

ACC 009936 (Aceros de grado)

**CERTIFIED MILL TEST REPORT**

100% MELTED AND MANUFACTURED IN U.S.A.  
All shapes produced by Nucor-Yamato Steel are cast and rolled to a fully-killed and fine-grain practice.

**NUCOR-YAMATO STEEL CO.**

P.O. BOX 1228 • BLYTHEVILLE, AR 72316

DATE	5/26/11
INVOICE NO.	411777
BILL OF LADING	25078
CUSTOMER NO.	4829
CUSTOMER P.O.	4500073758

S	ACEROS DE GRADO C/O GULF STREAM
H	PORT OF BROWNSVILLE
P	BROWNSVILLE, TX
T	
O	

S	ASTM A992/A992M-06a A572/A572M GR50-01
P	ASTM A709/A709M-09 GR50 (345)
E	ASTM A709/A709M-09 GR50S (345S)
C	ASTM A6/A6M-09

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

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ITEM #	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES													
				YIELD TO TENSILE RATIO	YIELD STRENGTH	TENSILE STRENGTH	ELONG	CHARPY IMPACT		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE		
					PSI	PSI		TEMP	IMPACT ENERGY														
					MPa	MPa		°F	FT-LBS														
1	W18 106.0 40'	1	364045	.77	55000	71000	27					.07	1.10	.016	.024	.26	.28	.12	.13	.03	.00	.020	.31
	W460 x158.0 12.192 M			.76	54000	70000	26													.01	.16		
	W460 x158.0 12.192 M				379	490	27																
	W460 x158.0 12.192 M				372	490	26																
2	W18 106.0 40'	1	364101	.77	55000	71000	26					.07	1.20	.015	.021	.22	.28	.12	.11	.03	.04	.002	.34
	W460 x158.0 12.192 M			.75	54000	72000	26													.01	.17		
	W460 x158.0 12.192 M				379	490	26																
	W460 x158.0 12.192 M				372	496	26																
3	W18 106.0 40'	2	364112	.77	55000	71000	26					.08	1.20	.017	.020	.24	.32	.11	.13	.03	.04	.002	.35
	W460 x158.0 12.192 M			.76	56000	74000	25													.01	.18		
	W460 x158.0 12.192 M				379	490	26																
	W460 x158.0 12.192 M				386	510	25																
4	W18 106.0 40'	4	364113	.79	55000	70000	26					.07	1.23	.018	.019	.28	.34	.12	.12	.04	.05	.001	.35
	W460 x158.0 12.192 M			.76	54000	71000	26													.01	.18		
	W460 x158.0 12.192 M				379	483	26																
	W460 x158.0 12.192 M				372	490	26																
5	W18 106.0 40'	2	364114	.75	55000	73000	26					.08	1.21	.017	.022	.23	.32	.11	.13	.04	.04	.002	.35
	W460 x158.0 12.192 M			.77	54000	70000	25													.01	.18		
	W460 x158.0 12.192 M				379	503	26																
	W460 x158.0 12.192 M				372	483	25																
6	W18 106.0 40'	4	364115	.77	57000	74000	26					.08	1.20	.021	.024	.25	.30	.11	.13	.04	.05	.002	.35
	W460 x158.0 12.192 M			.74	55000	74000	26													.01	.18		
	W460 x158.0 12.192 M				393	510	26																
	W460 x158.0 12.192 M				379	510	26																
7	W18 106.0 40'	2	364117	.78	56000	72000	26					.07	1.21	.016	.024	.22	.35	.12	.10	.04	.04	.002	.34
	W460 x158.0 12.192 M			.75	55000	73000	24													.01	.17		
	W460 x158.0 12.192 M				386	496	26																
	W460 x158.0 12.192 M				379	503	24																
8	W18 106.0 40'	1	364121	.76	55000	72000	25					.07	1.20	.018	.020	.26	.31	.12	.11	.03	.04	.001	.34
	W460 x158.0 12.192 M			.78	56000	72000	25													.01	.17		
	W460 x158.0 12.192 M				379	496	25																
	W460 x158.0 12.192 M				386	496	25																
9	W27 -146.0 40'	12	361518	.82	58000	71000	27					.07	1.11	.012	.024	.26	.32	.11	.10	.03	.00	.020	.32
	W690 x217.0 12.192 M			.80	56000	70000	27													.01	.16		
	W690 x217.0 12.192 M				400	490	27																
	W690 x217.0 12.192 M				386	483	27																

Pen: C = C, Mn = Mn, P = P, S = S, Si = Si, Cu = Cu, Ni = Ni, Cr = Cr, Mo = Mo, V = V, Nb = Nb, Ti = Ti, Al = Al, Fe = Fe, Niobium = Nb, Vanadium = V, Titanium = Ti, Aluminum = Al, Iron = Fe

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

Corrosion Index: CI = 26.0(%Cu) + 2.88(%Ni) + 1.20(%Cr) + 1.48(%Si) + 17.28(%P) + 7.28(%Cu) + 8.10(%Ni) + 31.32(%C)

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.

*Signature*

QUALITY ASSURANCE

CUSTOMER COPY

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

26 Day of 05/11

*Signature*

NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

