



Tenaris Group

**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**

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

Empresas Riga, S.A. De C.V.
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| | | | |
|---|---------------------------------------|--|---|
| Vendido A: TUBOS CONEXIONES Y TANQUES, S.A. DE C.V. | Pedido del cliente No: 5888 | Lista de empaque: 5942 | Fecha/Date: MAYO 9 de 2003 |
| Sold to: | Customers Order No: | Packing List: | Bocas / Ends Biselado / Bevelled ends |
| Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM/ASME A5A 234 WPB - NACE MR 01.75 ed. 02 - | | Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 and ASME B 16.28 edition 2001 | |
| Conform to ASME II Ed. 2001 | | | |

| DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION | | | | PRUEBAS MECANICAS / MECHANICAL TEST | | | | PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C | | | | |
|--|------------------|-------------------|------------------------------|-------------------------------------|-------------------------------------|------------|--------------------|---|----------|----------|----------|-------------------------|
| ART. ITEM | COLADA HEAT CODE | CANTIDAD QUANTITY | DESCRIPCION / DESCRIPTION | ESF. CEDENCIA YIELD STRENGTH (MPa) | ESF. RUPTURA TENSILE STRENGTH (MPa) | ELONG. %2" | DUREZA HARDNESS HR | DIMENSIONES SAMPLE DIM mm | 1 Joules | 2 Joules | 3 Joules | PROMEDIO AVERAGE Joules |
| 1 | MC5 | 300 | CODO R.L. 1 X 90 CED STD | 254 | 432 | 60 | 124 | N/A | N/A | N/A | N/A | N/A |
| 2 | UJ5 | 48 | CODO R.L. 12 X 90 CED STD | 337 | 497 | 42 | 139 | N/A | N/A | N/A | N/A | N/A |
| 3 | GT5 | 8 | CODO R.L. 2 1/2 X 90 CED STD | 345 | 504 | 37 | 140 | N/A | N/A | N/A | N/A | N/A |
| 4 | OU5 | 168 | CODO R.L. 2 1/2 X 90 CED STD | 347 | 501 | 39 | 123 | N/A | N/A | N/A | N/A | N/A |
| 5 | YA4 | 74 | CODO R.L. 2 1/2 X 90 CED STD | 471 | 562 | 30 | 140 | N/A | N/A | N/A | N/A | N/A |
| 6 | OC5 | 50 | CODO R.C. 4 X 90 CED STD | 328 | 507 | 34 | 139 | N/A | N/A | N/A | N/A | N/A |
| 7 | OK5 | 228 | CODO R.L. 4 X 90 CED STD | 372 | 506 | 38 | 131 | N/A | N/A | N/A | N/A | N/A |
| 8 | IX5 | 50 | CODO R.C. 6 X 90 CED STD | 316 | 499 | 32 | 141 | N/A | N/A | N/A | N/A | N/A |
| 9 | SK5 | 59 | CODO R.L. 6 X 90 CED STD | 344 | 502 | 42 | 136 | N/A | N/A | N/A | N/A | N/A |

| 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 |
| HF | MC5 | 21646 | 0.2570 | 0.150 | 0.540 | 0.008 | 0.001 | 0.209 | 0.039 | 0.057 | 0.019 | 0.028 | 0.001 | 0.000 |
| HF | UJ5 | 10758 | 0.3320 | 0.190 | 0.670 | 0.014 | 0.001 | 0.280 | 0.070 | 0.087 | 0.040 | 0.040 | 0.000 | 0.000 |
| HF | GT5 | 22022 | 0.3390 | 0.190 | 0.810 | 0.012 | 0.001 | 0.310 | 0.030 | 0.030 | 0.020 | 0.020 | 0.001 | 0.001 |
| HF | OU5 | 23880 | 0.3400 | 0.200 | 0.730 | 0.014 | 0.001 | 0.290 | 0.040 | 0.050 | 0.020 | 0.040 | 0.001 | 0.001 |
| HF | YA4 | 43550 | 0.2940 | 0.170 | 0.613 | 0.004 | 0.002 | 0.290 | 0.030 | 0.140 | 0.020 | 0.030 | 0.002 | 0.001 |
| HF | OC5 | 21247 | 0.3250 | 0.180 | 0.770 | 0.008 | 0.001 | 0.290 | 0.030 | 0.060 | 0.020 | 0.030 | 0.001 | 0.001 |
| HF | OK5 | 98919 | 0.3070 | 0.170 | 0.680 | 0.010 | 0.003 | 0.270 | 0.050 | 0.078 | 0.029 | 0.040 | 0.000 | 0.000 |
| HF | IX5 | 96135 | 0.3160 | 0.180 | 0.660 | 0.006 | 0.002 | 0.290 | 0.050 | 0.077 | 0.043 | 0.040 | 0.000 | 0.000 |
| HF | SK5 | 10285 | 0.3300 | 0.190 | 0.660 | 0.006 | 0.001 | 0.270 | 0.060 | 0.090 | 0.048 | 0.040 | 0.000 | 0.000 |

Notas: Hot formed fittings in a range from 780°C to 940°C. Cooled in still air.
 Formado en caliente a 780°C-940°C, enfriado al aire. Formado en frío normalizado a 940°C max.
 Cadd formed normalized at 940°C max.
 Tiempo de permanencia 10'. Holding time 10'.
 Inspección Dimensional: Satisfactoria. Visual dimensional check: Satisfactory.
 H.F.: FORMADO EN CALIENTE/HOT FORMED CF: FORMADO EN FRIO/COLD FORMED

Gerente de Aseguramiento de Calidad:
Quality Assurance Manager:
ING. JOSÉ MARTINEZ MACIAS

CC-008