

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

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

Vendido a:	PROVEEDORA DE MATERIALES ANGER, S. A.	Pedido del Cliente No:	5275	Lista de Empaque:	1 1124	Fecha/Date:	15 de Diciembre de 2008
Sold to:	DE C. V.	Customers Order No:		Packing List:		Factural/Invoices:	Bocas / Ends
Especificaciones y Grados / Standard or Specification and Steel Grade				Dimensiones y tolerancias / Dimension and tolerances			
Seamless Fittings according to ASTM A 234 "W" WPB-07, A234 "W" WPB-09a, NACE MR 0175-2003				ASME B 16.9 - 2007 and ASME B 16.28 - 1994			
Conform to ASME II Ed. 2001 ASME SA-234 "W" Grade WPB, NACE MR0103-2003				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	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T41487	160	CODO 10 X 90° R. I. CED-STD	259	478	34	105					

PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	ANALISIS QUIMICO / CHEMICAL ANALYSIS											
			%C.E.	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T41487	41487	0.310	0.180	0.680	0.012	0.001	0.290	0.040	0.057	0.007	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 (Tubería 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°.

805 4 918

Notes:

Hot formed fittings in a range from 620°C to 880°C, cooled in still air.
Cold formed normalized at 540°C max.
Holding time 10'.
Visual dimensional check: Satisfactory

Formado en caliente a 620°C-880°C, enfriado al aire.
Fornado en frío normalizado a 540°C max.
Tiempo de permanencia 10'.
Inspección Dimensional: Satisfactoria.

CF: FORMADO EN CALIENTE/HOT FORMED
FC: FORMADO EN FRIJO/COLD FORMED

Quality Manager/ jefe de Calidad:
ING. WALDO GALLEGOS GALVAN

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.

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.