

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

Numero: 10974  
Pagina/Page: 1 DE 1  
Fecha/Date: 21 de 2003  
Via Xalapa (91697) Veracruz, Ver. Mexico (52) 229 989 1100 tel (52) 229 989 1120 fax

Vendido A/Trocota  
Sold to: Trocota  
Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless Fittings according to ASTM/ASME ASA 234 WPB - NACE MR 01.75 ed. 02 -  
Conform to ASME II Ed. 2001

Pedido del cliente No: Customers Order No:  
Dimensiones y tolerancias / Dimension and tolerances  
ASME B 16.9 and ASME B 16.28 edition 2001

Lista de empaque: 6295  
Bocas / Ends  
Biselado / Bevelled ends

Fecha/Date: 21 de 2003

| 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. RUPURA TENSILE STRENGTH (MPa) | ELONG. %2" | DUREZA HB | DIMENSIONES SAMPLE DIM mm               | 1 Joules | 2 Joules | 3 Joules | PROMEDIO AVERAGE Joules |
| 1  | BNS              | 160               | CODO 1 1/2 X 90 RL STD              | 334                                | 514                                | 50         | 124       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 2  | JX5              | 40                | CODO 1 1/2 X 90 RL STD              | 390                                | 536                                | 54         | 128       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 3  | SBS5             | 13                | RED. CONC. 2 1/2 X 2 STD            | 344                                | 480                                | 41         | 126       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 4  | OU5              | 20                | RED. CONC. 2 X 1 XS                 | 347                                | 501                                | 39         | 123       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 5  | RO3              | 5                 | RED. CONC. 2 X 1 1/4 XS             | 350                                | 528                                | 35         | 120       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 6  | SF4              | 5                 | RED. CONC. 2 X 1 1/4 XS             | 395                                | 523                                | 29         | 131       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 7  | SUV5             | 684               | CODO 4 X 90 RL STD                  | 333                                | 488                                | 34         | 135       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 8  | TYN5             | 10                | TEE RED. 10 X 6 STD                 | 341                                | 508                                | 42         | 139       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 9  | TXW5             | 75                | CODO 6 X 90 RL STD                  | 343                                | 505                                | 38         | 136       | N/A                                     | N/A      | N/A      | N/A      | N/A                     |
| 10   | TWHS             | 25                | CODO 6 X 90 RL STD                  | 339                                | 498                                | 40         | 131       | 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                                   | BNS              | 43300                        | 0.3250 | 1.80 | 0.770 | 0.010 | 0.000 | 0.300 | 0.040 | 0.040 | 0.020 | 0.020 | 0.001 | 0.001 |
| HF                                   | JX5              | 21962                        | 0.3340 | 1.80 | 0.810 | 0.010 | 0.001 | 0.290 | 0.040 | 0.040 | 0.030 | 0.030 | 0.001 | 0.001 |
| CF                                   | SBS5             | 49970                        | 0.3190 | 1.20 | 1.050 | 0.011 | 0.000 | 0.250 | 0.040 | 0.110 | 0.030 | 0.030 | 0.001 | 0.001 |
| CF                                   | OU5              | 23880                        | 0.3400 | 2.00 | 0.730 | 0.014 | 0.001 | 0.290 | 0.040 | 0.050 | 0.020 | 0.040 | 0.001 | 0.001 |
| CF                                   | RO3              | 30826                        | 0.3250 | 1.90 | 0.750 | 0.013 | 0.001 | 0.280 | 0.010 | 0.070 | 0.010 | 0.020 | 0.000 | 0.001 |
| CF                                   | SF4              | 44374                        | 0.3230 | 1.75 | 0.764 | 0.014 | 0.000 | 0.270 | 0.025 | 0.066 | 0.002 | 0.155 | 0.002 | 0.000 |
| HF                                   | SUV5             | 24824                        | 0.3360 | 1.90 | 0.790 | 0.007 | 0.001 | 0.310 | 0.030 | 0.040 | 0.020 | 0.020 | 0.001 | 0.001 |
| CF                                   | TYN5             | 11686                        | 0.3410 | 1.80 | 0.790 | 0.013 | 0.002 | 0.270 | 0.080 | 0.069 | 0.029 | 0.040 | 0.000 | 0.000 |
| HF                                   | TXW5             | 12431                        | 0.3620 | 1.90 | 0.840 | 0.007 | 0.003 | 0.270 | 0.060 | 0.079 | 0.058 | 0.040 | 0.000 | 0.000 |
| HF                                   | TWHS             | 11794                        | 0.3480 | 1.80 | 0.840 | 0.011 | 0.021 | 0.290 | 0.060 | 0.097 | 0.036 | 0.040 | 0.000 | 0.000 |

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

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

CC-008