DATE	7/08/13
INVOICE NO.	563368
BILL OF LADING	115365
CUSTOMER NO.	5446
CUSTOMER P.O.	600700

NUCOR-YAMATO STEEL CO.

P.O. BOX 1228 ● BLYTHEVILLE,AR 72316

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.

SHIP TO

SOLD TO

SPECIFICATIONS

ASTM A992/A992M-11 A572/A572M GR50-07
ASTM A709/A709M-11 GR50 (345)
ASTM A709/A709M-11 GR50S (345S)
ASTM A6/A6M-12

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 - 96.0	6	402804	.76	54000	71000	29			.07	1.12	.011	.022	.26	.25	.11	.08	.03	.01	.020	.31
	40'			.78	54000	69000	28											.01	.16		
	W310 x143.0				372	490	29														
	12.192 M				372	476	28														
2	W12 - 96.0	3	403357	.76	53000	70000	28			.07	1.10	.014	.024	.25	.29	.09	.08	.03	.01	.019	.30
	40'			.77	55000	71000	28											.01	.16		
	W310 x143.0				365	483	28														
	12.192 M				379	490	28														
3	W12 - 96.0	6	406652	.78	59000	76000	25			.07	1.21	.017	.026	.22	.27	.14	.16	.04	.02	.020	.34
	40'			.79	59000	75000	26											.01	.17		
	W310 x143.0				407	524	25														
	12.192 M				407	517	26														
4	W12 - 96.0	16	406656	.79	59000	75000	26			.07	1.20	.018	.026	.24	.28	.13	.16	.04	.02	.018	.34
	40'			.80	59000	74000	26											.01	.17		
	W310 x143.0				407	517	26														
	12.192 M				407	510	26														
5	W12 - 96.0	3	406657	.78	58000	74000	26			.07	1.24	.020	.024	.24	.26	.11	.15	.04	.03	.019	.35
	40'			.78	58000	74000	26											.01	.17		
	W310 x143.0				400	510	26														
	12.192 M				400	510	26														
6	W12 - 96.0	4	406659	.76	58000	76000	26			.08	1.23	.016	.027	.26	.24	.10	.12	.04	.02	.018	.34
	40'			.79	59000	75000	26											.01	.18		
	W310 x143.0				400	524	26														
	12.192 M				407	517	26														
7	W12 - 96.0	1	406661	.79	60000	76000	25			.08	1.25	.017	.027	.24	.27	.11	.12	.04	.03	.019	.35
	40'			.78	59000	76000	25											.01	.18		
	W310 x143.0				414	524	25														
	12.192 M				407	524	25														
8	W12 - 96.0	4	406662	.77	60000	78000	26			.07	1.22	.022	.022	.27	.26	.14	.20	.04	.02	.019	.35
	40'			.78	61000	78000	26											.01	.17		
	W310 x143.0				414	538	26														
	12.192 M				421	538	26														
9	W12 - 96.0	2	406664	.79	59000	75000	27			.07	1.23	.019	.027	.22	.27	.16	.18	.04	.03	.018	.35
	40'			.80	60000	75000	26											.01	.17		
	W310 x143.0				407	517	27														
	12.192 M				414	517	26														

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

8 Day of 07/13

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2013

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