



OBOS DE ACERO DE MEXICO, S.A.
CERTIFICADO DE PRUEBAS EN FABRICA

No. 2003801

Fecha / Date 16/03/2002

Cliente / Purchaser FERRETERA ANAHUAC, S.A. DE C.V.

Confirmación de Venta / Sales Confirmation 044865/01

Tipo de Tubo / Type of Pipe CONDUCCION / LINE PIPE SEAMLESS

Norma / Standard or Specification API 5L/ASTM A106/ASME SA106/ASTM A53

Grado/Steel Grade B/X42 PSL1

Extremos / Ends LISO CORTE RECTO / PLAIN END

Peso Nominal / Nominal Weight 3.23 KG/M

Dimensiones / Dimensions 33.40 MM X 4.50 MM / 1.315 INCH X 0.179 INCH

Longitud / Length 5.50 / 7.00 MTS

Inspector / Inspector

Presión Hidrostatica / Hydrostatic Test VER NOTAS / SEE NOTES

Superficie / Surface BARNIZADO

Inspección / Inspection VER NOTAS / SEE NOTES

TENSION LONGITUDINAL/LONGITUDINAL TENSILE

| Fluencia | Resistencia | Alargamiento | F/R | Muestra/Tensile Sample | Yield strength | Tensile strength | Elongation | Ratio | Ancho | Espeesor | Thicknes |
|----------|----------------|------------------|-----------|------------------------|----------------|------------------|------------|-------|-------|----------|----------|
| Heat | Yield strength | Tensile strength | Obt. Req. | % en 2" | mm | mm | mm | mm | mm | mm | mm |
| 48568 | 33.85 | 51.49 | 51 | 0.66 | 33.40 | 4.51 | | | | | |
| 48703 | 33.96 | 51.49 | 50 | 0.66 | 33.40 | 4.48 | | | | | |

TENSION TRANSVERSAL/TRANSVERSE TENSILE

| Fluencia | Resistencia | Alargamiento | F/R | Muestra/Tensile Sample | Yield strength | Tensile strength | Elongation | Ratio | Ancho | Espeesor | Thicknes |
|----------|----------------|------------------|-----------|------------------------|----------------|------------------|------------|-------|-------|----------|----------|
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Cantidades / Quantities

143 Pzas/Pcs

ORIGINAL / ORIGINAL

Páginas / Pages
1 de / of 4

Planta/Mill: Km. 433.7 Carre. Mex-Ver. Via Xalapa. Apartado Postal 402,
Veracruz, Ver. Tel.(52-29) 89-11-00, Fax(52-29)81-11-20.

ESTE DOCUMENTO CERTIFICA QUE LOS PRODUCTOS DESCRITOS AQUÍ FUERON MANUFACTURADOS, PROBADOS E INSPECCIONADOS DE ACUERDO CON LA ESPECIFICACION DE REFERENCIA Y SATISFACE LOS CORRESPONDIENTES REQUERIMIENTOS. 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. DICA 777 04 0



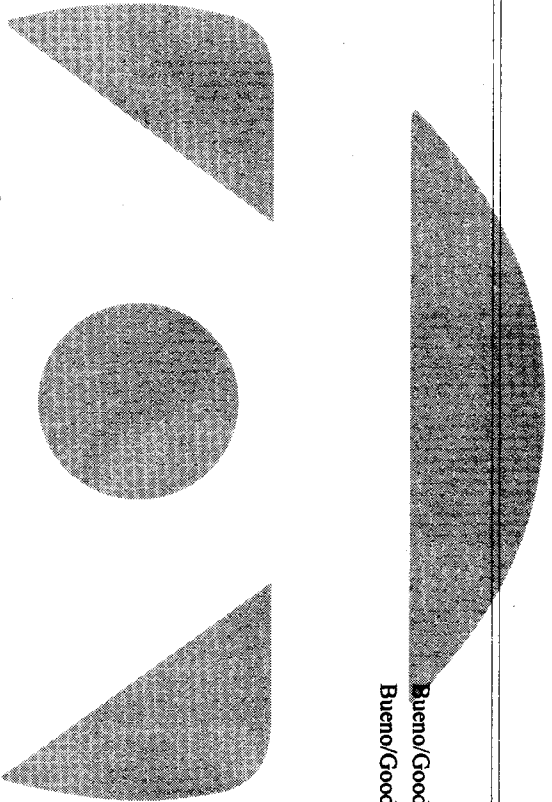
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| Tipo de Tubo / Type of Pipe | CONDUCCION / LINE PIPE SEAMLESS | Inspector / Inspector | |
| Norma / Standard or Specification | API 5L/ASTM A106/ASME SA106/ASTM A53 | Presión Hidrostática / Hydrostatic Test | VER NOTAS / SEE NOTES |
| Grado / Steel Grade | B/X42 PSL1 | Superficie / Surface | BARNIZADO |
| Extremos / Ends | LISO CORTE RECTO / PLAIN END | Inspección / Inspection | VER NOTAS / SEE NOTES |

MISCELANEA DE ENSAYOS / MISCELLANEOUS TEST

| | | | | | | | | | |
|--------|-------------------|----------|----------|---------------|------------|---------|-----------|-----------|----------|
| Colada | Reducción de área | Colapso | Dureza | Aplastamiento | Abocardado | Doblez | Rugosidad | Corrosión | Dureza |
| Heat | Long. Transv. | Collapso | Hardness | Flattening | Flaring | Bending | Rugosity | Corrosion | Hardness |
| | | | | | | | | | BHN |
| 48568 | | | | | | | | | 137 |
| 48703 | | | | | | | | | 136 |



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ANALISIS QUIMICO / CHEMICAL ANALYSIS

| Colada / Heat | Probeta / Sample | Tipo / Type | C | Mn | Si | P | S | Mo | Cr | V | Nb | Ni | Cu | Sn | Al | Ti | B | N | Ca | As | Ceq | Pcm |
|---------------|------------------|-------------|-------|------|------|-------|--------|-------|------|-------|-------|------|-------|-------|-------|-------|--------|--------|--------|-------|-----|-----|
| 48568 | H | | 0.120 | 1.05 | 0.25 | 0.014 | 0.0013 | 0.030 | 0.07 | 0.004 | 0.001 | 0.07 | 0.154 | 0.012 | 0.024 | 0.002 | 0.0001 | 0.0059 | 0.0015 | 0.007 | | |
| 48568 | P | | 0.120 | 1.05 | 0.26 | 0.014 | 0.0013 | 0.030 | 0.04 | 0.001 | 0.001 | 0.04 | 0.150 | 0.012 | 0.027 | 0.003 | 0.0001 | 0.0060 | 0.0013 | 0.003 | | |
| 48568 | P | | 0.120 | 1.02 | 0.25 | 0.014 | 0.0018 | 0.030 | 0.06 | 0.001 | 0.001 | 0.04 | 0.150 | 0.012 | 0.027 | 0.003 | 0.0001 | 0.0060 | 0.0015 | 0.003 | | |
| 48703 | H | | 0.130 | 1.04 | 0.26 | 0.013 | 0.0020 | 0.050 | 0.03 | 0.001 | 0.001 | 0.06 | 0.129 | 0.010 | 0.030 | 0.002 | 0.0001 | 0.0053 | 0.0014 | 0.006 | | |
| 48703 | P | | 0.130 | 1.03 | 0.25 | 0.013 | 0.0022 | 0.050 | 0.03 | 0.001 | 0.001 | 0.05 | 0.133 | 0.009 | 0.030 | 0.003 | 0.0001 | 0.0051 | 0.0016 | 0.004 | | |
| 48703 | P | | 0.130 | 1.02 | 0.25 | 0.013 | 0.0026 | 0.050 | 0.03 | 0.001 | 0.001 | 0.05 | 0.130 | 0.010 | 0.029 | 0.003 | 0.0001 | 0.0055 | 0.0016 | 0.004 | | |

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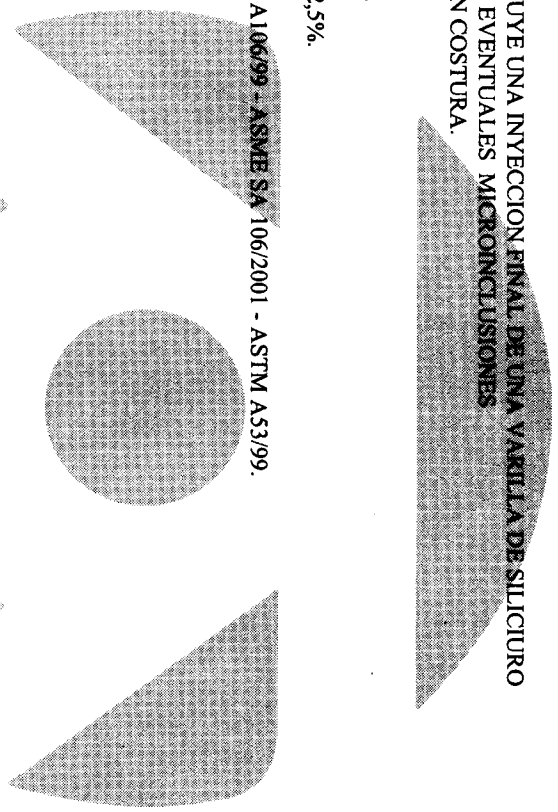
TUBOS DE ACERO DE MEXICO, S. de CV
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Notas / Notes

N.R. 326639. REF.: R.
 PRUEBA HIDRAULICA: 207 KPA*100 = 3000 PSI (5 seg.).
 FABRICACION DE ACERO: FUNDICION POR ARCO ELECTRICO Y COLADO CONTINUO. - ACERO CALMADO AL ALUMINIO - METODO GRANO FINO.
 LA PRACTICA DE AFINO EN EL HORNO - CUCHARA INCLUYE UNA INYECCION FINAL DE UNA VAJILLA DE SILICIOURO DE CALCIO PARA OBTENER UNA FORMA GLOBULAR DE EVENTUALES MICRONCLUSIONES
 FABRICACION DE TUBO: LAMINADO EN CALIENTE Y SIN COSTURA.
 TRATAMIENTO TERMICO: DIRECTO DE LAMINACION.
 CONTROL VISUAL Y DIMENSIONAL: SATISFACTORIO.
 MATERIAL LIBRE DE CONTAMINACION POR MERCURIO.
 CONTROL NO DESTRUCTIVO (C.N.D.): SATISFACTORIO.
 METODO DE INSPECCION: E.M.I. LONG. (EXT.) NOTCH 12.5%.
 Sum. Cr + Cu + Mo + Ni + V max. 1,00009%.
 EDICION DE LA NORMA: API 5L 42nd Edition 2000 - ASTM A106/99 - ASME SA 106/2001 - ASTM A53/99.



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INGENIERO SALVA GARCIA PARRALES
 CALIDAD NOMENCLATURA Y FIRMA
 QUALITY CERTIFICATION NAME AND SIGNATURE

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 Veracruz, Ver. Tel: (52-29) 89-11-90. Fax: (52-29) 81-11-20.