

Bill of Lading 568337  
 Customer No. 1377  
 Customer P.O. 4500538716

**NUCOR - YAMATO STEEL COMPANY**  
 P.O. Box 1228; Blytheville AR 72316

**CERTIFIED MILL TEST REPORT**  
**100% Melted and Manufactured in the U.S.A.**  
 All Shapes produced by Nucor-Yamato Steel are cast and rolled to a fully killed and fine grain practice

Date 2022-12-28 10:05 AM

ASTM A992/A992M-20 A572/A572M GR50-18  
 ASTM A709/A709M-18 GR50 (345)  
 ASTM A709/A709M-18 GR50S (345S)  
 CSA G40.21-13 50WM (345WM)  
 ASTM A6/A6M-19

Item	Item Description	QTY	Heat	Mechanical Properties									Chemical Properties												
				Yield to Tensile Ratio	Yield Strength KSI MPA	Tensile Strength KSI MPA	ELONG % %	Charpy Impact			C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V	Cb	CE	Sn	Pcm	Cl
								Temp ° F ° C	Impact Energy Ft-Lbf J	Loc															
1	S12X050.0 40 ft 0 in S310X74 ( 12 m)	15	570973	0.74 0.74	52 52 357 360	71 71 486 486	27 26					.07	1.10	.015	.014	.24	.33	.15	.14	.04	.00	.015	.33	.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(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) 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 Pennell*  
 Gary Pennell  
 Chief Metallurgist

State of Arkansas  
 County of Mississippi  
 Sworn to and subscribed before me  
*Deborah Ann Rhoads*  
 On 2022-12-28  
 My commission expires on 07 / 17 / 2023

