150LB STDXX FF A105N	NE	440	515	317	30.60	36.00	148 156		
52	8	WN 6 800LB 5160 RF A105N	NE	311A9	512	306	28.40	32.20	148 156		
55	12	BLIND 6 800LB B RE A105N	NE	246A9	497	303	28.60	32.70	147 154		
57	12	WN 2 1500LB XXS RTJ A105N	NE	281A9	518	314	30.00	35.80	148 155		
62	36	BLIND 2 1500LB B RE A105N	NE	281A9	518	297	28.20	31.30	150 156		
66	17	WN 3 1500LB XXS RTJ A105N	NE	182A9	519	316	30.40	36.40	150 155		
66	31	WN 3 1500LB XXS RTJ A105N	NE	270	523	310	28.60	33.00	150 157		

COMPOSICION QUIMICA - STEEL MARKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE											
C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %
0.210	0.230	0.870	0.007	0.007	0.110	0.180	0.010	0.007	0.001	0.310	0.034
0.180	0.230	0.850	0.015	0.007	0.070	0.070	0.010	0.005	0.005	0.140	0.024
0.210	0.180	0.850	0.013	0.016	0.080	0.070	0.010	0.005	0.001	0.370	0.000
0.180	0.180	0.870	0.018	0.002	0.080	0.080	0.010	0.002	0.002	0.250	0.027
0.180	0.300	0.850	0.010	0.004	0.080	0.100	0.040	0.007	0.001	0.029	0.000
0.210	0.230	0.840	0.010	0.003	0.070	0.080	0.030	0.007	0.001	0.220	0.000
0.180	0.170	0.820	0.015	0.020	0.050	0.080	0.010	0.005	0.001	0.340	0.000
0.180	0.230	0.870	0.007	0.007	0.110	0.180	0.010	0.007	0.001	0.310	0.034
0.180	0.230	0.850	0.015	0.007	0.070	0.070	0.010	0.005	0.005	0.140	0.024
0.210	0.180	0.850	0.013	0.016	0.080	0.070	0.010	0.005	0.001	0.370	0.000
0.180	0.180	0.870	0.018	0.002	0.080	0.080	0.010	0.002	0.002	0.250	0.027
0.180	0.300	0.850	0.010	0.004	0.080	0.100	0.040	0.007	0.001	0.029	0.000
0.210	0.230	0.840	0.010	0.003	0.070	0.080	0.030	0.007	0.001	0.220	0.000
0.180	0.170	0.820	0.015	0.020	0.050	0.080	0.010	0.005	0.001	0.340	0.000

7) OBSERVACIONES:
Remarks
Observations



- Las dimensiones y la cantidad suministrada se hallaron satisfactorias.
- Dimension and surface condition were found acceptable.
- Las dimensiones y el factor de superficie se hallaron satisfactorias.
- Los materiales citados cumplen las normas aplicables.
- Manufacturing requirements are satisfied.
- Los materiales citados cumplen las normas aplicables.
- Les normes applicables sont respectées.

EL INSPECTOR
Walter Inspektor - L. Inspektor



METALFAR
PRODOTTI INDUSTRIALI S.P.A.

SEDE AMMINISTRATIVA E STRUTTURALE:
23861 CESANIA BIANCA (VC) - Italy
Via G. Perini, 38
Tel. +39 031.655441
Fax +39 031.555148
quality.metalfar.com

COMPANY WITH QUALITY MANAGEMENT
SYSTEM CERTIFIED BY DNV
= ISO 9001:2008 =

GLOBAL GATE SERVICE LTD
Unit 1E, Block 71, The Plaza Nangor Road
DUBLIN 12

Certif. N. 3562
Fattura / Invoice N. 2462
DDT / Dof Note N. 4588
No. Ord. / Our ref. N.

De/Issued 07.09.2010
De/Issued 02.09.2010
De/Issued 02.09.2010

CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

HT 10/79145
2.1 x 5
600

COD. COL.	COLATA	POS.	VS. ORDINE	Q.T.A.	DESCRIZIONE	DIM. IN ACC. A	VSIVO E DIMENS.
HEAT CODE	HEAT	ITEM	YOUR REFERENCE	Q.T.Y	DESCRIPTION	DIM. ACCORDANCE TO	VIS. & DIMENS.
1072145	045	691CCTF EDM	256.00	W/M 600 RF 2" XS	A105	ASME/ANSI B16.5	SATISFACTORY

MATERIALE / MATERIAL	C%	Si%	Mn%	S%	P%	C%	Ni%	Mo%	T%	Cu%	V%	Nb%	N%	Al%	C.E.%
ASTM A105	0,185	0,190	1,120	0,085	0,010	0,120	0,040	0,010	0,021	0,140	0,003	0,002	0,000	0,031	0,420

PROVETTA / TEST SPECIMEN	FORMA	SEGNALAMENTO	RETTIFICA	ALLUNGAMENTO	CONTRAZIONE	DUREZZA	RESISTENZA / IMPACT TEST - JOULE/FT	FORNO / FURNACE	ORIGINE / ORIGIN
SECT. mm	SHAPE	YIELD POINT	REWORK	%	%	HB	TEMP. / TYPE TEST	ELECTRIC FURNACE	EUROPE
126,60	50,80	1	363,0	568,0	30,0	57,0	170,0 - 174,0		

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO	ASTM/ASME A 105/SA 105 M - 09	TRATTAMENTO TERMICO / HEAT TREATMENT	NORMALIZED AT 920 C - COOLED IN STILL AIR
--	-------------------------------	--------------------------------------	---

COD. COL.	COLATA	POS.	VS. ORDINE	Q.T.A.	DESCRIZIONE	DIM. IN ACC. A	VSIVO E DIMENS.
HEAT CODE	HEAT	ITEM	YOUR REFERENCE	Q.T.Y	DESCRIPTION	DIM. ACCORDANCE TO	VIS. & DIMENS.
1072145	045	691CCTF EDM	256.00	W/M 600 RF 2" XS	A105	ASME/ANSI B16.5	SATISFACTORY

MATERIALE / MATERIAL	C%	Si%	Mn%	S%	P%	C%	Ni%	Mo%	T%	Cu%	V%	Nb%	N%	Al%	C.E.%
ASTM A105	0,185	0,190	1,120	0,005	0,010	0,120	0,040	0,010	0,021	0,140	0,003	0,002	0,000	0,031	0,420

PROVETTA / TEST SPECIMEN	FORMA	SEGNALAMENTO	RETTIFICA	ALLUNGAMENTO	CONTRAZIONE	DUREZZA	RESISTENZA / IMPACT TEST - JOULE/FT	FORNO / FURNACE	ORIGINE / ORIGIN
SECT. mm	SHAPE	YIELD POINT	REWORK	%	%	HB	TEMP. / TYPE TEST	ELECTRIC FURNACE	EUROPE
126,60	50,80	1	363,0	568,0	30,0	57,0	170,0 - 174,0		

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO	ASTM/ASME A 105/SA 105 M - 09	TRATTAMENTO TERMICO / HEAT TREATMENT	NORMALIZED AT 920 C - COOLED IN STILL AIR
--	-------------------------------	--------------------------------------	---

COD. COL.	COLATA	POS.	VS. ORDINE	Q.T.A.	DESCRIZIONE	DIM. IN ACC. A	VSIVO E DIMENS.
HEAT CODE	HEAT	ITEM	YOUR REFERENCE	Q.T.Y	DESCRIPTION	DIM. ACCORDANCE TO	VIS. & DIMENS.
75242	067	691CCTF EDM	64.00	S/W 300 RF 1" 80	LF2CL1	ASME/ANSI B16.5	SATISFACTORY

MATERIALE / MATERIAL	C%	Si%	Mn%	S%	P%	C%	Ni%	Mo%	T%	Cu%	V%	Nb%	N%	Al%	C.E.%
ASTM A360 LF2 CL1/2	0,185	0,240	1,050	0,010	0,009	0,080	0,050	0,010	0,019	0,120	0,023	0,001	0,000	0,026	0,393

PROVETTA / TEST SPECIMEN	FORMA	SEGNALAMENTO	RETTIFICA	ALLUNGAMENTO	CONTRAZIONE	DUREZZA	RESISTENZA / IMPACT TEST - JOULE/FT	FORNO / FURNACE	ORIGINE / ORIGIN
SECT. mm	SHAPE	YIELD POINT	REWORK	%	%	HB	TEMP. / TYPE TEST	ELECTRIC FURNACE	EUROPE
126,60	50,80	1	337,0	544,0	33,0	57,0	164,0 - 166,0		

MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO	ASTM/ASME A 360/SA 350 M - 07	TRATTAMENTO TERMICO / HEAT TREATMENT	NORMALIZED AT 930 C - COOLED IN STILL AIR
--	-------------------------------	--------------------------------------	---

NOTE: MANUFACTURING IN ACCORDANCE WITH ORDER AND SPECIFICATION
MATERIAL IN ACCORDANCE WITH NACE MR-0175/2003 ISO 16156
MATERIAL IN ACCORDANCE WITH NACE MR-0103/2007

UFFICIO CONTROLLO QUALITA'
QUALITY CONTROL DEPARTMENT

ENTE UFFICIALE DI COLLAUDO
INSPECTION AUTHORITY

MARCHIO PRODUZIONE
MANUFACTURER'S SYMBOL

Logo: M.F.F.

Purchaser : CE Franklin Ltd.

INSPECTION CERTIFICATE

3x2 TEE HT # 50N10265



Thai Benkan Co., Ltd.
58 Soi Watkrunai, Bangkru, Prapadaen
Samutprakarn, 10130 Thailand.

E-No. MB-223 Purchase Order No. P/O 1903477-OR-2100 Job No.

TO EN10204 3.1

D M Y Certificate No.
28/04/2008 T- 2008200308

No.	MFG. No. (Heat Identification No.)	Specification for Material Made from Seamless Pipe		Specification for Inspection		Visual Examination	Dimensional Insp.
		ASTM A234-06a/ASME SA234-04 Gr. WPB CSA Z245.11 GR241 CAT I NACE MR0175-2003		ASME B16.9-2003		Good	Good
		Product & Size (T*1)		Quantity	Heat Treatment (Note 1)	Symbol No.	Hardness Actu
1	1173641	07C10307 T WPB 3 X 1 1/2 S40		10	N	7512851	HB : 125 - 140
2	1173675	08C10026 T WPB 12 X 6 STD		10	S	7513038	HB : 120 - 150
3	1175566	08B10826 T WPB 4 X 3 S80		50	N	7513518	HB : 130 - 145
4	1613116	50N10265 T WPB 3 X 2 STD/XS		200	N	7510418	HB : 115 - 145
5							

Specification		Chemical Composition %												Tension Test *2			HARDNESS MAX
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E	
		x 100	x 100	x 100	x 1000	x 1000	x 100	x 100	x 100	x 100	x 1000	x 1000	x 100	MPa.		%	
Min .		10	29										240	415	30	197 HB : GOOD	
Max .																	
Material Heat No.		30		106	50	58	40	40	40	15	80	20	43		655		
1	J6K7114	18	19	67	13	6	3	3	5	1	TR	1	31	288	495	36	
2	9-06179	19	24	84	17	1	2	1	3	<1	2	<1	34	332	474	43	
3	68M8880	16.8	27	75	14	5	13	10	5	1.4	22	1	33	337	492	42	
4	J7LC235	11	24	132	7	3	2	2	11	TR	TR	TR	35	324	465	42	
5																	

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

THE RESULTS OF THE TESTS ARE:

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 plate) S : Stress Relieving 675° Cx0.5 HR. Air Co

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

MAGNETIC 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.

GOOD

1 : "T" symbolized wall thickness in mm. * 2 : YS Yield strength TS = Tensile strength E = Elongation
orm TZ-6A/2

Quality Assurance Manager
Thai Benkan Co., Ltd.

ALLIED P.O. 254/3503

3rd CONC HT-04238-2X
S-40/80



Awaji

INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO., LTD.

81 MOA, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MUANG

SAMUT PRAKARN THAILAND 10270. Tel : (662) 701-5226

Purchaser : ALLIED FITTING CANADA

MADE FROM SEAMLESS STEEL PIPE

Date : MAY 7, 2010

Certificate No. TIO-5342

Order No.	Job No.	Product	Raw Material Pipe Maker
30810AAW/WPB/2		CARBON STEEL BUTT WELDING FITTINGS	SUMITOMO METAL INDUSTRIES, LTD.
Inspection Standard	Material Standard	Appearance	GOOD
ASME B18.9-07 ASTM A180-08a MACE MR-0178-03, MR 0103-05 CSA Z245.11-08 GR241 CAT1	ASTM A234-07 WPB ASME SA234-07 WPB except nuclear usage	GOOD	GOOD
Manufacturing No.	Product code	Article & Size	Quantity
04238-2X		STD x XS REDUCERS CONCENTRIC 3" x 2"	250 Pcs.
Note: ALL FITTING MANUFACTURED BY AWAJI MATERIA (THAILAND) CO., LTD. ARE PRODUCED FROM A108 GRB SEAMLESS PIPE			

Specification	Chemical Composition (%)																	*1 Mechanical Test			Hardness
	C	Si	*2 Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Ca	N	Al	C.E.	Y.S.	T.S.	E	
	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X100	X100	X100	X10000	X10000	X1000	X1000	X100	MPa		%	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Max.	Max.	
Pipe Charge No.	30	-	108	50	58	40	40	40	15	8	2	2	5	85	8	-	-	-	855	-	197
J9LCO50	19	19	62	15	3	1	2	3	1	0	0	0	1	9	9	15	31	340	505	35.2	144

$$C.E. = C + \frac{Mn}{8} + \frac{Cr + Mo + V}{5} + \frac{Ni + Cu}{15}$$

Inspection Certificate : ACCORDING TO EN 10204, 3.1 : 2004

ISO 9001: 2008 Manufacturing Company
Certified by BV, Certificate No. TH10000101

*1 Y.S. = Yield Strength, T.S. = Tensile Strength, E = Elongation, *2 UT = Ultrasonic thickness inspection.

*2 For each reduction of 0.01% below the specified carbon(C) Maximum, an increase of 0.005% manganese(Mn) above specified maximum will be permitted, up to a maximum of 1.35% as per foot note D of ASTM A234/A234M-07 Table 1.

ELBOW / Forming temperature 780°C - 830°C and cooled in still air
TEE, REDUCER & GAP / Normalizing : 900°C
We hereby certify that the material described herein has been duly inspected and conforms to the standard as specified above.

Surveyor to

Chief of Inspection Section S.MAEKAWA

JUL 25 2010
RJV

AT-24(2)12

RECEIVED
NOV 29 2010

PO# 21673 11/21 104
OS+O 14

49P20010 3x2.580 cmc
OK00068-21/23 160

FLBW



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

INSPECTION CERTIFICATE

TO EN10204 3.1

Thai Benken Co., Ltd.
58 Soi Watrakon, Bangkok, Prapatsong,
Samutprakan, 10130 Thailand.
D M Y Certificate No.
3006/2007 T-2007040282

E.No. 45000722 Purchase Order No. Job No.

MA-862		45000/22		Specification for Material										Specification for Inspection		Visual Examination	Dimensional Inspection
No.	MFG. No. (Heat Identification No.)	ASTM A234-06/ASME SA234 WPB NACE MR0176/ISO 15156-2003 * CSA Z245.11 Gr. 241 Cml SOUR SERVICE										ASME B16.9-2003		Good	Good		
		Product & Size										(T=1)	Quantity			Heat Treatment (Note 1)	Item No.
1	49P20010	RC WPB 3 X 2 STD/XS											100	N	24378		
2	08K00068	90 EL WPB 2 1/2 S160											5	A	24400		
3																	
4																	
5																	
Specification		Chemical Composition %										Tension Test *2				E	
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS		
		X	X	X	X	X	X	X	X	X	X	X	X	MPa.	%		
		100	100	100	1000	1000	100	100	100	100	1000	1000	100		HARDNESS MAX		
Min.																	
Max.																	
Material Heat No.																	
1	49525	20	18	86	10	2	2	2	3	2	1	1	32	286	451	34	
2	J6L3394	19	18	73	13	7	2	2	4	0	0	0	32	308	473	58	
3																	
4																	
5																	

ASTM A234-06/ASME SA234 WPB NACE MR0176/ISO 15156-2003
* CSA Z245.11 Gr. 241 Cml SOUR SERVICE

ASME B16.9-2003

Product & Size

(T=1)

Quantity

Heat Treatment
(Note 1)

Item No.

Good

Good

Visual Examination

Dimensional Inspection

Specification for Material

MA-862

45000/22

Specification for Inspection

ASME B16.9-2003

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Specification for Material

MA-862

45000/22

(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 (Specification for material made from plate) S: Stress Relieving 675°C±0.5 HR, Air C

C.E. = C+Mn/6+(C+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 Benken Co., Ltd.

CERTIFIED MILL TEST REPORT



The Best Value
Price, Quality, Service
All The Time.

LOG NO. 209541 PAGE 1
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P.O. BOX 330 • U.S. RTE 522 SOUTH • MOUNT UNION, PA 17066-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: CCTF - DIV OF EMCO CORPORATION

Date 08/30/04

CUSTOMER'S Order No.: 4640821-00

Bonney Order No. 98510

SHIPPED TO: CCTF - DIV OF EMCO CORPORATION

267924

5407 - 53 AVENUE

EDMONTON ALBERTA, T6B 3G2

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
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SA/A105N-02

003	25	56044	7551452	11/2-11/4X1/2 3M A105N THRD T C .200 MN 1.000 P .012 S .024 SI .270 NI .040 CU .180 CR .060 MO .011 V .025 AL .001 NB .000 CE(LONG FORMULA) = 0.40 T/S 78000 Y/S 57000 EL 32.00 RA 64.00 BRINELL HARDNESS1: 156 HARDNESS2: 156
005	200	56102	7551568	5 -3 X 3/4 3000 A105N THRD T C .200 MN 1.000 P .020 S .023 SI .260 NI .030 CU .120 CR .060 MO .010 V .024 AL .001 NB .000 CE(LONG FORMULA) = 0.40 T/S 81000 Y/S 51500 EL 35.00 RA 68.00 BRINELL HARDNESS1: 150 HARDNESS2: 150
006	50	55954	7551576	12 -6 X 3/4 3000 A105N THRD T C .200 MN 1.040 P .010 S .024 SI .270 NI .040 CU .100 CR .060 MO .010 V .024 AL .001 NB .001 CE(LONG FORMULA) = 0.40 T/S 79500 Y/S 51500 EL 35.00 RA 68.00 BRINELL HARDNESS1: 153 HARDNESS2: 150
→ 007	25	56127	7551665	5-4X1 3M A105N THRD T C .190 MN 1.020 P .012 S .024 SI .250 NI .040 CU .160 CR .004 CR .060 MO .014 V .025 AL .001 NB .000 CE(LONG FORMULA) = 0.39 T/S 78875 Y/S 54750 EL 30.70 RA 63.50 BRINELL HARDNESS1: 147 HARDNESS2: 147

***** CONTINUED ON NEXT PAGE *****

We certify that the data on this sheet is a true copy taken from our records of material furnished us by the production mill, or as obtained by additional laboratory checks.



By

Cris Childers

QUALITY PROCESS MANAGER

561027