



Pipe 311 xH 605630

ADD: JINTANG ROAD DONGLI DISTRICT, TIANJIN, CHINA

TIANJIN PIPE (GROUP) CORPORATION

QUALITY CERTIFICATE

TEL: 86-22-24801139 FAX: 86-22-24801291

Licence No.:

No.: 10093032

Contract No.		TPCO-10410E		L/C No.				3" SCH80		Packing		IN BUNDLESS																																	
Order		BHD Tubular Limited		Product		SEAMLESS STEEL LINE PIPE		B/C/290 CAT I SS		Total pieces		422																																	
P.O. NO.		PO# 108660		Port of destl.				HOT ROLLING SEAMLESS		Total metres		41.720																																	
Standard		CSA Z245.1 (2007)		ASTM/ASME AVSA 106 (2008)		Length range		6.10-6.70		Total Tons		41.720																																	
Heat NO.	Lot NO.	Pieces	Meters	Bundles	Tons	Delivery condition	Sample No.	Tensile test(MPa)					Impact test(J)																																
								1* Tem. °C	T.S.	Type	Y.S.	Elong. %	Shrink %	2* Tem. °C	Size	AK1	shear %	AK2	shear %	AK3	shear %	AV1																							
605630	71	350			34.680	As rolled	71-09-0478	24	545	R0.5	390	32																																	
605630	72	72			7.040	As rolled	72-09-0479	24	560	R0.5	405	35																																	
Total								strip, L ₀ =19.00mm Lo=50mm										41.720																											
Heat NO.								Hardness test (inside)					Hardness test (middle)					Hardness test (outside)					NDE		Band test		Fla. test(I)																		
Lot NO.		Sample NO.		HV10																																									
605630	71	71-09-0478		1		2	3	4	AVE	1	2	3	4	AVE	1	2	3	4	AVE																										
605630	72	72-09-0479		170.0		167.0	169.0	168.0	169.0	168.0	167.0	166.0	169.0	168.0	168.0	167.0	170.0	171.0	171.0	ET+UT/Φ2.2+I3																									
Steel speci.		C		Si		Mn		P		S		Ni		Cr		Mo		Cu		Al		V		Nb		Ti		B		Ca		N		H		O		CE(CSA)		CE(IW)		Hydro. (Psi)			
605630		L		0.15		1.080		0.013		0.007		0.07		0.05		0.01		0.08		0.039		0.05		<0.005		<0.01		0.0005										0.34		0.36		3031Ps			
14Mn5V		P		0.16		1.080		0.014		0.007		0.06		0.05		0.01		0.08		0.034		0.05		<0.01		<0.01		0.0005				0.0074						0.35		0.37		3031Ps			
605630		L		0.15		1.080		0.013		0.006		0.06		0.05		0.01		0.08		0.033		0.05		<0.005		<0.01		0.0005				0.0068						0.34		0.36		3031Ps			
14Mn5V		P		0.16		1.080		0.014		0.007		0.06		0.05		0.01		0.08		0.034		0.05		<0.01		<0.01		0.0005				0.0074						0.35		0.37		3031Ps			
		L		0.16		1.080		0.013		0.006		0.06		0.05		0.01		0.08		0.033		0.05		<0.01		<0.01		0.0005				0.0068						0.35		0.37		3031Ps			
NDE (100%)		Visual and dimension		Hydro. Test		Pipe end NDE		Pipe end beveling		Residual Test		SSCC		HIC		We hereby state that all pipes are manufactured and inspected according to above standards and order.																										Seal for certifica			
		G		G		G		G		G		G		G																															
Note																																													
ENT10204-3-1:1. NACE MR 0175 (2003) /0103(2007) /ISO 15156-2A (2009) 2. CE(CSA)=C+Fe*(Mn/6+Si/24+Cu/15+Ni/20+(Cr+Mo+V+Nb)/5+5B) CE(IW)=C+Mn/6+(Cr+Mo+V/5+(Cu+N/15)3. Silicon and calcium treated for inclusion morphology control in Steel Melting.																																													
Remark: destl = destination; tem = temperature; speci = specification; Man = Manufacture; G = Good; mag = magnetic																																													

(FOR EXPORT ONLY)

Date: 2010-10-8

Page (1)

NO. QR-11-8.2.4-19



Signature

2" SCH 160 Pipe See #19

29849

УТ

НИКОПОЛЬСКИЙ ЗАВОД СТАЛЬНЫХ ТРУБ "ЮТИСТ"
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СЕРТИФИКАТ ПРИЕМОЧНЫХ ИСПЫТАНИЙ
 CERTIFICATE OF CHECK TESTS № 2917-5
 В соответствии с / in. acc with EN10204/3.1B

Автомобиль Вид груз. мест пакеты
 Truck Type of cargo places bundles
 Вагон Кол-во грузовых мест
 Wagon Numbers of places 41
 64831555 Страна назначения КАНАДА
 Destination country CANADA
 Грузополучатель Грузополучатель
 Consignee EMCO "Corporation"

ДАТА ВЫДАЧИ
 DATE OF ISSUING 09.09.05

Наименование товара трубы стальные бесшовные
 Description of goods seamless steel pipes

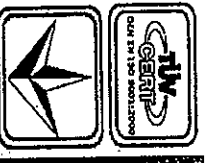
Стандарт
 Standard ASTM A 106-02/ASME SA 106 ASTM A53, ASME A 53, NACE MR-01-75/94

№ п/п (№)	Марка стали Grade of steel	Номер материала № of material	№ плавки Heat №	№ партии Batch №	Способ изготовления Method of manufacture	Размеры / Sizes: в мм / in mm			Номин. размер (дюйм) NPS	Толщ. стенки (дюйм) W. T.	Длина (футов) Length	Вес веса class	Eквивалент Equiv	Количество / Quantity				№ места Bndl #	Лот Lot									
						Диаметр O.D.	Толщ. стенки W. T.	Длина Length						шт. труб pieces	Метров meters	брутто, тн G.W., M.Tons	нетто, тн N.W., M.Tons			футов feet								
1	Gr B	P510488	2765	2419	хот.деф \ cold fin	21.3	3.73	6000-8000	1/2"	0.147"	SRL	80	61	389.85	0.635	0.630	1279.02	1										
2	Gr B	10658	2419	2419	хот.деф \ cold fin	21.3	3.73	6000-8000	1/2"	0.147"	SRL	80	37	282.00	0.460	0.455	925.19	11										
3	Gr B	10658	2419	2419	хот.деф \ cold fin	21.3	3.73	6000-8000	1/2"	0.147"	SRL	80	127	972.53	1.575	1.570	3190.68	12										
ИТОГО \ TOTAL (3 пак \ bundles)													225	1544.38	2.670	2.555	5394.89	14										
4	Gr B	513067	2625	2611	хот.деф \ cold fin	48.3	3.68	6000-8000	1 1/2"	0.145"	SRL	40	37	274.00	1.125	1.120	898.94	13										
5	Gr B	513067	2625	2611	хот.деф \ cold fin	48.3	3.68	6000-8000	1 1/2"	0.145"	SRL	40	37	232.00	0.945	0.940	761.15	13										
ИТОГО \ TOTAL (2 пак \ bundles)													74	506.00	2.070	2.060	1660.09	2										
6	Gr B	5230	3717	4601	хот.деф \ cold fin	26.7	3.91	6000-8000	3/4"	0.154"	SRL	60	127	819.15	1.765	1.760	2667.47	2										
7	Gr B	32358	4601	4601	хот.деф \ cold fin	26.7	3.91	6000-8000	3/4"	0.154"	SRL	60	127	890.00	1.980	1.955	2919.91	3										
ИТОГО \ TOTAL (2 пак \ bundles)													254	1709.15	3.725	3.715	5607.38	30										
8	Gr B	33608	3142	3142	хот.деф \ cold fin	33.4	6.35	6400	1"	0.250"	SRL	160	61	391.8	1.635	1.630	1285.42	9										
ИТОГО \ TOTAL (1 пак \ bundles)													61	391.8	1.635	1.630	1285.42	9										
9	Gr B	512106	4753	2163	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	37	236.00	1.285	1.280	774.27	8										
10	Gr B	512119	2163	3747	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	37	286.00	1.555	1.550	938.31	8										
11	Gr B	45017	3747	3747	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	19	121.00	0.650	0.655	396.98	7										
12	Gr B	45017	3747	3747	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	19	137.00	0.745	0.740	449.47	6										
13	Gr B	45017	3747	2120	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	37	271.00	1.470	1.465	889.10	5										
14	Gr B	28326	2120	4753	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	37	268.75	1.455	1.455	881.72	4										
15	Gr B	512106	4753	4753	хот.деф \ cold fin	48.3	5.08	6000-8000	1 1/2"	0.200"	SRL	80	37	198.00	1.285	1.280	649.60	10										
ИТОГО \ TOTAL (7 пак \ bundles)													223	1517.75	8.450	8.425	4979.45	38										
16	Gr B	29849	3209	3169	хот.деф \ cold fin	60.3	3.91	6400	2"	0.154"	21'	40	37	237.73	1.280	1.275	779.94	38										
17	Gr B	29849	3169	3169	хот.деф \ cold fin	60.3	3.91	6400	2"	0.154"	21'	40	37	237.24	1.245	1.240	778.34	39										
ИТОГО \ TOTAL (2 пак \ bundles)													74	474.97	2.525	2.515	1558.28	41										
18	Gr B	29671	2965	3269	хот.деф \ cold fin	60.3	5.54	6400	2"	0.218"	21'	80	19	121.70	0.865	0.860	399.27	41										
19	Gr B	29849	3269	3269	хот.деф \ cold fin	60.3	5.54	6400	2"	0.218"	21'	80	19	121.98	0.900	0.895	400.19	40										
ИТОГО \ TOTAL (2 пак \ bundles)													38	243.68	1.765	1.755	799.46	40										

FC

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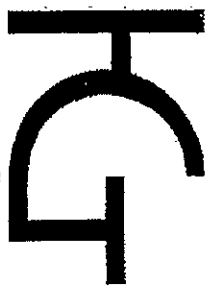
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 CERTIFICATE OF CHECK TESTS № 2917-B
 В соответствии с / in. acc with EN10204/3.1B

1. УЛКОВОЧНАЯ СПЕЦИФИКАЦИЯ \ RACKING LIST

№ п/п	Марка стали	Номер материала	№ плавки	№ партии	Способ изготовления	Размеры / Sizes: в мм / in mm			Номин. диаметр (дюйм)	Толщ. стенки (дюйм)	Длина (футов)	класс веса	Шпекл №	Количество / Quantity				№ места	Лот					
						О.Д.	Толщ. стени	Длина						шт.	Метров	брутто, тн	нетто, тн			футов	№ места	Лот		
20	Gr B	29849	29671	3277	хот.деф \ cold \ fin	60.3	5.54	6000-8000	2"	0.218"	SRL	80	37	237.54	1,730	1,725	779.32	36						
21	Gr B	29849	29671	3267	хот.деф \ cold \ fin	60.3	5.54	6000-8000	2"	0.218"	SRL	80	37	237.54	1,735	1,730	779.32	37						
ИТОГО \ TOTAL (2 пак \ bundles)														74	475.08	3,465	3,455	1558.64						
22	Gr B	33606	2986	2986	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	234.00	1,275	1,270	767.71	19						
23	Gr B	33606	2986	2986	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	19	117.71	0,645	0,640	386.18	25						
24	Gr B	33606	2986	2986	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	19	131.00	0,715	0,710	429.78	24						
25	Gr B	33606	3011	3011	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	264.00	1,440	1,435	866.13	20						
26	Gr B	33606	3011	3011	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	265.00	1,445	1,440	869.41	21						
27	Gr B	33606	3019	3019	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	236.80	1,325	1,320	776.89	29						
28	Gr B	33606	3019	3019	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	19	241.86	1,320	1,315	793.49	28						
29	Gr B	33606	3019	3019	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	19	125.06	0,685	0,680	410.30	27						
30	Gr B	33606	2982	2982	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	235.00	1,280	1,275	770.99	16						
31	Gr B	33606	2982	2982	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	209.67	1,145	1,140	687.89	17						
32	Gr B	33606	2999	2999	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	246.00	1,345	1,340	807.08	35						
33	Gr B	33606	2999	2999	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	241.00	1,315	1,310	790.67	23						
34	Gr B	33606	2999	2999	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	241.00	1,315	1,310	790.67	22						
35	Gr B	33606	2990	2990	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	252.00	1,375	1,370	826.76	26						
36	Gr B	33606	2990	2990	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	37	236.00	1,285	1,280	774.27	18						
37	Gr B	39029	2912	2912	хот.деф \ cold \ fin	60.3	3.91	6000-8000	2"	0.154"	SRL	40	16	144.00	0,800	0,795	472.44	15						
ИТОГО \ TOTAL (16 пак \ bundles)														517	3420.10	18,710	18,630	11220.66						
38	Gr B	29849	3223	3223	хот.деф \ cold \ fin	60.3	8.74	6400	2"	0.344"	21'	160	34	121.98	1,340	1,335	400.20	34						
39	Gr B	29849	3226	3226	хот.деф \ cold \ fin	60.3	8.74	6400	2"	0.344"	21'	160	19	121.98	1,340	1,335	400.19	33						
40	Gr B	29849	3223	3223	хот.деф \ cold \ fin	60.3	8.74	6400	2"	0.344"	21'	160	19	121.98	1,345	1,340	400.19	31						
41	Gr B	29849	3226	3226	хот.деф \ cold \ fin	60.3	8.74	6400	2"	0.344"	21'	160	19	121.98	1,345	1,340	400.19	32						
ИТОГО \ TOTAL (4 пак \ bundles)														76	487.92	5,370	5,350	1600.77						
ОБЩИЙ ИТОГ \ GRAND TOTAL (41 пак \ bundles)														1616	10870.83	50,395	50,190	35665.04						



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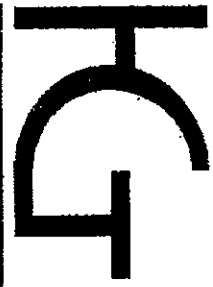


СЕРТИФИКАТ ПРИЕМОЧНЫХ ИСПЫТАНИЙ
 CERTIFICATE OF CHECK TESTS №2917-B.
 В соответствии с / in. acc with EN10204/3.1B

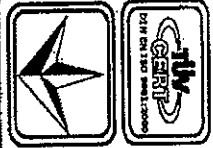
2. ХИМИЧЕСКИЙ СОСТАВ / CHEMICAL COMPOSITION

Heat №	Химический состав стали / Steel chemical composition												
	C	Si	Mn	S	P	Cr	Ni	Cu	Mo	V	MinC	CE=C-Mn/8+(Cr+Mo+V)/5	Cr-Cu-Mo-Ni-V<1%
P510488	0,21	0,24	0,51	0,018	0,01	0,05	0,04	0,04	0,01	0,0	2,4	0,31	0,14
10658	0,2	0,28	0,49	0,005	0,007	0,08	0,05	0,07	0,01	0,0	2,5	0,30	0,21
513067	0,2	0,2	0,5	0,035	0,017	0,02	0,02	0,03	0,01	0,0	2,5	0,29	0,08
5230	0,2	0,19	0,41	0,026	0,012	0,02	0,01	0,02	0,01	0,0	2,1	0,27	0,06
32358	0,18	0,19	0,55	0,016	0,011	0,12	0,13	0,18	0,01	0,0	3,1	0,30	0,44
33608	0,19	0,21	0,48	0,019	0,01	0,07	0,11	0,18	0,01	0,0	2,5	0,29	0,37
512106	0,19	0,23	0,57	0,026	0,012	0,02	0,01	0,03	0,01	0,0	3,0	0,29	0,07
512119	0,19	0,22	0,49	0,023	0,014	0,02	0,03	0,03	0,01	0,0	2,6	0,28	0,09
45017	0,2	0,26	0,43	0,003	0,009	0,08	0,06	0,08	0,01	0,1	2,2	0,29	0,23
28326	0,18	0,24	0,63	0,011	0,011	0,09	0,06	0,09	0,01	0,0	3,5	0,31	0,25
29849	0,2	0,27	0,43	0,002	0,004	0,05	0,03	0,06	0,01	0,0	2,2	0,28	0,15
29671	0,21	0,28	0,41	0,008	0,007	0,12	0,05	0,09	0,01	0,0	2,0	0,30	0,27
33606	0,21	0,26	0,54	0,013	0,015	0,05	0,07	0,1	0,01	0,0	2,6	0,31	0,23
39029	0,2	0,21	0,44	0,01	0,005	0,05	0,08	0,13	0,009	0,0	2,2	0,29	0,27

Heat №	Set for testing	№ лавки Heat №	Механические свойства / Mechanical properties			Удлинение Elongation A, %
			Предел прочности Tensile strength, Rp, MPa	Предел текучести Yield strength, Rp, MPa	PSI	
1	2765	P510488	494	341	49400	42
2	2419	10658	505	337	48900	40
3	2419	10658	505	337	48900	40
4	2625	513067	472	282	40900	34
5	2611	513067	482	308	44700	35
6	3717	5230	424	245	35500	50
7	4601	32358	462	268	38900	44
8	3142	33608	503	347	50500	34
9	4753	512106	472	318	46100	34
10	2163	512119	486	346	50000	32
11	3747	45017	520	343	49700	32
12	3747	45017	520	343	49700	32
13	3747	45017	520	343	49700	32
14	2120	28326	505	333	48300	32



НИКОПОЛЬСКИЙ ЗАВОД СТАЛЬНЫХ ТРУБ "ЮТИСТ"
 НIKOPOL STEEL PIPE "UTIST", CJSCo
 56, ПР. ТРУБНИКОВ
 Г. НИКОПОЛЬ
 ДНЕПРОПЕТРОВСКАЯ ОБЛ., ДНЕПРОПЕТРОВСК РЕГ.,
 УКРАИНА, 53201
 ТЕМ. +38-05662-25062, -22147
 E-MAIL: UTIST@UTIST.COM.UA
 ФАХ: +38-05662-25062
 WWW.STEEL.PROM.COM

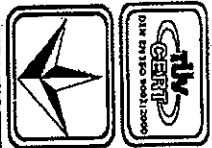


№п/п Item	Номер заводской партии. Set for testing	№ плавки Heat №	Механические свойства / Mechanical properties.				
			Предел прочности, Tensile strength, Rp _m	Предел текучести Yield strength, Rp _e	Удлинение Elongation A, %		
			MPa	PSI	MPa	PSI	A, %
15	4753	512106	472	68500	318	46100	34
16	3209	29849	478	69500	327	47400	32
17	3169	29849	506	73500	354	51500	31
18	2965	29671	492	71500	342	49600	35
19	3269	29849	485	70000	321	46500	36
20	3277	29671	495	72000	341	49400	28
21	3267	29849	492	71500	355	51500	34
22	2986	33606	503	73000	340	49300	30
23	2986	33606	503	73000	340	49300	30
24	2986	33606	503	73000	340	49300	30
25	3011	33606	492	71500	347	50500	34
26	3011	33606	492	71500	347	50500	34
27	3019	33606	496	72000	360	52000	33
28	3019	33606	496	72000	360	52000	33
29	3019	33606	496	72000	360	52000	33
30	2982	33606	512	74000	360	52000	31
31	2982	33606	512	74000	360	52000	31
32	2999	33606	505	73000	365	53000	32
33	2999	33606	505	73000	365	53000	32
34	2999	33606	505	73000	365	53000	32
35	2983	33606	489	71000	342	49600	38
36	2990	33606	520	75500	378	55000	34
37	2912	39029	511	74000	350	50500	33
38	3223	29849	473	68500	323	46900	41
39	3226	29849	463	67000	326	47300	39
40	3223	29849	473	68500	323	46900	41
41	3226	29849	463	67000	326	47300	39

СЕРТИФИКАТ ПРИЕМОЧНЫХ ИСПЫТАНИЙ
 CERTIFICATE OF CHECK TESTS №2917-Б.
 В соответствии с / in. acc with EN10204/3.1B

FC

НИКОПОЛЬСКИЙ ЗАВОД СТАЛЬНЫХ ТРУБ "ЮТИСТ"
NIKOPOL S. I. DEL PIPE "UTIST", CJSCO
56, ПР. ТРУВНИКОВ
Г. НИКОПОЛЬ
ДНЕПРОПЕТРОВСКАЯ ОБЛ., ДНЕПРОПЕТРОВСК РЕГ.,
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UKRAINE, 53201
TEL: +38-05662-25062, -22147
FAX: +38-05662-25062
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СЕРТИФИКАТ ПРИЕМОЧНЫХ ИСПЫТАНИЙ
CERTIFICATE OF CHECK TESTS №2917-B.
В соответствии с / in. acc with EN10204/3.1B

4. ПРИМЕЧАНИЯ \ NOTES

Ордер Р.О # 9108254-00

Система качества производителя сертифицирована в соответствии с EN ISO 9001:2000.

Manufacturer quality system is certified in conformity with EN ISO 9001:2000.

Максимальная твердость не превышает 22HRC в соответствии с NACE MR 0175

Maximum hardness does not exceed 22HRC in acc. with NACE MR 0175

Трубы произведены в соответствии с техническими требованиями контракта №160 от 03.11.2004

Pipes are made according to the technical requirements of the contract №160 of 03.11.2004

Трубы позиции 1-15 испытаны на загиб - удовлетворительно.

Pipes position 1-15 are tested by bending test - satisfactory.

Трубы позиции 16-41 испытаны на сплющивание - удовлетворительно.

Pipes position 16-41 are tested by flattening test - satisfactory.

Допуск по длине (L 6400) : +/-25мм

Length tolerance (L 6400) : +/-25mm

Трубы покрыты по наружной поверхности грунт-эмалью "АКРОКОР", два слоя

Pipes are covered per external surface with primer-epoxy "AKROKOR", two layers

Концы труб защищены полиэтиленовыми пробками.

The ends of pipes are protected by polyethylene caps.

Гидроиспытания не проводились. Взамен гидрокисланий проведен

неразрушающий вихревой контроль (НДК) по методу завода - удовлетворительно

Hydrostatic test are not carried out. Instead of hydrostatic per plant method

test are carried out nondestructive tests (NDE) -

Номинальный размер продольного полосового образца для испытания на растяжение:

Ширина, мм - 19 ^{±0,4}

Расчетная длина, мм - 50

Nominal size of longitudinal strip sample for stretching test:

Width, mm - 19 ^{±0,78}

Calculated length, mm: 50

Вес пакета до 2,5 тн.

Weight of bundle is up to 2,5 tons.

Трубы Ø 60,3 - фаска

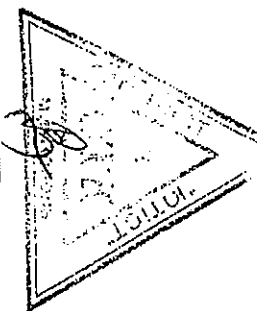
Pipes Ø 60,3 - bevel

Свидетельствовано экспертом
Witnessed by expert

92
А.Сорока

Старший контрольный мастер
Senior control foreman

Сертификатор
Prepared by



Benteler Steel/Tube GmbH
 Postfach 13 40
 33043 Paderborn
 Deutschland
 Tel.: +49.5254.81-0 Fax: +49.5254.13666

211 Sch 8D
 HT-558993

BENTELER
 Steel/Tube

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

Dokument-Nr.: 65-585819/001/P **Blatt:** 1 / 6
Document No.: **Inspection No.:**
No. du document: **No. du certificat:**

Benteler Steel/Tube GmbH - Postfach 1340 - 33043 Paderborn - Deutschland
BHD TUBULAR LTD.
 6903 - 72ND AVENUE
 EDMONTON, AB T6B 3A5
 KANADA

Kunden-Bestell-Nr.: BST 10-5171 / BHD 108372 **Hersteller:** Warmrohrwerk Dinslaken
Purchase Order No.: **No. de commande du client:** **Manufacturer:** ISO/TS 18949 (ISO 9001) TÜV CERT 44111090381-005
Benteler Auftrags-Nr.: 1550489 **Benteler Order No.:** **Producteur:** PED 97/23/EC TÜV CERT 07 202 1411 Z 1193/8/D
No. de commande Benteler: **Herstellerzeichen:** **Manufacturer's brand:** 
Versandanzeigen-Nr.: 6577346 **Marque du producteur:**

Dispatch Note No.: **No. d'avis d'expédition:** **Stampel des Abnahmebeauftragten:** WVA
Produkt: NAHTLOSE STAHLROHRE **Stahlschmelzungsverfahren:** ELEKTROSTAHL
Product: SEAMLESS STEEL TUBES **Steelmaking process:** ELECTRIC FURNACE
Produit: TUBES D'ACIER SANS SOUDURE **Procédé d'élaboration de l'acier:** FOUR ELECTRIQUE

Lieferbedingungen: API Specification 5L Fourth Edition, October 2007, ISO 3183:2007, PSL 1, ASME SA-106, ASME Section II Part A Edition 2007 Addenda 2009b, S5, ASTM-A 106-2008, S6, CSA Standard Z245.1-07
Terms of delivery: Category I, Sour Service, NACE MR0175/ISO 15156-1:2001, NACE MR0175/ISO 15156-2:2003
Conditions de livraison:

Maße - Toleranzen: ASME B36.10M-2004, ASME SA-530, ASME Section II Part A Edition 2007 Addenda 2009b, ASTM-A 530-2004a
Dimensions-tolérances:
Dimensions-tolérances: GRADE 290, GRADE B, GRADE X 42

Stahlsorte: **Steel grade:** Nuance d'acier: Hot rolled
Lieferzustand: **Delivery condition:** État de livraison: see attachment product marking
Produktkennzeichnung: **Product marking:** Marquage du produit:

Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlänge
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multiples
0017	18	3" NPS * Sched. 160 38 FT - 42 FT	737,14 feet	10631 lbs	556572	3000	5	
0023	94	2" NPS * Sched. 80 38 FT - 42 FT	3911,91 feet	19928 lbs	558993	3000	5	



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65-585819/001/P

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Pos.	Stück	Maße	Länge	Gewicht	Schmelzen-Nr.	Prüfdruck	Rohr-Nr.-Gruppe	Vielfachlängen
Item	Number	Dimensions	Length	Weight	Heat No.	Test pressure	Tube number group	Multiple lengths
Poste	Nombre	Dimensions	Longueur	Poids	No. de coulée	Pression d'épreuve	Série de no. des tubes	Longueurs multipl.
			feet	lbs		PSI		
0024	130	2" NPS * Sched. 80 18 FT - 22 FT	2559,25	13003	558993	3000	5	

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0017	556572	0,140	0,210	0,83	0,010	0,002	0,11	0,04	0,10	0,16	0,002	0,010	0,003	0,0001
0023	558993	0,140	0,210	0,81	0,008	0,002	0,09	0,05	0,13	0,11	0,002	0,010	0,002	0,0001
0024	558993	0,140	0,210	0,81	0,008	0,002	0,09	0,05	0,13	0,11	0,002	0,010	0,002	0,0001

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

Formelerggebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0017	556572	0,326	0,306	5,929	0,412
0023	558993	0,319	0,300	5,786	0,382
0024	558993	0,319	0,300	5,786	0,382

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0017	556572	0,140	0,200	0,83	0,010	0,002	0,11	0,03	0,09	0,16	0,002	0,008	0,003	0,0001

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
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 No. du certificat:

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

Pos.	Schmelzen-Nr.	C	SI	MN	P	S	CR	MO	NI	CU	V	NB	TI	B
Item	Heat No.													
Poste	No. de coulée													
0017	556572	0,140	0,200	0,82	0,009	0,002	0,12	0,04	0,10	0,15	0,002	0,009	0,003	0,0001
0023	558993	0,140	0,210	0,82	0,007	0,003	0,09	0,04	0,13	0,11	0,002	0,010	0,002	0,0001
0023	558993	0,130	0,210	0,81	0,008	0,002	0,10	0,05	0,12	0,11	0,002	0,010	0,002	0,0001
0024	558993	0,140	0,210	0,82	0,007	0,003	0,09	0,04	0,13	0,11	0,002	0,010	0,002	0,0001
0024	558993	0,130	0,210	0,81	0,008	0,002	0,10	0,05	0,12	0,11	0,002	0,010	0,002	0,0001

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

Formelergebnisse / Formula results / Résultats des formules

Pos.	Schmelzen-Nr	1. Formel	2. Formel	3. Formel	4. Formel
Item	Heat No.	1. Formula	2. Formula	3. Formula	4. Formula
Poste	No. de coulée	1. Formule	2. Formule	3. Formule	4. Formule
0017	556572	0,323	0,303	5,928	0,392
0017	556572	0,325	0,305	5,857	0,412
0023	558993	0,319	0,300	5,857	0,372
0023	558993	0,310	0,282	6,230	0,382
0024	558993	0,319	0,300	5,857	0,372
0024	558993	0,310	0,282	6,230	0,382

Prüfresultate / Test results / Résultats des essais

Die Rohre sind auf Dichtheit geprüft durch: Hydrostatic test: acc. to CSA Z245.1, holding time min 5 seconds, Test
 The tubes have been submitted to a leak tightness test by: pressure/Time-record
 Les tubes ont passé un contrôle d'étanchéité par:

Die Rohre wurden zerstörungsfrei geprüft: ET-test: acc. to CSA Z245.1; for imperfections; drilled hole: 3,20 mm
 The tubes are non destructive tested:
 Les tubes ont passé un essai non destructif: **PASSED**

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Augensichtkontrolle: PASSED Biegeversuch: PASSED Maßkontrolle: PASSED
Visual inspection: Bending test: Dimensions examination:
Examen visuel: Essai de cintrage: Vérification des dimensions:
Pos. / Item / Poste: 0023, 0024

Ringfaltversuch: PASSED
Flattening test:
Essai d'aplatissement:
Pos. / Item / Poste: 0017

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

Die Probenahme erfolgte an Vielfachlängen.

The sampling was carried out on multiple lengths.

L'echantillonage était réalisé aux longueurs multiples.

Zugversuch Streifenprobe / Tensile test Strip test specimen / Essai de traction Bande decoupee sur tube

Pos.	Proben-Nr.	Schmelzen-Nr.	Probenabmessung	Streckgrenze	Zugfestigkeit	Dehnung	Einschnürung	Re/Rm
Item	Specimen No.	Heat No.	Specimen dimensions	Yield strength	Tensile strength	Elongation	Area reduction	Re/Rm
Poste	No. de l'éprouvette	No. de coulée	Dimensions de l'éprouv.	Limite élastique	Résistance à la traction	Allongement	Coefficient de striction	Re/Rm
Anforderungen			mm	MPa	Rm	A2"	%	Re/Rm
Requirements			mm	MPa	MPa	%	%	Re/Rm
Exigences			MIN 290	415-625	MIN 30	1. Formel	1. Formule	1. Formel
0017	000001	556572	25,40 X 11,40	300	449	44		
0023	000001	558993	19,00 X 5,55	367	497	36		
0024	000001	558993	19,00 X 5,55	375	496	36		

Härteprüfung / Hardness test / Essai de dureté

Pos.	Proben-Nr.	Schmelzen-Nr.	Härte	HRC	HB	HV	HRB	HBW
Item	Specimen No.	Heat No.	Hardness	Dureté				
Poste	No. de l'éprouv.	No. de coulée						
Anforderungen			HRC	HB	HV	HRB	HBW	
Requirements								
Exigences								
0017	000001	556572		123				
0023	000001	558993		137				

MAX 200

Benteler Steel/Tube GmbH
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 Deutschland
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BENTELER 
 Steel/Tube

ABNAHMEPRÜFZEUGNIS EN 10204-3.1
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Härteprüfung / Hardness test / Essai de dureté

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

Anforderungen	HRC	HB	HV	HRB	HBW
Requirements					
Exigences					
0024	000001	558993	137		
Max 200					

Restmagnetismus / Demagnetize / Démagnétiser

Pos. / Item / Poste: 0017, 0023, 0024, 0023, 0024
 demagnetized tubes; 1 measurement per 4 hours on both tube ends Two readings 180° apart around the circumference. Average value max 3.0 Millitesla (24 A/cm), individual value max 3.5 Millitesla (28 A/cm)

Vermerk / Remark / Remarque

Pos. / Item / Poste: 0017
 NACE Standard: Hardness acc. to NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103;
 Certificate remarks: Sour Service, The Material is Aluminium deoxidized and inclusion shape controlled with Calcium-Silicon
 treatment, This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out

Pos. / Item / Poste: 0023, 0024
 NACE Standard: Hardness acc. to NACE MR0175/ISO 15156: HRC max 22., The material meets the requirements of NACE MR0103;
 Certificate remarks: Sour Service, The Material is Aluminium deoxidized and inclusion shape controlled with Calcium-Silicon
 treatment, This is to confirm that the seamless linepipe supplied by Benteler and verified to CSA Standard Z245.1-07 meets the requirement for micro hardness of max. 248 HV 500 gf., No weld repair has been carried out; Bend test: mandrel diameter 12D;
 Bending angle: 90°

Beiblatt Produktkennzeichnung / Attachment product marking / Supplément marquage du produit

Pos.	Produktkennzeichnung
Item	Produktkennzeichnung
Poste	Marquage du produit

0017, 0023, 0024	FS: BENTELER Z.245.1-07 - ISO 3183 - A 106-S6 - SA-106-S5 SL-0151 API SIGN 0510 PSL1 B/X42/290 SS HEAT-NO. TEST PRESSURE NDE DIMENSIONS TUBES-LENGTH FEET WA GERMANY P.O. 108372
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Benteler Steel/Tube GmbH
Postfach 13 40
33043 Paderborn
Deutschland

Tel.: +49.5254.81-0 Fax: +49.5254.13666

BENTELER
Steel/Tube

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

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AEZ = Azetkenbeschriftung, Etching ink marking, Gravage à l'encre | FK = Farbkennzeichnung, colour marking, marquage par couleur | FS = Farbschablonierung, paint stencilling, marquage par pelature | FSD = Farbstrahldrucker, Colour jet printer, imprimante à jet d'encre
| LK = Laserkennzeichnung, Laser marking, Marquage laser | PKE = Etikettenkennzeichnung, tag marking, marquage sur étiquette | PS = Prägestempel, die stamp, marquage par poinçonnage | TS = Tintenstrahlkennzeichnung, Ink jet spray marking, imprimante à jet d'encre

Verkäufer(in) / Salesman/ woman in charge / Personne chargée : Mr Buerger, Tel.: 05254/81-4266, Fax: 4299



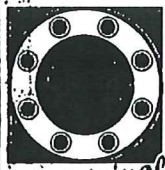
Dinslaken, 09.06.2010, TEL.: 02064.623-537 FAX: 02064.623-539

Abnahmebeauftragter
Inspection representative

Contrôleur

DR. BASEL KEITX Thel

Es wird bestätigt, daß die gelieferten Erzeugnisse den techn. Lieferbedingungen des Auftrages entsprechen. Dieses Dokument wurde mittels EDV erstellt und ist ohne Unterschrift rechtsgültig.
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Nous attestons que les produits livrés sont conformes aux stipulations de la commande. Ce document a été établi par traitement électronique de l'information et est valide sans signature.



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 Sede Legale e Amministrativa: 23924 DERIVIO (LC) - Via Enrico Fermi, 40
 C. C. I. A. A. Lecco n. 00208990130 - R.E.A. 78815 - C.F. e P.IVA IT00206690139
 Stabilimento - Utile Amministrativo / Workshop - Warehouse - Offices - Mailing address:
 22010 GERA LARIO (CO) - Località S. Agata - Tel. 0344-97200 - Fax 0344-97210
 E-mail: galperti@galperti.com - www.galperti.com

CERTIFICATO DI COLLAUDO EN 10204
 TEST CERTIFICATE EN 10204

NS. ORDINE / INTERNAL JOB
100980

SPETT.LE / MESSRS:
GALPERTI CANADA ULC
3931 - 76 AVENUE
EDMONTON, ALBERTA, T6B 2S8 (CDN)

CERTIFICATE NO. DATA / DATE VS. ORDINE / YOUR DATA / DATE
010055/1 **30/03/2011** **27373** **23/07/2010**

POS / ITEM	DESCRIZIONE / DESCRIPTION	QUANTITA' / QUANTITY	S/A	MATERIALE / MATERIAL	N° COLATA / PROVA / HEAT N° / TEST N°	ACCIAIERIA / STEEL MILL	#
121/121	3" 600 WN RF XS NA105 B1 FSF4 NACE MR-01-75	725	S	CSA Z245.12-09 GR248 SS	8125-10/23	OLIFER/ACP SPA	A

ANALISI CHIMICA / CHEMICAL ANALYSIS

	C %	MN %	SI %	P %	S %	CR %	NI %	MO %	CU %	V %	SN %	AL %	NB %	TI %	N %	CO%	B %	H %
A	0,170	1,170	0,190	0,006	0,004	0,100	0,150	0,046	0,160	0,012	0,010	0,020	0,003	0,001	0,008	0,009	0,0003	0,0002
A	0,165	1,165	0,180	0,005	0,003	0,105	0,140	0,045	0,165	0,010	0,010	0,025	0,001	0,001	0,008	0,009	0,0001	0,0002
A	0 %	CA%													04%	03%	FC%	FL%
A	0,001	0,002													0,468	0,146	0,365	0,417
A	0,001	0,002													0,465	0,150	0,359	0,411

NOTE / NOTES

04=Copper+Nickel+Chromium+Molybd.+Vanadium CU+NI+CR+MO+V
 03=Chromium + Molybdenum CR+MO
 FC=Carbon Equivalent Short Formula C+(MN/6)
 FL=Carbon Equivalent Long Formula C+(MN/6)+((CR+MO+V)/5)+((NI+CU)/15)

C = ANALISI DI PRODOTTO / CHECK ANALYSIS

CARATTERISTICHE MECCANICHE / MECHANICAL PROPERTIES

#	TIPO TYPE	DIAMETRO PROVETTA / DIAMETER	SEZIONE AREA mmq.	LUNGHEZZA LENGTH mm.	TRAZIONE / TENSILE					RESILIENZA / CHARPY TEST				DUREZZA HB / HARDNESS (AVERAGE)
					TEMP. TEMPERATURE C	ROTTURA TENSILE Mpa	SNERVAMENTO YIELD Mpa	ALL. ELONG %	CONTR. REDUCT. %	TIPO TYPE	TEMP. TEMPERATURE	VALORI / VALUES		
A	S	12,50	122,70	50,00	20	485	248	22,0	30,0					187
A	O	12,50	122,70	50,00	20	532	335	27,0	67,2					155

NOTE / NOTES

O = OTTENUTE / OBTAINED
 S = STANDARD

#	TRATTAMENTI TERMICI / HEAT TREATMENTS	NOTE GENERALI / GENERAL NOTES
A	Normalized at 900 dgr.C for 1.1/2 h.-Cooling from 900 dgr.C in still air	FINITURE / ROUGHNESS FSF4=Ra 3,2 - Ra 6,3
A		STANDARD B1 = ASME B16.5 Ed.2003

NOTE / NOTES

Flanges comply with the requirements specified for SSC Region 3 sour service in NACE MR-01-75 / ISO 15156-2 and CSA. Material according to NACE MR-01-03 Ed.2007.

MARCHIO DI FABBRICA / TRADE MARK	DATA COLLAUDO INT. / BY INSPECT DATE	COLLAUDATORE INT. / INT. INSPECTOR		
ENTE UFFICIALE DI COLLAUDO / INSPECTION AUTHORITY	30/03/2011	E. SBATELLA		

Flange HT# 8125-10 3" 600#



SAN ENG STEEL FORGING CO LTD
 311, Jen Hsin Road, Jen Wu, Hsiang
 Keelung Hsien, Taiwan, R.O.C.
 TEL: 07-5724249, FAX: 07-5712923
 URL: www.saneng.com.tw
 e-mail: saneng@kks.secd.net.tw

MILL TEST CERTIFICATE

EN10204-3.1 (B/DIN50049/3.1.B)
 Customer: SEYBOLD INTERNATIONAL CORP.
 Order No.: Z0033701JHNOV

Certificate No.: SE-3370A
 Date: 11/29/2010
 Page: 1 OF 3

Handwritten: 44# 21383
 2" 680# WNRFS XS
 A105 N Flange

Item No.	Heat No.	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)											CE(%)			
				C	SI	Mn	P	S	Cu	Cr	Ni	Mo	V	Nb		N		
1	21383	600 WNRFS XS 2" A105N	140 PCE	0.207	0.250	1.060	0.009	0.009	0.040	0.400	0.300	0.400	0.120	0.080	0.020	-	-	0.396
2	3722	300 WNRFS XS 2" A105N	600 PCE	0.233	0.240	1.100	0.010	0.017	0.018	0.037	0.050	0.009	0.005	0.025	0.005	-	-	0.429
3	6222	300 WNRFS XS 2" A105N	20 PCE	0.207	0.270	1.080	0.011	0.011	0.007	0.049	0.044	0.005	0.042	0.005	0.004	-	-	0.401
4	3719	150 WNRFS STD 6" A105N	23 PCE	0.205	0.280	1.040	0.011	0.017	0.021	0.067	0.012	0.033	0.005	0.005	0.004	-	-	0.400
5	15042	800 WNRFS S160 2" A105N	111 PCE	0.215	0.310	1.130	0.007	0.010	0.008	0.060	0.051	0.043	0.005	0.017	0.005	-	-	0.418
6	15042	600 WNRFS S160 2" A105N	89 PCE	0.212	0.250	1.050	0.011	0.013	0.018	0.045	0.045	0.005	0.037	0.005	0.004	-	-	0.401
7	11451	300 SWRFS XS 2" A105N	80 PCE	0.230	0.120	1.020	0.008	0.009	0.070	0.040	0.040	0.005	0.003	0.005	0.010	-	-	0.416
8	6489	900/1500 WNRFS XS 2" A105N	20 PCE	0.197	0.250	1.080	0.012	0.016	0.005	0.017	0.049	0.002	0.006	0.001	0.005	-	-	0.394

Item No.	Heat No.	T.S.(MPa)	Y.S.(MPa)	E.L.(%)	Hardness (HB)	RA.(%)	Impact Test			Material Supplier	REMARKS
							Temp.	1	2		
1	21383	517.8	379.5	35.6	153	69.5				NTMK	HEAT TREATMENT(?) <input checked="" type="checkbox"/> N 880CX3HRS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/S015158 2 CONFORMS WITH Z245.12 CAT I GR 248 SOUR SERVICE-05 TEST SPECIMEN ORIENTATION: TRANSVERSE
2	3722	537.4	379.5	34.0	160	68.6				NTMK	
3	13145	521.7	317.7	34.4	153	67.7				OEMK	
4	10984	519.8	348.1	35.2	151	69.5				NTMK	
5	21289	511.9	366.0	33.4	154	69.5				NTMK	
6	21530	519.8	335.4	36.0	154	66.8				OEMK	
7	10988	529.6	354.0	35.0	152	70.4				NTMK	
8	21379	513.9	354.0	34.2	152	68.6				OEMK	
9	49187	513.9	296.2	33.4	162	67.7				OEMK	
10	931198	505.0	335.4	34.0	156	66.0				NTMK	

*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.

112155



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

MILL TEST CERTIFICATE
 EN10204-3.1 (B) (N) S049/3.1(B)
 Customer: WEI FITTINGS & FLANGES (CANADA)
 LTD.
 Order No.: D00220MS759086553

Certificate No.: SE1007241
 Date: 03/28/2011
 Page: 1 OF 1

211600
 S80
 RT-4390793
 RFWN

FORGED CARBON STEEL FLANGES

PRODUCT

MATERIAL SPECIFICATIONS

DIMENSIONAL SPECIFICATIONS

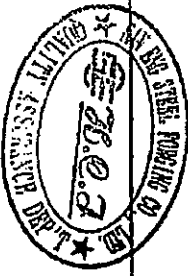
ASTM A105-09/ASME SA105-09

ASME B16.5-09
 CSA Z245.12

Item No.	CODE NO	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)											REMARKS		
				C	SI	Mn	P	S	Cu	Cr	NI	Mo	V	NB		N	CE(%)
1	300 BLRF 1" A105N	60 PCE	60 PCE	0.210	0.210	1.110	0.012	0.004	0.400	0.300	0.400	0.120	0.010	0.010	0.001	0.008	0.422
2	800 BLRF 1" A105N	20 PCE	20 PCE	0.210	0.210	1.110	0.012	0.004	0.120	0.070	0.050	0.010	0.010	0.001	0.008	0.422	
3	150 BLRF 1 1/2" A105N	65 PCE	65 PCE	0.210	0.210	1.110	0.012	0.004	0.120	0.070	0.050	0.010	0.010	0.001	0.008	0.422	
4	150 SWRF XS 1 1/2" A105N	60 PCE	60 PCE	0.210	0.210	1.110	0.012	0.004	0.120	0.070	0.050	0.010	0.010	0.001	0.008	0.422	
5	600 BLRF 1 1/2" A105N	25 PCE	25 PCE	0.210	0.210	1.110	0.012	0.004	0.120	0.070	0.050	0.010	0.010	0.001	0.008	0.422	
6	300 WNRF S160 2" A105N	65 PCE	65 PCE	0.200	0.220	1.110	0.014	0.004	0.090	0.050	0.040	0.011	0.009	0.001	0.009	0.408	
7	800 WNRF XS 2" A105N	255 PCE	255 PCE	0.210	0.210	1.150	0.016	0.004	0.006	0.020	0.010	0.001	0.003	0.001	0.006	0.407	
Heat No.		T.S.(T1) (MPa) Min 485.0 Max	Y.S.(T1) (MPa) 250.0	ELL.(T1) (%) 22.0	Hardness (HB) 187	R.A.(T1) (%) 30.0	Impact Test Temp: Joule 1 Minimum: 2 3	Material Supplier	HEAT TREATMENT(2) N REMARKS REDOXERS CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15156.2 CONFORMS WITH Z245.12 CAT I GR.248 SOUR SERVICE-05 TEST SPECIMEN ORIENTATION: TRANSVERSE								
1	80409	533.5	393.2	35.4	154	70.4		WEI CHIH STEEL									
2	80409	533.5	393.2	35.4	154	70.4		WEI CHIH STEEL									
3	80409	533.5	393.2	35.4	154	70.4		WEI CHIH STEEL									
4	80409	533.5	393.2	35.4	154	70.4		WEI CHIH STEEL									
5	80409	533.5	393.2	35.4	154	70.4		WEI CHIH STEEL									
6	80396	555.1	402.1	34.2	156	67.7		WEI CHIH STEEL									
7	43907B3	525.6	371.7	37.4	150	71.3		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, SR=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 * 4) / 5 + (Ni + Cu) / 15

Manager of Quality Assurance Dept



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.



SAN ENG STEEL FORGING CO LTD
 311, Jem Hean Road, Jem Wu Helang
 Kuching, Sarawak, Malaysia, R.O.C.
 TEL: 07-3724249; FAX: 07-3712923
 URL: www.saneng.com.my
 e-mail: saneng@jshb.secd.net.my

MILL TEST CERTIFICATE

EN10204-3.1 (DIN50049/3.1 B)
 W.F.FITTINGS & FLANGES (CANADA)
 Customer: W.F.FITTINGS & FLANGES (CANADA) LTD.
 Order No.: D000097/ST59063846

Certificate No.: SE100429

Date: 10/04/2010
 Page: 1 OF 1

2" 1500 x 5

Flange

10915

FORGED CARBON STEEL FLANGES

ASTM A105-09/ASME SA105-09

ASME B16.5-09
 CSA Z245.12

PRODUCT

MATERIAL SPECIFICATIONS

DIMENSIONAL SPECIFICATIONS

Item No.	CUSTOMER P/N	DESCRIPTION	QUANTITY	CHEMICAL COMPOSITION (%)														CE(%)
				C	SI	Mn	P	S	Cu	Cr	Ni	Mo	V	NO	N			
1		150 WNR STD 10" A105N	90 PCE	0.350	0.100	0.600	0.035	0.040	0.400	0.300	0.400	0.120	0.090	0.020				0.378
2		800 WNR STD 4" A105N	278 PCE	0.204	0.310	1.070	0.011	0.008	0.012	0.018	0.048	0.005	0.007	0.005	0.006			0.381
3		600 WNR S80 10" A105N	80 PCE	0.210	0.310	0.990	0.015	0.013	0.009	0.020	0.044	0.003	0.007	0.001	0.006			0.383
4		1500 BLRTJ 2" A105N	35 PCE	0.200	0.220	1.080	0.015	0.012	0.060	0.070	0.050	0.024	0.003	0.005	0.009			0.407
5		600 WNR XS 2" A105N	65 PCE	0.207	0.280	1.080	0.010	0.015	0.012	0.021	0.048	0.005	0.002	0.005	0.005			0.383

*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



Manager of Quality Assurance Dept

REMARKS
 HEAT TREATMENT(2)
 CONFORMS WITH NACE MR0103-07 AND NACE MR0175/ISO15156.2
 CONFORMS WITH Z245.12 CAT I GR 248 SOUR SERVICE-05
 TEST SPECIMEN ORIENTATION: TRANSVERSE
 ST59063846

CLIENTE / Customer / Client
 CCIF 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: 30/03/2011
 N°: 137187
 HOJA: 1
 Page: 1

UUMA FORJAS S.COOP.
 B° Zubillaga, 3 - Apdo. 1°
 20560 ONATI (Gipuzkoa) SPAIN
 Tel.: 34 - 943 780552
 Fax: 34 - 943 781808
 E-mail: uuma@uimapping.com

#17# 55270 Flange 2" 1500 S160
 Gibbally Sourced Raised Face

PRODUCTO: FLANGES
 Article - Produit:
 SU PEDIDO N°: 4889097-00
 Your Order No.
 Votre Cde. N°:

DE of - de 22/12/2010

Certified acc. PED 97/23/EC-AD2000-W1
 by TÜV Rheinland
 N° 01 202 EQ 02 7443

REQUISITOS DE FABRICACION
 Requirements - Normes Applicables:
 ASME B16.5-09

MATERIAL CORRESPONDIENTE ASTM A105N-09
 Material Correspondent - Qualité ASME SA105N-09
 MODO DE FUSION (*) NACE MR0103 : 2007
 Steel Making - Elaboration de l'acier
 E = Elec. Y = Oxígeno básico
 CSA-Z245.12-09 GR248 CAT 1 - SS

MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant:
 DEPARTAMENTO QUALITY ASSURANCE
 Section



PARTIDA Item Poste	CANTIDAD Quantity	DESCRIPCION Description	OBSERVACIONES Remarks Observations (*)	COLADA N° Heat No N°Coulée	T.Strength Resist Rupt N/mm2	Y.Strength 0.2 % N/mm2	ALARGAM. Elongation Abonnement Le. 4 d %	ESTRICCION Red. Area Striction %	RESILIENCIA Impact test Resilience Joules	MEQA Average Moltenne	DUREZA Hardness Dureté HB
8 7534116	80	WN 16 150LB STD/30 RF A105N	NE	166A1	516	312	30.20	55.00			150 157
66 7534671	72	WN 6 300LB STD/40 RF A105N	NE	202T1	521	304	29.00	53.30			151 158
86 7535066	60	WN 2 300LB XXS RF A105N	NE	166A0	512	315	31.00	57.60			149 156
92 7536267	160	SO 6 300LB RF A105N	NE	392T0	520	298	28.30	52.70			151 157
150 7531567	117	WN 2 1500LB S160 RF A105N	NE	163T1	519	304	28.80	52.70			151 158
160 7531567	233	WN 2 1500LB S160 RF A105N	NE	552T0	518	304	29.80	55.00			150 157

COMPOSICION QUIMICA - STEEL MAKERS LADIE ANALYSIS - ANALYSE CHIMIQUE

COLADA N° Heat No N°Coulée	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	CEq %
163T1	0.190	0.230	0.960	0.012	0.019	0.090	0.160	0.040	0.000	0.005	0.320	0.000	0.000	0.000	0.409
166A1	0.180	0.240	0.980	0.013	0.004	0.100	0.040	0.006	0.002	0.003	0.060	0.027	0.000	0.000	0.372
196A0	0.200	0.300	0.840	0.011	0.005	0.120	0.110	0.010	0.001	0.002	0.200	0.020	0.000	0.000	0.387
202T1	0.200	0.210	0.830	0.013	0.006	0.130	0.130	0.030	0.000	0.004	0.330	0.000	0.000	0.000	0.418
392T0	0.210	0.230	0.970	0.012	0.012	0.050	0.120	0.020	0.000	0.002	0.390	0.000	0.000	0.000	0.420
552T0	0.190	0.220	0.950	0.009	0.015	0.070	0.150	0.030	0.000	0.003	0.240	0.000	0.000	0.000	0.395

- Las dimensiones y la ejecución superficial se hallaron satisfactoria
 - Dimension and surface execution 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

INSPECTOR
 Inspector

(*) OBSERVACIONES:
 Remarks
 Observations

N_NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR



1107-1-2 NAF

DEVI33AR

2nd HO ELBOW

10M00083



Purchaser: CCTF CORPORATION

INSPECTION CERTIFICATE

TO EN10204 3.1

RECEIVED

JAN 2 1 2011

D M Y Certificate No.

Thai Benkan Co., Ltd.
58 Soi Wakkul, Bangkn, Prapadaeng,
Samprakan, 10130 Thailand.

22/11/2010 T-2010200588

E.No. MC-158 Purchase Order No. 4888515-08 Job No.

No.	MFG. No. (Heat Identification No.)	Specification for Material Made from Seamless Pipe ASTM A234-10/ASME SA234-07 Gr.WPB CSA Z246-11-09 Gr.241 CAT 1 NACE MR0175/ISO 15156-2 R3-03 API R0103-07	Specification for Inspection ASME B16.9-2007	Visual Examination	Dimensional Inspection	Chemical Composition %											Tension Test *2										
						C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	YS	TS	E							
1	10K20030	RC WPB 12 X 8 STD	10	N		10K20030	100	X	100	X	1000	X	1000	X	100	X	1000	X	100	X	1000	X	100	305	466	45	197 HB : GOOD
2	10K20064	RE WPB 12 X 10 STD	5	N		10K20064	100	X	100	X	1000	X	1000	X	100	X	1000	X	100	X	1000	X	100	271	450	40	
3	10M00017	80 EL WPB 3 S80	164/1,000	A		10M00017	100	X	100	X	1000	X	1000	X	100	X	1000	X	100	X	1000	X	100	312	481	31	
4	10M00018	90 EL WPB 3 S80	660/1,000	A		10M00018	100	X	100	X	1000	X	1000	X	100	X	1000	X	100	X	1000	X	100	288	482	62	
5	10M00083	90 EL WPB 2 S160	150	A		10M00083	100	X	100	X	1000	X	1000	X	100	X	1000	X	100	X	1000	X	100	304	468	60	
Specification																											
Min.																											
Max.																											
Material Heat No.																											
1	J8L9234																										
2	00124																										
3	39541																										
4	J0K8310																										
5	1-81185																										

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR, Air Cooling *N : Normalizing 910°Cx0.5 HR, Air Cooling (Specification for material made from plate) \$: Stress Relieving 675°Cx0.5 HR, Air Cooling

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

Quality Assurance Manager
Thai Benkan Co., Ltd.

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

HT# 12169

2" 580
90° WEILD
ELL.



Awaji

INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO.,LTD.

81,MOO4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MIJANG
SAMUTPRAKARN THAILAND 10270, Tel : (662)701-5226

MADE FROM SEAMLESS STEEL PIPE

Date : FEBRUARY 28, 2011

Certificate No. : T11-2923

Purchaser : THE BROADHEAD GROUP/MCUJUNKIN CANADA

Order No.

Job No.

Product

Raw Material Pipe Maker

GS758-074521/WPB/15

Material Standard

CARBON STEEL BUTT WELDING FITTINGS

SUMITOMO METAL INDUSTRIES, LTD.

Inspection Standard

ASTM A234-07 WPB
ASTM A990-08a
ASME SA234-07 WPB
ASME SA234-07 WPB
except nuclear usage
CSA Z245.11-09, GR241 CATJ

Appearance

GOOD

Dimension

GOOD

*3
U.T. INSPECTED

Manufacturing No.

Product code

Material

Article & Size

XS 90 LONG RADIUS ELBOW

2"

Quantity

725 Pcs.

Note:
*ALL FITTING MANUFACTURED BY
AWAJI MATERIA (THAILAND) CO.,LTD.
ARE PRODUCED FROM A106 GRB SEAMLESS PIPE*

12169

WPB

Chemical Composition (%)

*1 Mechanical Test

Hardness

Specification	C	Si	*2Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Ca	N	Al	C.E.	Y.S. MPa	T.S. MPa	E %	HB
	Min.	X100	X100	X1000	X1000	X100	X100	X100	X100	X100	X100	X100	X10000	X10000	X1000	X1000	X100				
Min.	-	10	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	415	25.5	-
Max.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	855	-	197
Pipe Charge No.	30	-	106	50	58	40	40	40	15	8	2	2	5	65	8	-	-	-	-	-	-
JOLC918	18	21	61	12	7	2	2	4	1	0	0	0	0	13	10	5	29	330	482	56	137

$$C.E. = C + \frac{Mn}{6} + \frac{Cr+Mo+V}{5} + \frac{Ni+Cu}{15}$$

Inspection Certificate : ACCORDING TO EN 10204, 3.1 : 2004

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

*1 Y.S. = Yield Strength, T.S. = Tensile Strength, E = Elongation,

*3 UT = Ultrasonic thickness inspection.

*2 For each reduction of 0.01% below the specified carbon(C) Maximum, an increase of 0.06% manganese(Mn) above specified maximum will be permitted, up to a maximum of 1.35% as per foot note D of ASTM A234/A234M-07 Table 1.

ELBOW / Forming Temperature 780°C - 930°C and cooled in still air
TEE REDUCER & CAP / Normalizing : 900°C
We hereby certify that the material described herein has been duly inspected and conforms to the standard as specified above.

Surveyor to

Chief of Inspection Section

SAMAOKAWA

AT-24(2)12

Customer	Allied Fitting Canada		Certificate No.	20100701085	Date	2010/07/07	
P.O No.	62710-TK		Project Name				
Job No.			PCR/Req'n No.				
Specification for Material	ASTM/ASME A/SA234 WPB(07 Ed. & 08 Add.)NACE MR0175 /ISO 15156-2 AND NACE MR0103-2007		Starting Material	SEAMLESS PIPE			
Specification for Inspection	ASME B16.9-2007		Dimension and Visual Inspection	GOOD			
Heat Code No [HCN]	No.	Descriptions				Q'ty [Pcs]	Heat Treatment
BH935CD	0052	90° ELBOW LONG	X-S	S.W	16"	1	HOT FORMED 845°C-945°C
AX869C	0059	90° ELBOW LONG	SCH160	S.W	2"	500	HOT FORMED 845°C-945°C

CHEMICAL COMPOSITION (%)

Heat Code No [HCN]	Spec.	C	SI	Mn	P	S	NI	Cr	Mo	Cu	V	C.E	Raw Heat No/Raw Maker
	Max.	0.23	-	1.06	0.050	0.058	0.40	0.40	0.15	0.40	0.080	0.41	
	Min.	-	0.10	0.29	-	-	-	-	-	-	-	-	
BH935CD	L	0.21	0.25	0.57	0.008	0.010	0.03	0.04	0.01	0.02	0.002	0.323	3D1131/TPCO
AX869C	L	0.21	0.24	0.56	0.012	0.012	0.01	0.03	0.01	0.03	0.001	0.316	731R-122/TPCO

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JAN 19 2011

BH935CD
S80
ELBOW
AX-869C
S160 ELBOW

MECHANICAL PROPERTIES

Heat Code No [HCN]	Spec.	Y.S		T.S	E.L (%)	Hardness Test		
		Ksi		Ksi		HB		
	Max.	-	-	95	-	197		
	Min.	35	-	60	30	-		
BH935CD	P	42.1	-	71.6	31.5	150	152	153
AX869C	P	46.5	-	68.2	31.6	139	141	143

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

Remark : * CSA Z245.11-05 Gr241 CAT I Sour Service

Legend:
 HB: Brinell
 ST: Solution Treatment
 SR: Stress Relieving
 N: Normalized
 T: Tempered
 A: Annealed
 Q: Quenched
 (G): Hot-Dip Galvanized Coating
 Y.S: 0.2% Offset Method
 AC: Air Cool
 OC: Oil Cool
 WQ: Water Quenched
 WC: Water Cool
 L: Ladle
 P: Product

Reviewed by : _____
 Witnessed by : _____

Approved by : S. O. Lee
 Director of Quality Assurance Dept

2" 1500 S40 RF

270 RECEIVED
NOV 04 2010

CLIENTE / Customer / Client
CCTE 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: 02/02/2010 N.º 129889 HOJA: 1 Page: 1





ULMA FORJAS S.COOP.

PRODUCTO **FLANGES**
 Article - Produit
 NORMAS APLICABLES **ASME B16.5-09**
 Requirements - Normes Applicables

SU PEDIDO N.º **4887139-00**
 Your Order No. / Votre Cde. N.º
 DE of - de **01/12/2009**

Certified acc. PED 9723/EC
 by TÜV Rheinland
 N.º 01 202 EQ 02 7443

MARCA DEL FABRICANTE
 Mark of factory
 Marque du fabricant



DEPARTAMENTO **QUALITY ASSURANCE**
 Département

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

MATERIAL CORRESPONDIENTE **ASTMA105N-05**
 Material Correspondent - Qualité **ASME SA105N-05**
 MODO DE FUSION (*) **NACE MR0175 / ISO15156-2 : 2005**
 Steel Making - Elaboration de l'acier **NACE MR0103 : 2007**
 E = Elec. Y = Oxígeno básico **CSA-Z245.12-05 GR248 CAT 1**

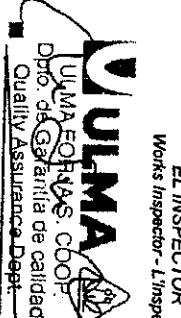
PARTIDA Item Poste	CANTIDAD Quantity Quantité	DESCRIPCION Description Description	OBSERVACIONES Remarks Observations (*)	COLADA N.º Heat No N.ºCoulée	T. Strength Resist Ruptl M/mm2	Y. Strength Limite Elast M/mm2	ALARGAM. Elongation Allongement Lo. 4 d %	ESTRICCION Red. Area Striction %	RESILIENCIA Impact test Résilience Joules	MEDIA Average Moyenne	TEMP. °C	DUREZA Hardness Dureté HB
11 7535190	12	WN 10 150LB S80 RF A105N	NE	3A0	518	315	30.20	57.30				150 157
17 7535271	12	SO 12 150LB RF A105N	NE	7A0	502	308	29.70	53.00				149 155
41 7530828	20	WN 2 1500LB S40 RF A105N	NE	210	523	310	28.60	53.00				150 157
51 7530828	15	WN 2 1500LB S40 RF A105N	NE	321A8	517	311	29.00	55.30				150 155
51 7532199	2	BLIND 3 1500LB RF A105N	NE	500A8	505	309	29.00	54.80				147 154
51 7532199	10	BLIND 3 1500LB RF A105N	NE	910	518	297	28.20	51.30				150 156

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

COLADA N.º Heat No N.ºCoulée	C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	Nb %	V %	Cu %	Al %	Ti %	N %	CEq %
210	0.210	0.180	0.850	0.013	0.016	0.060	0.110	0.010	0.005	0.001	0.370	0.000	0.000	0.000	0.398
321A8	0.200	0.260	0.840	0.015	0.001	0.110	0.080	0.030	0.007	0.001	0.270	0.027	0.000	0.000	0.392
3A0	0.210	0.290	0.860	0.013	0.003	0.080	0.120	0.030	0.006	0.001	0.270	0.048	0.000	0.000	0.402
500A8	0.190	0.240	0.820	0.011	0.005	0.060	0.070	0.010	0.001	0.003	0.160	0.026	0.000	0.000	0.357
7A0	0.180	0.160	0.830	0.012	0.006	0.100	0.110	0.120	0.002	0.004	0.190	0.023	0.000	0.000	0.383
910	0.190	0.170	0.820	0.015	0.020	0.050	0.080	0.010	0.005	0.001	0.340	0.000	0.000	0.000	0.367

- Las dimensiones 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 FORJAS S.COOP.
 Dpto. de Garantía de calidad
 Quality Assurance Dept.

(*) OBSERVACIONES:
 Remarks
 Observations
 N.º NORMALIZED AT 900 C AND ALLOWED TO COOL IN STILL AIR

HT# 10P10835
 2" S80 Tee
 WRB



Thai Benkan Co., Ltd.
 58 Soi Watkrumai, Bangkras, Prapatsang,
 Samutprakarn, 10130 Thailand.

INSPECTION CERTIFICATE

TO EN10204 3.1

Purchaser: CCTF CORPORATION

E.No. MC-183 Purchase Order No. 4028488 Job No.

D M Y Certificate No.

09/03/2011 T- 2011200208

No.	MFG. No. (Heat Identification No.)	Specification for Material Made from Seamless Pipe ASTM A234-10/ASME SA234-07 Gr.WPB QSA Z245.11-08 Gr.241 CAT1 NACE MR0176/ISO 15156-2 R3-03 AMR0103-07	Quantity	Heat Treatment (Note 1)	Visual Examination	Dimensional Inspection	Specification for Inspection		ASME B16.9-2007							
							Product & Size	Heat Treatment (Note 1)								
1	10D10853	T WPB 1 1/4 S40	5/25	N	Good	Item No.	7511698									
2	10M10803	T WPB 2 S40	97/100	N	Good	Item No.	7511736									
3	11A10811	T WPB 6 S40	54/160	N	Good	Item No.	7511850									
4	10P10835	T WPB 2 S80	86	N	Good	Item No.	7512040									
5	10N10803	T WPB 1 1/4 S40	20/25	N	Good	Item No.	7511698									
Specification							Chemical Composition %									
Material Heat No.	C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.E.	Tension Test #2			
													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	%	HARDNESS MAX	
1	30	19	79	6	1	4	2	2	1	0	0	33	290	415	30	197 HB : GOOD
2	30	19	79	6	1	4	2	2	1	0	0	33	250	434	48	
3	30	19	79	6	1	4	2	2	1	0	0	33	283	461	61	
4	30	19	79	6	1	4	2	2	1	0	0	33	279	477	40	
5	30	19	79	6	1	4	2	2	1	0	0	33	304	463	38	

(Note 1) A: Hot formed with final temperature between 620 °C-980°C, Air Cooling N: Normalizing 910°C±0.5 HR, Air Cooling *N: Normalizing 910°C±0.5 HR, Air Cooling (Specification for material made from plate) S: Stress Relieving 675°C±0.5 HR, Air Cooling

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

Quality Assurance Manager
 Thai Benkan Co., Ltd.

RECEIVED
MAR 1 - 2011

2" Elbow
S 80.

08D00028

INSPECTION CERTIFICATE



Purchaser: NATIONAL AIRWELL WAREHOUSE
Purchase Order No. **ECONOMYORDER1** Job No. **TO EN10204 3.1**
D M Y Certificate No. **30272008 T 2008140702**

The Boston Co. Ltd.
58 Bul Wharf Road, Beppu, Hiroshima, Japan
Sanjo Station, 101 30 Tohoku

No.	MTRC No. (per Specification No.)	Specification for Material Made from Seamless Pipe ASTM A213 - Seamless Carbon Steel Pipes SA-213, 100 or 214 Cr. 1% Mn. NACE MR0103-1000 15144: 2008 Product & Size	Specification for Inspector ASME B11.1-2003	Quantity	Heat Treatment (Note 1)	Visual Examination		Dimensional Inspection	
						Good	Good	Hardness Actual Data	
1	08F00066	90 EL W/PB 1-1/2 S80		2	A				
2	08A00045	90 EL W/PB 6 S80		6148	A				
3	08F00016	90 EL W/PB 6 S80		180148	A				
4	08H00062	90 ES W/PB 2 S 43		8	A				
5	08D00028	90 ES W/PB 2 S80		3	A				

Material Item No.	Chemical Composition %											Tensile Test #2			
	Specimen											HARDNESS MAX			
	C	Si	Mn	P	S	GS	Nb	Cr	Mo	V	Ni	C.E.	YS	TS	H
1	98	19	77	17	3	17	5	19	5	0	0	328	608	38	
2	88	27	75	11	5	12	6	4	1.3	21	2	30	636	45	
3	78	27	73	7	8	13	7	6	1.8	22	2	33	630	36	
4	76	28	72	11	3	21	12	8	2	1	1	34	620	30	
5	77	28	75	14	7	3	3	9	1	0	0	39	498	57	

Note 1: A: Not tested with final temperature between 650°C-900°C, Air Cooling; N: Normalizing 910°C-930°C, Air Cooling; H: Normalizing 910°C-930°C, Air Cooling; Specifications for material made from plate; 3: Stress Relieving 675°C/3 Hr. Air Cooling.

THE RESULTS OF THE TESTS AND INSPECTIONS MEET THE REQUIREMENTS.

Material Item No. 105486

Quality Assurance Manager
The Hankan Co., Ltd.

Purchaser : OCTF CORPORATION

INSPECTION CERTIFICATE

10F00097



E-No. Purchase Order No. Job No.

RECEIVED TO EN10204 3.1

21580 ELBOW

D M Y Certificate No.

MC-168 4888515-00

MAR 1 - 2011

07422010 T 2010200656

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

No.	MFG. No. (Heat Identification No.)	Specification for Material		Specification for Inspection		Visual Examination	Dimensional Inspecti.										
		ASTM A234-10MSME SA234-07 Gr. WPB Made from Seamless Pipe	ASME B16.9-2007	Product & Size	Heat Treatment (Note 1)			Hardness Actual Data	Rem No.								
1	10F00097	90 ES WPB 2 S80		40	A	Good	Good										
2	10H20145	RC WPB 3 X 2 S40		40	N	HB : 130 - 160	7513178										
3	53F20013	RC WPB 8 X 4 STD		20/30	N	HB : 125 - 145	7513178										
4	10K20089	RE WPB 14 X 10 STD		3	N	HB : 135 - 150	7513882										
5						HB : 115 - 145	7510192										
Specification	Material Heat No.	Chemical Composition %											Tension Test *2		E		
		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	C.B.	YS		TS	%
		100	100	100	1000	1000	100	100	100	100	1000	1000	100	MPa.			HARDNESS MAX
1	J9K4179	30	10	29	108	50	58	40	40	40	15	80	20	240	415	30	197 HB : GOOD
2	15519K	20	26	88	11	7	2	3	5	0	0	0	0	38	344	528	50
3	7-36280	20	21	70	9	5	6	2	4	0.4	<3	<3	<3	29	274	416	41
4	1-79531	20	23	82	14	1	3	2	3	1	2	<1	<1	35	328	493	42
5		20	25	86	23	4	1	1	2	<1	<1	<1	<1	35	318	502	45

(Note 1) A : Hot formed with final temperature between 620 °C-980°C, Air Cooling N : Normalizing 910°Cx0.5 HR. Air Cooling *N : Normalizing 910°Cx0.5 HR. Air Cooling (Specification for material made from plate) *S : Stress Relieving 675° Cx0.5 HR. Air Cool

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

CE = C+Mn/6+(C+Mn+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

Quality Assurance Manager
Thai Benkan Co., Ltd.

#T# 11065

2" 5160
90° ELB



INSPECTION CERTIFICATE

AWAJI MATERIA (THAILAND) CO.,LTD.
 81,MOO4, PRAKASA ROAD, TAMBOL BANGKUAN, AMPHUR MUANG
 SAMUTPRAKARN THAILAND 10270, Tel : (662)701-5225
MADE FROM SEAMLESS STEEL PIPE

Date : **FEBRUARY 7, 2011**
 Certificate No. : **T11-2059**

Purchaser : **THE BROADHEAD GROUP/MCJUNGN CANADA**

Order No.	Job No.	Product	Raw Material Pipe Maker
CS759-074521/WPB/13	-	CARBON STEEL BUTT WELDING FITTINGS	SUMITOMO METAL INDUSTRIES, LTD.
Inspection Standard	Material Standard	Appearance	GOOD
ASME B16.9-07 ASTM A990-08a NACE MR-0175-03, MR-0103-05	ASTM A234-07 WPB ASME SA234-07 WPB CSA Z245.11-09, GR241 CAT1	GOOD	GOOD
Manufacturing No.	Product code	Article & Size	Quantity
11065	WPB	S160 90 LONG RADIUS ELBOW 2"	475 Pcs.
<p>*3 U.T. W.T. INSPECTED</p> <p>Note: ALL FITTING MANUFACTURED BY AWAJI MATERIA (THAILAND) CO.,LTD. ARE PRODUCED FROM A106 GRB SEAMLESS PIPE</p>			

Specification	Chemical Composition (%)													*1 Mechanical Test			Hardness				
	C	Si	*Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Ca	N	Al		C.E.	Y.S.	T.S.	E
Min.	X100	X100	X100	X1000	X1000	X100	X100	X100	X100	X100	X100	X1000	X1000	X1000	X1000	X1000	X100	MPa	MPa	%	
Max.	-	10	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	415	30	-
Pipe Charge No.	30	-	106	50	58	40	40	40	15	8	2	2	5	65	8	-	-	-	655	-	197
J0K9381	21	28	68	23	9	2	2	7	1	0	0	0	1	17	7	13	35	344	509	61	146

Inspection Certificate : ACCORDING TO EN 10204, 3.1 : 2004

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

*1 Y.S.= Yield Strength, T.S. = Tensile Strength, E = Elongation, *3 UT = Ultrasonic thickness inspection.
 *2 For each reduction of 0.01% below the specified carbon(C) Maximum, an increase of 0.08% manganese(Mn) above specified maximum will be permitted, up to a maximum of 1.35% as per foot note D of ASTM A234/A234M-07 Table 1.

ELBOW / Forming temperature 780°C - 930°C and cooled in still air
 Tee, Reducer & Cap / Normalizing : 900°C
 *We hereby certify that the material described herein has been duly inspected and conforms to the standard as specified above.

Inspector to

Chief of Inspection Section **S.MAEKAWA**

AT-24(2)12



INSPECTION CERTIFICATE
EN 10204 3.1 : 2004

AWAJI MATERIA (THAILAND) CO.,LTD.

81,MOO4, PRAKASA ROAD, TAMBOL BANGMUANG, AMPHUR MUANG
SAMUTPRAKARN THAILAND 10270, Tel : (662)701-5228

Purchaser : THE BROADHEAD GROUP / MCJUNION CANADA

Date : JUNE 24, 2011

Certificate No. : TT1-61541

3x2 5.80 Red cone
#15261-1

Order No.		Job No.		Product												Raw Material Pipe Maker						
CS759-094842/WPB/9		-		CARBON STEEL BUTT WELDING FITTINGS												SUMITOMO METAL INDUSTRIES, LTD.						
Inspection Standard		Material Standard		Visual		Dimension		Magnetic Particle Test		Yield Strength		Tensile Strength		Elongation								
ASME B16.9(7), ASME B16.21(7) ASTM A990(8a) NACE MR-0175 / ISO 15156(9) MR-0103(7)		ASTM A234(10) WPB ASME SA234(10) WPB CSA Z345.11-09, GR241 CAT1		GOOD		GOOD		-		240		415		28.5								
Product code		Material		Article & Size		Quantity		Note.		Y.S.		T.S.		E								
15261-1		WPB		XS REDUCER 3" x 2"		400 Pcs				240		415		28.5								
Specification		Chemical Composition (%)														Hardness						
Min.		C	Si	Mn	P	S	Cu	Ni	Cr	Mo	V	Nb	Ti	B	Cs	N	Al	C.E.	Y.S.	T.S.	E	HB
Max.		30	10	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	415	28.5	-
Pipe Charge No.		30	-	108	50	58	40	40	40	15	8	2	2	5	65	8	-	-	-	655	-	197
JOK8432		12	23	125	14	3	2	2	11	0	0	0	2	2	14	4	27	35	314	470	43.6	134
C.E. = C + $\frac{Mn}{6}$ + $\frac{Cr+Mo+V}{5}$ + $\frac{Ni+Cu}{15}$																						
*1 Y.S.= Yield Strength, T.S. = Tensile Strength, E = Elongation																						
*2 For each reduction of 0.01% below the specified carbon(C) Maximum, an increase of 0.00% manganese(Mn) above specified maximum will be permitted up to a maximum of 1.35% at per foot note D of ASTM A234/ASME SA234, Table 1.																						
No. of acid repair is applied to products.																						
ELBOW / Flaming temperature : 760°C - 830°C, and cooled in still air																						
TEE REDUCER & CAP / Normalizing : 810°C																						
*We hereby certify that the material described herein has been duly inspected and conforms to the standard as specified above.																						
ISO 9001: 2008 Manufacturing Company Certified by BV, Certificate No. A-TH10000101																						
PED 97/23/EC Annex 1, Part 4.3 : Certified by BVQI. Certificate No. IND 08-083/003 REV.0																						

AT-04(2)14

Chief of Inspection Section SMAEKAWA

Surveyor to

7540074

KEDDCO MFG LTD.
PO Box 989
645 Keddeco St.
Sarnia, Ontario N7T 7K6
Tel:(519)338-2960
Fax:(519)344-3161
Toll Free: 1-800-511-1381



KEDDCO MFG. LTD.
4120 - 78 Av.
Edmonton, AB T8B 3M8
Tel: (780)438-4944
Fax: (780)435-3917
Toll Free: 1-800-661-3809

Material Test Report

Report Number:	13645	Date:	7-Jul-05
Description:	1" SWAGES & BULL PLUGS	Heat Treatment:	H.R.
Specification:	AZ34-WPB/SA234-WPB	Material:	C1018
		CRN:	OA7470.5C

Chemical Analysis

Heat Code:	K969	C	0.160	Cu	0.270		
		Mn	0.720	NI	0.090		
		P	0.010	Cr	0.070		
		S	0.035	Mo	0.020	Ti	0.000
		Si	0.200	V	0.002		
		N	0.000	Nb	0.002		
		Heat Number:	310244				

Mechanical Tests

Yield PSI:	45800	Tensile PSI:	73500
Elongation @ 2" %	34	Reduction of Area %	84
Size:	1.315" RND	Brinell Hardness:	138
			CE= 0.322

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

Swages
1" SC# 80
K969

CERTIFIED MILL TEST REPORT



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

LOG NO. 328934 PAGE 3

BONNEY FORGE
P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17086-0330
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4908
www.bonneyforge.com

CUSTOMER NATIONAL OILWELL CANADA LTD. (

Date 11/21/08

CUSTOMER'S Order No. 1309740

Bonney Order No.

SHIPPED TO NATIONAL OILWELL CANADA LTD (E
7127 - 56 AVENUE

B000045493

EDMONTON, ABT6B 3L2 Canada

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

SA/A105N

→ 50	50	57608	1/2 3000 A105N 90EL T	C .210 MN 1.000 P .009 S .016 SI .220 NI .030 CU .060 CD .003 CR .050 MO .010 V .000 AL .021 NB .014 CE(LONG FORMULA) = 0.39 T/S 75126 Y/S 51641 EL 33.70 RA 67.83 BRINELL HARDNESS1: 130 HARDNESS2: 130
70	25	4291	1 1/4 3M/6M A105N HXPL T	C .210 MN 1.020 P .008 S .020 SI .220 NI .040 CU .130 CD .004 CR .040 MO .020 V .000 AL .030 NB .012 CE(LONG FORMULA) = 0.40 T/S 78015 Y/S 55402 EL 31.80 RA 64.97 BRINELL HARDNESS1: 135 HARDNESS2: 132
→ 80	25	57608	3/4 2M A105N TEE T	C .210 MN 1.000 P .009 S .016 SI .220 NI .030 CU .060 CD .003 CR .050 MO .010 V .000 AL .021 NB .014 CE(LONG FORMULA) = 0.39 T/S 75126 Y/S 51641 EL 33.70 RA 67.83 BRINELL HARDNESS1: 130 HARDNESS2: 130

57608
1/2" 3M
EL 33.70

OCT 25 2010

106600

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

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

by

Cris Boozel

CMTR: REV 1

QUALITY PROCESS MANAGER

3/4" 2M Tee 57608

CERTIFIED MILL TEST REPORT



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LOG NO. 328934 PAGE 4

BONNEY FORGE
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 NATIONAL OILWELL CANADA LTD. (

Date 11/21/08

CUSTOMER'S Order No. 1309740

Bonney Order No.

SHIPPED TO NATIONAL OILWELL CANADA LTD (E
7127 - 56 AVENUE

B000045493

EDMONTON, ABT6B 3L2 Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

THE MATERIAL SUPPLIED IDENTIFIED AS A105QT WAS QUENCHED AND TEMPERED
IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER
SPECIFICATIONS.

THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED
IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

CERTIFYING ASTM A105-05 / ASME SA105-04 EDITION.

ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN,
2 INCH OR 50 MM GAGE LENGTH.

THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004
EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)

THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF BOTH NACE MR0103-
2007 AND NACE MR0175/ISO 15156.

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

106600A

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

by 

Cris Boozel

CMTR: REV 1

QUALITY PROCESS MANAGER

CERTIFIED MILL TEST REPORT



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LOG NO. F0000000006206

Page 1 of 3

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: CCTF CORPORATION

DATE 09/15/2010

CUSTOMER

BONNEY ORDER NO. B000081702

ORDER NO.: 4027897-00

SHIP TO: CCTF CORPORATION (OAKVILLE)
1387 CORNWALL ROAD
OAKVILLE ON L6J 7T5
Canada

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
6	25	58011	1/2 3M A105N STEL T SA/A105N
7520026			Al 0.022 C 0.210 Co 0.002 Cr 0.030 Cu 0.040 Mn 1.020 Mo 0.000 Nb 0.013 Ni 0.020 P 0.007 S 0.024 Si 0.220 V 0.003 CE(Long Formula) = 0.39 T/S 75,500 Y/S 51,000 EL 29.00 RA 66.00 Brinell 149 BHN 149 BHN
16	8	57863	2 1/2 3M A105N UNAR T SA/A105N
7522952		MALE	Al 0.024 C 0.200 Co 0.004 Cr 0.070 Cu 0.130 Mn 1.020 Mo 0.010 Nb 0.013 Ni 0.050 P 0.008 S 0.019 Si 0.220 V 0.000 CE(Long Formula) = 0.40 T/S 73,750 Y/S 51,500 EL 33.05 RA 63.50 Brinell 127 BHN 127 BHN
		57816	2 1/2 3M A105N UNAR T SA/A105N
7522952		FEMALE	Al 0.023 C 0.200 Co 0.003 Cr 0.040 Cu 0.130 Mn 1.020 Mo 0.010 Nb 0.013 Ni 0.040 P 0.007 S 0.019 Si 0.200 V 0.003 CE(Long Formula) = 0.39 T/S 72,864 Y/S 50,628 EL 32.95 RA 67.54 Brinell 135 BHN 135 BHN
		57905	2 1/2 3M A105N UNAR T SA/A105N
7522952		NUT-CT	Al 0.019 C 0.200 Co 0.003 Cr 0.030 Cu 0.050 Mn 1.070 Mo 0.010 Nb 0.014 Ni 0.020 P 0.008 S 0.019 Si 0.200 V 0.004 CE(Long Formula) = 0.39 T/S 72,500 Y/S 50,000 EL 33.05 RA 61.30 Brinell 130 BHN 130 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

CERTIFIED MILL TEST REPORT



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LOG NO. F0000000006206

Page 3 of 3

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-0331

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

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

DATE 09/15/2010

CUSTOMER

BONNEY ORDER NO. B000081702

ORDER NO.: 4027897-00

SHIP TO: CCTF CORPORATION (OAKVILLE)
1387 CORNWALL ROAD
OAKVILLE ON L6J 7T5
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 MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-09 / ASME SA105-07 EDITION.
5. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)
6. 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 Billie Jo Clemens

Billie Jo Clemens
QUALITY PROCESS MANAGER

CMTR: REV2

1st 3m union # LULB

MEGA

CLIENTE
Customer
Client

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

CERTIFICATO N. 536776 PUGLIO 4
Certificate N. Sheet
Certificat N. Feuille

DATA / Date 13/12/06

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORDINE
Purchase order
Commande

E04785KD/MID

COMMESSA 80316
Job N.
Confirmation de commande

PROVA Test Epreuve	MATERIALE Steel quality / Matière	COLATA Heat / Coulee	C %	Si %	Mn %	S %	P %	Cr %	Ni %	Mo %	Ti %	Cu %	V %	Al %	CE %
NRUL	ASTM A105/05	EHZ*35739	0.195	0.240	0.940	0.020	0.010	00.11	00.05	0.010	0.006	0.150	0.003	0.010	0.389
LULB	ASTM A105/05	04/72191	0.200	0.210	0.890	0.026	0.018	00.11	00.06	0.010	0.010	0.190	0.002	0.007	0.389
LULC	ASTM A105/05	16836	0.202	0.260	0.980	0.002	0.007	00.13	00.13	0.020	0.002	0.140	0.003	0.027	0.413
LLAL	ASTM A105/03	71551	0.195	0.220	0.790	0.014	0.015	00.10	00.06	0.010	0.017	0.200	0.021	0.022	0.370
NDAU	ASTM A105/05	1T 23944	0.200	0.190	0.780	0.014	0.010	00.06	00.08	0.020	0.000	0.160	0.000	0.000	0.362
NDAX	ASTM A105/05	1T 23944	0.200	0.190	0.780	0.014	0.010	00.06	00.08	0.020	0.000	0.160	0.000	0.000	0.362

PROVA Test Epreuve	PROVETTA Test specimen / Epreuve		SHERVAMENTO N/mm ² Yield point Limite d'élasticité	ROTTURA N/mm ² Tensile strength Rupture	ALLUNGAMENTO % Elongation Allongement	CONTRAZIONE % Reduction of area Striction	DUREZZA HB Hardness Dureté	PIEGA Bend test Pliage	SCHACC. Flatt. test Aplattiss.	RESILLENZA Impact test / Résilience				
	SEZIONE Section / Sect.	LUNGHEZZA Length / Longueur								UNITÀ MIS. Unit system	TIPO Type	T. °C Test temp	VALORE / Value / Données	
NRUL	1	126.6	50.0	340.0	520.0	32.0	60.0	151-164			J	KV	0	62-52-48
LULB	1	30.6	25.0	313.0	538.0	29.2	67.3	156-163			J	KV	0	46-56-50
LULC	1	122.6	50.0	364.0	504.0	30.3	68.3	149-156			J	KV	0	48-52-46
LLAL	1	30.6	50.0	364.0	502.0	28.8	53.9	156-170			J	KV	0	42-36-42
NDAU	1	30.6	50.0	307.0	520.0	32.1	69.9	143-146			J	KV	0	50-60-58
NDAX	1	30.6	50.0	323.0	529.0	29.2	66.3	156-160			J	KV	0	58-54-52

NOTE / Remarks / Notes EN10204/3.1

FORMA Shape / Forme : 1 = 2 =

NRUL ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.3183.06 METALFAR*

LULB ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.10029.06 M.L.*530314 MEGA*

LULC ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.10016.06 x BF + 10025.06 x BM*530314 MEGA*

LLAL ELECT.FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT.40291.05 FEAT*247656 MEGA*

NDAU ELECT.FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT.40216.06 FEAT*534024 MEGA*

NDAX ELECT.FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT.40218.06 FEAT*534024 MEGA*

PROVA Test Epreuve	POS. Item Pos.	QUANTITÀ Quantity	CODICE CLIENTE Customer code Code client	DESCRIZIONE / Description / Description	VISUAL AND DIMENSIONAL
NRUL	084	34	E04785KD/MID	TEE S. 3000 NPT A/SA105N 3x2 111 060 201	OK
LULB	092	6000	E04785KD/MID	UNION S. 3000 NPT A/SA105N 1 110 005 2 01	nut OK
LULC	092	12000	E04785KD/MID	UNION S. 3000 NPT A/SA105N 1	male+female OK
LLAL	095	316	E04785KD/MID	UNION S. 3000 NPT A/SA105N 2 110 002 2 01	nut OK
NDAU	095	316	E04785KD/MID	UNION S. 3000 NPT A/SA105N 2	nut OK
NDAX	095	316	E04785KD/MID	UNION S. 3000 NPT A/SA105N 2	nut OK

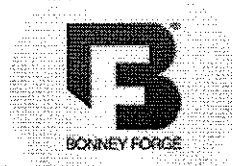
NOTE / Remarks / Notes

ENTE UFFICIALE DI COLLAUDO Inspection Authority Service Inspection Official

CAPO COLLAUDO Chief Inspection DPT Responsable assurance qualité

MATERIAL ACCORDING TO NACE MR0175/ 2003.

DOZ. CERT. M.E.G.A.
Sergio Appiani



MILL TEST REPORTS

Bonney Forge
14496 Croghan Pike
Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

Midfield 02/07/11

*1/2 3M
ELBOWS
58110
58065*

LOT NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
58110 1/2" 3M A105N 90 Degree Elbow Threaded

C	0.200	MN	1.020	P	0.008	S	0.019	SI	0.210
NI	0.040	CR	0.050	MO	0.010	CU	0.110	CO	0.005
V	0.003	AL	0.022	N	0.004	Nb	0.014		
CE(LONG FORMULA) = 0.393									
T/S(PSI) 72500 Y/S(PSI) 48375 EL(%) 31.450 RA(%) 65.850									
BRINELL HARDNESS(BHN): 132									

58065 1/2" 3M A105N 90 Degree Elbow Threaded

C	0.200	MN	1.070	P	0.014	S	0.019	SI	0.190
NI	0.050	CR	0.060	MO	0.010	CU	0.170	CO	0.005
V	0.005	AL	0.026	N	0.006	Nb	0.012		
CE(LONG FORMULA) = 0.408									
T/S(PSI) 75000 Y/S(PSI) 48750 EL(%) 32.500 RA(%) 67.450									
BRINELL HARDNESS(BHN): 135									

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

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

M.E.G.A.

CLIENTE
Customer
Client

CE FRANKLIN LTD.

CERTIFICATO N. 537244 FOGLIO 6
Certificate N. Sheet
Certificat N. Feuille

1900 - 300 - 5th AVENUE S.W.
CALGARY, ALBERTA, CANADA T2P 3C4

DATA / Date 09/01/07

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORDINE
Purchase order
Commande

1571574-OR-2100

CORMESSA 79563
Job N.
Confirmation de commande

PROVA Test Epreuve	MATERIALE Steel quality / Matière	COLATA Heat / Couée	C %	Si %	Mn %	S %	P %	Cr %	Ni %	Mo %	Ti %	Cu %	V %	Al %	CE %
NRSA	ASTM A105/05	06771061	0.185 ---->	0.190 Nb% = 0.000	0.890 B % = 0.000	0.009	0.015	00.09	00.05	0.010	0.000	0.140	0.000	0.021	0.365
NBDF	ASTM A105/05	158659	0.160 ---->	0.217 Nb% = 0.002	1.232	0.002	0.007	00.09	00.11	0.015	0.000	0.227	0.001	0.041	0.410
LTXL	ASTM A105/05	12202/05	0.160 ---->	0.230 Nb% = 0.003	0.940	0.007	0.009	00.10	00.12	0.020	0.000	0.200	0.003	0.026	0.362
NXCS	ASTM A105/05	163864	0.176 ---->	0.230 Nb% = 0.000	1.046	0.002	0.009	00.12	00.18	0.030	0.000	0.274	0.000	0.032	0.412
NLXL	ASTM A105/05	158659	0.160 ---->	0.217 Nb% = 0.002	1.232	0.002	0.007	00.09	00.11	0.015	0.000	0.227	0.000	0.041	0.410
LCAD	ASTM A105/03	05/75385	0.185 ---->	0.180 Nb% = 0.000	0.880	0.007	0.010	00.09	00.07	0.020	0.000	0.220	0.017	0.020	0.376

PROVA Test Epreuve	PROVETTA Test specimen / Epreuve		SNERVAMENTO Y/mm ≥ Yield point Limite d'élasticité	ROTTURA N/mm² ≥ Tensile strength Rupture	ALLUNGAMENTO % ≥ Elongation Allongement	CONTRAZIONE % ≥ Reduction of area Striction	DUREZZA HB Hardness Dureté	PIEDA Bend test Pliage	SCHIACO. Flat. test Aplatisss.	RESILLENZA Impact test / Résilience			
	SEZIONE Section / Sect.	LUNGHEZZA Length / Longueur								UNITÀ MIS. Unit system	TIPO Type	T. °C Test temp	VALORE / Value / Données
NRSA	1	122.7	50.0	302.0	525.0	31.6	68.8	145-150		J	KV	0	46-56-60
NBDF	1	30.6	25.0	326.0	538.0	30.3	67.8	149-163		J	KV	0	48-46-48
LTXL	1	30.6	25.0	321.0	540.0	29.4	67.4	149-156		J	KV	0	48-44-48
NXCS	1	30.6	25.0	302.0	518.0	32.1	68.4	149-154		J	KV	0	48-52-58
NLXL	1	30.6	25.0	303.0	518.0	31.6	68.7	143-150		J	KV	0	38-48-44
LCAD	1	30.6	25.0	312.0	534.0	30.4	67.3	143-156		J	KV	0	40-34-36

PROVA Test Epreuve	NOTE / Remarks / Notes	EN10204/3,1	FORMA Shape / Forme : 1 = <input type="checkbox"/> 2 = <input type="checkbox"/>
--------------------------	------------------------	-------------	--

NRSA	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.76.06 EVASI*533910 MEGA*
NBDF	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.12.06 EVASI*530168 MEGA*
LTXL	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.88.05 EVASI*528887 MEGA*
NXCS	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.92.06 EVASI*535558 MEGA*
NLXL	ELECT.FURNACE-NORMALIZED AT 920 C COOLED IN STILL AIR. /CERT.45.06 EVASI*533231 MEGA*
LCAD	ELECT.FURNACE-NORMALIZED AT 900 C COOLED IN STILL AIR. /CERT.343.05 ISMA*528370 MEGA*

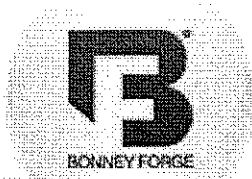
PROVA Test Epreuve	POS. Item Pos.	QUANTITÀ Quantity Quantité	CODICE CLIENTE Customer code Coda client	DESCRIZIONE / Description / Description	VISUAL AND DIMENSIONAL
NRSA	020	160	1553029	MEGALET Sch. XS A/SA105N 2x5-6	OK
NBDF	021	225	1552886	MEGALET S. 3000 NPT A/SA105N 3/4x2-3.1/2	OK
LTXL	022	250	1552894	MEGALET S. 3000 NPT A/SA105N 1x2-2.1/2	OK
NXCS	023	500	1552907	MEGALET S. 3000 NPT A/SA105N 1x3-5	OK
NLXL	024	150	1550688	MEGALET S. 3000 NPT A/SA105N 1x6-36	OK
LCAD	025	30	1125737	MEGALET S. 3000 NPT A/SA105N 2x3	OK

NOTE / Remarks / Notes	ENTE UFFICIALE DI COLLAUDO Inspection Authority Service Inspection Office	CAPO COLLAUDO Chief Inspection DPT Responsible assurance quality
MATERIAL ACCORDING TO NACE MR0175/ 2003.		DOC. CERT. M.E.G.A. Luca Maritati

1" 3M OLET

LTXL

D/



MILL TEST REPORTS

Bonney Forge
 14496 Croghan Pike
 Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

Midfield 11/16/10

LOT NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS
 4727 2" 6M A105 Hexagon Plug Threaded

C	0.190	MN	1.010	P	0.008	S	0.018	SI	0.200
NI	0.040	CR	0.040	MO	0.010	CU	0.140	CO	0.004
V	0.004	AL	0.026	N	0.003	Nb	0.014		
CE(LONG FORMULA) = 0.381									
T/S(PSI) 74100 Y/S(PSI) 47500 EL(%) 34.000 RA(%) 60.600									
BRINELL HARDNESS(BHN): 156									

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

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

*bc7d
 2" Hex
 PLG
 tclm*



HT # 4852
 1" 6M A105N
 Hexagon Plug
 Thrded.

MILL TEST REPORTS

Bonney Forge
 14496 Croghan Pike
 Mt. Union, PA 17066

CERTIFIED MILL TEST REPORT

Midfield 05/05/11

LOT NO. CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS

4852 1" 6M A105N Hexagon Plug Threaded

C	0.210	MN	1.030	P	0.008	S	0.019	SI	0.200
NI	0.040	CR	0.030	MO	0.010	CU	0.120	CO	0.004
V	0.004	AL	0.023	N	0.004	Nb	0.012		
CE(LONG FORMULA) = 0.401									
T/S 73750 Y/S 48750 EL 29.900 RA 61.800									
BRINELL HARDNESS: 135									

[Click here for Original Steel Mill Certification](#)

4779 1" 6M A105N Hexagon Plug Threaded

C	0.200	MN	1.070	P	0.007	S	0.019	SI	0.180
NI	0.030	CR	0.030	MO	0.010	CU	0.090	CO	0.004
V	0.004	AL	0.020	N	0.005	Nb	0.014		
CE(LONG FORMULA) = 0.395									
T/S 72500 Y/S 53750 EL 31.150 RA 60.300									
BRINELL HARDNESS: 135									

[Click here for Original Steel Mill Certification](#)

1. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF NACE MRO175/ISO 15156-2.
2. THE MATERIAL SUPPLIED WAS INSPECTED AND MANUFACTURED IN ACCORDANCE

- WITH EN DIN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT.
3. CERTIFYING ASTM A105-09 / ASME SA105-07 EDITION.
 4. THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

THIS DOCUMENT HAS BEEN ELECTRONICALLY SUBMITTED.

HEAT NUMBER : **UU**
 TRANS AM PIPING PRODUCTS - REV'D BY:
 Shipment/Seq #: **3 9 - 1025 45**

1" CL 3000 FS SCR D UNION
 A105N



INDUSTRIA MECCANICA LIGURE SPA

1620 CASARZA LIGURE - Genova - Italy - Via Giancarlo Ferrero 23 - Tel. 010.54.677611 - Fax 010.54.66910 / MATERIAL TEST DEPARTMENT This certificate has been generated by computer and need not to be signed for validity according to DIN EN 10204 Page 1 - 14

INSPECTION CERTIFICATE EN 10204:2004 / 3.1
 COMPANY WITH QUALITY SYSTEM ISO 9001:2000
 CERTIFIED BY RINA

TRANS AM PIPING PRODUCTS LTD.
 3335 Exchange Drive S.E.
 Calgary Alberta T2S 0A7
 CA

Certificate No: 19-622
 Invoice No: 37
 Del. Note No: 91
 Date: 23.01.2009
 Date: 21.01.2009
 Date: 21.01.2009

1" 3M# Union
 Heat -> UU

HEAT CODE	HEAT	ITEM	YOUR P.O.	QUR REFERENCE	QTY	DESCRIPTION	DIM. ACC. TO	VISUAL & DIMENS.
HVE	74569	100	C1-08 - 625	2008-2E201-0001350-100		FITTING 90 ELB. SW 3M 2" A105N	SEE NOTE	SATISFACTORY
UX5	17164	028	C1-08 - 625	2008-2E201-0001350-028		FITTING UNION F/F THRD NPT 3M 1" A105N (MALE-FEMALE)	SEE NOTE	SATISFACTORY
UU	16836	026	C1-08 - 625	2008-2E201-0001350-026		FITTING UNION F/F THRD NPT 3M 1" A105N (MALE-FEMALE)	SEE NOTE	SATISFACTORY
BE7	74123	020	C1-08 - 625	2008-2E201-0001350-020		FITTING 45 ELB. THRD NPT 3M 1/2" A105N	SEE NOTE	SATISFACTORY
HZR	74495	041	C1-08 - 625	2008-2E201-0001350-041		FITTING RED/TE THRD NPT 3M 1 1/2"x1" A105N	SEE NOTE	SATISFACTORY
7ZT	71846	044	C1-08 - 625	2008-2E201-0001350-044		FITTING RED/TE THRD NPT 3M 1 1/2"x1" A105N	SEE NOTE	SATISFACTORY
55A	73413	046	C1-08 - 625	2008-2E201-0001350-046		FITTING 90 ELB. THRD NPT 3M 1 1/4" SOLID A105N	SEE NOTE	SATISFACTORY
4087	74087	068	C1-08 - 625	2008-2E201-0001350-068		FITTING HALF COUPL. THRD NPT 3M 1/4" A105N	SEE NOTE	SATISFACTORY
76303	76303	070	C1-08 - 625	2008-2E201-0001350-070		FITTING M/F ELB. THRD NPT 3M 3/4" A105N	SEE NOTE	SATISFACTORY
NT1	72452	089	C1-08 - 625	2008-2E201-0001350-089		FITTING HEX BUSHING M/F THRD NPT 1 1/4"x3/4" A105N	SEE NOTE	SATISFACTORY

HEAT CODE	HEAT	ITEM	MATERIAL	YIELD POINT	TENSILE STRENGTH	ELONGATION	REDUCTION OF AREA	HARDNESS	BEND TEST	FLATNESS TEST	IMPACT TEST - JOULES	SHAPE	YIELD POINT
HVE	74569	100	ASTM A105	0.185	0.220	0.940	0.020	0.110	0.050	0.010	0.009	0.170	0.001
UX5	17164	028	ASTM A105	0.190	0.280	0.970	0.002	0.100	0.030	0.004	0.150	0.002	
UU	16836	026	ASTM A105	0.202	0.280	0.980	0.002	0.130	0.130	0.020	0.140	0.003	
BE7	74123	020	ASTM A105	0.180	0.220	0.970	0.012	0.130	0.100	0.020	0.140	0.003	
HZR	74495	041	ASTM A105	0.180	0.220	0.970	0.010	0.130	0.100	0.020	0.140	0.003	
7ZT	71846	044	ASTM A105	0.185	0.220	0.980	0.016	0.080	0.090	0.008	0.150	0.001	
55A	73413	046	ASTM A105	0.185	0.220	0.980	0.016	0.080	0.090	0.008	0.150	0.001	
4087	74087	068	ASTM A105	0.185	0.220	0.980	0.016	0.080	0.090	0.008	0.150	0.001	
76303	76303	070	ASTM A105	0.185	0.220	0.980	0.016	0.080	0.090	0.008	0.150	0.001	
NT1	72452	089	ASTM A105	0.185	0.220	0.980	0.016	0.080	0.090	0.008	0.150	0.001	

HEAT CODE	HEAT	ITEM	MATERIAL IN ACCORDANCE TO	HEAT TREATMENT	FURNACE	ORIGIN	QUR Ref.
HVE	74569	100	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	082106
UX5	17164	028	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	082126
UU	16836	026	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	082130
BE7	74123	020	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	082126
HZR	74495	041	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	082126
7ZT	71846	044	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	081500
55A	73413	046	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	081500
4087	74087	068	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	N10249
76303	76303	070	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	051276
NT1	72452	089	ASME SA ASTM A105-05	Normalized at 880°-920°C / Air Cool	ELECTRIC FURNACE	EUROPE	011300

NOTES ASME B16.1105 - ANSI B31.1/BS1.3 - IML STD. - ANSI B1.18/BS2.2 - NACE MR0175 ISO 15156-1 - NACE MR0175 - MSS SP 83 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS

INSPECTION AUTHORITY: **BOHIS PEZZOTTI** QUALITY CONTROL DEPARTMENT: **IML** MANUFACTURER'S SYMBOL: **STUBOLITS**



L.M.L. INDUSTRIA MECCANICA LIGURE SPA

16030 CASARZA LIGURE - Genova - Italy
Piazza Marco Capelli, 4
Tel. 0185.467661 - Fax 0185.466610
MATERIAL TEST DEPARTMENT
SALA PROVE E ANALISI MATERIALI
Sede Legale: 20036 ERBA (CO) Italy - Via Volontari della Libertà, 1

INSPECTION CERTIFICATE DIN 50049/9.10 - EN 10204/2.1/B **
FORGED FLANGES & FITTINGS LTD
CASTLE HOUSE, STATION RD
HEN BARRET-ENK 1PE UK

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY RINA
190 9002

NO. 11162/ 66/11/2902
INVOICE / FATURA 31/10/2002
S. 13152
DEL. NOTE / SOLA 2326/ 31/10/2002

IC - 01 - 05

1330

HEAT CODE CODICE	HEAT COLATA	ITEM POS.	YOUR P.O. VS. ORDINE	OUR REFERENCE N. ORDINE	QUANTITY QUANTITÀ	DESCRIPTION DESCRIZIONE	DIM. ACCORDANCE TO DIM. IN ACCORDO A										VISUAL & DIMENSIONAL VISIVO E DIMENSIONALE			
HEAT CODE CODICE	HEAT COLATA	ITEM POS.	MATERIAL	Q %	SI %	Mo %	S %	P %	Cr %	Mn %	Ni %	Mo %	Ti %	Cu %	V %	Nb %	N %	Al %	C.S. %	STEEL MILL ACCIAIERIA
1330	H06264	0035	ASTM A105	0.220	0.210	0.640	0.022	0.035	0.160	0.200	0.020	0.000	0.000	0.340	0.000	0.000	0.000	0.035	0.406	JOH SMITH
1326	H00734	0035	ASTM A105	0.205	0.270	0.830	0.016	0.020	0.200	0.190	0.000	0.000	0.000	0.270	0.000	0.000	0.000	0.025	0.430	JOH SMITH
1328	H00734	0035	ASTM A105	0.205	0.270	0.830	0.016	0.020	0.200	0.190	0.000	0.000	0.000	0.270	0.000	0.000	0.000	0.025	0.430	JOH SMITH
1330	H06264	0035	ASTM A105	0.220	0.210	0.640	0.022	0.035	0.160	0.200	0.020	0.000	0.000	0.340	0.000	0.000	0.000	0.035	0.406	JOH SMITH
1326	H00734	0035	ASTM A105	0.205	0.270	0.830	0.016	0.020	0.200	0.190	0.000	0.000	0.000	0.270	0.000	0.000	0.000	0.025	0.430	JOH SMITH
1328	H00734	0035	ASTM A105	0.205	0.270	0.830	0.016	0.020	0.200	0.190	0.000	0.000	0.000	0.270	0.000	0.000	0.000	0.025	0.430	JOH SMITH

VERIFIED TRUE COPY
OF ORIGINAL
FORGED FLANGES &
FITTINGS LIMITED

HEAT TREATMENT
MATERIAL IN ACCORDANCE TO
MATERIALE IN ACCORDO A

HEAT TREATMENT
TRATTAMENTO TERMICO

HEAT TREATMENT
TRATTAMENTO TERMICO

NOTES / NOTE
ASME B16.11.36-BS.3799-ANSI B31.1/B31.3-IML STD
NACE MR0175-99-ANSI B1.1-B1.8.2.2-NACE MR0175-02

QUALITY CONTROL DEPARTMENT
LIMCO CONTROLLI QUALITÀ
BORIS FITZDILLI

INSPECTION DEPARTMENT
ENTE UNIFICATO COLAJO
RACCORDI L.M.L. FITTINGS
STURBOIA TR

MANUFACTURING DEPARTMENT
L.M.L. INDUSTRIA MECCANICA LIGURE SPA
Piazza Marco Capelli, 4 - 16030 CASARZA LIGURE (GE) - Italy

REVISIONS CONTROL DEPARTMENT
ENTE UNIFICATO COLAJO
BORIS FITZDILLI

REVISIONS CONTROL DEPARTMENT
ENTE UNIFICATO COLAJO
BORIS FITZDILLI

RECEIVED
JAN 25 2011

Unisor
1.133m
407



I.M.L.

INDUSTRIA MECCANICA FIGURE SPA

16030 CASARZA LIGURE - Genova - Italy - Via Gramiccia Fariha 26 - Tel.010.5.463961 - Fax.010.5.463910 MATERIAL TEST DEPARTMENT

INSPECTION CERTIFICATE EN 10204:2004 / 3.1
COMPANY WITH QUALITY SYSTEM ISO 9001:2000
CERTIFIED BY RINA

TRANS AM PIPING PRODUCTS LTD.
9335 Enderbury Drive S.F
Calgary, Alberta T2S 0A1

Certificate Nr. 30890
Invoice Nr. 598
Del. Date Nr. 995
CA

Dated 20.07.2010
16.07.2010
16.07.2010

HEAT CODE	HEAT	ITEM	YOUR P.O.	OUR REFERENCE	Q.TY	DESCRIPTION	HEAT TREATMENT	DIAM. ACC. TO	VISUAL & DIMENS.										
4U6	AD1814	061	CI-10 - 330	2010-EE201-4000795-0001		FITTING UNION F/F THRD NPT 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
99E	74535	019	CI-10 - 330	2010-EE201-4000795-0018		FITTING 45 ELB. THRD NPT 2M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
TH	77173	025	CI-10 - 330	2010-EE201-4000795-0025		FITTING CROSS THRD NPT 2M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
EN4	72148	048	CI-10 - 330	2010-EE201-4000795-0048		FITTING 45 ELB. THRD NPT 3M 3/4" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
4U6	AD1814	061	CI-10 - 330	2010-EE201-4000795-0061		FITTING UNION F/F THRD NPT 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
4U6	AD1814	061	CI-10 - 330	2010-EE201-4000795-0061		FITTING UNION F/F THRD NPT 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
4U6	AD1814	061	CI-10 - 330	2010-EE201-4000795-0061		FITTING HEX.PLUG THRD NPT 1/2" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
N58	AK4583	129	CI-10 - 330	2010-EE201-4000795-0041		FITTING TEE THRD NPT 3M 1.14" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
99T	72146	041	CI-10 - 330	2010-EE201-4000795-0091		FITTING TEE THRD NPT 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
4U7	AEE2520	061	CI-10 - 330	2010-EE201-4000795-0147		FITTING TEE SW 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
81T	72146	147	CI-10 - 330	2010-EE201-4000795-0147		FITTING TEE SW 3M 1" A105N	Normalized at 880° ± 20°C / Air Cool	SEE NOTE	SATISFACTORY										
4U6	AD1814	061	ASTM A105	0.200	0.230	0.860	0.006	0.11	0.103	0.080	0.020	0.000	0.100	0.004	0.001	0.003	0.023	0.387	
99E	74535	019	ASTM A105	0.180	0.230	0.930	0.015	0.014	0.182	0.060	0.010	0.007	0.240	0.001	0.003	0.003	0.017	0.387	
TH	77173	025	ASTM A105	0.205	0.220	0.970	0.015	0.012	0.106	0.070	0.016	0.005	0.220	0.001	0.003	0.003	0.017	0.387	
EN4	72148	048	ASTM A105	0.185	0.230	1.160	0.006	0.008	0.093	0.060	0.016	0.021	0.160	0.002	0.003	0.003	0.029	0.413	
4U6	AD1814	061	ASTM A105	0.200	0.230	0.980	0.006	0.011	0.100	0.080	0.020	0.000	0.100	0.004	0.003	0.003	0.023	0.387	
4U6	AD1814	061	ASTM A105	0.200	0.230	0.980	0.006	0.011	0.100	0.080	0.020	0.000	0.100	0.004	0.003	0.003	0.023	0.387	
N58	AK4583	129	ASTM A105	0.195	0.240	0.990	0.008	0.010	0.090	0.110	0.008	0.000	0.100	0.000	0.003	0.003	0.005	0.403	
99T	72146	041	ASTM A105	0.180	0.230	1.130	0.007	0.008	0.090	0.050	0.010	0.010	0.010	0.002	0.001	0.003	0.028	0.413	
4U7	AEE2520	061	ASTM A105	0.210	0.250	0.970	0.015	0.020	0.170	0.070	0.020	0.010	0.110	0.003	0.001	0.000	0.021	0.420	
81T	72146	147	ASTM A105	0.190	0.230	1.130	0.007	0.008	0.090	0.050	0.010	0.010	0.110	0.002	0.001	0.000	0.021	0.413	

HEAT CODE HEAT ITEM YOUR P.O. OUR REFERENCE Q.TY DESCRIPTION HEAT TREATMENT DIAM. ACC. TO VISUAL & DIMENS.

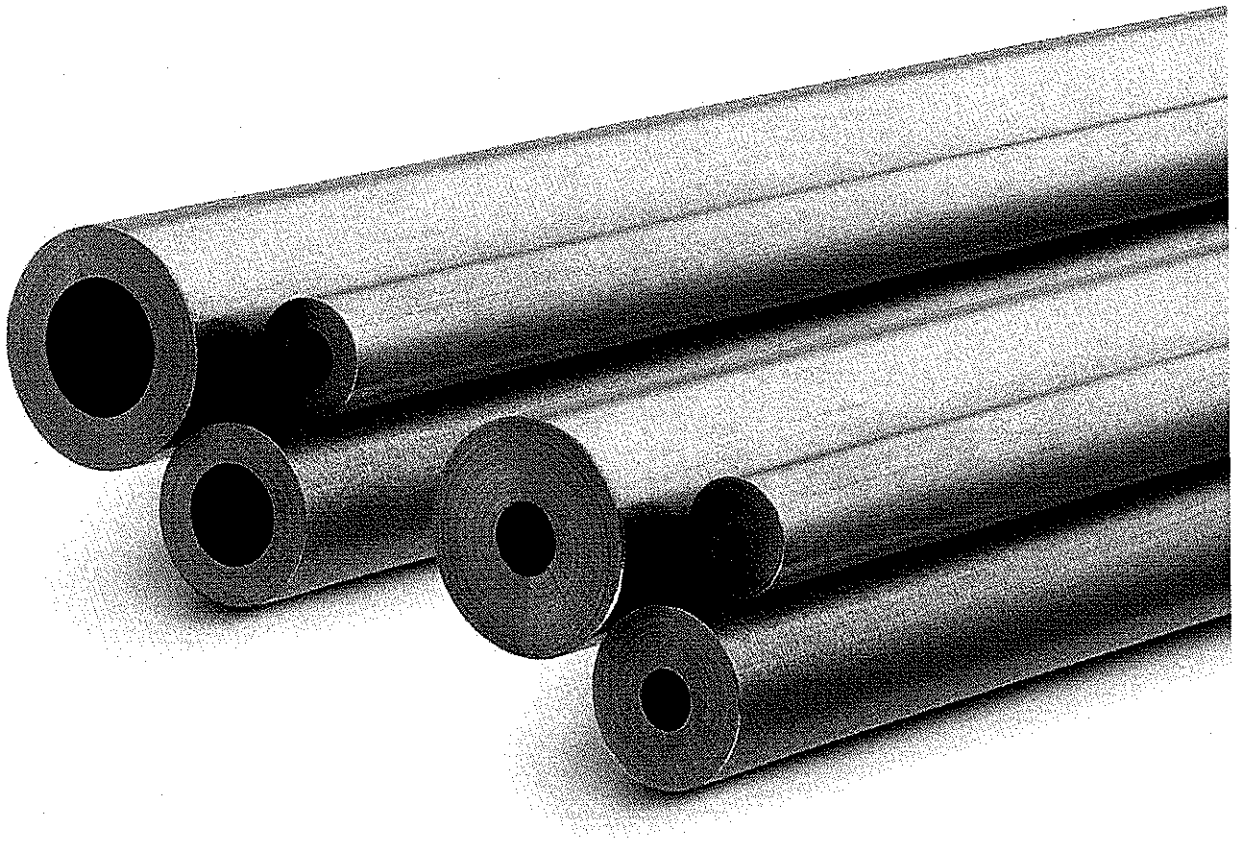
HEAT CODE HEAT ITEM MATERIAL IN ACCORDANCE TO YIELD POINT TENSILE STRENGTH ELONGATION REDUCTION OF AREA HARDNESS HB BEND TEST FLATTENING TEST TYPE TOLERANCE IMPACT TEST - CHARPY V % ACUT. ELEMENTS ORIGIN OUR REF.

NOTES: ASME 316.1/08 - ANSIB81.1/03.1 - INL STD - ANSIB1.1/818.2.2 - NACE MR0175 ISO 15189/1 - NACE MR03 - MSS SP 68 - SUPPLIED MATERIAL MEETS SPECIFICATIONS AND P.O. REQUIREMENTS

INSPECTION AUTHORITY: B. FIZZOPPA
QUALITY CONTROL DEPARTMENT: MANUFACTURER'S SYMBOL: IML STUDBOLTS

Medium-Pressure Tubing

Heavy-Wall Annealed
Cold-Drawn 1/8-Hard



- Sizes 1/4, 3/8, and 1/2 in. outside diameter
- Working pressures up to 15 000 psig (1034 bar)
- 316 / 316L stainless steel
- Marked to indicate size, material, condition, and heat number

Swagelok

Technical Data

Material Standards and Mechanical Properties

Cold-drawn 1/8-hard tubing is more robust and allows for reduced wall thickness and enhanced flow through the same diameter tube.

Heavy-Wall Annealed 316 / 316L Stainless Steel Seamless Tubing

Grade	UNS	Specification
316 / 316L, 1.4401 / 1.4404	S31600 / S31603	ASTM A213 ^① , A269
		ASME SA213 ^①
		EN 10216-5 ^②
SUS 316LTP / SUS 316TP	—	JIS G3459

① Nominal wall thickness, not minimum wall thickness.

② Appearance in accordance with ASTM / ASME standards.

Cold-Drawn 1/8-Hard 316 / 316L Stainless Steel Seamless Tubing

Grade	UNS	Specification	Yield Strength at 0.2 % Offset ^③ ksi	Tensile Strength ^③ ksi	Elongation in 2 inches ^③ % min
316 / 316L, 1.4401 / 1.4404	S31600 / S31603	ASTM A213 ^① , A269	75 to 110	105 to 140	20
		ASME SA213 ^①			
		EN 10216-5 ^②			

① Nominal wall thickness, not minimum wall thickness.

② Appearance in accordance with ASTM / ASME standards.

③ Exception to the standards.

Chemical Composition

Element	Specification	
	ASTM / EN	JIS
	Composition, wt. %	
Chromium	16.5 to 18.0	16.0 to 18.0
Nickel	11.0 to 13.0	12.0 to 14.0
Molybdenum	2.00 to 2.50	2.00 to 3.00
Manganese	2.00 max	
Silicon	1.00 max	
Carbon	0.030 max	
Sulfur		

Bend Radius

Minimum tube length, bend radius, and wall thickness limits required to make a 90° bend in heavy-wall annealed or cold-drawn 1/8-hard stainless steel seamless tubing are listed below.

Tube OD in.	Minimum Tube Length in. (mm)	Minimum Bend Radius in. (mm)	Wall Thickness Dimensions, in.	
			Heavy-Wall Annealed Stainless Steel Seamless	Cold-Drawn 1/8-Hard Stainless Steel Seamless
1/4	7.0 (178)	1.4 (35.6)	0.095	0.065
3/8			0.134	0.083
1/2			0.188	0.109

⚠ Do not use hand tube bender for bending heavy-wall annealed or cold-drawn 1/8-hard stainless steel tubing. Use steel bend shoes with the Swagelok® bench top tube bender.

Ordering Information and Dimensions

Heavy-Wall Annealed 316 / 316L Stainless Steel Seamless Tubing

ASTM / EN Tubing

Tube OD in.	Nominal Wall Thickness in.	Ordering Number	Nominal Length	Weight	Pressure Rating
Fractional Length			ft	lb/ft (kg/m)	psig (bar)
1/4	0.095	SS-T4FK-S-095-20-S	20	0.16 (0.24)	15 000 (1034)
3/8	0.134	SS-T6FK-S-134-20-S		0.35 (0.52)	
1/2	0.188	SS-T8FK-S-188-20-S		0.64 (0.95)	
Metric Length			m	kg/m (lb/ft)	bar (psig)
1/4	0.095	SS-T4FK-S-095-6M-S	6	0.24 (0.16)	1034 (15 000)
3/8	0.134	SS-T6FK-S-134-6M-S		0.52 (0.35)	
1/2	0.188	SS-T8FK-S-188-6M-S		0.95 (0.64)	

JIS Tubing

Tube OD in.	Nominal Wall Thickness in.	Ordering Number	Nominal Length m	Weight kg/m (lb/ft)	Pressure Rating bar (psig)
1/4	0.095	SS-T4FK-S-095-2MJ-S	2	0.24 (0.16)	1034 (15 000)
		SS-T4FK-S-095-4MJ-S	4		
3/8	0.134	SS-T6FK-S-134-2MJ-S	2	0.52 (0.35)	
		SS-T6FK-S-134-4MJ-S	4		
1/2	0.188	SS-T8FK-S-188-2MJ-S	2	0.95 (0.64)	
		SS-T8FK-S-188-4MJ-S	4		

Cold-Drawn 1/8-Hard 316 / 316L Stainless Steel Seamless Tubing

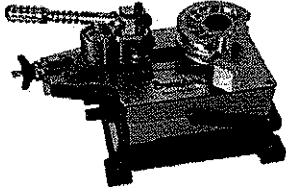
ASTM / EN Tubing

Tube OD in.	Nominal Wall Thickness in.	Ordering Number	Nominal Length	Weight	Pressure Rating
Fractional Length			ft	lb/ft (kg/m)	psig (bar)
1/4	0.065	SS-T4FK-SH-065-20-S	20	0.13 (0.19)	15 000 (1034)
3/8	0.083	SS-T6FK-SH-083-20-S		0.26 (0.39)	
1/2	0.109	SS-T8FK-SH-109-20-S		0.47 (0.70)	
Metric Length			m	kg/m (lb/ft)	bar (psig)
1/4	0.065	SS-T4FK-SH-065-2M-S	2	0.19 (0.13)	1034 (15 000)
		SS-T4FK-SH-065-4M-S	4		
		SS-T4FK-SH-065-6M-S	6		
3/8	0.083	SS-T6FK-SH-083-2M-S	2	0.39 (0.26)	
		SS-T6FK-SH-083-4M-S	4		
		SS-T6FK-SH-083-6M-S	6		
1/2	0.109	SS-T8FK-SH-109-2M-S	2	0.70 (0.47)	
		SS-T8FK-SH-109-4M-S	4		
		SS-T8FK-SH-109-6M-S	6		

Options and Accessories

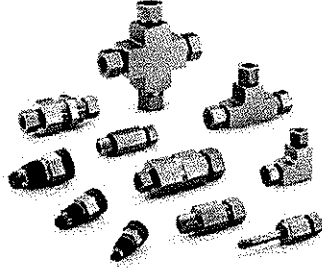
Bench Top Tube Bender

For optimal bending ability, use the Swagelok bench top bender with **steel bend shoes**. See the *Swagelok Tools and Accessories* catalog, MS-01-169, for more information.



Fittings

See the *Swagelok Medium-Pressure Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-02-335, for more information.



Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.



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

CERTIFIED MILL TEST REPORT

LOG NO. 322867 PAGE 1

BONNEY FORGE
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: VAN LEEUWEN PIPE & TUBE

Date 06/27/08

CUSTOMER'S Order No.: 5001149

Bonney Order No: 0034198

SHIPPED TO: VAN LEEUWEN PIPE & TUBE
2875 - 64TH AVENUE

EDMONTON, ABT6P1R1 Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

SA/A105N

133	17	57456	36-3X2 XS A105N LREQ B						
		37556		C	.190 MN	1.060 P	.007 S	.018 SI	.210
				NI	.020 CU	.060 CD	.002 CR	.040 MD	.010
				V	.000 AL	.024 NB	.016		
				CE(LONG FORMULA) = 0.38					
				T/S 77000 Y/S 52500 EL 30.00 RA 64.00					
				BRINELL HARDNESS1: 141 HARDNESS2: 144					

135	23	56333	36-2X11/2 3M A105N LREQ T						
		37559		C	.190 MN	1.020 P	.008 S	.023 SI	.250
				NI	.020 CU	.070 CD	.002 CR	.030 MD	.007
				V	.025 AL	.001 NB	.001		
				CE(LONG FORMULA) = 0.38					
				T/S 78750 Y/S 54000 EL 31.50 RA 67.90					
				BRINELL HARDNESS1: 144 HARDNESS2: 141					
		56395	36-2X11/2 3M A105N LREQ T						
				C	.180 MN	1.040 P	.010 S	.017 SI	.240
				NI	.030 CU	.100 CD	.004 CR	.060 MD	.010
				V	.022 AL	.001 NB	.002		
				CE(LONG FORMULA) = 0.38					
				T/S 77250 Y/S 52500 EL 32.65 RA 65.60					
				BRINELL HARDNESS1: 144 HARDNESS2: 144					

40	50	57318	36-3/4X1/2 6M A105N LREQ T						
		37564		C	.210 MN	1.020 P	.009 S	.019 SI	.220
				NI	.030 CU	.090 CD	.004 CR	.060 MD	.010
				V	.000 AL	.020 NB	.016		
				CE(LONG FORMULA) = 0.40					
				T/S 74875 Y/S 51125 EL 32.15 RA 63.50					
				BRINELL HARDNESS1: 130 HARDNESS2: 130					

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

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

by 

Cris Boozel

CERTIFIED MILL TEST REPORT



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LOG NO. 322867

PAGE 2

BONNEY FORGE
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(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906
www.bonneyforge.com

CUSTOMER: VAN LEEUWEN PIPE & TUBE

Date 06/27/08

CUSTOMER'S Order No: 5001149

Bonney Order No: 0034198

SHIPPED TO: VAN LEEUWEN PIPE & TUBE
2875 - 64TH AVENUE

EDMONTON, ABT6P1R1 Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS.

THE FITTINGS SUPPLIED ARE IN ACCORDANCE WITH PURCHASE ORDER SPECIFICATIONS.

THE MATERIAL SUPPLIED IDENTIFIED AS A105N WAS NORMALIZED IN ACCORDANCE WITH ASTM A105 HEAT TREATING REQUIREMENTS.

CERTIFYING ASTM A105-05 / ASME SA105-04 EDITION.

THE MATERIAL OF THE FITTINGS SUPPLIED IS ASTM A350-LF2 BUT MEETS THE REQUIREMENTS OF ASME SA350-LF2.

THE CHARPY V-NOTCH IMPACT TEST WAS PERFORMED AT -50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350-LF2.

CERTIFYING TO ASTM A350 LF2 04A REVISION.

THE MATERIAL SUPPLIED WAS NORMALIZED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS.

THE MATERIAL SUPPLIED WAS QUENCH AND TEMPERED IN ACCORDANCE WITH ASTM A350 HEAT TREATING REQUIREMENTS. TESTING WAS PERFORMED AT - 50 DEGREES FAHRENHEIT IN ACCORDANCE WITH A350 LF2.
HEAT# 38355

ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.

2. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)

1. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF BOTH NACE MR0103-
***** CONTINUED ON NEXT PAGE *****

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

by 

Cris Boozel

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LOG NO. 322867 PAGE 3

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www.bonneyforge.com

CUSTOMER: VAN LEEUWEN PIPE & TUBE

Date 06/27/08

CUSTOMER'S Order No: 5001149

Bonney Order No: 00034198

SHIPPED TO VAN LEEUWEN PIPE & TUBE
2875 - 64TH AVENUE

EDMONTON, ABT6P1R1 Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

2005 AND NACE MRD175-2002.

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

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

by 
Cris Boozel



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CERTIFIED MILL TEST REPORT

LOG NO. F0000000013148

Page 9 of 10

BONNEY FORGE CORPORATION

P.O. BOX 330 • 14496 CROGHAN PIKE • MOUNT UNION, PA 17066-033
(814) 542-2545 • (800) 345-7546 • FAX (814) 542-4906

www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

CUSTOMER

ORDER NO.: 4889602-00

DATE 04/11/2011

BONNEY ORDER NO. B000094654

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:

31	25	58038	36-3/4 X 1/2 3M A105N LREO T	SA/A105N
7552203				
			Al 0.021 C 0.210 Cb 0.000 Co 0.004 Cr 0.040 Cu 0.140 Mn 1.000 Mo 0.010	
			N 0.005 Nb 0.013 Ni 0.040 P 0.008 S 0.018 Si 0.210 Sn 0.010 V 0.004	
			CE(Long Formula) = 0.40	
			T/S(PSI) 72,500 Y/S(PSI) 49,375 EL(%) 33.65 RA(%) 65.85	
			Brinell 137 BHN 135 BHN	

32	25	57444	36-3/4X1/2 6M A105N LREO T	SA/A105N
7552360				
			Al 0.025 C 0.210 Co 0.003 Cr 0.050 Cu 0.160 Mn 1.000 Mo 0.020 Nb 0.014	
			Ni 0.040 P 0.018 S 0.018 Si 0.210 V 0.000	
			CE(Long Formula) = 0.40	
			T/S(PSI) 76,000 Y/S(PSI) 51,500 EL(%) 30.00 RA(%) 63.00	
			Brinell 141 BHN 139 BHN	

33	30	58127	36-2 X 1 6000 A105N LREO T	SA/A105N
7552386				
			Al 0.020 C 0.210 Cb 0.000 Co 0.004 Cr 0.050 Cu 0.150 Mn 1.050 Mo 0.010	
			N 0.006 Nb 0.015 Ni 0.040 P 0.007 S 0.022 Si 0.170 V 0.003	
			CE(Long Formula) = 0.41	
			T/S(PSI) 73,000 Y/S(PSI) 47,300 EL(%) 31.00 RA(%) 67.00	
			Brinell 143 BHN 143 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



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CERTIFIED MILL TEST REPORT

LOG NO. F00000000013148

Page 10 of 10

BONNEY FORGE CORPORATION

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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

CUSTOMER

ORDER NO.: 4889602-00

SHIP TO: CCTF CORPORATION (EDMONTON)

5407 - 53RD AVE.

EDMONTON AB T6B 3G2

Canada

DATE 04/11/2011

BONNEY ORDER NO. B000094654

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 MRO103-2007 AND NACE MRO175/ISO 15156-2.
4. CERTIFYING ASTM A105-09 / ASME SA105-07 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 IN 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



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LOG NO. 34005B

PAGE 1

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www.bonneyforge.com

CUSTOMER: CCTF CORPORATION

Date 01/12/10

CUSTOMER'S Order No.:4886940-00

Bonney Order No000063172

SHIPPED TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.

EDMONTON, ABT6B 3G2 Canada

ITEM QUANTITY LOT NO.

GRADE OR SPECIFICATION NO.
CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:

ITEM	QUANTITY	LOT NO.	GRADE OR SPECIFICATION NO.	CHEMICAL ANALYSIS, PHYSICAL PROPERTIES, REMARKS:
005	25	56618	7552092	SA/A105N 21/2-11/4X3/4 6M A105N THRD T C .180 MN 1.010 P .007 S .019 SI .180 NI .050 CU .210 CD .004 CR .060 MD .020 V .000 AL .020 NB .017 CE(LONG FORMULA) = 0.38 T/S 76250 Y/S 52500 EL 31.85 RA 62.75 BRINELL HARDNESS1: 132 HARDNESS2: 132
57318	7552092			21/2-11/4X3/4 6M A105N THRD T C .210 MN 1.020 P .009 S .019 SI .220 NI .030 CU .090 CD .004 CR .060 MD .010 V .000 AL .020 NB .016 CE(LONG FORMULA) = 0.40 T/S 74875 Y/S 51125 EL 32.15 RA 63.50 BRINELL HARDNESS1: 130 HARDNESS2: 130
57827	7552092			21/2-11/4X3/4 6M A105N THRD T C .200 MN 1.040 P .008 S .024 SI .240 NI .030 CU .120 CR .030 MD .010 V .003 AL .024 NB .013 CE(LONG FORMULA) = 0.39 T/S 71375 Y/S 47500 EL 32.20 RA 65.85 BRINELL HARDNESS1: 132 HARDNESS2: 132

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

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

by *Brenda Garlock*

Brenda Garlock

CMTR: REV 1

QUALITY PROCESS MANAGER

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LOG NO. 34005B PAGE 2

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CUSTOMER: CCTF CORPORATION

CUSTOMER'S Order No.:4886940-00

SHIPPED TO: CCTF CORPORATION (EDMONTON)
5407 - 53RD AVE.

EDMONTON, ABT6B 3G2 Canada

Date 01/12/10

Bonney Order No.000063172

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. CERTIFYING ASTM A105-05 / ASME SA105-07 EDITION.
4. THE MATERIAL SUPPLIED MEETS THE REQUIREMENTS OF BOTH NACE MR0103-2007 AND NACE MR0175/ISO 15156.
5. ELONGATION TEST RESULTS ARE OBTAINED USING STANDARD ROUND SPECIMEN, 2 INCH OR 50 MM GAGE LENGTH.
6. THE PRODUCT SUPPLIED WAS INSPECTED IN ACCORDANCE WITH EN 10204:2004 EDITION TYPE 3.1 INSPECTION DOCUMENT. (EUROPEAN STANDARD)

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

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

by *Brenda Garlock*

Brenda Garlock

CMTR: REV 1

QUALITY PROCESS MANAGER

M.E.G.A.

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

CERTIFICATO N. 541586 FOLIO 7
Certificata N. Sheet
Certificat N. Feuille
DMA / Date 14/06/07

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
CERTIFICAT DE CONTROLE
= ISO 9001 =

CLIENT
Customer
Client

CONFIRMATION
Confirmation de commande

81964

ORDER
Purchase order
Commande

CA17933KD

PROVA Test Espriue	MATERIALE Steel quality / Matiere	COLUVA Heat / Couale	C %	SI %	Mn %	S %	P %	Cr %	Ni %	Mo %	Ti %	Cr %	V %	Al %	CE %
LLAC	ASTM A105/03	71551	0.195	0.220	0.790	0.014	0.015	00.10	00.06	0.010	0.017	0.200	0.021	0.022	0.370
NDAS	ASTM A105/03	0340113	--->	Nb% = 0.000	0.830	0.007	0.008	00.15	00.02	0.009	0.000	0.057	0.002	0.000	0.357
NDAT	ASTM A105/03	0340113	--->	Nb% = 0.003	0.830	0.007	0.008	00.15	00.02	0.009	0.000	0.057	0.002	0.000	0.357
NDAU	ASTM A105/05	IT 23944	--->	Nb% = 0.003	0.780	0.014	0.010	00.06	00.08	0.020	0.000	0.160	0.000	0.000	0.362
NFTA	ASTM A105/05	IT 24203	--->	Nb% = 0.003	0.850	0.014	0.017	00.08	00.13	0.030	0.000	0.240	0.000	0.000	0.378
NFTB	ASTM A105/05	06/73217	--->	Nb% = 0.000	0.790	0.014	0.014	00.10	00.05	0.010	0.000	0.170	0.018	0.000	0.376

PROVA Test Espriue	PROVETA Test specimen / Epreuve		SNERVAMENTO Yield strength Limite d'elasticite	ROTTURA Minmax Tensile strength Rupture	ALLUNGAMENTO Elongation Allongement	CONTRAZIONE Reduction of area Striction	DUREZZA HB Hardness Durete	PESA Brand test Flaga	ECHACC. Fat. test Apathies.	RESISTENZA Impact test / Resistance			
	SEZIONE Section / Sect.	LUNGHEZZA Length / Longueur								UNITA MIS. Unit system	TPO Type	T. °C Test temp.	VALORE / Value / Donnees
LLAC	1	30.6	25.0	313.0	30.3	67.1	156-163			J	KV	0	42-34-40
NDAS	1	30.6	25.0	338.0	29.7	56.2	140-142			J	KV	0	50-40-52
NDAT	1	30.6	25.0	348.0	30.1	55.7	148-154			J	KV	0	46-42-40
NDAU	1	30.6	50.0	307.0	32.1	69.9	143-146			J	KV	0	50-60-58
NFTA	1	30.1	25.0	360.0	27.3	60.1	170-175			J	KV	0	48-60-58
NFTB	1	30.6	25.0	350.0	29.1	52.8	170-173			J	KV	0	48-52-54

NOTE / Remarcs / Notes
EN10204/3.1
FRMA Shipper / Forme : 1 = 0 2 = □

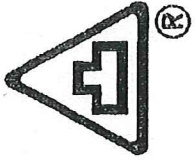
LLAC	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40304.05 FEAT*247669 MEGA*
NDAS	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40102.06 FEAT*532590 MEGA*
NDAT	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40103.06 FEAT*532590 MEGA*
NDAU	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40216.06 FEAT*534024 MEGA*
NFTA	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40215.06 FEAT*534024 MEGA*
NFTB	ELECT. FURNACE-NORMALIZED AT 910 C COOLED IN STILL AIR. /CERT. 40930 RIVA ACCIAI*

PROVA Test Espriue	QNTITA Quantity	CHOICE CLIENTE Customer code	DESCRIZIONE / Description / Description	VISUAL AND DIMENSIONAL
LLAC 027	48	CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	nut
NDAS 027	48	CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	male
NDAT 027	48	CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	female
NDAU 028	1886	CA17933KD	UNION S. 3000 NPT A/SA105N 2	male
NFTA 028	1886	CA17933KD	UNION S. 3000 NPT A/SA105N 2	nut
NFTB 028	112	CA17933KD	UNION S. 3000 NPT A/SA105N 2	nut

NOTE / Remarcs / Notes		ENTE UFFICIALE DI COLLAUDO Inspection Authority Service Inspection Official	CAPO COLLAUDO Chief Inspection D/P/T Responsible assurance quality
MATERIAL ACCORDING TO NACE MR0175/ 2003.			

MEGA S.p.A. - VIA DANIELA CHIFSA 3 - SCANZOROSCIATE (BG) ITALY - TEL. +39 035 661280 - TELEFAX +39 035 665535

211
Hex Union
NFTA NFTB



柏緯鐵工股份有限公司
高雄縣仁武鄉烏林村仁心路 303 號

BOTH-WELL STEEL FITTINGS CO., LTD.
NO.303, JEN-HSIN ROAD JEN-WU HSIANG
KAOHSIUNG HSIEN, TAIWAN R.O.C.(81460)

TEL: (07) 371-0497, 371-1536, 372-0260 FAX: (886-7) 371-3864, 371-3882
WEB SITE: <http://www.bothwell.com.tw> E-MAIL: bothwell@www.bothwell.com.tw or box@mail.bothwell.com.tw

An ISO-9001 Registered Manufacturer



MILL TEST OR INSPECTION CERTIFICATE

ORIGIN: TAIWAN
DATE: 07/12/07
PAGE: 1

ACCORDING TO EN10204/DIN50049/3.1.B
INVOICE NO: BW079603066
L/C NO: 155199242

CUSTOMER: WFF FITTINGS AND FLANGES (CANADA) LTD.,
CERT NO: 71535 ORDER NO: CA17934KD

ITEM	RAW MATERIAL HEAT NO.	BOTH WELL HT. CD.	DESCRIPTION	QUANTITY	SPECIFICATION: ASTM A105N -05 ASME SA105N -A06
022	385105	2456	UNION 1/4" 3000# NPT	300PC	DIMENSION: MSS-SP-83 - 2001 SURFACE: BY VISUAL...GOOD
023	389651	2601	UNION 3/8" 3000# NPT	150PC	
024	391372	2647	UNION 1" 3000# NPT	3000PC	
025	390686	2629	UNION 1" 6000# S/W	25PC	
026	392199	2669	UNION 1-1/2" 3000# NPT	100PC	
027	392203	2672	UNION 2" 3000# NPT	2375PC	
027	392202	2677	UNION 2" 3000# NPT	1585PC	

CHEMICAL COMPOSITION (%)

ITEM	C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)	N
Min	0.100	0.100	0.600	-	-	-	-	-	-	-	-	-
Max	0.350	0.350	1.050	0.035	0.040	0.400	0.300	0.400	0.120	0.080	-	-
022	0.200	0.190	0.840	0.017	0.009	0.070	0.080	0.040	0.010	0.003	0.001	-
023	0.200	0.200	0.850	0.022	0.006	0.140	0.100	0.050	0.010	0.003	0.003	-
024	0.210	0.200	0.850	0.014	0.011	0.150	0.090	0.060	0.010	0.003	0.001	-
025	0.220	0.190	0.890	0.023	0.009	0.140	0.110	0.060	0.020	0.005	0.002	-
026	0.210	0.200	0.860	0.015	0.016	0.150	0.050	0.040	0.010	0.003	0.002	-
027	0.220	0.220	0.870	0.016	0.017	0.180	0.090	0.060	0.010	0.003	0.002	-
027	0.210	0.230	0.820	0.017	0.011	0.170	0.080	0.050	0.010	0.003	0.002	-

MECHANICAL TEST

Remark:
NORMALIZED : 850°C

ITEM	Tensile Strength (KSI)	Yield Strength (KSI)	Elon- Gation (%)	R of A (%)	Hardness (HB)	CHEMICAL COMPOSITION (%)																	
						C	Si	Mn	P	S	Cu	Cr	Ni	Mo	V	Cb(Nb)	N						
Min	70.0	36.0	22.0	30.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Max	-	-	-	-	187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
022	77.7	56.6	28.8	64.9	143	0.200	0.190	0.840	0.017	0.009	0.070	0.080	0.040	0.010	0.003	0.001	-	-	-	-	-	-	-
023	77.9	57.1	31.6	64.0	143	0.200	0.200	0.850	0.022	0.006	0.140	0.100	0.050	0.010	0.003	0.003	-	-	-	-	-	-	-
024	76.9	51.3	29.2	65.0	142	0.210	0.200	0.850	0.014	0.011	0.150	0.090	0.060	0.010	0.003	0.001	-	-	-	-	-	-	-
025	78.9	59.6	30.0	62.5	145	0.220	0.190	0.890	0.023	0.009	0.140	0.110	0.060	0.020	0.005	0.002	-	-	-	-	-	-	-
026	75.9	48.9	32.8	64.9	141	0.210	0.200	0.860	0.015	0.016	0.150	0.050	0.040	0.010	0.003	0.002	-	-	-	-	-	-	-
027	75.7	48.8	31.8	65.9	141	0.220	0.220	0.870	0.016	0.017	0.180	0.090	0.060	0.010	0.003	0.002	-	-	-	-	-	-	-
027	76.0	50.2	31.8	67.6	142	0.210	0.230	0.820	0.017	0.011	0.170	0.080	0.050	0.010	0.003	0.002	-	-	-	-	-	-	-

WE CERTIFY THE ABOVE MENTIONED FITTINGS HAVE BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN

S.C. Lee *C.C. Huang*

Q.C. MANAGER INSPECTOR
SHENG CHENG LEE CHUN CHIEH HUANG

MEGIA

CLIENTE
Customer
Client

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

CERTIFICATO N.
Certificate N.
Certificat N.
541586
Foglio
Sheet
Feuille
7
DATA / Date
14/06/07

CERTIFICATO DI COLLAUDO
TEST CERTIFICATE
CERTIFICAT DE CONTROLE

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
ISO 9001

ORIGINE
Purchase order
Commande

CA17933KD

COMMESSA
Job N.
Confirmation de commande

81964

PROVA Test Epreuve	MATERIALE Steel quality / Matière	COLATA Heat / Coûlé	C %	SI %	Mn %	S %	P %	Cr %	Ni %	Mo %	Ti %	Cu %	V %	Al %	CE %
LLAC	ASTM A105/03	71551	0.195	0.220	0.790	0.014	0.015	00.10	00.06	0.010	0.017	0.200	0.021	0.022	0.370
NDAS	ASTM A105/03	0340113	0.180	0.200	0.830	0.007	0.008	00.15	00.02	0.009	0.000	0.057	0.002	0.000	0.357
NDAT	ASTM A105/03	0340113	0.180	0.200	0.830	0.007	0.008	00.15	00.02	0.009	0.000	0.057	0.002	0.000	0.357
NDAU	ASTM A105/05	1T 23944	0.200	0.190	0.780	0.014	0.010	00.06	00.08	0.020	0.000	0.160	0.000	0.000	0.362
NFTA	ASTM A105/05	1T 24203	0.190	0.190	0.850	0.014	0.017	00.08	00.13	0.030	0.000	0.240	0.000	0.000	0.378
NFTB	ASTM A105/05	06/73217	0.205	0.210	0.790	0.014	0.014	00.10	00.05	0.010	0.000	0.170	0.018	0.000	0.376

PROVA Test Epreuve	PROVETTA Test specimen / Epreuve	LUNGHEZZA Length / Longueur	SPOSTAMENTO Yield point Limite d'élasticité	ROTTURA Tensile strength Rupture	ALLUNGAMENTO Elongation Allongement	CONTRAZIONE Reduction of area Striction	DUREZZA HB Hardness Durezza	PIEGA Bend test Pluige	SCRAC. Flat. test Apantse	RESILLENZA Impact test / Résilience			
										UNITÀ MIS. Unit system	Tipo Type	T. °C Test temp	VALORE / Value / Donnée
LLAC	1	30.6	25.0	313.0	30.3	67.1	156-163			J	KV	0	42-34-40
NDAS	1	30.6	25.0	338.0	29.7	56.2	140-142			J	KV	0	50-40-52
NDAT	1	30.6	25.0	348.0	30.1	55.7	148-154			J	KV	0	46-42-40
NDAU	1	30.6	50.0	307.0	32.1	69.9	143-146			J	KV	0	50-60-58
NFTA	1	30.1	25.0	360.0	27.3	60.1	170-175			J	KV	0	48-60-58
NFTB	1	30.6	25.0	350.0	29.1	52.8	170-173			J	KV	0	48-52-54

NOTE / Remarks / Notes
EN10204/3.1

FORMA
Shape / Forme
: 1 = Ø 2 = □

PROVA Test Epreuve	QUANTITÀ Quantity	CODICE CLIENTE Code client	DESCRIZIONE / Description	VISUAL AND DIMENSIONAL
LLAC	027	48 CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	nut
NDAS	027	48 CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	male
NDAT	027	48 CA17933KD	UNION S. 3000 NPT A/SA105N 1.1/2	female
NDAU	028	1886 CA17933KD	UNION S. 3000 NPT A/SA105N 2	male
NFTA	028	1886 CA17933KD	UNION S. 3000 NPT A/SA105N 2	nut
NFTB	028	112 CA17933KD	UNION S. 3000 NPT A/SA105N 2	nut

NOTE / Remarks / Notes		ENTE UFFICIALE DI COLLAUDO Inspection Authority Service Inspection Office	
MATERIAL ACCORDING TO NACE MR0175 / 2003.		CAPO COLLAUDO Chief Inspection DPT Responsible assurance quality	
		DOC. CE... M.E.G.A. L. ...	

Seamless
Nipples

Jinan Meide Casting Co., Ltd.
No. 3 Nannan Road, Pingyin, Jinan China

Material Test Report

Customer : SEYBOLD INTERNATIONAL CORP.CTID

CertNo/OrderNo 311-1023677B

P.O. NO: 7003367

Material Specification : ASTM A106 B

DESCRIPTION	Lot No.	Mechanical Properties					Chemical Analysis %							
		Y.S.	U.T.S.	Elong	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V
		min	min	min	Max	0.29	Max	Max	0.035	0.1	0.4	0.4	0.15	0.4
SCH160. SEAMLESS BLK NIPPLES 1/2X4	007120506	335	460	34	0.19	0.53	0.01	0.008	0.2	0.06	0.11	0.012	0.04	0.001
SCH160. SEAMLESS BLK NIPPLES 2X12	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X21/2	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X5	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X7	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 3X12	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 3X6	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 4X8	Y707-089	335	475	33.5	0.19	0.51	0.013	0.005	0.22	0.02	0.06	0.013	0.01	0.001

Inspector : Xia Yuling

Q.C. Manager : Zhu Xuguang

date: 10/Feb/11

Jinan Meide Casting Co., Ltd.
 No. 3 Nannmen Road, Pingyin, Jinan China
 Material Test Report

Customer : SEYBOLD INTERNATIONAL CORP.CTID

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Material Specification : ASTM A106 B

DESCRIPTION	Lot No.	Mechanical Properties					Chemical Analysis %							
		Y.S.	U.T.S.	Elong	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V
		min	min	min	Max	0.29-	Max	Max	Min	Max	Max	Max	Max	Max
SCH160. SEAMLESS BLK NIPPLES 1/2X4	007120506	335	460	34	0.19	0.53	0.01	0.008	0.2	0.06	0.11	0.012	0.04	0.001
SCH160. SEAMLESS BLK NIPPLES 2X12	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X21/2	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X5	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X7	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 3X12	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 3X6	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 4X8	Y707-089	335	475	33.5	0.19	0.51	0.013	0.005	0.22	0.02	0.06	0.013	0.01	0.001

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 Material Test Report

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CertNo/OrderNo 311-1023677B

P.O. NO: 7003367

Material Specification : ASTM A106 B

DESCRIPTION	Lot No.	Mechanical Properties					Chemical Analysis %							
		Y.S.	U.T.S.	Elong	C	Mn	P	S	SI	Cr	Cu	Mo	NI	V
		min	min	min	Max	0.29-	Max	Max	0.035	0.1	Max	Max	Max	Max
SCH160. SEAMLESS BLK NIPPLES 1/2X4	007120506	335	460	34	0.19	0.53	0.01	0.008	0.2	0.06	0.11	0.012	0.04	0.001
SCH160. SEAMLESS BLK NIPPLES 2X12	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X21/2	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X5	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 2X7	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002
SCH160. SEAMLESS BLK NIPPLES 3X12	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 3X6	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001
SCH160. SEAMLESS BLK NIPPLES 4X8	Y707-089	335	475	33.5	0.19	0.51	0.013	0.005	0.22	0.02	0.06	0.013	0.01	0.001

Inspector : Xia Yuling

Q.C. Manager : Zhu Xuguang

date: 10/Feb/11

2

Jinan Meide Casting Co., Ltd.
 No. 3 Nanmen Road, Pingyin, Jinan China

Item No	DESCRIPTION	Lot No.	Mechanical Properties										Chemical Analysis %															
			Y.S.	U.T.S.	Elong	C	Mn	P	S	Si	Cr	Cu	Mo	Ni	V	min	min	min	min	Max	Max	Max	Max	Max	Max	Max		
BN SCH160. SEAMLESS BLK NIPPLES 2X7	Y712-576	345	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002	240Mpa	415Mpa	26	0.3	1.06	0.035	0.035	0.1	0.4	0.4	0.15	0.4	0.08
BN SCH160. SEAMLESS BLK NIPPLES 2XCLOSE	Y712-576	345	465	34.5	0.2	0.52	0.014	0.006	0.19	0.02	0.06	0.01	0.01	0.002	240Mpa	415Mpa	26	0.3	1.06	0.035	0.035	0.1	0.4	0.4	0.15	0.4	0.08	
BN SCH160. SEAMLESS BLK NIPPLES 3X10	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001	240Mpa	415Mpa	26	0.3	1.06	0.035	0.035	0.1	0.4	0.4	0.15	0.4	0.08	
BN SCH160. SEAMLESS BLK NIPPLES 3X6	Y706-241	335	455	32.5	0.18	0.53	0.015	0.009	0.21	0.03	0.04	0.01	0.01	0.001	240Mpa	415Mpa	26	0.3	1.06	0.035	0.035	0.1	0.4	0.4	0.15	0.4	0.08	

Inspector: Xia Yuling

Q.C. Manager: Zhu Xuguang

Jinan Meide Casting Co., Ltd
 Authorized Signature



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: IID

Heat Number: E18740

Item: 15132010: 2X5 SCH 160 SMLS NIPL

Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.1700	0.7900	0.0120	0.0080	0.2500	0.0140	0.0200
Ni	Mo	V	Co	Al	Cb	N
0.0160	0.0020	0.0010		0.0320		
Pb	Sn	Ta	Ti	C Eq. Long		
	0.0020		0.0020	0.3080		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in.	Reduction	HBW	HBW 2
70787	44759	35.6%		136	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:

Flattening test passed.



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: XKD

Heat Number: 9189F

Item: 15132010: 2X5 SCH 160 SMLS NIPL

Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.1600	0.8200	0.0160	0.0030	0.2300	0.1700	0.1000
Ni	Mo	V	Co	Al	Cb	N
0.0600	0.0150	0.0020				
Pb	Sn	Ta	Ti	C Eq. Long		
				0.3350		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in.	Reduction	HBW	HBW 2
74914	50523	36.8%		149	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.

Bend Test Passed

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

Specification comments:

Meets Hardness Requirements of NACE MRO175 latest edition. Meets ASME SA 106 Grade B Requirements. No weld repair was performed on these products. This material was not exposed to Mercury or any other metal alloy that is liquid at ambient temperatures during processing or while in our possession.

Heat Code Remarks:



Phoenix * Capitol * Camco

Cap Products

Certified Mill Test Report

Heat Code: GGI

Heat Number: E18691

Item: 15132010: 2X5 SCH 160 SMLS NIPL

Material: ASTM A106-2008 / ASME SA106-2007 Edition, No Addenda

Chemistry Properties

C	Mn	P	S	Si	Cu	Cr
0.1600	0.7700	0.0100	0.0080	0.2500	0.0140	0.0400
Ni	Mo	V	Co	Al	Cb	N
0.0170	0.0040	0.0010				
Pb	Sn	Ta	Ti	C Eq. Long		
				0.2990		

Additional Chemical Properties

Mechanical Properties

Tensile(PSI)	Yield(PSI)	Elong. % in 2 in.	Reduction	HBW	HBW 2
69820	46551	34.4%		137	

Charpy Minimum Impact - ft/lbs

Test 1	Test 2	Test 3	Avg.	Test Temp.

Bend Test Passed

Hydro Test Passed at 2500 psi

This material meets the requirements of the governing specifications. We certify that the above material has been inspected and tested in accordance with the methods prescribed in the governing specification and the results of such inspections and tests conform with applicable requirements.

We further certify this material was inspected with independent inspectors conforming to the requirements of EN 10204 Section 3.1B.

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Heat Code Remarks: