CERTIFIED MILL TEST REPORT

DATE	6/05/13
INVOICE NO.	556854
BILL OF LADING	111527
CUSTOMER NO.	5446
CUSTOMER P.O.	600675

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
FB C/O JORGE MIGUEL MEDRANO SANCHEZ
HIDALGO 3530 PAT 4100
FINAL: SAN LUIS POTOSI, SLP MX
NUEVO LAREDO, TM 88000

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

49543

SOLD TO
FERRE BARNIEDO, SA DE CV
AV REVOLUCION #81 COL SAN CRISTOBAL
ECATEPEC DE MORELOS
EDO, MEXICO CP 55000

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
	W18 - 76.0	1	399867	.78	56000	72000	27			.08	1.00	.017	.021	.23	.28	.15	.15	.04	.00	.020	.31
	40'			.80	57000	71000	27											.01	.17		
	W460 x113.0				386	496	27														
	12.192 M				393	490	27														
2	W18 - 76.0	2	403393	.77	54000	70000	28			.08	1.01	.015	.024	.24	.29	.09	.09	.02	.01	.019	.30
	40'			.77	53000	69000	26											.01	.16		
	W460 x113.0				372	483	28														
	12.192 M				365	476	26														
3	W18 - 76.0	2	404839	.77	57000	74000	28			.08	1.11	.013	.023	.22	.30	.12	.15	.04	.01	.018	.33
	40'			.78	57000	73000	26											.01	.17		
	W460 x113.0				393	510	28														
	12.192 M				393	503	26														
4	W18 - 76.0	10	404841	.77	57000	74000	27			.08	1.10	.017	.020	.21	.29	.13	.20	.07	.01	.018	.35
	40'			.77	57000	74000	26											.01	.18		
	W460 x113.0				393	510	27														
	12.192 M				393	510	26														
5	W18 - 76.0	12	404995	.78	56000	72000	26			.07	1.10	.016	.025	.21	.25	.10	.13	.03	.01	.019	.31
	40'			.77	56000	73000	28											.01	.16		
	W460 x113.0				386	496	26														
	12.192 M				386	503	28														
	W18 - 76.0	12	404996	.78	57000	73000	27			.07	1.10	.015	.021	.22	.27	.10	.14	.03	.01	.020	.31
	40'			.79	57000	72000	28											.01	.16		
	W460 x113.0				393	503	27														
	12.192 M				393	496	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=Approx..0005

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

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

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

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 Lennell

QUALITY ASSURANCE

CUSTOMER COPY

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS 5 Day of 06/13

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2018

CHARLENE WALLIS MY Comm. Exp. NOTARY PUBLIC 10-21-2018 MISSISSIPPI CO. ARKANSAS

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