

DATE	6/07/12
INVOICE NO.	487652
BILL OF LADING	70144
CUSTOMER NO.	5446
CUSTOMER P.O.	600384

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.

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

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

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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							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					
								TEMP	IMPACT ENERGY																	
								°F	FT-LBS																	
MPa	MPa	%	°F	FT-LBS	Sn	Pcm	CI																			
1	W36 -160.0 40' W920 x238.0 12.192 M	4	387047	.76	55000	72000	29				.08	1.11	.019	.020	.25	.28	.11	.21	.03	.01	.019	.35				
				.76	53000	70000	30																			
					379	496	29																			
					365	483	30																			
2	W36 -160.0 40' W920 x238.0 12.192 M	2	387054	.77	56000	73000	28				.08	1.11	.019	.021	.22	.28	.11	.10	.04	.01	.021	.33				
				.76	55000	72000	28																			
					386	503	28																			
					379	496	28																			
3	W36 -160.0 40' W920 x238.0 12.192 M	3	387056	.78	52000	67000	29				.07	1.12	.019	.019	.22	.28	.11	.11	.04	.01	.022	.32				
				.78	52000	67000	30																			
					369	462	29																			
					359	462	30																			
4	W36 -160.0 40' W920 x238.0 12.192 M	10	387058	.75	54000	72000	28				.08	1.10	.019	.025	.21	.26	.11	.13	.04	.01	.018	.32				
				.76	56000	74000	29																			
					372	496	28																			
					386	510	29																			
5	W36 -160.0 40' W920 x238.0 12.192 M	7	387059	.77	55000	71000	29				.08	1.10	.016	.027	.25	.27	.13	.13	.04	.01	.021	.33				
				.76	55000	72000	29																			
					379	490	29																			
					379	496	29																			

FERRE BARNIEDO, S.A. DE C.V.
 DEL TEL. 58-36-10-00
 ORIGINAL DE NUESTROS ARCHIVOS
 REMISION DE COPIA FIEL
 A NUESTROS ARCHIVOS
 ventas@ferrebarniedo.com.mx

Pcm = C + $\frac{Si}{30}$ + $\frac{Mn}{20}$ + $\frac{Cu}{20}$ + $\frac{Ni}{60}$ + $\frac{Cr}{20}$ + $\frac{Mo}{15}$ + $\frac{V}{10}$ + $\frac{S}{10}$ B=Approx. 0005
 CARBON EQUIVALENT: CR = 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=28.01(%Cu)+3.88(%Ni)+1.20(%Cr)+1.48(%S)+17.28(%P)+7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.38(%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.

Gay Lennell

QUALITY ASSURANCE

CUSTOMER COPY

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

7 Day of 06/12

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2015

