



Tenaris Group

CERTIFICADO DE PRUEBAS EN FABRICA

Tubos de Acero de México, S.A.
 Km 433, 7 Carr. México-Veracruz
 Vía Xalapa
 (91697) Veracruz, Ver. México
 (52) 229 989 1100 tel
 (52) 229 989 1120 fax

| | | | | | | | | | |
|---|--|--|--|---|--|--|--|--|--|
| CLIENTE / PURCHASER TUBOS CONEXIONES Y TANQUES, S.A. DE C.V. | | Confirmación de Venta / Sales Confirmation 050397101 | | Número / Number 02017846 | | Fecha / Date 23/11/2002 | | Pág / Page 1/4 | |
| Tipo de Tubo / Type of Pipe CONDUCCION / LINE PIPE SEAMLESS | | Orden Cliente / Purchaser Order Grado de Acero / Steel Grade B/X42 PSL1 | | Compañía de Inspección / Inspection Company Extremos / Ends BISELADO NORMAL / NORMAL BEVEL | | Superficie / Surface BARNIZADO / VARNISHED | | Inspector / Inspector | |
| Norma / Standard or Specification API 5L/ASTM A106/ASME SA106/ASTM A53, JULIO 1, 2000/99/1995-A95/99B | | Cédula / Schedule 10 3/4 X 0.365 INCH | | Peso Nominal / Nominal Weight 273.10 X 9.30 MM | | Longitud / Length 18.00 / 21.30 FT | | 5.50 / 6.50 MTS | |
| Dimensiones / Dimensions | | Peso Nominal / Nominal Weight 40.48 LB/FT | | Longitud / Length 60.29 KG/M | | Superficie / Surface BARNIZADO / VARNISHED | | Quantidades / Quantities 26 Pzas / Pcs | |

PRUEBAS DE TENSION / TENSILE TEST

| Colada / Probeta / Heat / Sample | Característica de la Probeta / Specimen Characteristics | Temp de Ens / Test Temp | Fluencia / Yield Strength | | Resistencia / Tensile Strength | | Relación FR / Rate VS/UTS | Alargamiento / Elongation | | Reducción de Área / Reduction of Area | Dureza / Hardness Tipo / Type | | | | | | |
|----------------------------------|---|-------------------------|---------------------------|--------|--------------------------------|--------------|---------------------------|---------------------------|-------|---------------------------------------|-------------------------------|-------------|-----|-----|--|--|--|
| | | | K/GMM2 | | K/GMM2 | | | % | | | BHN | | | | | | |
| | | | Temp | Offset | EUL | 0.5 % | TMIn | TMMax | TMIn | TMMax | Lo | In 2 inches | Min | Max | | | |
| 98446 | C/B | ST | Rec | T | 37.80 x 9.10 | 343.98 | TA | 29.50 | 42.15 | 51.43 | 0.71 | 40 | 40 | | | | |
| 98446 | 17457 | C/B | ST | Rec | T | 37.50 x 9.10 | 341.25 | TA | 29.50 | 42.15 | 0.70 | 40 | 40 | | | | |

ENSAYOS TECNOLÓGICOS / TECHNOLOGICAL TEST

| | | | | | |
|--|--|--|--|---|---|
| Abastamiento / Flattening Test BUENO / GOOD | Curvado / Bend Test N/A | Abocartado / Flaring Test N/A | Pestateado / Flange Test | Anillo Extendido / Ring Expanding Test | Trazación de Anillo / Ring Tensile Test |
| CB = Cuerno / Body La Longitudinal / Longitudinal Tra = Probeta tratada en laboratorio / Specimen with heat treatment at Laboratory Min = Mínimo / Minimum | RVU = Rectalque / Upret T = Transversal / Transverse TR = Templado y Revenido / Quenched and Tempered | Max = Máximo / Maximum LMin = Longitudinal Mínimo / Longitudinal Minimum | Rec = Rectangular / Slip specimen 1=API 2-ISO 3-ASTM 4=DIN 5=AFNOR 6=UNI N = Normalizado / Normalized | Cil = Cilíndrica / Round bar specimen A = Recocido / Annealed | NR = Normalizado y Revenido / Normalized and Tempered SR = Relevado de Esfuerzo / ST = Sin Tratamiento / As / Stress Relief / Polied / N/A=No Aplica / Does Not Apply |

Este documento certifica que los productos descritos aquí fueron manufacturados, probados y/o inspeccionados de acuerdo con la especificación de referencia y satisface los correspondientes requerimientos. Este certificado se emite mediante un sistema automatizado y es válido con firma electrónica. En el certificado original se logotipo Tenaris (verde) está impreso en la hoja. En caso de que el poseedor del certificado entregue una fotocopia del mismo, deberá garantizar la copia con el original, y se hace responsable por cualquier uso legal o indebido. Cualquier alteración y/o falsificación será sujeta a la ley. This is to certify that the products described here in were manufactured, sampled, tested, and/or inspected in accordance with the specification referenced and meet the requirements in it respect. This certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark 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.

CERTIFICADO DE PRUEBAS EN FABRICA

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

| | | | | | | | | | |
|---|--|--|--|---|--|--|--|--|--|
| CLIENTE / PURCHASER TUBOS CONEXIONES Y TANQUES, S.A. DE C.V. | | Confirmación de Venta / Sales Confirmation 050397/01 | | Número / Number 02017846 | | Fecha / Date 23/11/2002 | | Pág / Page 3/4 | |
| Tipo de Tubo / Type of Pipe | | Orden Cliente / Purchaser Order | | Compañía de Inspección / Inspection Company | | Inspector / Inspector | | | |
| CONDUCCION / LINE PIPE | | SEAMLESS | | Grado de Acero / Steel Grade B/X42 PSL1 | | Extremos / Ends BISELADO NORMAL | | / NORMAL BEVEL | |
| Norma / Standard or Specification API 5L/ASTM A106/ASME SA106/ASTM A53, JULIO 1, 2000/99/1995-A95/99B | | Cedula / Schedule | | Peso Nominal / Nominal Weight 40.48 LB/FT | | Longitud / Length 18.00 / 21.30 FT | | Superficie / Surface BARNIZADO / VARNISHED | |
| Dimensiones / Dimensions 10 3/4 X 0.365 INCH | | | | 60.29 KCGM | | 5.50 / 6.50 MTS | | Caridades / Quantities 26 Pzas / Pcs | |
| 273.10 X 9.30 MM | | | | | | | | | |

ENSAYOS DE DUREZAS / HARDNESS TEST

| Colada / Heat | 98446 | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-------|--|------|------|-----|
| Probeta / Sample | 17456 | 1 | 2 | 3 | P/A |
| De / OD | 74.5 | 75.9 | 73.8 | 74.7 | |
| C / MW | 75.0 | 75.9 | 76.3 | 75.7 | |
| Quadrante / Quadrant | 1 | | | | |
| DI / ID | 73.7 | 73.8 | 73.8 | 73.8 | 2.0 |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |
| HRC | | 22.00 | | | |

| Colada / Heat | 98446 | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-------|--|------|------|-----|
| Probeta / Sample | 17457 | 1 | 2 | 3 | P/A |
| De / OD | 75.5 | 74.5 | 75.5 | 75.2 | |
| C / MW | 75.9 | 75.1 | 73.4 | 74.8 | |
| Quadrante / Quadrant | 1 | | | | |
| DI / ID | 76.0 | 74.7 | 75.0 | 75.2 | 0.4 |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |
| HRC | | 22.00 | | | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | | 1 | 2 | 3 | P/A |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | | 1 | 2 | 3 | P/A |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | 1 | 2 | 3 | P/A | Var |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | 1 | 2 | 3 | P/A | Var |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | 1 | 2 | 3 | P/A | Var |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

| Colada / Heat | | Lecturas Obtenidas / Obtained Readings | | | Var |
|----------------------|-----|--|-----|-----|-----|
| Probeta / Sample | 1 | 2 | 3 | P/A | Var |
| De / OD | | | | | |
| C / MW | | | | | |
| Quadrante / Quadrant | | | | | |
| DI / ID | | | | | |
| REQUERIDO / REQUIRED | Min | Max | P/A | Var | |

NOTES: P/A = Promedio / Average Var = Variación / Variation Min = Mínimo / Minimum Max = Máximo / Maximum
 DE/OD = Diámetro Exterior / Outside Diameter CMW = Centro / Mid Wall DI/ID = Diámetro Interior / Internal Diameter N/A = No Aplica / Does Not Apply

Este documento certifica que los productos descritos aquí fueron manufacturados, probados y/o inspeccionados de acuerdo con la especificación de referencia y satisface los correspondientes requerimientos. Este certificado es emitido mediante un sistema computarizado y es válido con firma electrónica. En el certificado original se logotipo Tenaris (vered) está impreso en la hoja. En caso de que el poseedor del certificado no siga una fotocopia del mismo, deberá garantizar su conformidad con el original, y se hace responsable por cualquier uso ilegal o indebido. Cualquier alteración y/o falsificación de este certificado, supra a la ley. On the original certificate the trade-mark green 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. The certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark green colored "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.

CERTIFICADO DE PRUEBAS EN FABRICA

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

| | | | | | | | | | |
|---|--|--|--|---|--|--|--|---|--|
| CLIENTE / PURCHASER TUBOS CONEXIONES Y TANQUES, S.A. DE C.V. | | Confirmación de Venta / Sales Confirmation 050397/01 | | Número / Number 02017846 | | Fecha / Date 23/11/2002 | | Pag / Page 4/4 | |
| Tipo de Tubo / Type of Pipe CONDUCCION / LINE PIPE SEAMLESS | | Orden Cliente / Purchaser Order | | Compañía de Inspección / Inspection Company | | Inspector / Inspector | | | |
| Norma / Standard or Specification API 5L/ASTM A106/ASME SA106/ASTM A53, JULIO 1, 2000/99/1995-A95/99B | | Grado de Acero / Steel Grade BX42 PSL 1 | | Extremos / Ends BISELADO NORMAL / NORMAL BEVEL | | | | | |
| Dimensiones / Dimensions 10 3/4 X 0.365 INCH 273.10 X 9.30 MM | | Cédula / Schedule 40.48 LB/FT 60.29 KG/M | | Longitud / Length 18.00 / 21.30 FT 5.50 / 6.50 MTS | | Superficie / Surface BARNIZADO / VARNISHED | | Cantidades / Quantities 26 Pzas / Pcs | |
| Fabricado por / Manufactured by TAMSA | | | | | | | | | |

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

Fabricación de tubo / Pipe manufacturing process Laminado en caliente sin costura / Seamless hot rolled

Material libre de contaminación de Mercurio / Material free from Mercury contamination
 No reparado por soldadura / No repair by welding

Tratamiento térmico / Heat treatment Sin tratamiento térmico / Material as rolled

Control no destructivo / Non destructive test Satisfactorio / Satisfactory

Método de inspección / Inspection method * - EMI - FLVI - MPI -

Mandril / Drift **Diámetro / Diameter** N/A **Longitud / Length** N/A

Prueba hidráulica / Hydrostatic test **pressure** 2420 PSI **05 SEG / SEC**

Notas / Notes

MATERIAL DE ACUERDO A NACE MR0175-97

ING. SARA GARCIA PAJARES
 CERTIFICACION DE CALIDAD NOMBRE Y FIRMA /
 QUALITY CERTIFICATION NAME AND SIGNATURE

TAMSA REF: 364943
 Fin del Informe / End of Report

Este documento certifica que los productos descritos aquí fueron manufacturados, probados y/o inspeccionados de acuerdo con la especificación de referencia y satisface los correspondientes requerimientos. Este certificado se emite mediante un sistema automatizado y es válido con firma electrónica. En el certificado original se logro Tenaris (verde) está impreso en la hoja. En caso de que el poseedor del certificado entregue una fotocopia del mismo deberá certificar la conformidad con el original, y es responsable por cualquier uso legal o indebido. Cualquier alteración y/o falsificación será sujeta a la ley. This is to certify that the products described here in were manufactured, sampled, tested, and/or inspected in accordance with the specification referred and meets the requirements in all respects. The certificate is issued by a computerized system and it is valid with electronic signature. On the original certificate the trade-mark 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.