LF 000149 - 2011

CERTIFIED MILL TEST REPORT

DATE	4/15/11
INVOICE NO.	403710
BILL OF LADING	19973
CUSTOMER NO.	0829
CUSTOMER P.O.	4500076465

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

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.

SHIP TO
FORTACER C/O GULF STREAM MARINE
PORT OF BROWNSVILLE

BROWNSVILE, 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
FORTACERO S.A. DE CV
BLVD CARLOS SALINAS DE GORTARI
KM 8.8
APODACA, N.L. MEXICO 66600

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	W12 - 79.0	2	363622	.78	54000	69000	30			.07	1.00	.016	.027	.26	.28	.09	.10	.03	.00	.020	.29
	40'			.77	53000	69000	28											.01	.15		
	W310 x117.0				372	476	30														
	12.192 M				365	476	28														
2	W12 - 79.0	2	363660	.77	54000	70000	25			.07	1.00	.014	.025	.24	.32	.11	.10	.03	.00	.019	.30
	40'			.79	55000	70000	27											.01	.16		
	W310 x117.0				372	483	25														
	12.192 M				379	483	27														
3	W12 - 96.0	3	363565	.79	55000	70000	29			.07	1.10	.016	.026	.26	.30	.10	.11	.03	.00	.021	.31
	40'			.79	55000	70000	28											.01	.16		
	W310 x143.0				379	483	29														
	12.192 M				379	483	28														
4	W12 - 96.0	8	363571	.77	55000	71000	28			.08	1.10	.014	.021	.25	.28	.10	.10	.03	.00	.021	.32
	40'			.77	55000	71000	28											.01	.17		
	W310 x143.0				379	490	28														
	12.192 M				379	490	28														
5	W12 - 96.0	15	363573	.79	56000	71000	28			.07	1.13	.012	.019	.27	.29	.10	.09	.03	.00	.022	.31
	40'			.77	55000	71000	28											.01	.16		
	W310 x143.0				386	490	28														
	12.192 M				379	490	28														
6	W12 - 96.0	10	363575	.77	55000	71000	24			.07	1.10	.010	.018	.24	.29	.11	.09	.03	.00	.020	.30
	40'			.79	56000	71000	27											.01	.16		
	W310 x143.0				379	490	24														
	12.192 M				386	490	27														
7	W18 - 76.0	2	364020	.84	61000	73000	24			.07	1.01	.016	.022	.22	.32	.10	.10	.03	.00	.020	.30
	40'			.82	61000	74000	25											.01	.16		
	W460 x113.0				421	503	24														
	12.192 M				421	510	25														
8	W18 - 76.0	2	364025	.83	60000	72000	25			.07	1.02	.017	.025	.23	.28	.12	.14	.03	.00	.021	.30
	40'			.85	60000	71000	24											.01	.16		
	W460 x113.0				414	496	25														
	12.192 M				414	490	24														
9	W18 - 76.0	1	364031	.83	60000	72000	24			.07	1.00	.016	.021	.24	.29	.12	.13	.03	.00	.019	.30
	40'			.83	60000	72000	24											.01	.16		
	W460 x113.0				414	496	24														
	12.192 M				414	496	24														

$Pcm = C + \frac{Si}{30} + \frac{Mn}{20} + \frac{Cu}{20} + \frac{Ni}{60} + \frac{Cr}{20} + \frac{Mo}{15} + \frac{V}{10} + 5B$ B=Approx .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 04/11

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

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