Invoice No.	289047
Bill of Lading	621877
Customer No.	1659
Customer P.O	45005665613

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	01/02/2024

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	S15X042.9 60 ft 0 in S380X64 (18.29 m)	5	582320	0.78 0.76	54 52 373 361	69 69 477 474	26 26					.07	1.00	.019	.029	.23	.31	.14	.20	.04	.01	.008	.32	.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.

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.

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.

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 2024-01-02

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