BILL OF LADING	31155
CUSTOMER NO.	4829
CUSTOMER P.O.	4500079346

SHIP TO

ACEROS DE GRADO C/O GULF STRM MAR
PORT OF BROWNSVILLE

BROWNSVILLE, TX

SPECIFICATIONS

ASTM A992/A992M-06a A572/A572M GR50-07
ASTM A709/A709M-09 GR50 (345)
ASTM A709/A709M-09 GR50S (345S)
ASTM A6/A6M-09

SOLD TO

ACEROS DE GRADO, SA DE CV
AV FELIX U GOMEZ 2828 NTE COL MODER
RFC AGR0811247V9
MONTERREY, NL CP 64530

ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO	YIELD STRENGTH PSI / MPa	TENSILE STRENGTH PSI / MPa	ELONG % / %	CHARPY IMPACT TEMP °F / °C	IMPACT ENERGY FT-LBS / JOULES			CHEMICAL PROPERTIES: C	Mn	P	S	Si	Cu	Ni	Cr	Mo / Sn	V / Pcm	Cb	CE / CI
1	W21 - 50.0	8	368929	.79	55000	70000	25					.07	.90	.020	.021	.24	.29	.10	.12	.03	.04	.001	.29
	40'			.79	55000	70000	27													.01	.15		
	W530 x 74.0				379	483	25																
	12.192 M				379	483	27																
2	W21 - 68.0	13	368881	.81	58000	72000	27					.07	1.12	.017	.024	.29	.29	.10	.13	.03	.00	.025	.32
	40'			.81	58000	72000	28													.01	.16		
	W530 x101.0				400	496	27																
	12.192 M				400	496	28																
3	W21 - 68.0	33	368884	.79	58000	73000	26					.08	1.10	.019	.024	.28	.33	.12	.12	.03	.00	.019	.32
	40'			.81	58000	72000	26													.01	.17		
	W530 x101.0				400	503	26																
	12.192 M				400	496	26																
4	W21 - 68.0	10	368889	.78	57000	73000	27					.08	1.11	.019	.023	.30	.29	.09	.11	.03	.00	.021	.33
	40'			.78	57000	73000	27													.01	.17		
	W530 x101.0				393	503	27																
	12.192 M				393	503	27																
5	W21 - 68.0	1	368893	.77	57000	74000	27					.09	1.19	.020	.022	.30	.30	.09	.13	.03	.00	.020	.35
	40'			.77	57000	74000	28													.01	.19		
	W530 x101.0				393	510	27																
	12.192 M				393	510	28																
6	W21 - 83.0	2	368877	.76	54000	71000	28					.07	1.10	.017	.022	.25	.28	.11	.12	.03	.00	.014	.31
	40'			.77	54000	70000	29													.01	.16		
	W530 x123.0				372	490	28																
	12.192 M				372	483	29																
7	W21 - 83.0	1	368918	.75	54000	72000	27					.07	1.10	.017	.024	.29	.32	.13	.13	.04	.00	.01	
	40'			.73	52000	71000	27													.01	.16		
	W530 x123.0				372	496	27																
	12.192 M				359	490	27																
8	W21 - 83.0	12	368920	.76	54000	71000	27					.07	1.11	.012	.021	.32	.31	.12	.11	.04	.00	.022	
	40'			.76	53000	70000	28													.01	.16		
	W530 x123.0				372	490	27																
	12.192 M				365	483	28																

$Pcm = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B$ B=Appm x .0005

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

Mercury has not been used in the direct manufacturing of this material.

Corrosion Index: $CI = 26.01(\%Cu) + 3.88(\%Ni) + 1.20(\%Cr) + 1.49(\%Si) + 17.28(\%P) - 7.29(\%Cu)(\%Ni) - 9.10(\%Ni)(\%P) - 33.39(\%Cu)^2$

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

I hereby certify that the contents of this report are accurate and correct. All test results and operations performed by this material manufacturer are in compliance with the requirements of the material specifications listed in the Specifications Block above.

Gary Lemmell

QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS

15 Day of 07/11

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

CHARLENE WALLIS
MY Comm. Exp. 10-21-2013
NOTARY PUBLIC
MISSISSIPPI CO. ARKANSAS