| | |
|---|---|
| DATE | 11/08/11 |
| INVOICE NO. | 443725 |
| BILL OF LADING | 43830 |
| CUSTOMER NO. | 0829 |
| CUSTOMER P.O. | 4500082381 |

# 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.

SHIP TO
FORTACERO C/O GULF STREAM MARINE
PORT OF BROWNSVILLE

BROWNSVILLE TX

SPECIFICATIONS
ASTM A992/A992M-06a A572/A572M GR50-07
ASTM A709/A709M-09 GR50 (345)
ASTM A709/A709M-09 GR50S (345S)
ASTM A6/A6M-09

SOLD TO
FORTACERO S.A. DE CV
BLVD CARLOS SALINAS DE GORTARI
KM 8.8
APODACA, N.L. MEXICO 66600

| ITEM # | ITEM DESCRIPTION | QTY | HEAT # | MECHANICAL PROPERTIES: YIELD TO TENSILE RATIO | YIELD STRENGTH PSI / MPa | TENSILE STRENGTH PSI / MPa | ELONG % / % | CHARPY IMPACT TEMP °F / °C | IMPACT ENERGY FT-LBS / JOULES | C | Mn | P | S | Si | Cu | Ni | Cr | Mo / Sn | V / Pcm | Cb | CE / CI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | W21 122.0 | 4 | 375174 | .77 | 57000 | 74000 | 26 | | | .08 | 1.26 | .013 | .021 | .25 | .29 | .11 | .11 | .03 | .02 | .010 | .35 |
| | 40' | | | .78 | 57000 | 73000 | 26 | | | | | | | | | | | .01 | .18 | | |
| | W530 x182.0 | | | | 393 | 510 | 26 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 393 | 503 | 26 | | | | | | | | | | | | | | |
| 2 | W21 -122.0 | 3 | 375175 | .80 | 59000 | 74000 | 29 | | | .07 | 1.25 | .016 | .025 | .26 | .28 | .09 | .09 | .03 | .02 | .009 | .33 |
| | 40' | | | .78 | 56000 | 72000 | 26 | | | | | | | | | | | .01 | .17 | | |
| | W530 x182.0 | | | | 407 | 510 | 29 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 386 | 496 | 26 | | | | | | | | | | | | | | |
| 3 | W21 -122.0 | 2 | 375176 | .78 | 57000 | 73000 | 26 | | | .07 | 1.27 | .017 | .025 | .25 | .28 | .11 | .13 | .04 | .02 | .009 | .35 |
| | 40' | | | .78 | 58000 | 74000 | 26 | | | | | | | | | | | .01 | .17 | | |
| | W530 x182.0 | | | | 393 | 503 | 26 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 400 | 510 | 26 | | | | | | | | | | | | | | |
| 4 | W24 -146.0 | 10 | 374006 | .73 | 51000 | 70000 | 27 | | | .07 | 1.25 | .016 | .023 | .25 | .29 | .12 | .17 | .05 | .02 | .009 | .36 |
| | 40' | | | .76 | 53000 | 70000 | 29 | | | | | | | | | | | .01 | .17 | | |
| | W610 x217.0 | | | | 352 | 483 | 27 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 365 | 483 | 29 | | | | | | | | | | | | | | |
| 5 | W24 -146.0 | 5 | 374022 | .76 | 56000 | 74000 | 27 | | | .08 | 1.25 | .018 | .023 | .25 | .31 | .14 | .11 | .04 | .02 | .009 | .35 |
| | 40' | | | .77 | 57000 | 74000 | 28 | | | | | | | | | | | .01 | .18 | | |
| | W610 x217.0 | | | | 386 | 510 | 27 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 393 | 510 | 28 | | | | | | | | | | | | | | |
| 6 | W24 -146.0 | 10 | 374031 | .75 | 53000 | 71000 | 29 | | | .07 | 1.10 | .021 | .018 | .22 | .32 | .11 | .11 | .04 | .00 | .018 | .31 |
| | 40' | | | .75 | 53000 | 71000 | 30 | | | | | | | | | | | .01 | .16 | | |
| | W610 x217.0 | | | | 365 | 490 | 29 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 365 | 490 | 30 | | | | | | | | | | | | | | |
| 7 | W24 -146.0 | 8 | 374034 | .76 | 55000 | 72000 | 27 | | | .07 | 1.12 | .018 | .022 | .25 | .30 | .11 | .10 | .03 | .00 | .020 | .32 |
| | 40' | | | .76 | 55000 | 72000 | 29 | | | | | | | | | | | .01 | .16 | | |
| | W610 x217.0 | | | | 379 | 496 | 27 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 379 | 496 | 29 | | | | | | | | | | | | | | |
| 8 | W24 -146.0 | 22 | 374037 | .77 | 56000 | 73000 | 28 | | | .07 | 1.13 | .022 | .019 | .24 | .30 | .12 | .16 | .04 | .00 | .019 | .33 |
| | 40' | | | .74 | 53000 | 72000 | 28 | | | | | | | | | | | .01 | .16 | | |
| | W610 x217.0 | | | | 386 | 503 | 28 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 365 | 496 | 28 | | | | | | | | | | | | | | |
| 9 | W24 -146.0 | 11 | 374040 | .75 | 54000 | 72000 | 27 | | | .08 | 1.11 | .022 | .025 | .24 | .30 | .10 | .13 | .03 | .00 | .018 | .33 |
| | 40' | | | .75 | 53000 | 71000 | 28 | | | | | | | | | | | .01 | .17 | | |
| | W610 x217.0 | | | | 372 | 496 | 27 | | | | | | | | | | | | | | |
| | 12.192 M | | | | 365 | 490 | 28 | | | | | | | | | | | | | | |

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

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

ELONGATION BASED ON 8.00 INCH GAUGE LENGTH

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 listed in the Specifications Block above.

QUALITY ASSURANCE

**CUSTOMER COPY**

STATE OF ARKANSAS COUNTY OF MISSISSIPPI
SWORN TO AND SUBSCRIBED BEFORE ME THIS
8 Day of 11/11

Charlene Wallis NOTARY PUBLIC

MY COMMISSION EXPIRES 10/21/2018

CHARLENE WALLIS MY Comm Exp NOTARY PUBLIC 10-21-2018 MISSISSIPPI CO. ARKANSAS