

NUCOR-YAMATO STEEL CO.

P O BOX 1228
BLYTHEVILLE AR 72316

DATE
7/19/06

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.

SOLD TO

FERRE BARNIEDO, S.A. DE C.V.
AV REVOLUCION NO 81
SAN CRISTOBAL ECATEPEC
EDO DE MEXICO 55000

SHIP TO

FERRE BARNIEDO C/O TAF FORWARDING
1207 UNIROYAL DRIVE
FINAL: SAN LUIS POTOSI, SLP MX
LAREDO, TX

INVOICE
60682

CUSTOMER NO.
5446

BILL OF LADING
795522

CUSTOMER P.O.
FERRE 5/9/06

905!

SPECIFICATIONS GRADE:

ASTM A709/A709M-03a GR50s (345s)

ASTM A992/A992M-04a A572/A572M GR50-04 ASTM A709/A709M-03a GR50 (345)
ASTM A6/A6M-05a

ITEM	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES								CHEMICAL PROPERTIES											
				YIELD TO TENSILE LBS IN ²	YIELD STRENGTH F80 MPa	TENSILE STRENGTH F80 MPa	ELONG %	CHARPY IMPACT		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE		
								TEMP F	IMPACT ENERGY FT-LBS														
1	W14 -159.0 40' IP1416237I W360 x237.0 12.192 M	1	277319	.74	54000	73000	25					.061	.30	.019	.021	.22	.32	.11	.10	.03	.00	.021	.34
2	W14 -159.0 ✓ 40' ✓ W360 x237.0 12.192 M	2	277343	.73	54000	74000	23					.061	.30	.019	.021	.23	.29	.10	.09	.03	.00	.022	.33
3	W14 -211.0 40' IP1416314I W360 x314.0 12.192 M	1	277727	.75	55000	73000	28					.081	.30	.025	.022	.24	.31	.12	.17	.04	.04	.001	.38
4	W14 -211.0 ✓ 40' ✓ W360 x314.0 12.192 M	6	277729	.73	52000	71000	30					.061	.33	.026	.023	.21	.33	.13	.16	.03	.04	.001	.36
5	W14 -211.0 ✓ 40' ✓ W360 x314.0 12.192 M	2	277732	.76	55000	72000	27					.081	.33	.020	.024	.25	.30	.11	.11	.03	.04	.002	.37
6	W14 -211.0 ✓ 40' ✓ W360 x314.0 12.192 M	2	277743	.75	54000	72000	27					.081	.32	.021	.023	.23	.29	.09	.14	.03	.04	.000	.37
7	W14 -211.0 ✓ 40' ✓ W360 x314.0 12.192 M	3	277760	.75	53000	71000	29					.071	.32	.020	.024	.20	.29	.10	.12	.03	.04	.001	.36
8	W14 -211.0 ✓ 40' ✓ W360 x314.0 12.192 M	1	277761	.75	55000	73000	28					.071	.31	.021	.025	.25	.28	.11	.11	.03	.04	.001	.36

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH
 $P_{cm} = C + Si / 30 + Mn / 20 + Cu / 20 + Ni / 60 + Cr / 20 + Mo / 15 + V / 10 + 5B \approx .0085$
 CARBON EQUIVALENT CE = $C + Mn/6 + (Cr+Mo+V) / 5 + (Ni+Cu) / 15$
 Corrosion Index: $CI = 26.01(\%Cu) + 3.88(\%Ni) + 1.2(\%Cr) + 1.49(\%Si) + 17.28(\%P) - 7.29(\%Cu)(\%Ni) - 9.10(\%Ni)(\%P) - 33.39(\%Cu)^2$

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, and when designated by the purchaser, meet the applicable specifications.

GARY PENNELL
QUALITY ASSURANCE

STATE OF ARKANSAS
COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
Day of _____
NOTARY PUBLIC

NUCOR-YAMATO STEEL CO.

P O BOX 1228
 BLYTHEVILLE AR 72316

DATE
 7/19/06

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 AV REVOLUCION NO 81
 SAN CRISTOBAL ECATEPEC
 EDO DE MEXICO 55000

SHIP TO

FERRE BARNIEDO C/O TAF FORWARDING
 1207 UNIROYAL DRIVE
 FINAL: SAN LUIS POTOSI, SLP MX
 LAREDO, TX

INVOICE
 60265

CUSTOMER NO.
 5446

BILL OF LADING
 795288

CUSTOMER P.O.
 FERRE 5/9/06

9050

SPECIFICATIONS GRADE:

ASTM A709/A709M-03a GR50S (345S)

ASTM A992/A992M-04a A572/A572M GR50-04 ASTM A709/A709M-03a GR50 (345)
 ASTM A6/A6M-05a

ITEM	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES								CHEMICAL PROPERTIES											
				YIELD TO TENSILE RATIO	YIELD STRENGTH F _Y MPa	TENSILE STRENGTH F _T MPa	ELONG %	CHARTY IMPACT		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE		
								TEMP °C	IMPACT ENERGY FT-LBS JOULES														
1	W14 -159.0 40' IP1416R37-I	2	277278	.74	54000	73000	24				.071	.38	.018	.017	.23	.30	.11	.12	.04	.00	.020	.36	
	W360 x237.0 12.192 M			.73	54000	74000	24												.01	.18			
2	W14 -159.0 40'	3	277336	.76	55000	72000	25				.061	.31	.014	.016	.26	.30	.10	.08	.03	.00	.023	.33	
	W360 x237.0 12.192 M			.74	53000	72000	24												.01	.16			
3	W14 -159.0 40'	9	277341	.74	55000	74000	24				.081	.33	.019	.021	.24	.30	.10	.09	.03	.00	.018	.35	
	W360 x237.0 12.192 M			.74	55000	74000	24												.01	.18			
4	W14 -159.0 40'	3	277343	.73	54000	74000	23				.061	.30	.019	.021	.23	.29	.10	.09	.03	.00	.022	.33	
	W360 x237.0 12.192 M			.74	54000	73000	23												.01	.15			
5	W14 -159.0 40'	3	277345	.75	55000	73000	26				.061	.30	.025	.025	.22	.30	.10	.14	.03	.00	.019	.34	
	W360 x237.0 12.192 M			.75	55000	73000	26												.01	.17			
6	W14 -159.0 40'	3	277353	.72	54000	75000	25				.061	.35	.025	.024	.23	.31	.12	.13	.03	.00	.020	.35	
	W360 x237.0 12.192 M			.75	55000	73000	26												.01	.17			
7	W14 -159.0 40'	1	277355	.74	54000	73000	24				.071	.34	.026	.025	.26	.32	.10	.13	.03	.00	.022	.35	
	W360 x237.0 12.192 M			.73	54000	74000	23												.01	.18			
8	W14 -159.0 40'	3	277360	.73	54000	74000	23				.071	.30	.016	.022	.24	.34	.11	.09	.03	.00	.018	.34	
	W360 x237.0 12.192 M			.73	54000	74000	23												.01	.17			

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH
 $P_{cm} = C + Si / 30 + Mn / 20 + Cu / 20 + Ni / 60 + Cr / 20 + Mo / 15 + V / 10 + 5B \text{ approx } .0085$
 Corrosion Index: $CI = 26.01(\%Cu) + 3.88(\%Ni) + 1.2(\%Cr) + 1.49(\%Si) + 17.28(\%P) - 7.29(\%Cu)(\%Ni) - 9.10(\%Ni)(\%P) - 33.39(\%Cu)^2$
 CARBON EQUIVALENT CE = $C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15$

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, and when designated by the purchaser, meet the applicable specifications.

GARY PENNELL
 QUALITY ASSURANCE

STATE OF ARKANSAS
 COUNTY OF MISSISSIPPI
 SWORN TO AND SUBSCRIBED BEFORE ME THIS
 Day of _____ NOTARY PUBLIC

ORIGINAL DE NUESTROS ARCHIVOS,
PARA LA REMISION No. 5240-01
 58-36-10-00 ventas@ferrebarniedo.com.mx

NUCOR-YAMATO STEEL CO.

P O BOX 1228
BLYTHEVILLE AR 72316

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7/19/06

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9056

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AV REVOLUCION NO 81
SAN CRISTOBAL ECATEPEC
EDO DE MEXICO 55000

SHIP TO

FERRE BARNIEDO C/O TAF FORWARDING
1207 UNIROYAL DRIVE
FINAL: SAN LUIS POTOSI, SLP MX
LAREDO, TX

INVOICE
60683

CUSTOMER NO.
5446

BILL OF LADING
795523

CUSTOMER P.O.
FERRE 5/9/06

2	SPECIFICATIONS GRADE: ASTM A709/A709M-03a GR50S (345S)	ASTM A992/A992M-04a A572/A572M GR50-04	ASTM A709/A709M-03a GR50 (345)
		ASTM A6/A6M-05a	

ITEM	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES							CHEMICAL PROPERTIES												
				YIELD TO TENSILE RATIO	YIELD STRENGTH F _Y MPa	TENSILE STRENGTH F _T MPa	ELONG %	TEMP F	CHARPY IMPACT		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE	
									FT-LBS	JOULES													Sn
1	W14 -159.0 40' IP1416237I	2	277341	.74	55000	74000	24					.08	.33	.019	.021	.24	.30	.10	.09	.03	.00	.018	.35
	W360 x237.0 12.192 M			.74	55000	74000	24													.01	.18		
2	W14 -193.0 40' IP1416287I	1	277548	.74	53000	72000	26					.07	.32	.022	.015	.25	.32	.10	.15	.03	.00	.019	.36
	W360 x287.0 12.192 M			.75	55000	73000	28													.01	.18		
3	W14 -193.0 40'	1	277550	.74	53000	72000	27					.07	.30	.020	.025	.23	.32	.10	.14	.03	.00	.019	.35
	W360 x287.0 12.192 M			.73	53000	73000	27													.01	.18		
4	W14 -233.0 40' IP1416347I	1	277631	.75	53000	71000	26					.07	.30	.021	.018	.22	.29	.11	.12	.03	.04	.002	.36
	W360 x347.0 12.192 M			.75	53000	71000	27													.01	.17		
5	W14 -233.0 40'	5	278041	.77	57000	74000	26					.07	.30	.020	.017	.23	.34	.11	.14	.03	.05	.001	.36
	W360 x347.0 12.192 M			.76	57000	75000	25													.01	.19		
6	W14 -233.0 40'	3	278297	.75	55000	73000	27					.09	.34	.019	.019	.24	.32	.11	.10	.04	.04	.002	.38
	W360 x347.0 12.192 M			.77	58000	75000	25													.01	.20		
7	W14 -233.0 40'	3	278314	.77	53000	69000	26					.06	.32	.018	.019	.24	.32	.10	.07	.03	.04	.002	.34
	W360 x347.0 12.192 M			.77	54000	70000	27													.01	.16		
8	W14 -233.0 40'	3	278316	.76	53000	70000	28					.07	.32	.014	.018	.24	.31	.11	.08	.03	.04	.002	.35
	W360 x347.0 12.192 M			.76	53000	70000	27													.01	.17		

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH
 Pcm=C+Si/30+Mn/20+Cu/20+Ni/60+Cr/20+Mo/15+V/10+5B Approx .0005
 Corrosion Index: CI=26.01(%Cu)+3.88(%Ni)+1.2(%Cr)+1.49(%Si)+17.28(%P)-7.29(%Cu)(%Ni)-9.10(%Ni)(%P)-33.39(%Cu)²

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, and when designated by the purchaser, meet the applicable specifications.

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BILL OF LADING
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CUSTOMER NO.
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CUSTOMER P.O.
FERRE 5/9/06

2 SPECIFICATIONS GRADE: ASTM A992/A992M-04a A572/A572M GR50-04 ASTM A709/A709M-03a GR50 (345)
ASTM A709/A709M-03a GR50S (345S) ASTM A6/A6M-05a

ITEM	ITEM DESCRIPTION	QTY	HEAT #	MECHANICAL PROPERTIES						CHEMICAL PROPERTIES																	
				YIELD TO TENSILE MPa	YIELD STRENGTH MPa	TENSILE STRENGTH MPa	ELONG %	CHARPY IMPACT		C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE						
								TEMP °C	IMPACT ENERGY FT-LBS IOULER																		
1	W14 -211.0 ✓ 40' W360 x314.0 12.192 M	1	278409	.74	55000	74000	24					.071	.31	.021	.023	.25	.29	.11	.11	.03	.04	.001	.36				
				.73	55000	75000	23														.01	.17					
					379	510	24																				
					379	517	23																				
2	W14 -211.0 ✓ 40' W360 x314.0 12.192 M	1	278414	.75	57000	76000	24					.081	.35	.019	.023	.27	.33	.12	.12	.04	.05	.002	.38				
				.78	59000	76000	23														.01	.19					
					393	524	24																				
					407	524	23																				

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH
 $P_{cm} = C + Si / 30 + Mn / 20 + Cu / 20 + Ni / 60 + Cr / 20 + Mo / 15 + V / 10 + 5B - Approx .0005$
 CARBON EQUIVALENT CE = $C + Mn/6 + (Cr+Mo+V) / 5 + (Ni+Cu) / 15$
 Corrosion Index: $CI = 26.01(\%Cu) + 3.88(\%Ni) + 1.2(\%Cr) + 1.49(\%Si) + 17.28(\%P) - 7.29(\%Cu)(\%Ni) - 9.10(\%Ni)(\%P) - 33.39(\%Cu)^2$

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