

**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**

(DIN EN 10204 3.1.B - ISO 10474 3.1.B)

Tubos de Acero de México, S.A.
Carr. Mty-Laredo Km 24.2
Apartado Postal 43
(65550) C. de Flores, N.L. Méx.
(52) 81 8305 9600 tel
(52) 81 8305 9620 fax

| | | | | | | | |
|---|---------------|--|-----------------------------|-------------------|------|--------------------------|----------------------|
| Verdido a: | PIESA ANAHUAC | Pedido del Cliente No: | 1718 - 1705 - 1653 - 1604 - | Lista de Empaque: | 8441 | Fecha/Date: | 25 de Agosto de 2006 |
| Sold to: | | Customers Order No: | | Packing List: | | Factoral/Invoice: | |
| Especificaciones y Grados / Standard or Specification and Steel Grade | | Dimensiones y tolerancias / Dimension and tolerances | | Bocas / Ends | | Biselado / Bevelled ends | |
| Seamless Fittings according to ASTM A 234-97, A234-04 / ASME AISA 234 WPB - | | ASME B 16.9-01 and ASME B 16.28 edition 1994 | | | | | |
| NACE MR 01,75-2003 - Conform to ASME II Ed. 2001 | | | | | | | |

| ART. ITEM | COLADA HEAT CODE | CANTIDAD QUANTITY | DESCRIPCION / DESCRIPTION | PRUEBAS MECANICAS / MECHANICAL TEST | | | PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C | | | | | |
|-----------|------------------|-------------------|---------------------------------|-------------------------------------|-------------------------------------|------------|---|---------------------------|----------|----------|----------|-------------------------|
| | | | | ESF. CEDENCIA YIELD STRENGTH (Mpa) | ESF. RUPTURA TENSILE STRENGTH (Mpa) | ELONG. %2" | DUREZA HARDNESS HB | DIMENSIONES SAMPLE DIM mm | 1 Joules | 2 Joules | 3 Joules | PROMEDIO AVERAGE Joules |
| 1 | T29388 | 200 | *CODO 6** X 90° R.L. CED-STD. " | 320 | 497 | 42 | 105 | | | | | |
| 2 | T29417 | 4 | *CODO 16** X 90° R.L. CED-XS* | 318 | 476 | 46 | 124 | | | | | |
| 3 | T28614 | 30 | *CODO 6** X 45° CED-STD* | 339 | 492 | 44 | 126 | | | | | |
| 4 | T29077 | 30 | *RED. CONC. 10** X 8** CED-STD* | 368 | 479 | 44 | 76 | | | | | |
| 5 | T17196 | 75 | *CODO 3** X 45° CED-STD* | 341 | 509 | 39 | 126 | | | | | |
| 6 | T29436 | 20 | *CODO 8** X 45° CED-STD* | 308 | 480 | 42 | 96 | | | | | |
| 7 | T29437 | 120 | *CODO 8** X 90° R.L. CED-STD* | 281 | 471 | 42 | 116 | | | | | |
| 8 | T29031 | 40 | *TEE RED. 6** X 4** CED-STD* | 310 | 470 | 41 | 105 | | | | | |

ANALISIS QUIMICO / CHEMICAL ANALYSIS

| PROCESO PROCESS | COLADA HEAT CODE | COLADA/HEAT M.P./MOTHER PIPE | %C.E. | %C | %Mn | %P | %S | %SI | %Cr | %Cu | %Mo | %Ni | %V | %Nb |
|-----------------|------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| CF | T29388 | 29388 | 0.303 | 0.170 | 0.680 | 0.010 | 0.001 | 0.270 | 0.040 | 0.060 | 0.026 | 0.030 | 0.000 | 0.000 |
| CF | T29417 | 29417 | 0.303 | 0.170 | 0.670 | 0.000 | 0.008 | 0.260 | 0.040 | 0.072 | 0.032 | 0.030 | 0.000 | 0.000 |
| CF | T28614 | 28614 | 0.320 | 0.180 | 0.660 | 0.009 | 0.002 | 0.300 | 0.050 | 0.097 | 0.030 | 0.040 | 0.000 | 0.000 |
| CF | T29077 | 29077 | 0.286 | 0.170 | 0.680 | 0.009 | 0.009 | 0.280 | 0.005 | 0.007 | 0.004 | 0.004 | 0.000 | 0.000 |
| CF | T17196 | 17196 | 0.310 | 0.170 | 0.680 | 0.016 | 0.003 | 0.280 | 0.050 | 0.079 | 0.041 | 0.030 | 0.000 | 0.000 |
| CF | T29436 | 29436 | 0.301 | 0.170 | 0.670 | 0.009 | 0.001 | 0.290 | 0.040 | 0.065 | 0.025 | 0.030 | 0.000 | 0.000 |
| CF | T29437 | 29437 | 0.300 | 0.170 | 0.670 | 0.009 | 0.000 | 0.280 | 0.030 | 0.073 | 0.028 | 0.030 | 0.000 | 0.000 |
| CF | T29031 | 29031 | 0.297 | 0.160 | 0.670 | 0.009 | 0.001 | 0.280 | 0.050 | 0.078 | 0.038 | 0.040 | 0.000 | 0.000 |

Certificamos que los resultados de los Analisis Quimicos y Pruebas Mecanicas son verdaderos o una copia fiel de los certificados enviados por el Fabricante y/o el proveedor de Materia Prima (Tuberia) conforme ASTM A106GradesB con N°. We certify that result of chemical analysis and mechanical test are true and correct copy of the test certificate issued by the manufacturer and/or supplier. Raw material (Pipe) certs conform to ASTM A106 Grade B N°. 6018670 6021045 6012682 6017918 4022501 06018669 06018462 06015409

Este material cumple con los requerimientos especificados en la orden
The material of this certificate heat number mentioned above is in compliance with the requirements specified in the order.

The Products described herein were produced in accordance with the above referenced specification and are identified with the "R" which is permanently marked on each fitting.

Notes:
Formado en caliente a 780°C-940°C, enfriado al aire, Formado en frío normalizado a 940°C max.
Hot formed fittings in a range from 780°C to 940°C, cooled in still air.
Cold formed normalized at 940°C max.
Tiempo de permanencia 10' Holding time 10'
Inspección Dimensional: Satisfactoria Visual dimensional check: Satisfactory
CF: FORMADO EN CALIENTE/NOT FORMED CF: FORMADO EN FRIOCOLD FORMED

Jefe de Aseguramiento de Calidad: Quality Assurance Coordinator

ING. JOSE MARTINEZ MACIAS

CC-008