



Tenaris Group

**CERTIFICADO DE PRUEBAS EN FABRICA**

Number/Numero: **03008253**  
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 Date/Dia: **03/06/2003**

Tubos de Acero de México, S.A.  
 Km 433.7 Carr. México-Veracruz  
 Via Xalapa  
 (91697) Veracruz, Ver. México  
 (52) 229 989 1100 tel  
 (52) 229 989 1120 fax

|  |   |  |  |   |                   |   |                     |
|--|---|--|--|---|-------------------|---|---------------------|
| Customer / Cliente:                                    | <b>TUBOS CONEXIONES Y TANQUES, S.A. DE C.V.</b> | Customer's Order / Cliente Orden - Item N° |  | Customer's Reference / Referencia del cliente |                   | Manufacturer's Works Order N° / Confirmación de Venta | <b>053699/01</b>    |
| Manufacture Process/ Proceso de fabricación:           | <b>SEAMLESS HOT ROLLED</b>                      | Product Type / Tipo de producto:           | <b>LINE PIPE SEAMLESS</b>              | Steel Grade / Grado de acero:                 | <b>B/X42 PSL1</b> | Surface/Superficie:                                   | <b>VARNISHED</b>    |
|  | <b>LAMINADO EN CALIENTE SIN COSTURA</b>         | CONDUCCION                                 |  | Quantity / Cantidad:                          | <b>164 Pcs/pr</b> | <b>BARNIZADO</b>                                      |                     |
| Standard or Specification / Normas o especificaciones: | <b>API 5L/ASTM A106/ASME SA106/ASTM A53</b>     |  | <b>, JULIO 1, 2000/99/1995-A95/99B</b> |   |                   | Ends / Extremos:                                      | <b>NORMAL BEVEL</b> |
| Dimensions / Dimensiones:                              | <b>168.30 X 7.10 MM</b>                         | Length / Longitud:                         | <b>5.50 / 6.50 MTS</b>                 |   |                   | Normal Weight / Peso Normal:                          | <b>28.26 KG/M</b>   |
|  | <b>6 5/8 X 0.280 INCH</b>                       |  | <b>18.00 / 21.30 FT</b>                |   |                   |   | <b>18.97 LB/FT</b>  |

**TENSILE TEST / ENSAYOS DE TENSION**

| Heat N°<br>Colada N° | Sample N°<br>Muestra N° | Specimen condition       |            |             | Specimen dimensions |                     |                    | Test        |              | Y.S.         | U.T.S.      | Y.S. / U.T.S. | Elongation<br>Alargamiento |
|----------------------|-------------------------|--------------------------|------------|-------------|---------------------|---------------------|--------------------|-------------|--------------|--------------|-------------|---------------|----------------------------|
|                      |                         | Condition of the probeta | Type       | Oh          | Size<br>mm          | Section<br>mm2      | Temp.<br>de ensayo | Unit/Unidad | Unit/Unidad  |              |             |               |                            |
|                      |                         |                          |            |             |                     |                     |                    |             |              |              |             |               |                            |
| <b>11586</b>         | <b>18149</b>            | <b>C/B</b>               | <b>STP</b> | <b>REGC</b> | <b>L</b>            | <b>25.60 ± 7.30</b> | <b>186.88</b>      | <b>TA</b>   | <b>33.53</b> | <b>49.50</b> | <b>0.68</b> | <b>39</b>     |                            |
| <b>11586</b>         | <b>18150</b>            | <b>C/B</b>               | <b>STP</b> | <b>REGC</b> | <b>L</b>            | <b>25.10 ± 7.80</b> | <b>195.78</b>      | <b>TA</b>   | <b>32.59</b> | <b>49.07</b> | <b>0.66</b> | <b>40</b>     |                            |
| <b>99534</b>         | <b>18151</b>            | <b>C/B</b>               | <b>STP</b> | <b>REGC</b> | <b>L</b>            | <b>25.00 ± 7.20</b> | <b>180.00</b>      | <b>TA</b>   | <b>33.81</b> | <b>49.37</b> | <b>0.68</b> | <b>38</b>     |                            |
| <b>99534</b>         | <b>18152</b>            | <b>C/B</b>               | <b>STP</b> | <b>REGC</b> | <b>L</b>            | <b>25.20 ± 7.50</b> | <b>189.00</b>      | <b>TA</b>   | <b>33.58</b> | <b>48.77</b> | <b>0.69</b> | <b>38</b>     |                            |

|  |   |   |  |
|--|---|---|--|
| <b>TS:</b> Location of the sample / Localización de la muestra<br><b>TR:</b> Specimen with heat treatment at Laboratory / Probeta tratada en laboratorio<br><b>N:</b> Normalized / Normalizado<br><b>Rec:</b> Strip specimen / Rectangular<br><b>T:</b> Transverse / Transversal<br><b>Max:</b> Maximum / Máximo | <b>CB:</b> Body / Cuerpo<br><b>A:</b> Annealed / Recocido<br><b>CH:</b> Round bar specimen / Cilíndrica<br><b>TA:</b> Room Temperature / Temperatura Ambiente<br><b>Ob:</b> Obtained / Obtenido<br><b>TM:</b> Transverse Minimum / Mínimo Transversal | <b>RU:</b> Upset / Recaque<br><b>NR:</b> Normalized and Tempered / Normalizado y Revenido<br><b>SR:</b> Stress Relief / Alivio de Esfuerzo<br><b>OR:</b> Orientation / Orientación<br><b>EU:</b> Extension Under Load Method<br><b>YS:</b> Yield strength / Fluencia<br><b>TMx:</b> Transverse Maximum / Máximo Transversal | <b>TT:</b> Heat Treatment / Tratamiento Térmico<br><b>TR:</b> Quenched and Tempered / Templado y Revenido<br><b>ST:</b> As Rolled / Sin Tratamiento<br><b>L:</b> Longitudinal / Longitudinal<br><b>UTS:</b> Ultimate tensile strength / Resistencia<br><b>LMin:</b> Longitudinal Minimum / Mínimo Longitudinal<br><b>MIn:</b> Minimum / Mínimo |
|--|---|---|--|

This is to certify that the products described herein were manufactured, sampled, tested, and/or inspected in accordance with the specification referenced and meet the requirements in all respects. This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trademark green coloured "Tenaris" is stamped. In case the owner of the original certificate would release a copy of it, he must attest its conformity to the original one, taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law.

Este documento certifica que los productos descritos aquí fueron manufacturados, probados y/o inspeccionados de acuerdo con la especificación de referencia y satisfacen los correspondientes requerimientos. Este certificado se emite mediante un sistema computarizado y es válido con firma electrónica. En el certificado original el logotipo "Tenaris" (verde) está impreso en la hoja. En caso de que el poseedor del certificado entregue una fotocopia del mismo, deberá garantizar la conformidad con el original, y se hace responsable por cualquier uso ilegal o indebido. Cualquier alteración y/o falsificación será sujeta a la ley.



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| Manufacture Process / Proceso de fabricación:          | <b>SEAMLESS HOT ROLLED</b>                      | Product Type / Tipo de producto:          | <b>LINE PIPE SEAMLESS CONDUCCION</b> | Steel Grade / Grado de acero:                 | <b>B/X42 PSL1</b> | Surface / Superficie:                                | <b>VARNISHED</b>    |
| Standard or Specification / Normas o especificaciones: | <b>API 5L/ASTM A106/ASME SA106/ASTM A53</b>     | Dimensions / Dimensiones:                 | <b>6 5/8 X 0.280 INCH</b>            | Quantity / Cantidad:                          | <b>164 Pcs/pz</b> | Ends / Extremos:                                     | <b>NORMAL BEVEL</b> |
|  |   | Dimensions / Dimensiones:                 | <b>168.30 X 7.10 MM</b>              |   |                   | Nominal Weight / Peso Nominal                        | <b>28.26 KG/M</b>   |
|  |   |   | <b>6 5/8 X 0.280 INCH</b>            |   |                   |  | <b>18.97 LB/FT</b>  |

**Through Wall Hardness / Dureza en el espesor**

**HARDNESS TEST / ENSAYOS DE DUREZA**

| Heat/Coleada:    | Min.  | Max.  | Required/Requerido | End/Ext: | Aver | Prom | Var |
|------------------|-------|-------|--------------------|----------|------|------|-----|
| 11586            |       | 22.00 |                    |          |      |      |     |
| Sample/Muestra   | 18149 |       |                    |          |      |      |     |
| Quadrant         |       |       |                    |          |      |      |     |
| 1                | OD/DE | 73.5  | 73.7               | 73.5     | 73.6 |      |     |
|                  | MW/C  | 73.8  | 74.0               | 73.6     | 73.8 |      |     |
| Unit/Unidad      | ID/DI | 73.9  | 73.9               | 74.0     | 73.9 | 0.4  |     |
| HRB              |       |       |                    |          |      |      |     |
| Pipe № / Tubo №: |       |       |                    |          |      |      |     |
| Ends: C/B        |       |       |                    |          |      |      |     |
| TR: ST           |       |       |                    |          |      |      |     |
| Heat/Coleada:    | Min.  | Max.  | Required/Requerido | End/Ext: | Aver | Prom | Var |
| 11586            |       | 22.00 |                    |          |      |      |     |
| Sample/Muestra   | 18150 |       |                    |          |      |      |     |
| Quadrant         |       |       |                    |          |      |      |     |
| 1                | OD/DE | 73.6  | 73.9               | 73.8     | 73.8 |      |     |
|                  | MW/C  | 73.5  | 73.8               | 73.8     | 73.7 |      |     |
| Unit/Unidad      | ID/DI | 73.8  | 73.7               | 73.5     | 73.7 | 0.1  |     |
| HRB              |       |       |                    |          |      |      |     |
| Pipe № / Tubo №: |       |       |                    |          |      |      |     |
| Ends: C/B        |       |       |                    |          |      |      |     |
| TR: ST           |       |       |                    |          |      |      |     |
| Heat/Coleada:    | Min.  | Max.  | Required/Requerido | End/Ext: | Aver | Prom | Var |
| 99534            |       | 22.00 |                    |          |      |      |     |
| Sample/Muestra   | 18151 |       |                    |          |      |      |     |
| Quadrant         |       |       |                    |          |      |      |     |
| 1                | OD/DE | 73.9  | 73.7               | 73.5     | 73.7 |      |     |
|                  | MW/C  | 73.9  | 74.0               | 73.9     | 73.9 |      |     |
| Unit/Unidad      | ID/DI | 73.7  | 73.8               | 74.1     | 73.9 | 0.2  |     |
| HRB              |       |       |                    |          |      |      |     |
| Pipe № / Tubo №: |       |       |                    |          |      |      |     |
| Ends: C/B        |       |       |                    |          |      |      |     |
| TR: ST           |       |       |                    |          |      |      |     |
| Heat/Coleada:    | Min.  | Max.  | Required/Requerido | End/Ext: | Aver | Prom | Var |
| 99534            |       | 22.00 |                    |          |      |      |     |
| Sample/Muestra   | 18152 |       |                    |          |      |      |     |
| Quadrant         |       |       |                    |          |      |      |     |
| 1                | OD/DE | 73.6  | 74.1               | 73.8     | 73.8 |      |     |
|                  | MW/C  | 74.0  | 74.1               | 73.5     | 73.9 |      |     |
| Unit/Unidad      | ID/DI | 73.9  | 73.8               | 73.8     | 73.6 | 0.0  |     |
| HRB              |       |       |                    |          |      |      |     |
| Pipe № / Tubo №: |       |       |                    |          |      |      |     |
| Ends: C/B        |       |       |                    |          |      |      |     |
| TR: ST           |       |       |                    |          |      |      |     |

Min: Minimum / Mínimo  
Max: Maximum / Máximo  
OD/DE: Outside Diameter / Diámetro externo  
MW/C: Mid Wall / Centro

IDDI: Internal Diameter / Diámetro interno  
Aver.: Average  
Prom.: Promedio  
Var.: Variation / Variación

Lc: Location of the sample / Localización de la muestra  
C/B: Body / Cuerpo  
RU: Upset / Recuadro  
TT: Heat Treatment / Tratamiento Térmico

Tr: Specimen with heat treatment at Laboratory / Probeta tratada en laboratorio  
NR: Normalized and Tempered / Normalizado y Revenido  
TR: Quenched and Tempered / Templado y Revenido  
N: Normalized / Normalizado  
ST: As Rolled / Sin Tratamiento  
QT: Quenched / Templado

**TECHNOLOGICAL TEST / ENSAYOS TECNOLÓGICOS**

| Heat No    | Sample No  | Flattening Test        |
|------------|------------|------------------------|
| Coleada Nº | Muestra Nº | Ensayo de Adaptamiento |
| 11586      | 18149      | GOOD / BUENO           |
| 11586      | 18150      | GOOD / BUENO           |
| 99534      | 18151      | GOOD / BUENO           |
| 99534      | 18152      | GOOD / BUENO           |

This is to certify that the products described here in were manufactured, sampled, tested, and/or inspected in accordance with the specification referenced and meets the requirements in all respects. This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark green coloured Tamsa is stamped. In case the owner of the original certificate would release a copy of it, he must attend its conformity to the original one, taking upon himself the responsibility for any unlawful or not allowed use. Any alteration and/or falsification will be subjected to the law. Este documento certifica que los productos descritos aquí fueron manufacturados, probados y/o inspeccionados de acuerdo con la especificación de referencia y satisface las correspondientes requerimientos. Este certificado es emitido mediante un sistema computarizado y es válido con firma electrónica. En el certificado original el logotipo Tamsa (verde) está impreso en la hoja. En caso de que el poseedor del certificado entregue una fotocopia del mismo, deberá garantizar la conformidad con el original, y así hacer responsable por cualquier uso ilegal o indebido. Cualquier alteración y/o falsificación será sujeta a la ley.

DICA 777 04 0

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| Manufacture Process / Proceso de fabricación:          | <b>SEAMLESS HOT ROLLED</b>  | Product Type / Tipo de producto:           | <b>LINE PIPE SEAMLESS CONDUCCION</b> | Steel Grade / Grado de acero:                 | <b>B/X42 PSL1</b>   | Quantity / Cantidad                                   | <b>164 Pcs/Pz</b>   |
|  | <b>LAMINADO EN CALIENTE SIN COSTURA</b>                                     |  |                                      | Ends / Extremos:                              | <b>NORMAL BEVEL</b> | Normal Weight / Peso Nominal                          | <b>28.26 KG/M</b>   |
| Standard or Specification / Normas o especificaciones: | <b>API 5L/ASTM A106/ASME SA106/ASTM A53 , JULIO 1, 2000/99/1995-A95/99B</b> |  |                                      | Surface / Superficie:                         | <b>BARNIZADO</b>    | Ends / Extremos:                                      | <b>NORMAL BEVEL</b> |
| Dimensions / Dimensiones:                              | <b>168.30 X 7.10 MM</b>   | Length / Longitud:                         | <b>5.50 / 6.50 MTS</b>               |   |                     | Normal Weight / Peso Nominal                          | <b>28.26 KG/M</b>   |
|  | <b>6 5/8 X 0.280 INCH</b>   |  | <b>18.00 / 21.30 FT</b>              |   |                     |   | <b>18.97 LB/FT</b>  |

### CHEMICAL COMPOSITION / COMPOSICION QUIMICA.

| Heat / Colada | H Max<br>Min | C  | Mn  | Si | Cr | Mo  | S   | P  | Ni  | V  | Cu  | Al | Sn | As | Nb | Ti | Ca | B | N  | Composition, % / Composición % |         |  |
|---------------|--------------|----|-----|----|----|-----|-----|----|-----|----|-----|----|----|----|----|----|----|---|----|--------------------------------|---------|--|
|               |              |    |     |    |    |     |     |    |     |    |     |    |    |    |    |    |    |   |    | X 100                          | X 10000 |  |
| Sample N°     | P Max        | 25 | 135 |    | 40 | 15  | 30  | 30 | 400 | 80 | 400 |    |    |    |    |    |    |   |    |                                |         |  |
| Muestra N°    | Min          |    | 27  | 10 |    |     |     |    |     |    |     |    |    |    |    |    |    |   |    |                                |         |  |
| 11586         |              |    |     |    |    |     |     |    |     |    |     |    |    |    |    |    |    |   |    |                                |         |  |
| 18149         | P            | 17 | 66  | 26 | 6  | 3.5 | 3.4 | 9  | 60  | 0  | 130 | 20 | 7  | 5  | 0  | 0  | 24 | 0 | 71 |                                |         |  |
| 18150         | P            | 17 | 66  | 26 | 6  | 3.5 | 3.2 | 9  | 60  | 0  | 130 | 21 | 7  | 5  | 0  | 0  | 25 | 0 | 71 |                                |         |  |
| 99534         |              |    |     |    |    |     |     |    |     |    |     |    |    |    |    |    |    |   |    |                                |         |  |
| 18151         | P            | 17 | 58  | 20 | 9  | 5   | 2.5 | 11 | 50  | 0  | 131 | 13 | 8  | 3  | 0  | 0  | 28 | 0 | 64 |                                |         |  |
| 18152         | P            | 17 | 58  | 20 | 9  | 5   | 2.7 | 11 | 50  | 0  | 131 | 13 | 8  | 3  | 0  | 0  | 31 | 0 | 64 |                                |         |  |

|   |                       |                     |
|---|-----------------------|---------------------|
| H: Heat / Colada                            | P: Product / Producto |                     |
| <b>HYDROSTATIC TEST / PRUEBA HIDRAULICA</b> |                       |                     |
| Pressure / Presión                          | Time / Tiempo         | Results / Resultado |
| Unit/ Unidad:                               | Value/ Valor          | Second/ Segundos    |
| <b>PSI</b>                                  | <b>2660</b>           | <b>5</b>            |
| <b>Satisfactory / Satisfactorio</b>         |                       |                     |

**Manufactured by / Fabricado por. TAMSA**

**Steel making process / Fabricación de acero. Electric Arc Furnace-Ladle Furnace-Continuous Casting Machine. Fully Killed Steel / Horno de Arco Eléctrico-Horno de Afinación-Máquina de Colada Continua. Acero calado con aluminio.**

**SUPPLEMENTARY INFORMATION / INFORMACION SUPLEMENTARIA**

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