

Bill of Lading 609810
 Customer No. 1377
 Customer P.O. 4500560739

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 2023-10-09 01:20 PM

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SHIP TO
 BOX 1688
 MANHATTAN KS 66502
 USA

NEW CENTURY PARKWAY
 NEW CENTURY KS 66031
 USA

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 KSI MPA | Tensile Strength KSI MPA | ELONG % | Charpy Impact | | | C | Mn | P | S | Si | Cu | Ni | Cr | Mo | V | Cb | CE | Sn | Pcm | Ci | |
| | | | | | | | | Temp °F °C | Impact Energy FtLbf J | Loc | | | | | | | | | | | | | | | | |
| 1 | S12X040.8 40 ft 0 in S310X80.7 (12 m) | 5 | 582224 | 0.80 0.81 | 61 422 424 | 76 525 525 | 25 24 | | | | | | .07 | 1.14 | .015 | .029 | .19 | .33 | .14 | .16 | .04 | .00 | .019 | .33 | .01 | .16 |

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH
 $Pcm = C + S/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B$ (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 accordance with the requirements of the customer specifications and when designated by the purchaser meet the applicable specifications.

Gary Permel
 Gary Permel
 Chief Metallurgist

State of Arkansas
 County of Mississippi
 Sworn to and subscribed before me
 On 2023-10-09
 My commission expires on 03/25/2024

