

HENGYANG VALIN STEEL  
TUBE CO.,LTD

# MILL TEST CERTIFICATE

(ACCORDING TO EN10204 3.1)

Add : 10 Daikuan, Hengyang City, Hunan, P.R.China P.C:421001

Tel and Fax : +86 734 8873739

E-Mail : hstecc@hysteel.com

CUSTOMER	BHD TUBULAR LIMITED	CERTIFICATE NO.	C201138573-1
CONTRACT ITEM NO.	2110002384-04	P.O.NO.	109999
PRODUCT	SEAMLESS STEEL LINE PIPE	DELIVERY CONDITION	N
SPECIFICATION	SEE SPECIFICATION NOTE	HEAT TREATMENT	
GRADE	GR6, B7X42 PSI, 2, CSA 2345, 1 GR230	DIMENSIONS(INCH)	2" X SCH 40 X 120' L
TOTAL BUNDLES:		TOTAL LENGTH:	FT
		TOTAL WEIGHT:	MT

NO.	LOT No.	HEAT No.	BUNDLES	PIECES	LENGTH		WEIGHT		TENSILE TEST ASTM A370					FLATTENING TEST
					FT	WT	MT	TS(Psi)	YS(Psi)	R0.5	EL(%)	R.A. (%)	YS/TS	
1	912100106	1115809						66410/68150	50460/57200		36.0/36.0		0.760/77	ACCEPTABLE
2	912100107	1127588						68585/69455	49590/50750		36.0/36.0		0.730/73	ACCEPTABLE
3	912100108	1127580						68150/69600	48720/49300		36.0/36.0		0.710/71	ACCEPTABLE
4	912100109	1127580						62930/65395	48285/49010		41.0/39.0		0.770/75	ACCEPTABLE
5	912100110	1115812						69455/67570	54520/52345		39.0/40.0		0.780/77	ACCEPTABLE

NO.	NOTCH TYPE ORIENTATION TEMPERATURE SIZE (mm) :					IMPACT TEST					NON METALLIC INCLUSION		GRAIN SIZE		HARDNESS TEST	
	AK1 (J)	AK2 (J)	AV(%)	% SHEAR AREA	LE	AK1 (J)	AK2 (J)	AV(%)	% SHEAR AREA	LE						
1	38.0/44.0/45.0	42	70/65/75			48.0/50.0/51.0									1.0/	
2	60.0/62.0/68.0	63	70/70/70			49.0/53.0/53.0									1.0/	
3	62.0/64.0/68.0	64	75/75/70			48.0/51.0/55.0									1.0/	
4	68.0/62.0/63.0	64	70/65/65			51.0/48.0/44.0									1.0/	
5	62.0/65.0/68.0	65	70/70/72			53.0/55.0/58.0									1.0/	

NOTES:  
W1-THEORETICAL WEIGHT  
W2-ACTUAL WEIGHT  
NR-NORMALIZING ROLLED  
AK1-ASSORB ENERGY FOR THE FIRST SET  
AK2-ASSORB ENERGY FOR THE SECOND SET

SAMPLE ORIENTATION : L-LONGITUDINAL T-TRANSVERSE  
SAMPLE TYPE : S-STRIP C-C-CLUBBED F-FULL-SECTION  
Q&T-QUENCHING AND TEMPERING  
AX2-ASSORB ENERGY FOR THE SECOND SET

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

HE-HOT EXPANDED  
HR-HOT ROLLED  
N&T-NORMALIZING AND TEMPERING

(ACCORDING TO EN10204 3.1)

Add.: 10 Dalixincun, Hengyang City, Hunan, P.R. China P.C.: 421001

Tel and Fax : +86 734 8873739  
E-mail : [hsiec@hysteeltube.com](mailto:hsiec@hysteeltube.com)

E-mail : [hsiec@hysteeltube.com](mailto:hsiec@hysteeltube.com)

[illegible]

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TUBE CO.,LTD

# MILL TEST CERTIFICATE


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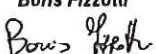

Add : 10 Dalixincun, Hengyang City, Hunan, P.R.China  
P.O.:421001  
Tel and Fax : +86 734 8873739  
E-mail : hstecc@hysteelube.com

CUSTOMER		BHD TUBULAR LIMITED		CERTIFICATE NO.		C20113873-1	
CONTRACT-ITEM NO.	2110002284-04	P.O.NO.	10999	DATE:	2011-12-23	PAGE:	3/3
PRODUCT	SEAMLESS STEEL LINE PIPE	DELIVERY CONDITION		N			
SPECIFICATION	SEE SPECIFICATION NOTE		HEAT TREATMENT				
GRADE	GR68/K42 PSL2,CSA 2245,1 GR290	DIMENSIONS(INCH)		2" SCH 40S 20FT			
TOTAL BUNDLES:		TOTAL PIECES:		TOTAL LENGTH:	FT	TOTAL WEIGHT:	MT
HIC TEST	SEE THE ORIGINAL INSPECTION REPORTS	REMARK :					
SSC TEST							

SPECIFICATION NOTE	ASTM/A536 A/SA 333/API 5L/ISO15156-2/MR 0103/CSA Z245.1/SS	Quality Manager:	胡双开
We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.			
This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark JOINTIME light-green coloured at the bottom of the page is stamped. In case the owner of the certificate would release a copy of it, he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.			
Any alteration and/or falsification will be subject to the law.			
If you need to assure the authenticity of this certificate, please do not hesitate to contact Hengyang Valin Steel Tube CO.,LTD. E-mail : hstecc@hysteelube.com			
CUSTOMER THIRD PARTY		Certificate-maker:	唐迎娜

PO#128580

 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.iml@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY</b> <b>SYSTEM ISO 9001: 2008 CERTIFIED</b> <b>BY RINA</b> <b>CERT. N°23/91/S</b>	
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		<b>Nr</b> 23818	<b>Dated</b> 20.02.2013
<b>TRANS AM PIPING PRODUCTS LTD.</b> 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1		<b>Purchase Order Nr</b> CI-13 - 189 C/O-1 <b>Item Nr</b> 020 <b>Packing List Nr</b> 233 <b>Invoice Nr</b> 209	
<b>Heat Code</b> 12H	<b>Heat Nr</b> 12/30615	<b>Quantity</b> 9.720,00	<b>Description</b> FITTING 90 ELB. THRD NPT 3M 1" A105N
<b>Element</b> ASTM A105 (LADLE)	<b>C</b> 0,195	<b>SI</b> 0,210	<b>Mn</b> 0,930
	<b>S</b> 0,009	<b>P</b> 0,010	<b>Cr</b> 0,100
	<b>NI</b> 0,050	<b>Mo</b> 0,010	<b>Ti</b> 0,018
	<b>Cu</b> 0,110		
<b>Element</b> ASTM A105 (LADLE)	<b>V</b> 0,001	<b>Nb</b> 0,002	<b>N</b> --
	<b>AL</b> 0,025		<b>C.E.</b> 0,383
			<b>PRE</b> --
<b>Test specimen</b> Sect. mm2    Length mm	<b>Shape</b> 1=O - 2=□	<b>Tensile</b> N/mm2	<b>Yield Strenght &gt; 0,2%</b> N/mm2
		<b>Yield Strenght &gt; 1%</b> N/mm2	<b>Elongation</b> %
			<b>Reduction of area</b> %
122,65    50,00	1	513,0	341,0
			--
			33,0
			57,0
<b>HARDNESS</b> <b>HBW</b> 160,0 - 164,0		<b>IMPACT TEST</b> <b>TYPE</b> KV	
	<b>Test specimen</b> 10x10mm	<b>1-Joule</b> 58	<b>2-Joule</b> 61
	<b>3-Joule</b> 67		
<b>Heat treatment</b>	Normalized at 880°-920°C / Air Cool		<b>ELECTRIC FURNACE</b>
<b>Dimension in accordance</b>	ASME B16.11 Ed.2011 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2012 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS		
<b>Material in accordance</b>	ASME SA ASTM A105-11a		
<b>Visual &amp; Dimensional</b>	SATISFACTORY	<b>Origin</b>	EUROPEAN UNION
	<b>Our Ref.</b>	2013-2E201-0000185-0020	
<b>Notes</b> ---			

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti 	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
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HT.# 1323592

PO# 130183

HENGYANG VALIN STEEL  
TUBE CO., LTD

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(ACCORDING TO EN10204 3.1)

Add: 10 Dalixincun, Hengyang City, Hunan, P. R. China

P.C.: 421001

Tel and Fax: +86 734 8873739

E-mail: hsiac@hystealtube.com

CUSTOMER	BHD TUBULAR LIMITED			CERTIFICATE NO.	C201320452-1		
CONTRACT-ITEM NO.	2111000559-07	P.O.NO.	111625	DATE:	2013-6-7	PAGE:	1/3
PRODUCT	SEAMLESS STEEL LINE PIPE			DELIVERY CONDITION	N		
SPECIFICATION	SEE SPECIFICATION NOTE		HEAT TREATMENT				
GRADE	B,B/X42,PSL1,Grade 290			DIMENSIONS	3/4" x SCH160 x 20FT		
TOTAL BUNDLES:			TOTAL PIECES:			TOTAL LENGTH:	FT
						TOTAL WEIGHT:	MT

NO.	LOT No.	HEAT No.	BUNDLES	PIECES	LENGTH	WEIGHT	TENSILE TEST ASTM A370						COLD BENDING TEST
					FT	MT	SAMPLE TYPE/ ORIENTATION / SIZE(mm)/GAUGE LENGTH(mm):FLA50						
						WT	TS(Psi)	YS(Psi)	Rt0.5	EL(%)	R.A. (%)	YS/TS	
1	513561270	1323592	3	289	5783.775	5.113	67715	47995	30.0		0.71	ACCEPTABLE	

NO.	IMPACT TEST								NON METALIC INCLUSION	GRAIN SIZE	HARDNESS TEST		
	NOTCH TYPE/ORIENTATION/TEMPERATURE(°C)/SIZE (mm) :												
	///				///								
	AK1 (J)	Av. (J)	% SHEAR AREA	LE	AK2 (J)	Av. (J)	% SHEAR AREA	LE			HV10		
1	/				/						/159.3//////		

## NOTES:

W1--THEORETICAL WEIGHT

W2--ACTUAL WEIGHT

NR--NORMALIZING ROLLED

AK1--ABSORB ENERGY FOR THE FIRST SET

SAMPLE ORIENTATION: L--LONGITUDINAL T--TRANSVERSE

SAMPLE TYPE: S--STRIP C--CLUBBED F--FULL-SECTION

Q&amp;T--QUENCHING AND TEMPERING

AK2--ABSORB ENERGY FOR THE SECOND SET

N--NORMALIZING

A--ANNEALING

Av.--AVERAGE

LE--SIDE EXPANSION

HE--HOT EXPANDED

HR--HOT ROLLED

N&amp;T--NORMALIZING AND TEMPERING

# MILL TEST CERTIFICATE

Tel and Fax: +86 734 8873739

E-mail: [hsiec@hysteeltube.com](mailto:hsiec@hysteeltube.com)

(ACCORDING TO EN10204 3.1)

CUSTOMER	BHD TUBULAR LIMITED			CERTIFICATE NO.	C201320452-1		
CONTRACT-ITEM NO.	2111000559-07	P.O.NO.	111625	DATE :	2013-6-7	PAGE:	2/3
PRODUCT	SEAMLESS STEEL LINE PIPE			DELIVERY CONDITION	N		
SPECIFICATION	SEE SPECIFICATION NOTE		HEAT TREATMENT				
GRADE	B,B/X42,PSL1,Grade 290			DIMENSIONS	3/4"x SCH160 x 20FT		
TOTAL BUNDLES:	TOTAL PIECES:		TOTAL LENGTH:	FT	TOTAL WEIGHT: MT		

[illegible]

NON-DESTRUCTIVE TEST				PE
POSITION	PIPE BODY	PIPE END	END SURFACE(GROOVE)	
NDT Type(Level)	ET	UT		ACCEPTABLE
				VISUAL & DIMENSION
LAMINAR				ACCEPTABLE
TEST RESULT	ACCEPTABLE	ACCEPTABLE	N/A	COATING
RESIDUAL MAGNETISM		N/A		
UT THICKNESS MEASUREMENT		N/A		
HYDROSTATIC TEST		N/A		ACCEPTABLE

NOTES:	H-HEAT ANALYSIS	P-PRODUCT ANALYSIS	CE-EQUIVALENT CARBON	R-RATIO	R1=Ca /S	R2=Al /N	R3=Mn /C
	CE(HV=C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15		CEPCM=C+S/30+(Mn+Cr+Cu)/20+Ni/80+Mo/15+V/10+5*B				
	SUM1=Cr+Cu+Mo+Ni+V		SUM2=Nb+V		SUM3=Nb+V+Ti		
	L4/L3/L2--ACCEPT LEVEL L4/L3/L2 NOTCH DEPTH IS 12.5% /10% /5% THE SPECIFIED WALL THICKNESS.						

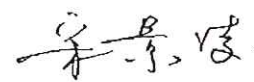
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TUBE CO., LTD

# MILL TEST CERTIFICATE


(ACCORDING TO EN10204 3.1)

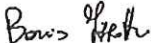

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Tel and Fax: +86 734 8873739  
E-mail: hsiiec@hysteeltube.com

CUSTOMER	BHD TUBULAR LIMITED		CERTIFICATE NO.	C201320452-1			
CONTRACT-ITEM NO.	2111000559- 07	P. O. NO.	111625	DATE:	2013-6-7	PAGE:	3/3
PRODUCT	SEAMLESS STEEL LINE PIPE			DELIVERY CONDITION	N		
SPECIFICATION	SEE SPECIFICATION NOTE		HEAT TREATMENT				
GRADE	B,B/X42,PSL1,Grade 290			DIMENSIONS	3/4"x SCH160 x 20FT		
TOTAL BUNDLES:			TOTAL PIECES:		TOTAL LENGTH:	FT	TOTAL WEIGHT: MT
		REMARK : ORIGIN:NACE IN CHINA					

SPECIFICATION NOTE	ASTM/ASME A/SA106,API 5L PSL1,CSA Z245.1 CAT 1	
<p>We hereby certify that material herein described has been manufactured in accordance with the standards and specifications required in your order and satisfies the corresponding requirements.</p> <p>This certificate is issued by a computerized system and it is valid with electronic signature. In case the owner of the certificate would release a copy of it ,he must attest its conformity to the original one taking upon himself the responsibility for any unlawful or not allowed use.</p> <p>Any alteration and/or falsification will be subject to the law.</p> <p>If you need to assure the authenticity of this certificate ,please do not hesitate to contact Hengyang Valin Steel Tube CO.,LTD, E-mail: hsiiec@hysteeltube.com</p> <p>CUSTOMER THIRD PARTY</p>		<p>Quality Manager: </p> <p>Certificate-maker: 曾黎明</p>

HT. # 17U

 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.iml@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY SYSTEM ISO 9001: 2008 CERTIFIED BY RINA CERT. N°23/91/S</b>	
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		Nr 23831	Dated 21.02.2013
<b>TRANS AM PIPING PRODUCTS LTD.</b> 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1 CA		Purchase Order Nr CI-13 - 189 C/O-1 Item Nr 048 Packing List Nr 250 Invoice Nr 227	
Heat Code 17U	Heat Nr 12/72354	Quantity 625,00	Description FITTING UNION F/F THRD NPT 3M 2" A105N (NUT+MALE+FEMALE)
Element	C	SI	Mn S P Cr Ni Mo Ti Cu
ASTM A105 (LADLE)	0,195	0,200	0,930 0,010 0,015 0,120 0,050 0,020 0,019 0,180
Element	V	Nb	N AL C.E. PRE
ASTM A105 (LADLE)	0,004	0,002	- 0,027 0,394 -
Test specimen Sect. mm2 Length mm	Shape 1=O - 2=□	Tensile N/mm2	Yield Strength > 0,2% N/mm2
122,65 50,00	1	509,0	325,0
			Yield Strength > 1% N/mm2
			-
			Elongation %
			32,5
			Reduction of area %
			58,5
<b>HARDNESS</b>		<b>IMPACT TEST</b>	
HBW	TYPE	Test specimen	°C
160,0 - 164,0	KV	10x10mm	-10
			1-Joule
			55
			2-Joule
			58
			3-Joule
			58
Heat treatment	Normalized at 880±920°C / Air Cool		ELECTRIC FURNACE
Dimension in accordance	MSS SP83 Ed.2008 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2012 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS		
Material in accordance	ASME SA ASTM A105-11a		
Visual & Dimensional	SATISFACTORY	Origin	EUROPEAN UNION
		Our Ref.	2013-2E201-0000185-0048
Notes ---			

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti 	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
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#245T2

3" 600 # RF Hubb Blind

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

FECHA:  
Date:

05/06/2012

N.º  
No.

148620

HOJA:  
Page: 1



ULMA FORJA, S.COOP.

PRODUCTO  
Article - Produit

FLANGES

SU PEDIDO N.º  
Your Order No.  
Votre Cde. N.º

4810271-00/S759146841

DE  
of. - de 01/02/2012

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

Bº Zubillaga, 3 - Apdo. 14  
20560 ONATI (Gipuzkoa) SPAIN  
Tel.: 34 - 943 780552  
Fax: 34 - 943 781808  
E-mail: ulma@ulmapiping.com

NORMAS APLICABLES  
Requirements - Normes Applicables

ASME B16.5-09

MATERIAL CORRESPONDIENTE ASTM/ASME A5A105N-11

Material Correspondent - Qualité

MODO DE FUSION (\*)

Steel Making - Elaboration de l'acier  
E = Elec. Y = Oxígeno básico

NACE MR0175/ISO15156-2-09 & MR0103-10  
Clause 7.2.1.4, Annex A.2 and SSC Region 3.  
CSA-Z245.12-09 GR248 CAT I -SS (WN & BLIND FLANGES ONLY)

MARCA DEL FABRICANTE  
Mark of factory  
Marque du fabricant



93567

DEPARTAMENTO QUALITY ASSURANCE  
Section  
Département

PARTIDA Item Posto	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations (*)	COLADA N.º Heat No N.º Coudée	RESISTENCIA T.Strength Resist Rupt N/mm2	LIMITE ELAST. Y.Strength 0.2 % N/mm2	ALARGAM. Elongation Alongement Lo: 4 d %	ESTRICCION Red. Area Striction %	RESILIENCIA Impact test Résilience Joules	MEIA Averaga Moyenne	TEMPERATURA °C	DUREZA Hardness Dureté HBW
93 7530085	95	HUB BLIN 3 600LB RF A105N	NE	245T2	528	313	28,10	57,60				149 153

COLADA N.º Heat No N.º Coudée	COMPOSICION QUIMICA - STEEL MAKER'S LADLE ANALYSIS - ANALYSE CHIMIQUE														
	C %	SI %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	CEq %
245T2	0,190	0,180	0,850	0,016	0,016	0,070	0,160	0,029	0,004	0,002	0,290	0,000	0,000	0,000	0,382

- Les dimensions y la condición superficial se hallaron satisfactorias.  
- Dimension and surface condition were found acceptable.  
- Les dimensions et états de surface sont satisfaisants.

- Los materiales citados cumplen las normas aplicables.  
- Manufacturing requirements are satisfied.  
- Les normes applicables sont respectées.

EL INSPECTOR  
Works Inspector - L'Inspecteur



ULMA FORJA S. COOP.  
Dpto. de Garantía de calidad  
Quality Assurance Dept.

(\*) OBSERVACIONES:  
Remarks  
Observations

N\_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

H # 4063

P.O. # 130218

## MILL TEST &amp; INSPECTION CERTIFICATE

ACCORDING TO EN 10204 :2004 3.1

CUSTOMER : SEYBOLD INTERNATIONAL CORP.

CBRT. NO : 132788

L/C NO :

ORDER NO : 7007171

DATE : 09/10/2013

INVOICE NO : BW01310206144

PAGE : 12 ORIGIN : TAIWAN



柏維鐵工股份有限公司

BOTH-WELL STEEL FITTINGS CO., LTD.

高雄市仁武區烏林里仁心路303號

NO.303, REN-SIN ROAD, REN-WU DISTRICT, KAOHSIUNG CITY, TAIWAN R.O.C.(81460)

TEL: +886-7-3711536, 3710497, 3720260 FAX: +886-7-3713864, 3713882

Web site: http://www.bothwell.com.tw e-mail: box@bothwell.com.tw

ITEM	BW HT.CD.	RAW MATERIAL HEAT NO.	DESCRIPTION	QUANTITY	SPECIFICATION FOR		INSPECTION	
					MATERIAL	FITTING	SURFACE	DIM.
037	3596	322769	RED.CPLG 2"x1" 3000# NPT	15 PC	ASTM A105N -05	ASME B16.11 - 2011	GOOD	GOOD
038	3991	331890	RED.TEE 3/4"x1/4" 3000# NPT	25 PC	ASME SA105N -A08			
039	3991	331890	RED.TEE 3/4"x1/2" 3000# NPT	60 PC				
040	4063	333852	RED.TEE 1"x1/2" 3000# NPT	1040 PC				
041	4063	333852	RED.TEE 1"x3/4" 3000# NPT	400 PC				

ITEM	BW HT.CD.	CHEMICAL COMPOSITION (%)																MATERIAL SUPPLIER
		C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)	N	Al	Ti	Zr	CE	
Min		-	0.10	0.60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max		0.35	0.35	1.05	0.035	0.040	0.40	0.30	0.40	0.12	0.08	-	-	-	-	-	-	0.43
037	3596	0.200	0.210	0.850	0.011	0.010	0.120	0.070	0.050	0.020	0.002	0.002	-	-	-	-	-	0.371
038	3991	0.19	0.21	0.84	0.015	0.008	0.15	0.08	0.04	0.01	0.002	0.001	-	-	-	-	-	0.361
039	3991	0.19	0.21	0.84	0.015	0.008	0.15	0.08	0.04	0.01	0.002	0.001	-	-	-	-	-	0.361
040	4063	0.20	0.20	0.81	0.016	0.016	0.12	0.05	0.04	0.01	0.002	0.001	-	-	-	-	-	0.358
041	4063	0.20	0.20	0.81	0.016	0.016	0.12	0.05	0.04	0.01	0.002	0.001	-	-	-	-	-	0.358

ITEM	BW HT.CD.	MECHANICAL PROPERTIES						HEAT TREATMENT		ADDITIONAL TEST/REMARKS		
		T. S. (KSI)	Y. S. (KSI)	EL. (%)	R of A (%)	Hardness (HBW)(AVG)	Charpy Impact °F / °C					
							MIN./AVG.	/ (Joule)				
Min		70	36	22	30	-			NORMALIZED	CONFORMS TO NACE MR0175-09 /MR0103-10 STEEL MAKING PROCESS : ELECTRIC FURNACE CONFORMS TO NACE ISO15156-3 2009		
Max		-	-	-	-	187	1	2			3	AVG.
037	3596	75.7	53.2	33.0	64.5	141 141						900°C A.C.
038	3991	76.8	48.5	34.8	66.4	143 142						
039	3991	76.8	48.5	34.8	66.4	143 142						
040	4063	74.3	52.6	35.4	68.2	144 142						
041	4063	74.3	52.6	35.4	68.2	144 142						

WE HERBBY CERTIFY, THAT THE MATERIAL DESCRIBED ABOVE HAS BEEN TESTED AND COMPLIES WITH THE TERMS OF THE ORDER CONTRACT.										 Q.C. MANAGER CHEN CHI HUANG	 INSPECTOR YUAN YAO CHANG
---	--	--	--	--	--	--	--	--	--	------------------------------------	---------------------------------

BW-D0839 REV: 2

P.O. # 130218 Item# 1  
Heat Number: 4063  
Trans Am Piping  
Shipment/Seq #: 44

1X1/2 CL 3000 FS SCRD RED TEE  
A105N  
Rev'd By: SB  
S 13 - 1599



HEAT # 412087913

P.O.#129921



江阴市无缝钢管总厂

JST JIANGYIN CITY SEAMLESS STEEL TUBE FACTORY

产品质量证明书 (EN10204.3.1)

MILL TEST CERTIFICATE

江苏省江阴市夏港镇澄路375号

No. 375, Zhengcheng Rd. Xiangang Town Jiangyin City

Jiangsu Province, China (214442) http://www.cjgg.cn

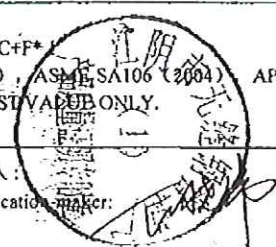
Tel: 86-510-86160723 Fax: 86-510-86160732

总件数 Total Bundles		39		总支数 Total Pieces		730		总重量(t) Total Weight		71.348		日期 Date: 2012年05月23日		№: 0008000088-2																
收货单位 PURCHASER												合同编号 Contract No.																		
产品名称 Product		LOW TEMPERATURE AND SOUR SERVICE OF STEEL PIPE						技术标准 Spec		ASTM/ASME SA333 GR.6/API 5L X42 PSL1, NACE MR-0175/ISO15156-2, CSA Z245.1, CATI GR.290																				
Size O.D×W.T×L (mm)		NPS 3"×SCH80×6400				钢级 Grade		Gr.6		牌号 Steel Type		交货状态 Delivery Status		NORMALIZED (Temperature 880℃-910℃)																
序号 NO.	炉号 Heat No	批号 Batch No	件数 BDL	支数 PCS	重量 (t) WT	拉伸试验 Tensile Test					冲击试验 Impact Test			Hardness test																
						尺寸 Dimen- sion	标距长度 Gauge Length (mm)	屈服强度 Y.S. PSI	抗拉强度 T.S. PSI	伸长率 E.L. (%)	尺寸 Dimen- sion (*)	温度 (℃) Temper- ature	冲击值(J) Impact Value																	
1	4120879B	A1204-158	28	521	50.921	*1-A3	50.8	48585/50035	70340/71790	30/32	D3	-45℃		21/23/22	73	20														
2	4120893B	B1204-54-2	11	209	20.427	*1-A3	50.8	53660/52935	74690/75420	30/30	D3	-45℃		13/14/15	73	20														
3																														
4																														
序号 NO.	类别 Type #5	化学成分(%) Chemical Composition														低倍组织(级) M.S.			金相分析 Metallogical Analysis											
		C	Si	Mn	P	S	Cr	Ni	Cu	Mo	V	Nb	Ti	B	CE(II W)	CE(CSA)	一般 疏松 Ordinary Porosity	中心 疏松 Central Porosity	偏析 Segregation	显微组 织*6 Microst ructure	晶粒度 (级) Grain size	夹杂物 Inclusion				带状 组织 (级) B.S	脱碳层(mm) D.L			
1	R	.15	.39	1.12	.018	.01	.12	.05	.14	.001	.005	.001	.002	.001	0.37	0.40	/	/	/	F+P	8.5	/	/	/	/	/	/	/	/	/
2	R	.15	.37	1.13	.018	.012	.133	.051	.14	.002	.005	.001	.002	.001	0.38	0.40				F+P	8.5									
3	R																													
4	R																													
压扁 Flattening		冷弯 Cold Bending		扩口 Flaring		超声检验 U.T		涡流检验		E.T		磁粉检验 M.P.I		漏磁检验 L.M.T		通径 N.D		表面&尺寸 S&D		Hydro Test ≥5s		1		2500PSI		OK				
OK						OK		OK				/		/		/						2		2500PSI		OK				
																						3								
																						4								
注释 Notes		*1:纵向条状 Longitudinal Strip: A1-12.7mm, A2-19.05mm, A3-25.4mm, A4-38.1mm, F-全截面 Full-section *2:棒状 Clubbed: B1=12.7mm, B2=8.9mm, B3=8mm, B4=10mm *3:横向条状 Transverse Strip: C1-12.7mm, C2-19.05mm, C3-25.4mm, C4-38.1mm, *4: D1=10×10×55mm, D2=10×7.5×55mm, D3=10×5×55mm, D4=10×2.5×55mm *5: C-成品成分 Product composition R-熔炼成分 Melting composition *6: F-铁素体 Ferrite B-贝氏体 Bainite P-珠光体 Pearlite S-回火索氏体 Tempered Sorbite M-马氏体 Martensite																												
备注 Remark		1. NO WELD REPAIRS WERE PERFORMED; 2. PIPES ARE FREE OF MERCURY AND SILICONE; 3. CE(II W)=C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15, CE(CSA)=C+F* Mn/6+Si/24+Cu/15+Ni/20+(Cr+Mo+V+Nb)/5+5B; 4. ON THEORETICAL WEIGHT BASIS. 5. ASTM A53 (2002) / ASTM A106 (2007), ASME SA33 (2002), ASME SA106 (2004) API 5L PSL1 (44th EDITION), NACE MR-01-75 (LATEST EDITION) 6. API Certification Number . 0503. 7. SOUR SERVICE GUARANTEE CE AND HARDNESS TEST VALID ONLY.																												

质量管理部负责人: 胡才望  
Quality Manager:

审核人: 胡才望  
Auditor:

制证人:  
Certification maker:



HT.# 59066

## CERTIFIED MILL TEST REPORT

Po#129577

PAGE 1 OF 2



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LOG NO. F00000000045255

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 06/21/2013

CUSTOMER

BONNEY ORDER NO. B000147011

ORDER NO.: S759218234

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
57 18C14065	157	59060	3/4 3M A105N 90EL T SA/A105N Al 0.020 C 0.210 Co 0.002 Cr 0.060 Cu 0.040 Mn 0.990 Mo 0.005 N 0.005 Nb 0.012 Ni 0.020 P 0.012 S 0.018 Si 0.230 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,807 Y/S(PSI) 49,401 EL(%) 32.00 RA(%) 61.34 Brinell 132 BHN 132 BHN
42 18C12598	75	6273	1/8 3M/6M A105 Q&T HXPL T SA/A105-QT Al 0.004 C 0.160 Cb 0.000 Co 0.000 Cr 0.070 Cu 0.150 Mn 0.630 Mo 0.022 N 0.006 Ni 0.080 P 0.008 S 0.007 Si 0.190 V 0.000 CE(Long Formula) = 0.30 T/S(PSI) 0 Y/S(PSI) 0 EL(%) 0.00 RA(%) 0.00 Brinell 169 BHN 172 BHN
8 18C10444	200	58801	1/2 3000 LF2 90EL T SA/A350 LF2 CL1 Al 0.021 C 0.213 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.060 Mo 0.005 N 0.002 Nb 0.014 Ni 0.020 P 0.012 S 0.018 Si 0.210 V 0.004 CE(Long Formula) = 0.41 T/S(PSI) 74,216 Y/S(PSI) 49,192 EL(%) 31.75 RA(%) 64.00 Brinell 132 BHN 135 BHN Charpy -50 F 24/26/14 (Ft-Lbs) Average 21.30
18C10444		59066	1/2 3000 LF2 90EL T SA/A350 LF2 CL1 Al 0.023 C 0.200 Co 0.003 Cr 0.110 Cu 0.060 Mn 1.070 Mo 0.012 N 0.004 Nb 0.013 Ni 0.020 P 0.007 S 0.019 Si 0.190 V 0.004 CE(Long Formula) = 0.41 T/S(PSI) 79,500 Y/S(PSI) 49,500 EL(%) 28.00 RA(%) 66.00 Brinell 163 BHN 163 BHN Charpy -50 F 48/69/55 (Ft-Lbs) Average 57.30

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

Meloney Specht  
QUALITY PROCESS MANAGER

CMTR: REV2

## CERTIFIED MILL TEST REPORT



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www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 06/21/2013

CUSTOMER

BONNEY ORDER NO. B000147011

ORDER NO.: S759218234

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
1.			THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2.			CERTIFYING TO ASTM A350 LF2 07 REVISION.
3.			THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
4.			THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
5.			CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
6.			THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
7.			THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
8.			THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
9.			THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
10.			THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
11.			THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
12.			THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
13.			ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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

Meloney Specht  
QUALITY PROCESS MANAGER

CMTR: REV2



#6270

1" 3/6M Hex Plug THD.

## CERTIFIED MILL TEST REPORT



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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 02/14/2013

CUSTOMER

BONNEY ORDER NO. B000138573

ORDER NO.: 4892437-00

SHIP TO: CCTF CORPORATION (EDMONTON)

5407 - 53RD AVE.

EDMONTON AB T6B 3G2

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO				CHEMICAL ANALYSIS PHYSICAL PROPERTIES REMARKS			
6305	1 3M/6M A105N RDPL T		SA/A105N							
			Al 0.021	C 0.200	Co 0.003	Cr 0.060	Cu 0.060	Mn 1.030	Mo 0.004	N 0.003
			Ni 0.020	P 0.008	S 0.020	Si 0.220	V 0.003			
			CE(Long Formula) = 0.39							
			T/S(PSI) 72,287		Y/S(PSI) 47,628		EL(%) 35.90	RA(%) 63.28		
			Brinell		135 BHN		135 BHN			
6357	1 3M/6M A105N HXPL T		SA/A105N							
			Al 0.023	C 0.200	Co 0.000	Cr 0.090	Cu 0.100	Mn 0.960	Mo 0.020	N 0.007
			Nb 0.001	Ni 0.050	P 0.010	S 0.009	Si 0.280	V 0.003		
			CE(Long Formula) = 0.39							
			T/S(PSI) 75,000		Y/S(PSI) 46,500		EL(%) 37.00	RA(%) 70.00		
			Brinell		143 BHN		140 BHN			
6270	1 3M/6M A105N HXPL T		SA/A105N							
			Al 0.037	C 0.200	Co 0.000	Cr 0.060	Cu 0.090	Mn 0.960	Mo 0.010	N 0.007
			Nb 0.001	Ni 0.040	P 0.009	S 0.009	Si 0.250	V 0.001		
			CE(Long Formula) = 0.38							
			T/S(PSI) 75,200		Y/S(PSI) 45,700		EL(%) 35.20	RA(%) 67.10		
			Brinell		133 BHN		135 BHN			
4257	3/8 X 1/8 3M/6M A105N HXBU T		SA/A105N							
			Al 0.024	C 0.200	Co 0.004	Cr 0.040	Cu 0.100	Mn 1.040	Mo 0.020	Nb 0.015
			Ni 0.040	P 0.009	S 0.017	Si 0.230	V 0.000			
			CE(Long Formula) = 0.39							
			T/S(PSI) 75,500		Y/S(PSI) 51,500		EL(%) 33.00	RA(%) 68.00		
			Brinell		144 BHN		147 BHN			

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

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

## CERTIFIED MILL TEST REPORT



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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 02/14/2013

CUSTOMER

BONNEY ORDER NO. B000138573

ORDER NO.: 4892437-00

SHIP TO: CCTF CORPORATION (EDMONTON)

5407 - 53RD AVE.

EDMONTON AB T6B 3G2

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
------	----------	---------	--

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. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
4. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
5. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
6. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
7. THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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by

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

H# 627010

PO# 131281



ADD: JINTANG ROAD DONGLI  
DISTRICT, TIANJIN, CHINA  
TEL: 86-22-24801217  
FAX: 86-22-24801291

# TIANJIN PIPE (GROUP) CORPORATION QUALITY CERTIFICATE

Licence No.:

No.: 12071916

Contract No.		TPCO-12164E				L.C.No.						O.D. x W.T.		3" XH(φ88.90"x7.62mm)		Packing		IN BUNDLES								
1	Order	BHD Tubular Limited				Product		SEAMLESS STEEL LINE PIPE				Steel grade		Cat I Gr.290 SS X42/Gr.B.C		Total pieces										
	P.O. No.	PO # 110733				Port of desti.						Man. Method		HOT ROLLING SEAMLESS		Total metres										
	Standard	CSA Z245.1-07 API SPEC 5L-2007 ASTM ASME A SA 106-2011										Length range		5.79-6.40		Total Tons										
		Quantity				Delivery condition		Sample No.		Tensile test(MPa)						Impact test(J)										
Heat No.	Lot No.	Pieces	Meters	Bundles	Tons				1*	Tem. °C	T.S.	Type	Y.S	Elong. %	Shrink %	2*	Tem. °C	Size	AK1	Shear %	AK2	Shear %	AK3	Shear %	AVE	Shear %
627010	71					As rolled	71-07-0704		23	510	R10.5	370	38													
627010	72					As rolled	72-07-0705		23	506	R10.5	361	36													

EN10204-3.1 NACF-MR 0175-2003, MR 0103-2007/ISO 15156-2A-2009 CE (CSA) = C+P: {Mn/6+Si/24+Cu/15+Ni/20+(Cr+Mo+V+Nb)/5+5B} CE (W II) = C+Mn/6+(Cr+Mo+V)/5+(Cu+Ni)/15 ALUMINUM KILLED STEEL, EAF-LF-CONTINUOUS CASTING Silicon and calcium treated for inclusion morphology control in Steel Melting.

No. QR-11-8.2.4-19 Date:

Page (1)

2012-7-24

Remark: desti.=destination; Tem.=Temperature; spec.= specification; Man.=Manufacture Fla.=Flattening; G=Good; Hydro.=Hydrostatic; Mag=Magnetic

(FOR EXPORT ONLY)



#6340 1/2" 316M Hex plug THD

## CERTIFIED MILL TEST REPORT



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LOG NO. F00000000041997

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 04/03/2013

CUSTOMER

BONNEY ORDER NO. B000140494

ORDER NO.: S759205760

SHIP TO: MRC CANADA ULC - BRCH 759

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:	
13	150	59003	3/4 2M A105N TEE T	SA/A105N
18C10210			Al 0.027 C 0.190 Co 0.004 Cr 0.030 Cu 0.120 Mn 1.040 Mo 0.010 N 0.004 Nb 0.014 Ni 0.050 P 0.009 S 0.017 Si 0.190 V 0.003 CE(Long Formula) = 0.38 T/S(Psi) 73,037 Y/S(Psi) 48,897 EL(%) 34.30 RA(%) 65.64 Brinell 130 BHN 132 BHN	
105	75	6273	1/8 3M/6M A105 Q&T HXPL T	SA/A105-QT
18C12598			Al 0.004 C 0.160 Cb 0.000 Co 0.000 Cr 0.070 Cu 0.150 Mn 0.630 Mo 0.022 N 0.006 Ni 0.080 P 0.008 S 0.007 Si 0.190 V 0.000 CE(Long Formula) = 0.30 T/S(Psi) 0 Y/S(Psi) 0 EL(%) 0.00 RA(%) 0.00 Brinell 169 BHN 172 BHN	
108	1,775	6340	1/2 3M/6M A105 Q&T HXPL T	SA/A105-QT
18C12631			C 0.140 Co 0.000 Cr 0.070 Cu 0.080 Mn 0.640 Mo 0.010 Ni 0.040 P 0.009 S 0.011 Si 0.170 V 0.001 CE(Long Formula) = 0.27 T/S(Psi) 0 Y/S(Psi) 0 EL(%) 0.00 RA(%) 0.00 Brinell 147 BHN 156 BHN	

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

*Meloney Specht*

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

# CERTIFIED MILL TEST REPORT



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LOG NO. F0000000041997

Page 2 of 2

BONNEY FORGE CORPORATION

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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 04/03/2013

CUSTOMER

BONNEY ORDER NO. B000140494

ORDER NO.: S759205760

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
------	----------	---------	--

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. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
4. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
5. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
6. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
7. THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
8. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
9. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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

*Meloney Specht*

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

6363

P.O.#130216

## CERTIFIED MILL TEST REPORT



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LOG NO. F00000000043249

Page 1 of 2

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7545 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 05/01/2013

CUSTOMER

BONNEY ORDER NO. B000143712

ORDER NO.: S759212210

SHIP TO: MRC CANADA ULC - BRCH 759

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
50 18C12250	25	6363	3/4X 1/4 3M/6M A105N HXBU T SA/A105N Al 0.024 C 0.190 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.005 N 0.006 Nb 0.016 Ni 0.020 P 0.007 S 0.022 Si 0.280 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 74,935 Y/S(PSI) 53,081 EL(%) 33.45 RA(%) 61.09 Brinell 132 BHN 132 BHN
51 18C12271	200	6363	3/4X 1/2 3M/6M A105N HXBU T SA/A105N Al 0.024 C 0.190 Co 0.003 Cr 0.040 Cu 0.070 Mn 1.030 Mo 0.005 N 0.006 Nb 0.016 Ni 0.020 P 0.007 S 0.022 Si 0.280 V 0.003 CE(Long Formula) = 0.38 T/S(PSI) 74,935 Y/S(PSI) 53,081 EL(%) 33.45 RA(%) 61.09 Brinell 132 BHN 132 BHN
18C12271		6309	3/4X 1/2 3M/6M A105N HXBU T SA/A105N Al 0.022 C 0.200 Co 0.002 Cr 0.050 Cu 0.040 Mn 1.020 Mo 0.004 N 0.003 Nb 0.013 Ni 0.020 P 0.009 S 0.019 Si 0.230 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 72,669 Y/S(PSI) 47,510 EL(%) 33.50 RA(%) 62.56 Brinell 135 BHN 135 BHN
52 18C12292	100	6253	1X1/4 3M/6M A105N HXBU T SA/A105N Al 0.023 C 0.200 Co 0.004 Cr 0.040 Cu 0.080 Mn 1.030 Mo 0.007 N 0.003 Nb 0.016 Ni 0.030 P 0.011 S 0.020 Si 0.210 V 0.004 CE(Long Formula) = 0.39 T/S(PSI) 70,686 Y/S(PSI) 48,376 EL(%) 36.50 RA(%) 62.56 Brinell 132 BHN 132 BHN

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

Meloney Specht

QUALITY PROCESS MANAGER

CMTR: REV2

# CERTIFIED MILL TEST REPORT



The Best Value -  
Price, Quality, Service  
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LOG NO. F00000000043249

Page 2 of 2

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 05/01/2013

CUSTOMER

BONNEY ORDER NO. B000143712

ORDER NO.: S759212210

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
------	----------	---------	--

1. THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.
2. CERTIFYING TO ASTM A350 LF2 07 REVISION.
3. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
4. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
5. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
6. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
7. THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.
8. THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.
9. THE MATERIAL SUPPLIED AS A350 LF2 CL1 MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2007 AND NACE MRO175/ISO 15156-2.
10. THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.
11. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
12. THE MATERIAL SUPPLIED IDENTIFIED AS SA/A105-QT WAS QUENCHED AND TEMPERED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.
13. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
14. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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

*Meloney Specht*

Meloney Specht  
QUALITY PROCESS MANAGER

CMTR: REV2


PO# 131851 Item# 1  
Heat Number: 31U  
Trans Am Piping Products Ltd. - Rev'd By: SB  
Shipment/Seq #: S 13 - 1636 8

1" CL 3000 FS SCRD UNION  
A105N


PO# 131851

HT# 11-75254

HC# 31U

 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.ima@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY SYSTEM ISO 9001: 2008 CERTIFIED BY RINA</b> CERT. N°23/91/S									
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		Nr 24550	Dated 02.10.2013								
<b>TRANS AM PIPING PRODUCTS LTD.</b> 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1		Purchase Order Nr CI-13 - 522 Item Nr 047 Packing List Nr 1199 Invoice Nr 1084	CA								
Heat Code <b>31U</b>	Heat Nr <b>11/75254</b>	Quantity 8.625,00	Description FITTING UNION F/F THRD NPT 3M 1" A105N (NUT/MALE/FEMALE)								
Element ASTM A105 (LADLE)	C 0,195	Si 0,210	Mn 0,900	S 0,009	P 0,014	Cr 0,110	Ni 0,070	Mo 0,010	Ti 0,015	Cu 0,170	
Element ASTM A105 (LADLE)	V 0,018	Nb 0,002	N -	AL 0,023						C.E. 0,389	PRE -
Test specimen Sect. mm2    Length mm	Shape 1=O - 2=□	Tensile N/mm2	Yield Strength > 0,2% N/mm2	Yield Strength > 1% N/mm2	Elongation %	Reduction of area %					
122,65    50,00	1	509,0	322,0	--	33,8	58,0					
<b>HARDNESS</b>		<b>IMPACT TEST</b>									
HBW	TYPE	Test specimen	°C	1-Joule	2-Joule	3-Joule					
152,0 - 158,0		10x10mm	-10	63	64	61					
Heat treatment	Normalized at 880°920°C / Air Cool					ELECTRIC FURNACE					
Dimension in accordance	MSS SP83 Ed.2006 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2012 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS										
Material in accordance	ASME SA ASTM A105-11a										
Visual & Dimensional	SATISFACTORY	Origin	EUROPEAN UNION			Our Ref.	2013-2E201-0001024-0046				

Notes ---

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti <i>Boris Fizzotti</i>	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
---	-----------------------------	--



H# 120051

PO# 131834

NEW CENTURY MACHINERY CO., LTD. DingXiang, ShanXi, China  
MILL TEST CERTIFICATE EN10204 3.1

Purchaser's Name: Allied Fitting Canada

PO No: 102612AFC

Certificate No: 0601-002a

CRN: 0B12010.52

page: 1/3

page:1/3

PRODUCT				SPECIFICATION FOR MATERIAL															SPECIFICATION FOR MATERIAL			
				ASTM A105N-11a ASME SA105N-10																		
				NACE: Conform to MR0175/ISO 15156-2009,MR0103-2010																		
CARBON STEEL FLANGES (A105N)				CHEMICAL PROPERTIES(%)												MECHANICAL PROPERTIES				O.D	I.D	THK
DESCRIPTION	QTY	HEAT NO		C (Max)	Si	Mn	P (Max)	S (Max)	Cr (Max)	Ni (Max)	Cu (Max)	Mo (Max)	V (Max)	Nb (Max)	CE (Max)	T S (Mpa)	Y S (Mpa)	δ (%)	HARDNESS (HBW)			
CARBON STEEL FLANGES (A105N) ASME B16.5-2009 Normalized 900°C/2hrs				0.35	Min:0.10	Min:0.60	0.035	0.040	0.30	0.40	0.40	0.12	0.08	0.02	0.40	≥485	≥250	≥22	≤187			
					Max:0.35	Max:1.05																
3-1/2"	150# BLRF	25	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
2"	600# HUB BLRF	400	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
3/4"	150# THDRF	200	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
1-1/2"	150# WNFF STD	200	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
3"	150# WNRF STD	2500	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
3"	300# WNRF XH	1000	120051	0.19	0.23	0.90	0.022	0.020	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.35	550	347	40	164/165	OK	OK	OK
4"	300# BLRF	500	129610	0.19	0.20	0.94	0.028	0.015	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.36	555	352	40	155/156	OK	OK	OK
4"	150# WNRF STD	2000	129610	0.19	0.20	0.94	0.028	0.015	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.36	555	352	40	155/156	OK	OK	OK
8"	150# SORF	500	129709	0.22	0.20	0.96	0.023	0.012	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	552	339	40	158/159	OK	OK	OK
10"	150# SORF	500	129709	0.22	0.20	0.96	0.023	0.012	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	552	339	40	158/159	OK	OK	OK
8"	300# SORF	100	129709	0.22	0.20	0.96	0.023	0.012	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	552	339	40	158/159	OK	OK	OK
TOTAL		7925																				

Please note: All materials are to be supplied in accordance with the specifications mentioned above.

Please note: All material supplied is certified to be free of Mercury contamination and no mercury bearing equipment was used during manufacturing

We hereby certify that the products described herein has been manufactured in according with the specifications concerned and also with the purshaser's requirements and that the test results shown herein are correct.

$$CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

Inspector:

Date: 2012-10-24



H# 12-70535

PO# 131800


**METALFAR**  
 PRODOTTI INDUSTRIALI S.P.A.

STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI

SEDE AMMINISTRATIVA E STABILIMENTO:

 23861 CESANA BRIANZA (LC) - Italy  
 Via G. Parini, 28  
 Tel. +39 031.655441  
 Fax +39 031.655148  
 quality.mff@metalfar.com

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

## CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE

Certif. N. 4521	Del/Dated 26.09.2012	Fattura / Invoice N. 3106	Del/Dated 26.09.2012
DDT / Del Note N. 3661	Del/Dated 26.09.2012	Ns.Ord. / Our ref. N.	Del/Dated
CE FRANKLIN LTD		Dest.: CE Franklin Ltd - DISTRIBUTION GEN.	
1800, 635 - 8TH Avenue S.W.		2603 - 76 Avenue	
T2P 3M3 CALGARY, ALBERTA		T6P 1P6 EDMONTON, ALBERTA	
CA		CA	

Pag. 3 - 10

COD. COL.	COLATA	POS.	VS.ORDINE		Q.TA'	DESCRIZIONE		DIM. IN ACC. A										VISIVO E DIMENS. VIS. & DIMENS. SATISFACTORY								
HEAT CODE	HEAT	ITEM	YOUR REFERENCE		Q.TY	DESCRIPTION		DIM. ACCORDANCE TO																		
	12/70535	019	3015795-OR-2100		125,00	BLIND 600 RF 3"		ASME/ANSI B16.5 -2009																		
MATERIALE / MATERIAL			C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%		B %							
ASTM A105 (LADLE)			0,195	0,230	0,970	0,004	0,010	0,070	0,040	0,010	0,021	0,100	0,004	0,003	0,009	0,029	0,383	0,000								
PROVETTA / TEST SPECIMEN	FORMA	SNERVAMENTO	ROTTURA	ALLUNGAMENTO	CONTRAZIONE	DUREZZA										RESILLENZA / IMPACT TEST - JOULE/cm2			N°_Rif. OUR REF.							
SEZ. mm2	LUNG. mm	YIELD POINT	TENSILE STRENGTH	ELONGATION	REDUCTION OF AREA	HARDNESS										YIELD POINT										
SECT. mm2	LENGTH mm	N/mm2 >=0,2%	N/mm2 >=	%>=	%>=	HBW										N/mm2 >=1,0%										
126,60	50,80	1	334,0	530,0	31,0	58,0	159,0 - 163,0			TIPO / TYPE 10x10mm							KV			20	83	2	3	81	89	0,0
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO						TRATTAMENTO TERMICO / HEAT TREATMENT										FORNO / FURNACE				ORIGINE / ORIGIN OF STEEL						
ASTM/ASME A 105/SA 105 M - 11 ASME CODE SECT. II, PART A, ED. 2010						NORMALIZED AT 920 C - COOLED IN STILL AIR										ELECTRIC FURNACE				EUROPEAN UNION						
CSA CAN3 Z245.12-09 GRADE 248 CAT.I SOUR SERVICE																										

Ht# 13/38554

PO# 131605


**METALFAR**  
 PRODOTTI INDUSTRIALI S.P.A.

STAMPAGGIO A CALDO DI ACCIAI COMUNI - LEGATI E INOSSIDABILI

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

 COMPANY WITH  
 QUALITY SYSTEM  
 CERTIFIED BY DNV  
 = ISO 9001 =

**CERTIFICATO DI COLLAUDO SECONDO EN 10204 - 3.1 INSPECTION CERTIFICATE**

Certif. N. 6019 DDT / Del Note N. 4700	Del/Dated 12.11.2013 Del/Dated 12.11.2013	Fattura / Invoice N. 4093 Ns.Ord. / Our ref. N. 0	Del/Dated 12.11.2013 Del/Dated
CE FRANKLIN LTD, A Division of NOV WILSONCANADA ULC 1800, 635 - 8TH Avenue S.W. T2P 3M3 CALGARY, ALBERTA		Dest.: CE Franklin Ltd - DISTRIBUTION CEN. 2803 - 76 Avenue T6P 1P6 EDMONTON, ALBERTA	
CA		C	

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COD. COL. COLATA HEAT CODE HEAT		POS. ITEM	VS. ORDINE YOUR REFERENCE		Q.TA' Q.TY		DESCRIZIONE DESCRIPTION		DIM. IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2013													VISIVO E DIMENS. VIS. & DIMENS. SATISFACTOR			
13/38554		038	3220811-OR-2100		429,00		W/N 600 RF 2" XS A105N																		
MATERIALE / MATERIAL ASTM A105 (LADLE)			C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B %							
			0,195	0,250	0,990	0,010	0,014	0,140	0,060	0,010	0,016	0,160	0,004	0,002	0,009	0,025	0,405	0,000							
PROVETTA / TEST SPECIMEN SEZ. mm2 LUNG. mm SECT. mm2 LENGTH mm		FORMA SHAPE 1=O 2=□	SNERVAMENTO YIELD POINT N/mm2 >=0,2%		ROTTURA TENSILE STRENGTH N/mm2 >=		ALLUNGAMENTO ELONGATION %>=		CONTRAZIONE REDUCTION OF AREA %>=		DUREZZA HARDNESS HBW		RESILLENZA / IMPACT TEST - JOULE/cm2				SNERVAMENTO YIELD POINT N/mm2 >=1,0%		Ns. Ref. OUR REF.						
126,60 50,80		1	334,0		516,0		31,0		60,0		154,0 - 156,0		TIPO / TYPE 10x10mm KV				°C		1 2 3 86 92 90		0,0				
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 105/SA 105 M - 13 ASME CODE SECT. II, PART A, ED. 2013										TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 920 C - COOLED IN STILL AIR										FORNO / FURNACE ELECTRIC FURNACE				ORIGINE / ORIGIN OF STEEL EUROPEAN UNION	
CSA CAN3 Z245.12-09 GRADE 248 CAT.I SOUR SERVICE																									

COD. COL. COLATA HEAT CODE HEAT	POS. ITEM	VS.ORDINE YOUR REFERENCE	Q.TA' Q.TY		DESCRIZIONE DESCRIPTION		DIM.IN ACC. A DIM. ACCORDANCE TO ASME/ANSI B16.5 -2013												VISIVO E DIMENS VIS. & DIMENS. SATISFACTOR				
13/37643	054	3220811-OR-2100	170,00		W/N 600 RF 2" XS		LF2CL1																
MATERIALE / MATERIAL		C%	Si%	Mn%	S%	P%	Cr%	Ni%	Mo%	Ti%	Cu%	V%	Nb%	N%	Al%	C.E.%	B %						
ASTM A350 LF2 CL1/2 (LADLE)		0,200	0,220	0,980	0,008	0,010	0,130	0,060	0,010	0,017	0,130	0,004	0,002	0,009	0,028	0,405	0,000						
PROVETTA / TEST SPECIMEN SEZ. mm2 LUNG. mm SECT. mm2 LENGTH mm	FORMA SHAPE 1=O 2=□	SNERVAMENTO YIELD POINT N/mm2 >=0,2%		ROTTURA TENSILE STRENGTH N/mm2 >=		ALLUNGAMENTO ELONGATION %>=		CONTRAZIONE REDUCTION OF AREA %>=		DUREZZA HARDNESS HBW		RESILLENZA / IMPACT TEST - JOULE/cm2				SNERVAMENTO YIELD POINT N/mm2 >=1,0%		Ns. Ref. OUR REF.					
126,60 50,80	1	342,0		520,0		30,0		60,0		154,0 - 156,0		TIPO / TYPE 10x10mm KV				°C	1 2 3	0,0					
																-46	70 68 64						
MATERIALE IN ACCORDO A / MATERIAL IN ACC. TO ASTM/ASME A 350/SA 350 M - 13 ASME CODE SECT. II, PART A, ED. 2013										TRATTAMENTO TERMICO / HEAT TREATMENT NORMALIZED AT 930 C - COOLED IN STILL AIR										FORNO / FURNACE ELECTRIC FURNACE		ORIGINE / ORIGIN OF STEEL EUROPEAN UNION	
CSA CAN3 Z245.12-09 GRADE 290 CAT.II SOUR SERVICE																							

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

 UFFICIO CONTROLLO QUALITA'  
 QUALITY CONTROL DEPARTEMENT

 ENTE UFFICIALE DI COLLAUDO  
 - INSPECTION AUTHORITY

 MARCHIO PRODUZIONE  
 MANUFACTURER'S SYMBOL






HT# 1K22151

PO# 131605

PURCHASER: SEYBOLD INT'L CORP.

STANDARD: ASTM A234 WPB-13

ASME SA234 WPB-04

CSA Z245.11-13 Gr.241 CAT I Sour Service

MATERIALS: ASTM A106 Gr.B

INSP. SPEC.: ASME B16.9 -12



# INSPECTION CERTIFICATE

## RIGID INDUSTRIES CO., LTD.

8, MEI-CHUNG RD. NIAO-SONG,  
KAOHSIUNG 83301, TAIWAN  
TEL: 886-77310527~8  
FAX: 006-77315007

DATE: 2014-01-15

ORDER NO: 7007061/3232394-OR-2100

P.I. NO: 13E02-5

CERTIFI. NO: 14A08-1

ACCORDING TO EN10204/DIN50049/3.1

ITEM NO.	PRODUCT & SIZE	QUANTITY PCS	MFG NO.	VISUAL & DIMENSIONAL INSPECTION	HARDNESS MAX. 197 HB	TREATMENT (NOTE)	MAGNETIC PARTICLE EXAMINATION	
15	CON-RED 3X2" XH	1	2J285V	GOOD	133-140	N		
16	CON-RED 3X2" XH	299	1K22151	GOOD	133-145	N		
17	CON-RED 10X4" STD	5	3E242V	GOOD	131-146	N		
18	ECC-RED 10X6" STD	25	3A742V	GOOD	105-115	N		
19	TEE 3" STD	450	13G0398	GOOD	130-140	N	GOOD	
20	TEE 3" XH	48	2J395V	GOOD	135-142	N	GOOD	
21	TEE 4" XH	5	13K8107	GOOD	128-156	N	GOOD	
22	TEE 4" XH	245	13K8213	GOOD	129-140	N	GOOD	

ITEM NO.	MATERIAL CHARGE NO.	CHEMICAL COMPOSITION %											* PHYSICAL TEST				
		C x100	Si x100	Mn x100	P x1000	S x1000	Cu x100	Ni x100	Cr x100	Mo x100	V x100	Nb x1000	Y S	T S	E	**	C.E.
		MIN.	10	29									KSI	KSI	%		X100
	STANDARD	MAX.	30	35	135	50	58	40	40	40	15	8	20	35.0	60.0		
15	1212325V		14	22	83	12	6	8	2	4	1	<1	1	43.8	67.7	31.1	L
16	0814372		14	22	66	8	8	10	3	3	1	<1	1	49.3	64.5	36.5	L
17	1232162V		15	17	84	12	9	6	3	3	1	<1	1	44.1	67.3	30.8	L
18	1232162V		15	17	84	12	9	6	3	3	1	<1	1	44.1	67.3	30.8	L
19	323898		18	24	56	9	4	4	5	3	<1	<1	1	43.5	66.2	31.1	L
20	1212325V		14	22	83	12	6	8	2	4	1	<1	1	43.8	67.7	31.1	L
21	P12602507		12	28	118	10	1	4	4	3	1	1	10	42.7	66.2	31.2	L
22	P12702513		10	25	118	8	3	4	4	5	1	1	10	44.5	65.7	30.6	L

(NOTE): A: HOT FORMED WITH FINAL TEMPERATURE BETWEEN 620°C-980°C, AIR COOLING.  
N: NORMALIZING AT TEMPERATURE 880°C X 0.5HR, AIR COOLING.

NACE MR-01-75-09/ISO15156.2 NACE MR 0103-12: SATISFACTORY

WE HEREBY CERTIFY THAT THE PRODUCT DESCRIBED HEREIN HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATIONS CONCERNED AND ALSO WITH THE PURCHASER'S REQUIREMENTS AND THAT THE TEST RESULTS SHOWN HEREIN ARE CORRECT.

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

**Ou L Lan**

MANAGER OF Q.A. DEPT.

H# 393007

PO# 131605



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

# **MILL TEST CERTIFICATE**

EN10204-3.1.8(DIN50049/3.1.8)

Customer: SEYBOLD INTERNATIONAL CORP.

Order No.: 7007687(3)-CEF/NOV

Certificate No.: SE7687C1

Date: 12/02/2013

Page: 3 OF 5

Order No.: 7007687(3)-CEFNVO

Page: 3 OF 5

PRODUCT			MATERIAL SPECIFICATIONS										DIMENSIONAL SPECIFICATIONS									
FORGED CARBON STEEL FLANGES			ASTM A105-13/ASME SA-105-13										ASME B18.5-13 CSA Z245.12									
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																		CE(*)
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N							
21	1075178	300 SORF 2" A105N	50 PCE	0.350	0.100	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	-	-	-	-	0.408	
22	1071345	300 SWRF XS 2" A105N	50 PCE	0.210	0.220	1.150	0.021	0.005	0.007	0.020	0.010	0.002	0.006	0.001	0.007	-	-	-	-	-	0.408	
23	1073439	300 THRF 1" A105N	50 PCE	0.210	0.220	1.150	0.021	0.005	0.007	0.110	0.070	0.028	0.007	0.001	0.009	-	-	-	-	-	0.430	
24	1073762	300 THRF 2" A105N	450 PCE	0.200	0.230	1.090	0.016	0.005	0.020	0.020	0.010	0.002	0.006	0.001	0.007	-	-	-	-	-	0.408	
25	1073447	300 THRF 3" A105N	200 PCE	0.210	0.220	1.150	0.021	0.005	0.007	0.020	0.010	0.002	0.006	0.001	0.007	-	-	-	-	-	0.408	
26	1074263	600 THRF 2" A105N	400 PCE	0.220	0.210	1.150	0.023	0.005	0.006	0.020	0.010	0.004	0.009	0.001	0.005	-	-	-	-	-	0.419	
27	1068517	900/1500 THRF 2" A105N	51 PCE	0.210	0.220	1.150	0.017	0.008	0.007	0.010	0.010	0.003	0.006	0.001	0.006	-	-	-	-	-	0.407	
28	1068517	900/1500 THRF 2" A105N	29 PCE	0.200	0.220	1.130	0.022	0.003	0.006	0.030	0.010	0.003	0.004	0.001	0.007	-	-	-	-	-	0.397	
29	1070588	150 WNRF STD 20" A105N	15 PCE	0.210	0.220	1.160	0.016	0.004	0.007	0.010	0.010	0.003	0.006	0.001	0.007	-	-	-	-	-	0.408	
30	1074132	150 WNRF XS 2" A105N	801 PCE	0.200	0.200	1.100	0.014	0.008	0.130	0.110	0.070	0.020	0.010	0.002	0.008	-	-	-	-	-	0.425	
				0.200	0.210	1.080	0.009	0.008	0.070	0.080	0.040	0.010	0.002	0.001	0.006	-	-	-	-	-	0.406	

Item No.	Heat No.	T.S.(*) (MPA)	Y.S.(*) (MPA)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test Temp: Minimum: Joule			Material Supplier	HEAT TREATMENT(*)		REMARKS
							1	2	3		N		
21	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS		880°CX4HRS	
22	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS		CONFORMS WITH NACE MR0103-12 AND NACE	
23	93713	543.0	387.0	33.8	154/152	70.4				WEI CHIH STEEL		MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3	
24	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS		AND ANNEX A	
25	4553922	535.0	358.0	34.2	154/151	68.6				ACOMINAS		CONFORMS WITH Z245.12 CAT I GR248 SOUR	
26	4573185	531.0	370.0	33.2	154/152	69.5				ACOMINAS		SERVICE-09(FOR USE AS WELDING NECK AND	
27	4723478	524.0	348.0	35.6	153/151	70.4				ACOMINAS		BLIND FLANGES ONLY)	
28	4677171	518.0	350.0	35.8	153/151	70.4				ACOMINAS		MN TO C RATIO IS GREATER THAN 3.0"	
29	292404	525.6	383.4	35.8	154/151	72.1				ACOMINAS			
30	393007	541.0	356.0	30.8	155/152	65.9				SEAH BESTEEL			
										UBE STEEL			

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

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value = C + (Mn /8) + (Cr + Mo +V) /5 + (Ni + Cu) /16

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

Manager of Quality Assurance Dept

SAFETY STEEL FORGING CO., LTD.

QUALITY ASSURANCE DEPT

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

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value =  $C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 16$

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



Manager of Quality Assurance Dept



H# 4703606

PO# 131605



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311, Jen Hsin Road, Jen Wu District  
Kaohsiung, Taiwan, R.O.C.  
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e-mail: saneng@ktsa.eeed.net.tw

### MILL TEST CERTIFICATE

EN10204-3.1.B/DIN50049/3.1.B)  
Customer: SEYBOLD INTERNATIONAL CORP.  
Order No.: 7007817(1)-CCTE

Certificate No.: SE7817A2  
Date: 12/23/2013  
Page: 2 OF 4

P# 4893970

PRODUCT				MATERIAL SPECIFICATIONS										DIMENSIONAL SPECIFICATIONS									
FORGED CARBON STEEL FLANGES				ASTM A-350 LF2-13 CL.1/ASME SA-350 LF2-13 CL.1										ASME B16.5-13 CSA Z245.12									
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																		CE(*)	
				C	SI	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N								
				Min	0.300	0.150	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	-	-	-	-	-	
				Max	0.300	0.300	1.350	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	-	-	-	-	-	
11	7585631	300 BLRF 3" LF2	66 PCE		0.210	0.240	1.150	0.019	0.003	0.007	0.020	0.010	0.002	0.007	0.001	0.006						0.409	
12	7585631	300 BLRF 3" LF2	9 PCE		0.220	0.230	1.170	0.019	0.006	0.007	0.010	0.010	0.002	0.006	0.001	0.007						0.420	
13	7585658	300 BLRF 6" LF2	40 PCE		0.200	0.210	1.140	0.022	0.004	0.010	0.030	0.010	0.001	0.004	0.001	0.006						0.398	
14	7580405	300 HUB BLRF 2" LF2	50 PCE		0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007						0.424	
15	7580213	600 WNRF XS 1" LF2	30 PCE		0.190	0.210	1.160	0.021	0.007	0.007	0.020	0.010	0.004	0.004	0.001	0.005						0.390	
16	7581008	600 WNRF XS 2" LF2	300 PCE		0.220	0.230	1.190	0.018	0.004	0.008	0.020	0.010	0.003	0.006	0.001	0.007						0.425	
17	7581033	600 WNRF XS 10" LF2	32 PCE		0.190	0.220	1.100	0.014	0.006	0.120	0.120	0.110	0.020	0.005	0.001	0.007						0.418	
18	7581034	600 WNRF XS 12" LF2	10 PCE		0.190	0.220	1.050	0.018	0.005	0.090	0.110	0.030	0.020	0.001	0.001	0.007						0.399	
19	7587749	600 WNRF XS 2" LF2	20 PCE		0.220	0.220	1.180	0.016	0.006	0.007	0.020	0.020	0.005	0.005	0.001	0.007						0.424	
20	7582500	600 WNRF S160 2" LF2	200 PCE		0.220	0.230	1.190	0.018	0.004	0.008	0.020	0.010	0.003	0.006	0.001	0.007						0.425	

Item No.	Heat No.	T.S.(*) (MPA)	Y.S.(*) (MPA)	E.L.(*) (%)	Hardness (HB)	R.A.(*) (%)	Impact Test Temp: -46°C Minimum: 20.0 Joule			Material Supplier	HEAT TREATMENT(*)		REMARKS
							1	2	3		□ N		
11	4703602	527.0	372.0	36.0	153/169	68.6	109.0	97.0	75.0	ACOMINAS		890°CX4HRS	CONFORMS WITH NACE MR0103-12 AND NACE MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY) TEST SPECIMEN SIZE: 10X10 TEST SPECIMEN ORIENTATION: TRANSVERSE IMPACT TEST TEMP: -46°C MN TO C RATIO IS GREATER THAN 3.0"
12	4877159	527.0	364.0	33.8	153/161	70.4	116.0	98.0	73.0	ACOMINAS			
13	4723483	516.0	368.0	37.0	152/150	69.5	124.0	84.0	115.0	ACOMINAS			
14	4803012	529.0	368.0	35.0	153/161	71.3	90.0	51.0	84.0	ACOMINAS			
15	4573144	522.0	372.0	34.0	153/151	69.6	82.0	93.0	78.0	ACOMINAS			
16	4703606	529.0	372.0	36.2	154/161	69.5	99.0	109.0	80.0	ACOMINAS			
17	450527	509.9	359.9	36.4	150/149	72.9	134.0	146.0	118.0	GODO STEEL			
18	Y300289	518.0	376.0	36.8	152/150	72.1	106.0	123.0	111.0	KOTOBUKI			
19	4803012	529.0	368.0	35.0	153/151	71.3	90.0	51.0	84.0	ACOMINAS			
20	4703606	529.0	372.0	36.2	154/161	69.5	99.0	109.0	80.0	ACOMINAS			

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

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 15 + (Ni + Cu) / 15

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

Manager of Quality Assurance Dept





SAN ENG STEEL FORGING CO LTD  
311, Jen Hsin Road, Jen Wu District  
Kaohsiung, Taiwan, R.O.C.  
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# MILL TEST CERTIFICATE

EN10204-3.1.B (DIN50049/3.1.B)  
Customer: SEYBOLD INTERNATIONAL CORP.  
Order No.: 7007687(5)-CEF/NOV

Certificate No.: SE7687E1  
Date: 12/16/2013  
Page: 2 OF 3

Order No.: 7007687(5)-CEP/NOV

Page: 2 OF 3

PRODUCT

MATERIAL SPECIFICATIONS

DIMENSIONAL SPECIFICATIONS

FORGED CARBON STEEL FLANGES

ASTM A105-13/ASME SA-105-13

ASME B16.5-13  
CSA Z245.12

Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
				C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N				CE(*)3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
11	1069341	300 BLRF(2"NPT TAP) 6" A105N	7 PCE	0.350	0.100	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved,  
A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value =  $C + (Mn/8) + (Cr + Mo + V) / 5 + (Ni + Cu) / 15$

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



Manager of Quality Assurance Dept



H# 4757313

PO# 131605



SAN ENG STEEL FORGING CO LTD  
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Kaohsiung, Taiwan, R.O.C.  
TEL: 07-3724249; FAX: 07-3712923  
URL: www.saneng.com.tw  
e-mail: saneng@ksts.seed.net.tw

## MILL TEST CERTIFICATE

EN10204-3.1.8(DIN50049/3.1.8)  
Customer: SEYBOLD INTERNATIONAL CORP.  
Order No.: 7007887(7)-CEF/NOV

Certificate No.: SE7687G2

Date: 01/20/2014

Page: 2 OF 2

PRODUCT			MATERIAL SPECIFICATIONS										DIMENSIONAL SPECIFICATIONS									
FORGED CARBON STEEL FLANGES			ASTM A-350 LF2-13 CL 1/ASME SA-350 LF2-13 CL 1										ASME B16.5-13 CSA Z245.12									
Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																		CE(*3)
				Min	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N						
11	1652393	900/1500 HUB BLRF(1"NPT TAP) 2" LF2	25 PCE	Max	0.200	0.150	0.600	0.018	0.040	0.400	0.300	0.400	0.120	0.004	0.002	0.006						0.408
12	1683157	900/1500 HUB BLRTJ(1"NPT TAP) 2" LF2	20 PCE		0.200	0.210	1.190	0.018	0.006	0.010	0.030	0.010	0.010	0.004	0.002	0.006						0.408
13	1076306	600 WNRF XS 3" LF2	400 PCE		0.200	0.210	1.190	0.018	0.006	0.010	0.030	0.010	0.010	0.004	0.002	0.006						0.408
14	1686614	1500 WNRF XXS 3" LF2	30 PCE		0.200	0.210	1.140	0.022	0.004	0.010	0.030	0.010	0.001	0.004	0.001	0.008						0.398
15	1076795	1500 WNRTJ S160 4" LF2	15 PCE		0.220	0.200	1.170	0.022	0.005	0.006	0.020	0.010	0.003	0.005	0.001	0.006						0.422

Item No.	Heat No.	T.S.(*1) (MPA)	Y.S.(*1) (MPA)	E.L.(*1) (%)	Hardness (HB)	R.A.(*1) (%)	Impact Test Temp: -46°C Minimum: 20.0 Joule			Material Supplier	HEAT TREATMENT(*2)	
							1	2	3		<input checked="" type="checkbox"/> N	REMARKS
11	4757313	529.0	372.0	33.0	154/151	69.5	98.0	109.0	77.0	ACOMINAS	<input checked="" type="checkbox"/>	890°CX4HRS
12	4757313	529.0	372.0	33.0	154/151	69.5	98.0	109.0	77.0	ACOMINAS	<input checked="" type="checkbox"/>	CONFORMS WITH NACE MR0103-12 AND NACE
13	4757313	529.0	372.0	33.0	154/151	69.5	98.0	109.0	77.0	ACOMINAS	<input checked="" type="checkbox"/>	MR0175/ISO15156.2-09 CLAUSE 7.2.1.4 REGION 3
14	4723483	516.0	368.0	37.0	152/150	69.5	124.0	84.0	115.0	ACOMINAS	<input checked="" type="checkbox"/>	AND ANNEX A.
15	4499559	519.8	373.8	34.0	153/150	70.4	49.0	42.0	91.0	ACOMINAS	<input checked="" type="checkbox"/>	CONFORMS WITH Z245.12 CAT II GR248 SOUR

CONFORMS WITH Z245.12 CAT II GR248 SOUR SERVICE-09 (FOR USE AS WELDING NECK AND BLIND FLANGES ONLY)  
TEST SPECIMEN SIZE: 10X10  
TEST SPECIMEN ORIENTATION: TRANSVERSE  
IMPACT TEST TEMP.: -46°C  
MN TO C RATIO IS GREATER THAN 3.0\*

\*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, R.A.=Reduction of Area.  
\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.  
\*3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

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



HT# 56E00123

PO# 131605



Purchaser: CE FRANKLIN LTD. A DIVISION OF NOV WILSON CANADA INC.

## INSPECTION CERTIFICATE

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

TO EN10204 3.1/ISO 10474 3.1B

E-No. Purchase Order No. Job No.

MD-212 P/O 3232263-OR-2100

D M Y Certificate No.

16/12/2013 T- 2013200853

No.	Hardness Actual data	MFG. No.	Specification for Material Made from Seamless Pipe	Specification for Inspection	Visual Examination	Dimensional Inspect
			ASTM A234-11/ASME SA234-10 Gr.WPB CSA Z345-11-09 Gr.241 CAT1 SS NACE MR0175/ISO 15156-2 R3-09&MR0103-12	ASME B16.9-2007, B16.25-2007	Good	Good
			Product & Size (T*1)	Quantity	Heat Treatment (Note 1)	Boron(%)
1	HB:123-128	56E20139-1	RC WPB 4 X 3 XS	13/150	N	0.0000
2	HB:125-132	56E20139	RC WPB 4 X 3 XS	137/150	N	0.0000
3	HB:127-130	56E00121	90 EL WPB 2 XS	482/3.000	A	<0.0001
4	HB:128-133	56E00126-2	90 EL WPB 3 XS	48/350	A	0.0002
5	HB:133-145	56E00123	90 EL WPB 3 XS	226/500	A	0.0001

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.																
Max.		10	29										240	415	30	197 HBW : GOOD
Base Material Heat No.	30		106	50	58	40	40	40	15	80	20	42		655		
1	J3L2464	20	17	85	12	7	1	0	4	1	TR	1	35	312	477	41
2	J2LA443	18	17	82	11	5	2	2	4	1	TR	TR	33	305	475	40
3	980430	15	18	77	13	3	16	9	12	5	TR	TR	33	307	480	34
4	29412	16	23	84	13	1	9	3	5	2	2	1	33	287	457	40
5	J2KC037	20	16	80	17	7	1	2	5	1	TR	TR	35	281	479	55

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

The fittings was manufactured, sampled, tested and inspected in accordance with the specification, and was found to meet the requirements.

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

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

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

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

Note for WPB: For each reduction of 0.01% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted, up to a maximum of 1.35%

*[Signature]*  
Rungrapa Kampranon

Quality Assurance Manager  
Thai Benkan Co., Ltd.



H# 56E10129

P0#131724

Purchaser: CE FRANKLIN LTD. A DIVISION OF NOV WILSON CANADA

## INSPECTION CERTIFICATE



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

TO EN10204 3.1

E-No. Purchase Order No. Job No.  
MD-212 P/O 3232263-OR-2100

D M Y Certificate No.  
08/11/2013 T- 2013200788

08/11/2013 T- 2013200788

No.	Hardness Actual data	MFG. No.	Specification for Material Made from Seamless Pipe		Specification for Inspection		Visual Examination	Dimensional Inspection
			ASTM A234-11/ASME SA234-10 Gr.WPB CSA Z45.11-08 Gr.241 CAT1 SS HACE MR0175430 15158-2 F13-08/MR0103-12		ASME B16.9-2007,B16.25-2007		Good	Good
			Product & Size (T:*)	Quantity	Heat Treatment (Note 1)	Boron(%)	Item No.	
1	HB:127-133	56E10124	T WPB 2 STD	200	N	0.0000	7511735	
2	HB:130-145	56E10134	T WPB 6 XS	9/100	N	0.0000	7512171	
3	HB:136-152	56E10125	T WPB 3 STD	400/750	N	0.0000	7511779	
4	HB:139-155	56E10129	T WPB 2 XS	1,200	N	0.0001	7512040	
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.																	
Max.			10	29										240	415	30	197 HB :
Material Heat No.		30		106	50	58	40	40	40	15	80	20	42		655		GOOD
1	J3K4437	19	19	80	12	5	3	2	4	2	TR	TR	34	295	470	57	
2	52158	16	23	82	10	1	8	3	6	2	3	1	33	340	474	41	
3	24132	16	24	83	11	1	11	8	7	3	3	1	34	325	474	35	
4	J2L9087	19	22	78	16	5	1	2	5	1	TR	TR	33	318	475	57	
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 fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

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

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY:

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

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

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

Form 17-6A/4

GOOD

Rungnup Kompranon

Quality Assurance Manager  
Thai Benkan Co., Ltd.



HT# 56K00096

PO# 131605

Purchaser: CE FRANKLIN LTD. A DIVISION OF NOV WILSON CANADA INC.

## INSPECTION CERTIFICATE

TO EN10204 3.1



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

D M Y Certificate No.

23/11/2015 T- 2013200818

E-No. Purchase Order No. Job No.  
A-033 P/O 3284120-OR-2160

No.	MFG. No.	Specification for Material Made from Seamless Pipe		Specification for Inspection		Visual Examination	Dimensional Inspection
		ASTM A234-11/ASME SA234-10 Gr.WPB CSA Z46-11-05 Gr.241 CAT1 SS KACE NR017M/ED 15156-2 R3-09EJF0103-12		ASME B16.9-2007 .316.25-2007		Good	Good
		Product & Size (T*1)	Quantity	Heat Treatment (Note 1)	Hardness Actual Data	Bore(%)	
1	56K00086	45 EL WPB 1 STD 1175208	15	A	HB : 130 - 137	0.000	
2	56K00093	45 EL WPB 10 XS 1171995	5	A	HB : 134 - 138	0.000	
3	56K00098	90 ES WPB 3 XS 1175013	15	A	HB : 119 - 122	0.001	
4	56K00099	90 EL WPB 2 1/2 STD 1175259	50	A	HB : 140 - 145	0.001	
5	56K00100	80 EL WPB 4 STD 1174969	150/1,500	A	HB : 130 - 145	0.000	

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.																	
Max.			10	29										240	415	30	197 HB : GOOD
Material Heat No.		30		106	50	58	40	40	40	15	80	20	42		655		
1	2-89522	19	27	85	13	4	<1	1	2	1	<1	<1	34	398	522	47	
2	02196	16	18	79	12	1	1	2	5	1	TR	TR	33	363	498	38	
3	J3L8364	19	18	65	11	3	1	3	5	1	TR	TR	35	306	481	60	
4	979860	16	20	75	12	1	1	8	1	5	TR	TR	30	324	497	35	
5	J2K8142	19	18	80	7	4	2	2	4	1	TR	TR	34	298	480	40	

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

The above were manufactured, covered tested and inspected in accordance with this specification, and was found to meet the requirements.

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

MAGNETIC PARTICLE EXAMINATION FOR TEE ONLY :

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

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

Note for WPB: For each reduction of 0.10% below the specified carbon maximum, an increase of 0.06% manganese above the specified maximum will be permitted up to a maximum of 1.35% Form T7-6A/14

Signature

Quality Assurance Manager  
Thai Benkan Co., Ltd.

H# 56K01058

PO# 131605

Purchaser: CE FRANKLIN Ltd., A division of NOV Wilson Canada

## INSPECTION CERTIFICATE

TO EN10204 3.1



Thai Benkan Co., Ltd.  
58 Soi Watkrunai, Bangkok, Prapadaeng,  
Samutprakarn, 10130 Thailand.

Purchase Order No.  
4810358-00

Job No.  
P/O 3284120-OR-2100

D M Y Certificate No.  
15/01/2014 T- 2014030220

E-No.		Specification for Material Made from Seamless Pipe								Specification for Inspection				Visual Examination			Dimensional Inspection	
A-033		ASTM A420-13 / ASME SA420-13 Gr.WPL6 CSA Z45.11-08 Gr.280 CAT II IMSC Sour Service								ASME B16.9-2012,B16.25-2012				Good			Good	
MFG. No.		Product & Size (T:*1)										Quantity			Hardness Actual Data			
56K01058		90 EL WPL6 3 XS										300			HB:120-150			
Material Manufacturer						Material Heat No.								Boron : Max 0.0005 (%)				
						J3L8473								0.0001				
Specifi- cation	Chemical Composition % :													*2 Tension Test			Hardness Max 197 HB : GOOD	
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	Al	V	Nb	C.E.	Y S	T S	E	Impact Test (J)	
	X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 1000	X 1000	X 1000	X 100	MPa.		%	10 X 5.0 X 2V AT -45 °C	
Min.		15	50											290	415	30	131	
Max.	23	40	135	35	40	40	40	30	12		80	20	42		585		129	
	10	27	134	15	0.7	1	2	11	1		3	3	28	317	456	66	126	
AVE. 129																		

NORMALIZING @10 C X 0.5 HR. AIR COOLING

The fittings was manufactured, sampled, tested, and inspected in accordance with the specification, and was found to meet the requirements.

The material meet ANSI/NACE MR0175/ISO15156-2 (Region 3) :2009 &amp; MR0103-2012

C.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.

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

Rungnara Kampranon  
Quality Assurance Manager  
Thai Benkan Co., Ltd.



HT# 59177

PO# 131327

## CERTIFIED MILL TEST REPORT



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LOG NO. F00000000049835

Page 1 of 1

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 10/18/2013

CUSTOMER

BONNEY ORDER NO. B000153528

ORDER NO.: S759231666

SHIP TO: MRC CANADA ULC - BRCH 759

502-25 AVENUE

NISKU AB T9E 0K6

Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.		REMARKS:
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:		
37	350	6470	1 3000 A105N HCP T		SA/A105N
18C10945			Al 0.037	C 0.210	Co 0.004
			Cr 0.030	Cu 0.060	Mn 0.990
			Mo 0.004	N 0.007	
			Nb 0.016	Ni 0.020	P 0.005
			S 0.019	Si 0.230	V 0.004
			CE(Long Formula) = 0.39		
			T/S(PSI) 71,651	Y/S(PSI) 49,983	EL(%) 33.50
			RA(%) 65.88		
			Brinell 130 BHN		132 BHN
109	300	59177	31/2-3 X 1 3000 A105N THRD T		SA/A105N
18C13291			Al 0.022	C 0.210	Co 0.005
			Cr 0.030	Cu 0.050	Mn 1.040
			Mo 0.005	N 0.003	
			Nb 0.016	Ni 0.020	P 0.004
			S 0.018	Si 0.200	V 0.003
			CE(Long Formula) = 0.40		
			T/S(PSI) 79,000	Y/S(PSI) 50,000	EL(%) 28.00
			RA(%) 65.00		
			Brinell 163 BHN		165 BHN

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. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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

Meloney Specht

QUALITY PROCESS MANAGER

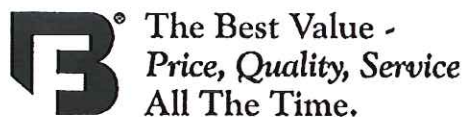
CMTR: REV2



H# 59180

Pot# 131633

## CERTIFIED MILL TEST REPORT



LOG NO. F0000000049197

Page 1 of 1

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 10/03/2013

CUSTOMER

BONNEY ORDER NO. B000151844

ORDER NO.: S759227858

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
80	250	59180	8 -3 X 1/2 3000 A105N THRD T	SA/A105N
18C13243			Al 0.022 C 0.210 Co 0.005 Cr 0.030 Cu 0.050 Mn 1.040 Mo 0.005 N 0.003 Nb 0.016 Ni 0.020 P 0.004 S 0.018 Si 0.200 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 79,000 Y/S(PSI) 50,000 EL(%) 28.00 RA(%) 65.00 Brinell 163 BHN 165 BHN	
		59162	8 -3 X 1/2 3000 A105N THRD T	SA/A105N
18C13243			Al 0.018 C 0.200 Co 0.004 Cr 0.070 Cu 0.130 Mn 0.980 Mo 0.008 N 0.004 Nb 0.012 Ni 0.040 P 0.012 S 0.019 Si 0.190 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 73,000 Y/S(PSI) 49,900 EL(%) 31.00 RA(%) 63.00 Brinell 143 BHN 140 BHN	

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. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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 Meloney Specht  
Meloney Specht  
QUALITY PROCESS MANAGER

CMTR: REV2

# CERTIFIED MILL TEST REPORT



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LOG NO. F0000000053764

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BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 02/05/2014

CUSTOMER

BONNEY ORDER NO. B000160325

ORDER NO.: S759248161

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
53 18C12583	100	6592	2 X 1 3M/6M A105N HXBU T	SA/A105N Al 0.027 C 0.200 Co 0.004 Cr 0.040 Cu 0.070 Mn 1.020 Mo 0.005 N 0.004 Nb 0.013 Ni 0.020 P 0.009 S 0.019 Si 0.210 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 76,230 Y/S(Psi) 52,852 EL(%) 34.45 RA(%) 65.00 Brinell 147 BHN 144 BHN
61 18C12907	30	58839	1 6000 A105N TEE T	SA/A105N Al 0.024 C 0.201 Co 0.003 Cr 0.030 Cu 0.090 Mn 1.050 Mo 0.007 N 0.003 Nb 0.014 Ni 0.030 P 0.009 S 0.021 Si 0.210 V 0.004 CE(Long Formula) = 0.39 T/S(Psi) 74,312 Y/S(Psi) 49,214 EL(%) 36.35 RA(%) 61.19 Brinell 135 BHN 132 BHN
62 18C12979	10	6037	2 6M A105N UNAR T	SA/A105N Al 0.025 C 0.160 Cb 0.001 Co 0.006 Cr 0.120 Cu 0.190 Mn 1.030 Mo 0.030 N 0.010 Ni 0.080 P 0.010 S 0.019 Si 0.220 V 0.021 CE(Long Formula) = 0.38 T/S(Psi) 72,429 Y/S(Psi) 49,950 EL(%) 34.60 RA(%) 64.24 Brinell 132 BHN 132 BHN
18C12979		6176	2 6M A105N UNAR T	SA/A105N Al 0.028 C 0.150 Cb 0.001 Co 0.006 Cr 0.100 Cu 0.180 Mn 1.000 Mo 0.040 N 0.009 Ni 0.100 P 0.010 S 0.023 Si 0.230 V 0.023 CE(Long Formula) = 0.37 T/S(Psi) 70,721 Y/S(Psi) 46,749 EL(%) 36.40 RA(%) 65.88 Brinell 130 BHN 132 BHN

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 *Billie Jo Clemens*

Billie Jo Clemens  
QUALITY PROCESS MANAGER

CMTR: REV2

Ht# 6429

Po# 131852

## CERTIFIED MILL TEST REPORT



The Best Value -  
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LOG NO. F00000000048453

Page 1 of 2

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 09/13/2013

CUSTOMER

BONNEY ORDER NO. B000151283

ORDER NO.: S759226900

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.		REMARKS:
			CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:		
3	9	59172	1/4 2M A105N 90EL T	SA/A105N	
18C10111			Al 0.022 C 0.210 Co 0.005 Cr 0.030 Cu 0.050 Mn 1.040 Mo 0.005 N 0.003 Nb 0.016 Ni 0.020 P 0.004 S 0.018 Si 0.200 V 0.003 CE(Long Formula) = 0.40 T/S(PSI) 79,000 Y/S(PSI) 50,000 EL(%) 28.00 RA(%) 65.00 Brinell 163 BHN 165 BHN		
52	26	6429	1 X 1/2 3M/6M A105N HXBU T	SA/A105N	
18C12313			Al 0.024 C 0.190 Co 0.010 Cr 0.060 Cu 0.100 Mn 0.950 Mo 0.020 N 0.008 Nb 0.001 Ni 0.050 P 0.008 S 0.014 Si 0.280 V 0.002 CE(Long Formula) = 0.37 T/S(PSI) 70,500 Y/S(PSI) 42,400 EL(%) 32.00 RA(%) 54.00 Brinell 137 BHN 137 BHN		
66	25	59111	10-3X1 S160 A105N WELD B	SA/A105N	
18C13039			Al 0.025 C 0.200 Co 0.002 Cr 0.040 Cu 0.040 Mn 1.080 Mo 0.004 N 0.003 Nb 0.014 Ni 0.020 P 0.006 S 0.022 Si 0.190 V 0.003 CE(Long Formula) = 0.39 T/S(PSI) 72,748 Y/S(PSI) 48,141 EL(%) 32.85 RA(%) 59.44 Brinell 132 BHN 132 BHN		

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

Lavonne Brown

QUALITY PROCESS MANAGER

CMTR: REV2



## CERTIFIED MILL TEST REPORT



The Best Value -  
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LOG NO. F0000000048453

Page 2 of 2

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0330

(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: MRC CANADA ULC

DATE 09/13/2013

CUSTOMER

BONNEY ORDER NO. B000151283

ORDER NO.: S759226900

SHIP TO: MRC CANADA ULC - BRCH 759  
502-25 AVENUE  
NISKU AB T9E 0K6  
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
------	----------	---------	--

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. THE MATERIAL SUPPLIED AS A105N MEETS THE REQUIREMENTS OF BOTH NACE MRO103-2010 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-10 / ASME SA105-10 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. THE UNIT OF MEASURE FOR TENSILE AND YIELD (0.2%) STRENGTH ARE REPORTED IN PSI.
7. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

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

Lavonne Brown  
QUALITY PROCESS MANAGER

CMTR: REV2

H# 95738

PO# 131605



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

## MILL TEST CERTIFICATE

EN10204-3.1.B(DIN50049/3.1.B)

Customer: SEYBOLD INTERNATIONAL CORP.

Order No.: 7007687(3)-CEE/NOV

Certificate No.: SE7687C1

Date: 12/02/2013

Page: 5 OF 5

PRODUCT

FORGED CARBON STEEL FLANGES

MATERIAL SPECIFICATIONS

ASTM A105-13/ASME SA-105-13

DIMENSIONAL SPECIFICATIONS

ASME B16.5-13  
CSA Z245.12

Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)																		CE(*)		
				C	SI	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb	N									
41	1074301	600 WNRF XS 4" A105N	433 PCE	Min	0.350	0.100	0.600																	
42	1074301	600 WNRF XS 4" A105N		Max	0.350	0.350	1.050	0.035	0.040	0.400	0.300	0.400	0.120	0.080	0.020	0.001	0.007							
43	1454186	600 WNRF S80 12" A105N	217 PCE		0.200	0.210	1.020	0.013	0.005	0.110	0.090	0.060	0.010	0.003	0.001	0.007								0.402
44	1068728	600 WNRF XS 2" A105N	10 PCE		0.190	0.200	1.020	0.012	0.005	0.120	0.090	0.050	0.010	0.003	0.001	0.008								0.392
45	1075223	600 WNRF XS 3" A105N	900 PCE		0.200	0.230	1.120	0.012	0.002	0.080	0.120	0.120	0.020	0.004	0.001	0.006								0.429
46	1069131	600 WNRF S160 2" A105N	100 PCE		0.210	0.220	1.150	0.021	0.005	0.007	0.020	0.010	0.002	0.006	0.001	0.007								0.408
47	1074298	600 WNRF S160 4" A105N	400 PCE		0.190	0.210	1.070	0.017	0.004	0.210	0.080	0.060	0.014	0.001	0.002	0.007								0.405
48	1074757	1500 WNRTJ XS 3" A105N	15 PCE		0.210	0.220	1.160	0.021	0.005	0.007	0.020	0.010	0.002	0.006	0.001	0.007								0.408
49	1074677	1500 WNRTJ S160 3" A105N	150 PCE		0.190	0.180	1.070	0.016	0.004	0.007	0.010	0.010	0.003	0.006	0.001	0.007								0.408
50	1074802	1500 WNRTJ S160 4" A105N	175 PCE		0.230	0.190	1.120	0.018	0.007	0.006	0.020	0.010	0.002	0.004	0.001	0.007								0.402
			30 PCE		0.220	0.200	1.150	0.024	0.009	0.007	0.020	0.010	0.003	0.004	0.001	0.007								0.423
																								0.418

Item No.	Heat No.	T.S.(*) (MPA)	Y.S.(*) (MPA)	E.L.(*) (%)	Hardness (HRC)	RA(*) (%)	Impact Test Temp: Minimum: Joule			Material Supplier	HEAT TREATMENT(*)	
		Min	Max	485.0	250.0	22.0	1	2	3		N	REMARKS
41	C10753	520.0	376.0	36.8	153/151	70.4				SEAH BESTEEL		880°C X4HRS CONFORMS WITH NACE MR0103-12 AND NACE MR0176/ISO15156 2-09 CLAUSE 7.2.1.4 REGION 3 AND ANNEX A. CONFORMS WITH Z245.12 CAT I GR248 SOUR SERVICE-09(FOR USE AS WELDING NECK AND BLIND FLANGES ONLY) MN TO C RATIO IS GREATER THAN 3.0"
42	C10754	512.0	364.0	34.0	152/150	69.5				SEAH BESTEEL		
43	652897	531.0	374.0	34.8	154/152	71.3				GODO STEEL		
44	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS		
45	95738	525.0	376.0	35.0	153/150	71.3				WEI CHIH STEEL		
46	4723460	522.0	358.0	34.2	153/151	69.5				ACOMINAS		
47	4677171	518.0	350.0	35.8	153/151	70.4				ACOMINAS		
48	94409	520.0	372.0	36.4	153/150	70.4				WEI CHIH STEEL		
49	4573180	527.0	366.0	35.6	154/151	72.1				ACOMINAS		
50	4510882	535.4	389.3	33.8	153/151	70.4				ACOMINAS		

\*1: T.S. = Tensile Strength, Y.S.=Yield Strength, E.L.=Elongation, RA=Reduction of Area.

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T=Solution Treated, S.R=Stress Relieved, A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value = C + (Mn /6) + (Cr + Mo +V) / 5 + (Ni + Cu) / 15

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

Manager of Quality Assurance Dept

SEAH STEEL ROLLING CO., LTD.

Q.A. DEPT.

\*1: T.S. = Tensile Strength, Y.S. = Yield Strength, E.L. = Elongation, RA = Reduction of Area.

\*2: N=Normalized, A=Annealed, Q=Quenched, T=Tempered, S.T.=Solution Treated, S.R.=Stress Relieved,  
A.C=Air Cooled, F.C=Furnace Cooled, W.C=Water Cooled, O.C=Oil Cooled.

\*3: C.E. Value =  $C + (Mn/8) + (Cr + Mo + V)/5 + (Ni + Cu)/15$

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



Manager of Quality Assurance Dept

# 1" 3M CROSS A105 HT-NNRU 59A339I



CLIENTE  
Customer  
Client

W.F.F. FITTINGS & FLANGES  
(CANADA) LTD.  
7004K-5TH. STREET S.E.  
CALGARY, ALBERTA T2H 2G3

CERTIFICATO N. 550355 FOGLIO 7  
Certificate N. 550355 Page 7

DATA Date 04/06/08

CERTIFICATO DI COLLAUDO  
TEST CERTIFICATE  
CERTIFICAT DE CONTROLE

COMPANY  
WITH QUALITY SYSTEM  
CERTIFIED BY DNV  
ISO 9001

ORDINE  
Purchase order  
Commande E04861KD/MID

CONMESSA  
Job N. 81832  
Contract number of purchase

PROVA Test	MATERIALE Material	COLATA Cast	C	S	M	S	P	G	N	M	F	C	V	A1%	CE%
NSRX	A350/04a LF2 CL.1	15747	0.217	0.230	0.950	0.002	0.014	00.11	00.15	0.020	0.004	0.110	0.004	0.019	0.419
			--->	Nb%	0.001	B %	0.0002								CEs=0.3753
CRBN	ASTM A105/01	129809	0.172	0.216	1.070	0.005	0.008	00.09	00.16	0.025	0.000	0.274	0.001	0.035	0.402
			--->	Nb%	0.001										CEs=0.3503
LCRN	ASTM A105/02	04/71023	0.190	0.230	0.900	0.005	0.009	00.07	00.05	0.010	0.015	0.180	0.017	0.022	0.374
			--->	Nb%	0.000										CEs=0.340
NNRU	ASTM A105/05	03/71569	0.195	0.230	0.910	0.009	0.013	00.10	00.06	0.010	0.000	0.190	0.000	0.022	0.385
			--->	Nb%	0.000										CEs=0.346
RLRR	ASTM A105/05	0744077/07	0.185	0.235	1.050	0.005	0.020	00.12	00.01	0.007	0.000	0.023	0.002	0.028	0.388
			--->	Nb%	0.0023	B %	0.0001								CEs=0.360
NWWB	ASTM A105/05	1T-27093	0.190	0.220	0.890	0.010	0.009	00.06	00.11	0.010	0.002	0.250	0.001	0.034	0.376
			--->	Nb%	0.003	N %	0.000	Sn%	0.010						CEs=0.338

PROVA Test	PROVETTA Specimen	SNERVAMENTO Yield strength	ROTTURA Tensile strength	ALLUNGAMENTO Elongation	CONTRAZIONE Reduction of area	DUREZZA Hardness	PIEGA Bend test	SCHACC Hardness	UNITA MIS Unit system	TIPO Type	RESILLENZA Impact test	VALORE Value
NSRX	1 30.6 25.0	418.0	589.0	26.1	58.1	179-187			J	KV	-50	52-62-58
CRBN	1 30.6 25.0	314.0	522.0	32.4	68.4	159-163						
LCRN	1 30.2 25.0	321.0	492.0	32.8	64.0	143-149			J	KV	0	72-58-60
NNRU	1 60.1 35.0	298.0	525.0	31.1	68.9	143-149			J	KV	0	48-58-60
RLRR	1 30.6 25.0	301.0	518.0	31.0	68.0	143-149			J	KV	0	50-52-54
NWWB	1 122.5 50.0	370.6	530.0	29.2	66.8	148-152			J	KV	0	150-160-180

PROVA  
Test

NOTE Remarks Notes

EN10204/3.1

FORMA  
Shape Forme 1 = o 2 =

NSRX	ELECTRIC FURNACE-QUENCHED AT 930 C TEMPERED AT 640 C	/CERT.10257.04 METALM.LOMB.*535585 MEGA*
CRBN	ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.	/CERT.99.02 EVASI*209816 MEGA
LCRN	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR.	/CERT.26.05 EVASI*247634 MEGA*
NNRU	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR.	/CERT.84.06 EVASI*534576 MEGA*
RLRR	ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.	/CERT.9629.MEGA/I*546059MEGA*
NWWB	ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR.	/CERT.AS10808.06 LEALI*537210 MEGA*

PROVA Test	POS. Pos.	QUANTITA' Quantity	CODICE CLIENTE Customer Code	DESCRIZIONE Description	VISUAL AND DIMENSIONAL
NSRX	115	45	E04861KD/MID	UNION S. 3000 NPT LF2 CL1 3/4	nut OK
CRBN	123	50	E04861KD/MID	CROSS S. 3000 NPT A/SA105N 1/4	OK
LCRN	124	80	E04861KD/MID	CROSS S. 3000 NPT A/SA105N 1/2	OK
NNRU	125	65	E04861KD/MID	CROSS S. 3000 NPT A/SA105N 1	OK
RLRR	139	215	E04861KD/MID	90 DEG. ELBOW S. 3000 SW A/SA105N 1	OK
NWWB	140	420	E04861KD/MID	COUPLING S. 6000 NPT A/SA105N 1/4	OK

NOTE Remarks Notes

ENTE UFFICIALE DI COLLAUDO  
Inspection Authority  
Service Inspection Office

CAPO COLLAUDO  
Chief Inspector  
Responsible Inspector

MATERIAL ACCORDING TO NACE MR0175/ 2003.



H# W20209 ZZ

PO# 131604

## WESTBROOK

## MATERIAL TEST REPORT

Sold To: MRC CANADA ULC.  
Order No.: 585138 Order Date: 11/11/2013

Purchase Order: S759237764

Printed: 11/27/2013

Line: Description:  
11 2 X 1 1/2 S160 A234WPB SP95 BLK CONC SWG  
TBE

\*\*\*\*\* Specifications - Heat Code W20983 CI: \*\*\*\*\*  
A106-10 GR.B, SA106 GR.B, A234-11 WPB, SA234 WPB, A530,  
A733, ASME B36.10, B1.20.1, MSS SP-25, SP-95  
STARTING MATERIAL: A106B PIPE & TUBE  
A234-11 WPBN, SA234 WPBN

## Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.170	0.760	0.007	0.006	0.200	0.097	0.087	0.040
Cu:	V:	Al:	Cb:	Ti:	B:	C.E.:	
0.236	0.002	0.002	0.001	0.001	<.001	.345	

## Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	Hardness:	Bend:	Hydro(PSI):
74325	44301	38.00	HRB 80	OK	3000

## Comments:

Normalized @ 920C - 9 min.  
Hot finished.  
MEETS NACE MR-01-75/2009, MR-01-03/2010 & ISO 15156/2009.

Line: Description:  
12 2 X 1 S80 X S160 A234WPBN SP95 CONC SWG  
BXT

\*\*\*\*\* Specifications - Heat Code W20209 ZZ: \*\*\*\*\*  
A105/A105M-09, SA105, A234-07 WPB, SA234 WPB, ASME B16.5,  
B16.9, B16.11, B16.36, MSS SP-25, SP-44, SP-79, SP-83,  
SP-95, API-605, A.W.W.A.  
STARTING MATERIAL: BAR/BILLET/FORGING  
A234-07 WPBN, SA234 WPBN

## Chemical Composition:

C:	Mn:	P:	S:	Si:	Cr:	Ni:	Mo:
0.170	0.830	0.027	0.027	0.210	0.020	0.010	0.000
Cu:	V:	Al:	Cb:	Sn:	Ti:	C.E.:	
0.000	0.004	0.031	0.001	0.009	0.002	.313	

## Mechanical Properties:

Tensile(PSI):	Yield(PSI):	Elong(%):	RA(%):	Hardness:
70400	43700	38.50	69.50	BHN 124

## Comments:

Normalized.  
Meets Nace MR-01-75/2009, MR-01-03/2010 & ISO 15156/2009.

KEDDCO MFG. LTD.  
PO Box 999  
645 KeddcO St.  
Samia, Ontario N7T 7K6  
Tel: (519) 336-2960  
Fax: (519) 344-3181  
Toll Free: 1-866-511-1381



KEDDCO MFG. LTD.  
4120 - 78 Av.  
Edmonton, AB T6B 3M8  
Tel: (780) 438-4944  
Fax: (780) 435-3917  
Toll Free: 1-800-661-3809

## Material Test Report

<b>Report Number:</b>	14158	<b>Date:</b>	3-Nov-05
<b>Description:</b>	1" SWAGES & BULL PLUGS	<b>Heat Treatment:</b>	H.R.
<b>Specification:</b>	A234-WPB/SA234-WPB	<b>Material:</b>	C1018
		<b>CRN:</b>	OA7470.5C

### Chemical Analysis

**Heat Code:**

**K1045**

**Heat Number:**

350887

<b>C</b>	0.180	<b>Cu</b>	0.230	<b>Al</b>	0.008
<b>Mn</b>	0.750	<b>Ni</b>	0.080	<b>Sn</b>	0.012
<b>P</b>	0.012	<b>Cr</b>	0.100		
<b>S</b>	0.035	<b>Mo</b>	0.019	<b>Ti</b>	0.004
<b>Si</b>	0.220	<b>V</b>	0.004		
<b>N</b>	0.004	<b>Nb</b>	0.010		

### Mechanical Tests

<b>Yield PSI:</b>	39700	<b>Tensile PSI:</b>	66000
<b>Elongation @ 2" %</b>	33	<b>Reduction of Area %</b>	6
<b>Size:</b>	1.315" RND	<b>Brinell Hardness:</b>	131
		<b>CE=</b>	0.350

### Charpy Impact Test

**Individual Values (ft/lbs.)**

(1) (2) (3) @ N/A

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



This Material Test Report  
meets DIN50049/en10204  
3.1B Standard 1991

Ian Shields  
Quality Assurance Manager

KEDDCO MFG LTD

SWAGE K 1045

**1/2 X 1/4 XH SWG TBE A234 WPB**

Current Date: Sat, 18 Dec 2010 22:54:24 +0000

**Material Test Report**

Report Number: 20412

Date: Mon, Mar 22nd 2010

Description: **1/2" SWAGES & BULL PLUGS**

Heat Treatment: H.R.

Specification: A234-WPB/SA234-WPB

Material: C1018

Year of Revision: \_\_\_\_\_

CRN: OA7470.5C

Comment:

Additional NACE MR0103-07

Comment: MR0175/ISO 15156-2-03

*1/2 x 1/4 S.80 Swage nipple  
# K1845***Chemical Analysis**Heat Code: **K1845**

Heat Number: 200180

C	0.230	Cu	0.100	Al	0.028
Mn	0.950	Ni	0.060	Ti	0.021
P	0.003	Cr	0.070	Sn	0.003
S	0.014	Mo	0.011	B	0.002
Si	0.287	V	0.002	Pb	0.003
N	0.000	Cb/Nb	0.004		0.000

Carbon Equivalency Formula Used:  
 $C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$   
 CE= 0.42

**Mechanical Tests**

Yield PSI: 78500

Tensile PSI: 86000

Elongation: 24 % @ 2"

Reduction of 60  
Area %

Size: .840" RND

Brinell Hardness: 174

**Charpy Impact Test**Individual  
Values:

(V1) ft/lbs (V2) ft/lbs (V3) ft/lbs

This Material Test Report meets DIN 50 048/EN 10  
 204 3.1.2 Standard 1995

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

Ian Shields  
 Q.A. Manager and Customer Service

**Sarnia**

Toll Free: 1-866-  
 511-1381  
 By regular  
 telephone at:  
 519-336-2960  
 By fax at 519-344-  
 3181


Mailing Address:  
 PO Box 999,  
 645 Kedco St.  
 Sarnia, ON  
 N7T 7K6

**Edmonton**

Toll Free: 1-800-  
 661-3809  
 By regular  
 telephone at:  
 780-438-4944  
 By fax at 780-435-  
 3917

Mailing Address:  
 4120 - 78 Av.  
 Edmonton, AB  
 T6B 3M8




 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarà Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.lml@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY</b> <b>SYSTEM ISO 9001: 2008 CERTIFIED</b> <b>BY RINA</b> <b>CERT. N° 23/91/S</b>								
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		<b>Nr 103662 Dated 25.11.2011</b>								
<b>FORGED FLANGES &amp; FITTINGS LTD</b> <b>CASTLE HOUSE, STATION RD</b> <b>NEW BARNET-EN5 1PE - UNITED KINGDOM</b>		<b>Purchase Order Nr 3760</b> <b>Item Nr 003</b> <b>Packing List Nr 684</b> <b>Invoice Nr 414</b>								
<b>Heat Code</b> MZ1	<b>Heat Nr</b> 10/74122	<b>Quantity</b>	<b>Description</b> CONC.SWAGE TBE NPT S-80 1"x1/2" MSS SP 95 WPB							
<b>Element</b> ASTM A234 WPB (LADLE)	<b>C</b> 0.195	<b>Si</b> 0.240	<b>Mn</b> 1.090	<b>S</b> 0.006	<b>P</b> 0.013	<b>Cr</b> 0.120	<b>Ni</b> 0.050	<b>Mo</b> 0.010	<b>Ti</b> 0.023	<b>Cu</b> 0.180
<b>Element</b> ASTM A234 WPB (LADLE)	<b>V</b> 0.003	<b>Nb</b> 0.002	<b>N</b> 0.0031	<b>AL</b> 0.031				<b>C.E.</b> 0.409	<b>PRE</b> --	
<b>Test specimen</b> Sect. mm2 Length mm	<b>Shape</b> 1=O 2=□	<b>Tensile</b> N/mm2	<b>Yield Point &gt;0.2%</b> N/mm2	<b>Yield Point &gt;1%</b> N/mm2	<b>Elongation</b> %	<b>Reduction of area</b> %				
496,75 500		528,0	344,0	--	32,0	--				
<b>HARDNESS</b> <b>HBV</b>		<b>TYPE</b>	<b>Test specimen</b>	<b>°C</b>	<b>1-Joule/cm2</b>	<b>2-Joule/cm2</b>	<b>3-Joule/cm2</b>			
161,0 - 155,0			10x5mm	-10	50	51	55			
<b>Heat treatment</b>		Normalized at 880°C / Air cooled				ELECTRIC FURNACE				
<b>Dimension in accordance</b>		MSS SP95 Ed 2006 - ANSI/ASME B1.20.1 Ed 1997 - MSS SP 25 Ed 2008 - NACE MR 01-50 Ed 1998 - EN 10208-1 NACE MR 01-50 Ed 2000 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.C. REQUIREMENTS								
<b>Material in accordance</b>		ASME SA-234A2 3M-10 Gr. WPB								
<b>Visual &amp; Dimensional</b>		SATISFACTORY		<b>Origin</b>	EUROPE		<b>Our Ref</b>	N10374		
<b>Notes</b>										

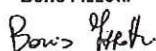

1x1/2 Swage  
MZ1

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti 	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
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1" 3000# THD Tee  
#T7M

 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.ima@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY SYSTEM ISO 9001: 2008 CERTIFIED BY RINA</b> CERT. N°23/91/S								
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		Nr 23817	Dated 20.02.2013							
<b>TRANS AM PIPING PRODUCTS LTD.</b> 9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1		Purchase Order Nr Item Nr Packing List Nr Invoice Nr	Cl-13 - 189 C/O-1 028 231 206							
<b>Heat Code</b> T7M	<b>Heat Nr</b> 12/72689	<b>Quantity</b> 2.500,00	<b>Description</b> FITTING TEE THRD NPT 3M 1" A105N							
<b>Element</b> ASTM A105 (LADLE)	<b>C</b> 0,185	<b>SI</b> 0,190	<b>Mn</b> 0,940	<b>S</b> 0,010	<b>P</b> 0,014	<b>Cr</b> 0,140	<b>Ni</b> 0,060	<b>Mo</b> 0,020	<b>Ti</b> 0,022	<b>Cu</b> 0,190
<b>Element</b> ASTM A105 (LADLE)	<b>V</b> 0,003	<b>Nb</b> 0,003	<b>N</b> -	<b>AL</b> 0,028				<b>C.E.</b> 0,391	<b>PRE</b> -	
<b>Test specimen</b> Sect. mm2    Length mm	<b>Shape</b> 1=O - 2=□	<b>Tensile</b> N/mm2	<b>Yield Strength &gt; 0,2%</b> N/mm2	<b>Yield Strength &gt; 1%</b> N/mm2	<b>Elongation</b> %	<b>Reduction of area</b> %				
122,65    50,00	1	509,0	322,0	-	33,5	58,0				
<b>HARDNESS</b> HBW		<b>TYPE</b> KV	<b>Test specimen</b> 10x10mm	<b>°C</b> -10	<b>1-Joule</b> 66	<b>2-Joule</b> 65	<b>3-Joule</b> 65			
<b>Heat treatment</b>		Normalized at 880±920°C / Air Cool					ELECTRIC FURNACE			
<b>Dimension in accordance</b>		ASME B16.11 Ed.2011 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2012 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS								
<b>Material in accordance</b>		ASME SA ASTM A105-11a								
<b>Visual &amp; Dimensional</b>	SATISFACTORY	<b>Origin</b>	EUROPEAN UNION		<b>Our Ref.</b>	2013-2E201-0000185-0028				

Notes ---

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti 	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
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HT. # T8C

 <b>I.M.L. - INDUSTRIA MECCANICA LIGURE S.P.A.</b> Via Giancarlo Farina, 25 - 16030 Casarza Ligure - GE - ITALY Tel. +39 0185 467661 - Fax +39 0185 466510 - E-mail quality.lml@farinagroup.com <b>MATERIAL TEST DEPARTMENT</b>		<b>COMPANY WITH QUALITY</b> <b>SYSTEM ISO 9001: 2008 CERTIFIED</b> <b>BY RINA</b> <b>CERT. N°23/91/S</b>																							
<b>INSPECTION CERTIFICATE EN 10204:2004 / 3.1</b>		Nr 23307	Dated 05.09.2012																						
<b>TRANS AM PIPING PRODUCTS LTD.</b>  9335 Endeavor Drive S.E. Calgary, Alberta T3S 0A1		Purchase Order Nr CI-12-494 C/O 1 Item Nr 021 Packing List Nr 960 Invoice Nr 872	CA																						
<b>Heat Code</b> T8C	<b>Heat Nr</b> 12/30841	<b>Quantity</b> 1125,00	<b>Description</b> FITTING TEE THRD NPT 3M 1/2" A105N																						
<table border="1"> <thead> <tr> <th>Element</th> <th>C</th> <th>Si</th> <th>Mn</th> <th>S</th> <th>P</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> <th>Ti</th> <th>Cu</th> </tr> </thead> <tbody> <tr> <td>ASTM A105 (LADLE)</td> <td>0,195</td> <td>0,240</td> <td>0,930</td> <td>0,006</td> <td>0,007</td> <td>0,070</td> <td>0,050</td> <td>0,010</td> <td>0,015</td> <td>0,110</td> </tr> </tbody> </table>				Element	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu	ASTM A105 (LADLE)	0,195	0,240	0,930	0,006	0,007	0,070	0,050	0,010	0,015	0,110
Element	C	Si	Mn	S	P	Cr	Ni	Mo	Ti	Cu															
ASTM A105 (LADLE)	0,195	0,240	0,930	0,006	0,007	0,070	0,050	0,010	0,015	0,110															
<table border="1"> <thead> <tr> <th>Element</th> <th>V</th> <th>Nb</th> <th>N</th> <th>AL</th> <th></th> <th></th> <th></th> <th></th> <th>C.E.</th> <th>PRE</th> </tr> </thead> <tbody> <tr> <td>ASTM A105 (LADLE)</td> <td>0,005</td> <td>0,001</td> <td>-</td> <td>0,025</td> <td></td> <td></td> <td></td> <td></td> <td>0,378</td> <td>-</td> </tr> </tbody> </table>				Element	V	Nb	N	AL					C.E.	PRE	ASTM A105 (LADLE)	0,005	0,001	-	0,025					0,378	-
Element	V	Nb	N	AL					C.E.	PRE															
ASTM A105 (LADLE)	0,005	0,001	-	0,025					0,378	-															
<table border="1"> <thead> <tr> <th>Test specimen</th> <th>Shape</th> <th>Tensile</th> <th>Yeld Point &gt;0,2%</th> <th>Yeld Point &gt;1%</th> <th>Elongation</th> <th>Reduction of area</th> </tr> <tr> <th>Sect. mm2</th> <th>Longht mm</th> <th>1=O - 2=□</th> <th>N/mm2</th> <th>N/mm2</th> <th>%</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>122,65</td> <td>50,00</td> <td>1</td> <td>514,0</td> <td>350,0</td> <td>34,0</td> <td>57,6</td> </tr> </tbody> </table>				Test specimen	Shape	Tensile	Yeld Point >0,2%	Yeld Point >1%	Elongation	Reduction of area	Sect. mm2	Longht mm	1=O - 2=□	N/mm2	N/mm2	%	%	122,65	50,00	1	514,0	350,0	34,0	57,6	
Test specimen	Shape	Tensile	Yeld Point >0,2%	Yeld Point >1%	Elongation	Reduction of area																			
Sect. mm2	Longht mm	1=O - 2=□	N/mm2	N/mm2	%	%																			
122,65	50,00	1	514,0	350,0	34,0	57,6																			
<table border="1"> <thead> <tr> <th colspan="2">HARDNESS</th> <th colspan="4">IMPACT TEST</th> </tr> <tr> <th>HBW</th> <th>TYPE</th> <th>Test specimen</th> <th>°C</th> <th>1-Joule</th> <th>2-Joule</th> <th>3-Joule</th> </tr> </thead> <tbody> <tr> <td>160,0 - 166,0</td> <td>KV</td> <td>10x10mm</td> <td>-10</td> <td>65</td> <td>63</td> <td>63</td> </tr> </tbody> </table>				HARDNESS		IMPACT TEST				HBW	TYPE	Test specimen	°C	1-Joule	2-Joule	3-Joule	160,0 - 166,0	KV	10x10mm	-10	65	63	63		
HARDNESS		IMPACT TEST																							
HBW	TYPE	Test specimen	°C	1-Joule	2-Joule	3-Joule																			
160,0 - 166,0	KV	10x10mm	-10	65	63	63																			
<b>Heat treatment</b>		Normalized at 880°-920°C / Air Cool		ELECTRIC FURNACE																					
<b>Dimension in accordance</b>		ASME B16.11 Ed.2011 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009- NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS																							
<b>Material in accordance</b>		ASME SA ASTM A105-11																							
<b>Visual &amp; Dimensional</b>	SATISFACTORY	<b>Origin</b>	EUROPE	<b>Our Ref.</b> 2012-2E201-0000860-0021																					

Notes ---

<b>QUALITY CONTROL DEPT.</b> Boris Fizzotti 	<b>INSPECTION AUTHORITY</b>	<b>MANUFACTURER'S SYMBOL</b> IML or 
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COMPANY WITH QUALITY SYSTEM ISO 9001-2008  
CERTIFIED BY RINA

# INSPECTION CERTIFICATE EN 10204:2004 / 3.1

TRANS AM PIPING PRODUCTS LTD.

9335 Endeavor Drive S.E.  
Calgary, Alberta T3S 0A1

CA

Certif. N. 22235  
Invoice Nr  
Del. Note Nr 1025

Dated 30.08.2011  
Dated  
Dated 30.08.2011

16030 CASARZA LIGURE- Genova - Italy - Via Giancarlo Farina 25 - Tel.0185.467661 - Fax 0185.466510 - Email quality.iml@farmas.com / MATERIAL TEST DEPARTMENT

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HEAT CODE	ITEM	YOUR PO	DESCRIPTION													VISUAL DIMENS.		
9T9	71871	031	812	FITTING CROSS THRD NPT 3M 3/8" A105N													SATISFACTORY	
MATERIAL				SA	SW	MPa	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
ASTM A105 (LADLE)				0,190	0,260	0,950	0,020	0,014	0,100	0,050	0,010	0,020	0,170	0,020	0,000	0,000	0,028	0,389
TEST SPECIMEN		SHAPE	YIELD POINT	TENSILE STRENGTH		ELONGATION		REDUCTION OF AREA		HARDNESS		TEMPERATURE		TEMPERATURE		TEMPERATURE		
REF. 122,65		50,00	1	318,0		527,0		34,0		56,0		160,0 - 164,0		KV		-10	75 74 77	
MATERIAL IN ACCORDANCE TO													ELECTRIC FURNACE		ORIGIN			
ASME SA ASTM A105-10													Normalized at 880°-920°C / Air Cool		EUROPE			
DIMENSIONS IN ACCORDANCE TO																		
ASME B16.11 Ed.2009 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS																		

HEAT CODE: U37																	ITEM: AD1214		YOUR P.O.: 033 812		DESCRIPTION: FITTING UNION F/F THRD NPT 3M 1/2" A105N (NUT)																	VISUAL DIMENS.: SATISFACTORY		
MATERIAL: ASTM A105 (LADLE)																	0,180	0,260	1,000	0,006	0,008	0,110	0,100	0,030	0,000	0,140	0,002	0,000	0,000	0,024	0,391									
TEST SPECIMEN: 122,65 50,00 1																	SHAPE: 355,0		YIELD POINT: 531,0		TENSILE STRENGTH: 30,2		REDUCTION OF AREA: 54,0		HARDNESS: 155,0 - 161,0		TEMPERATURE: KV		TEMPERATURE: -10		TEMPERATURE: 60		TEMPERATURE: 58		TEMPERATURE: 58		TEMPERATURE: 0,0		TEMPERATURE: 112061	
MATERIAL IN ACCORDANCE TO: ASME SA ASTM A105-10																	MATERIAL IN ACCORDANCE TO: Normalized at 880°-920°C / Air Cool																	ELECTRIC FURNACE		EUROPE				
DIMENSIONS IN ACCORDANCE TO: MSS SP83 Ed.2006 - ANSI/ASME B1.20.1 Ed.1992 - MSS SP25 Ed.2008 - NACE MR 0175 ISO 15156 Ed.2009 - NACE MR 0103 Ed. 2010 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS																																								

NOTES	QUALITY CONTROL DEPARTMENT	INSPECTION AUTHORITY	MANUFACTURER'S SYMBOL
	B. FIZZO Boris Fizzo		IML or

1/2" CL 3000 FS SCRD UNION  
A105N

HT.# 637

PO# 128742 Item# 3  
Heat Number: U37  
Trans Am Piping Products Ltd.  
Shipments/Seq #: 11 - 1769

Rev'd By: SB