



Test Certificate

Form TC1: Revision 3: Date 7 Feb 2018

13609 Industrial Road, Houston, TX 77015, US

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|---|--|------------------------------------|---|--|
| Customer: NORTH SHORE STEEL CO, INC 1566 MILES STREET VENDOR 52155 HOUSTON TX 77015 | Customer P.O.No.: 303965 | Mill Order No. 41-544068-01 | Shipping Manifest: HT117212 | |
| | Product Description: ASTM A36(14)/A709(17)36/ASME SA36(17) AASHTO M270(15)36, 0.80-1.20 MN | | Ship Date: 27 Jun 18 Cert Date: 27 Jun18 | Cert No: 031207111 (Page 1 of 1) |
| | Size: 0.188 X 96.00 X 480.0 (IN) | | | |

| Tested Pieces: | | | | Tensiles: | | | | | Charpy Impact Tests | | | | | | | | | | | | | |
|----------------|----------|------------------|---------|-----------|-----------|-----|---------|-----|---------------------|----------|-------------------|---|---|-----|---------|---|---|-----|---------|---------|--------------|----------------|
| Heat Id | Piece Id | Piece Dimensions | Tst Loc | YS (KSI) | UTS (KSI) | %RA | Elong % | | Tst Dir | Hardness | Abs. Energy(FTLB) | | | | % Shear | | | | Tst Tmp | Tst Dir | Tst Siz (mm) | BDWTT Tmp %Shr |
| | | | | | | | 2in | 8in | | | 1 | 2 | 3 | Avg | 1 | 2 | 3 | Avg | | | | |
| E8D210 | 0001 | 0.501 (T.L.C) | L | 50 | 69 | | 35 | | T | | | | | | | | | | | | | |
| | | | C | 50 | 69 | | 35 | | T | | | | | | | | | | | | | |
| E8D210 | 0687 | 0.188 (T.L.C) | L | 54 | 71 | | 28 | | T | | | | | | | | | | | | | |
| | | | C | 54 | 71 | | 29 | | T | | | | | | | | | | | | | |

| Heat Id | Chemical Analysis | | | | | | | | | | | | | | | | ORGN |
|---------|-------------------|-----|------|------|-----|--------|-----|-----|-----|-----|------|------|------|-------|-------|-----|------|
| | C | Mn | P | S | Si | Tot Al | Cu | Ni | Cr | Mo | Cb | V | Ti | B | N | IIW | |
| E8D210 | .18 | .84 | .011 | .001 | .05 | .040 | .30 | .15 | .09 | .04 | .002 | .006 | .015 | .0001 | .0075 | .38 | USA |

KILLED STEEL
 MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
 $CEV (IIW) = C + Mn/6 + (Cr+Mo+V)/5 + (Ni+Cu)/15$
 MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
 100% MELTED AND MANUFACTURED IN THE USA.
 MATERIAL MARKED BELOW WITH AN ASTERISK IS PRODUCED FROM COIL
 PRODUCTS SHIPPED:
 * E8D210 0688 PCS: 19, LBS: 46683

| | | |
|-----------------------|--|---|
| (P) Cust Part #: | WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION | <u>Justin Ward</u> SENIOR METALLURGIST - PRODUCT |
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