



**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**
(DIN EN 10204:2004E - ISO 10474 3.1.B)

Tubos de Acero de México, S.A.
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Vendido a: PLESA ANAHUAC Y CIA. S.A. DE C.V. Pedido del Cliente No: 3925 - 4013 - 3910
Sold to: Customers Order No: Dimensiones y tolerancias / Dimension and tolerances

Especificaciones y Grados / Standard or Specification and Steel Grade ASME B 16.9 - 2003 and ASME B 16.28 - 1994

Seamless Fittings according to ASTM A 234 "W" WPB-97, A234 "W" WPB-05a, NACE MR 0175-2003

Conform to ASME II Ed. 2001 ASME SA-234 "W", Grade WPB.

| | | | |
|-------------------|-------|------------------|--------------------------|
| Numero: | 19701 | Página/Page: | 1 DE 1 |
| Lista de Empaque: | 10161 | Fecha/Date: | 30 de Enero de 2007 |
| Packing List: | | Factura/Invoice: | Bocas / Ends |
| | | | Biselado / Bevelled ends |

| 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 HBW | 1 Joules | 2 Joules | 3 Joules | AVERAGE Joules |
| 1 | S22663 | 36 | CODO 6 X 45° CED-XS | 305 | 477 | 39 | 91 | | | | |
| 2 | T29437 | 1 | CODO 8 X 45° CED-XS | 298 | 471 | 36 | 116 | | | | |
| 3 | T34259 | 20 | CODO 8 X 45° CED-XS | 319 | 469 | 40 | 90 | | | | |
| 4 | T35714 | 4 | CODO 8 X 45° CED-XS | 334 | 492 | 31 | 89 | | | | |
| 5 | T34687 | 6 | CODO 16 X 90° R. I. CED-XS | 327 | 496 | 42 | 100 | | | | |
| 6 | T34054 | 10 | RED. CONC. 14 X 10 CED-STD | 328 | 488 | 31 | 110 | | | | |
| 7 | S22585 | 50 | RED. CONC. 3 X 2 1/2 CED-STD | 315 | 485 | 32 | 117 | | | | |
| 8 | T32354 | 1 | RED. CONC. 12 X 10 CED-STD | 346 | 481 | 37 | 84 | | | | |
| 9 | T33854 | 6 | RED. CONC. 12 X 10 CED-STD | 341 | 476 | 34 | 90 | | | | |
| 10 | T34687 | 10 | RED. CONC. 12 X 10 CED-STD | 344 | 489 | 34 | 84 | | | | |
| 11 | T31344 | 3 | RED. CONC. 12 X 10 CED-STD | 336 | 491 | 42 | 118 | | | | |

ANALISIS QUIMICO / CHEMICAL ANALYSIS

| PROCESO PROCESS | COLADA HEAT CODE | COLADA/HEAT M.P./MOTHER PIPE | %C | %Mn | %P | %S | %Si | %Cr | %Cu | %Mo | %Ni | %V | %Nb |
|-----------------|------------------|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HF | S22663 | 22663 | 0.320 | 0.180 | 0.760 | 0.010 | 0.270 | 0.020 | 0.020 | 0.010 | 0.016 | 0.001 | 0.002 |
| HF | T29437 | 29437 | 0.290 | 0.160 | 0.670 | 0.009 | 0.270 | 0.030 | 0.073 | 0.027 | 0.030 | 0.000 | 0.000 |
| HF | T34259 | 34259 | 0.310 | 0.170 | 0.660 | 0.009 | 0.290 | 0.060 | 0.066 | 0.038 | 0.040 | 0.000 | 0.000 |
| HF | T35714 | 35714 | 0.350 | 0.180 | 0.850 | 0.011 | 0.300 | 0.060 | 0.064 | 0.037 | 0.040 | 0.000 | 0.000 |
| HF | T34687 | 34687 | 0.330 | 0.180 | 0.740 | 0.009 | 0.280 | 0.070 | 0.083 | 0.030 | 0.030 | 0.000 | 0.000 |
| CF | T34054 | 34054 | 0.320 | 0.180 | 0.700 | 0.009 | 0.300 | 0.050 | 0.068 | 0.040 | 0.030 | 0.000 | 0.000 |
| CF | S22585 | 22585 | 0.310 | 0.170 | 0.750 | 0.011 | 0.260 | 0.040 | 0.025 | 0.010 | 0.022 | 0.001 | 0.002 |
| CF | T32354 | 32354 | 0.320 | 0.180 | 0.710 | 0.010 | 0.270 | 0.060 | 0.070 | 0.024 | 0.030 | 0.000 | 0.000 |
| CF | T33854 | 33854 | 0.310 | 0.180 | 0.660 | 0.008 | 0.300 | 0.050 | 0.059 | 0.030 | 0.030 | 0.000 | 0.000 |
| CF | T34687 | 34687 | 0.330 | 0.180 | 0.740 | 0.009 | 0.280 | 0.070 | 0.084 | 0.030 | 0.030 | 0.000 | 0.000 |
| CF | T31344 | 31344 | 0.320 | 0.180 | 0.680 | 0.008 | 0.270 | 0.060 | 0.070 | 0.051 | 0.030 | 0.000 | 0.000 |

Notes:
Hot formed fittings in a range from 620°C to 980°C, cooled in still air.
Cold formed normalized at 940°C max.
Holding time 10'.
Visual dimensional check. Satisfactory

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.

Jefe de Calidad:
Quality Manager:

ING. JOSE MARTINEZ MACIAS