



# Tenaris

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

Tubos de Acero de México, S.A.

Carr. Mty-Laredo Km. 24.2

Apartado Postal 43

(55550) C. de Flores, N.L. Méx.

(52) 81 8305 9600 tel

(52) 81 8305 9620 fax

Vendido a: **PROVEEDORA DE MATERIALES ANGER, S.A.**  
DE C.V.

Pedido del Cliente No: **5205**  
Customers Order No:

Lista de Empaque: **1 0 4 7 5**  
Packing List:

Fecha/Date: **14 de Mayo de 2008**

Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless fittings according to ASTM A 234-WP WPB-37, A234-WP WPB-05a, NACE MR 0175-2003  
Conform to ASME II Ed. 2001 ASME SA-234-WP Grade WPB, NACE MRO 103-2003

Dimensiones y tolerancias / Dimension and tolerances  
ASME B 16.9 - 2003 and ASME B 16.28 - 1994

Factura/Invoice: **Bocas / Ends**  
Biselado / Bevelled ends

**DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION**

ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION	ESF. CEDENCIA YIELD STRENGTH (Mpa)	ESF. RUPURA TENSILE STRENGTH (Mpa)	ELONG. % <sup>2</sup>	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T39508	180	CODO 8 X 90° R.I. CED-STD	365	512	39	124					
2	T38466	60	CODO 8 X 90° R.I. CED-STD	270	452	35	96					

**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	T39508	39508	0.310	0.180	0.670	0.011	0.003	0.280	0.060	0.046	0.016	0.030	0.000	0.000
HF	T38466	38466	0.300	0.170	0.670	0.009	0.001	0.280	0.050	0.060	0.015	0.030	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 Sin Costura) conforme ASTM A106 Grado B 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 (Seamless Pipe) certs conform to ASTM A106 Grade B N°

8023942 8012245

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 / The values of hardness for fittings NPS 2 1/2" and smaller ones obtain from the conversion of hardness Rockwell B to hardness Brinell HBW by means of table WILSON DESK CHART 60.

Los valores de dureza para conexiones de NPS de 2 1/2" y menores, se obtienen de la conversión de dureza Rockwell B a dureza Brinell HBW mediante la tabla WILSON DESK CHART 60.

Notes:  
Formado en caliente a 620°C-980°C, enfriado al aire, Formado en frío normalizado a 940°C max.  
Tempo de permeancia 10'.  
Inspeccion Dimensional Satisfactoria.  
HF: FORMADO EN CALIENTE/HOT FORMED  
CF: FORMADO EN FRIOCOLD FORMED

Notes:  
Hot formed fittings in a range from 620°C to 980°C, cooled in still air.  
Cold formed normalised at 940°C max.  
Holding time 10'.  
Visual dimension check: Satisfactory  
CF: FORMADO EN FRIOCOLD FORMED

*[Signature]*  
**ING. WALDO GALLEGOS GALVAN**  
Quality Manager jefe de Calidad:

CC-008