Invoice No.	268017
Bill of Lading	606157
Customer No.	1659
Customer P.O	4500553625

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

Date	09/13/2023 12:33 AM

ASTM A992/A992M-22 A572/A572M GR50-21
ASTM A709/A709M-21 GR50 (345)
ASTM A709/A709M-21 GR50S (345S)
CSA G40.21-13 50WM (345WM)
ASTM A6/A6M-22

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	Sn	Pcm	Cl
								Temp	Impact Energy			Loc															
					KSI	KSI	%	° F	ft• lbf																		
					MPa	MPa	%	° C	J																		
1	W08X058.0 40 ft 0 in W200X 86 (12.19 m)	2	582220	0.77 0.77	54 55 374 379	71 71 489 492	27 26						.07	1.10	.014	.023	.27	.32	.19	.16	.04	.00	.021	.33	.01	.16	
2	W08X058.0 40 ft 0 in W200X 86 (12.19 m)	4	582222	0.77 0.78	56 56 383 385	72 72 495 494	28 28						.07	1.11	.017	.029	.20	.30	.16	.18	.04	.00	.022	.33	.01	.16	

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(B=Approx .0005)

Corrosion Index= 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

ISO 9001:2015 certified (Registration #0985-07).

Meets mechanical lab independence requirements of EN10204 type 3.1.

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

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

Boron has not been intentionally added and will not exceed 0.0008%

This material was produced in accordance with the Nucor-Yamato Steel Quality Manual.

The Charpy machine striker geometry used by Nucor-Yamato Steel is the 8 mm (0.315")striker (KV_8) per ASTM A370 Section 22.1.2 and ISO 148-1 Section 7.3.

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 Lennell

Chief Metallurgist

State of Arkansas
County of Mississippi
Sworn to and subscribed before me

Amanda Stockman

on 2023-09-13

AMANDA F STOCKMAN
NOTARY PUBLIC - ARKANSAS
MISSISSIPPI COUNTY
My Commission Expires 03-25-2024
Commission No. 12397936