

**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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Proveedor a: PROVEEDORA DE MATERIALES ANGER, S.A.	Pedido del Cliente No: 5318 - 5312 -	Lista de Empaque: 11103	Fecha/Date: 9 de Diciembre de 2008
Sold to: DE C.V.	Customers Order No: 5318 - 5312 -	Packing List: 11103	
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless fittings according to ASTM A 234 "M" WPB-07, A234 "M" WPB-06a, NACE MR 0175-2003		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007 and ASME B 16.28 - 1994	
Conform to ASME II Ed. 2001 ASME SA-234 "M" 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. RUPATURA TENSILE STRENGTH (Mpa)	ELONG. %2"	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
12	T36427	1	RED. CONC. 6 X 4 CED-STD	313	485	40	90					
13	T37363	3	RED. CONC. 6 X 4 CED-STD	321	491	40	114					
14	T38887	80	RED. CONC. 6 X 4 CED-STD	291	460	42	98					
15	T39807	6	RED. CONC. 16 X 12 CED-STD	321	458	37	105					
16	T39452	4	TEE RED. 12 X 10 CED-STD	323	484	35	113					

ANALISIS QUIMICO / CHEMICAL ANALYSIS

PROCESO	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
CF	T36427	36427	0.300	0.170	0.680	0.010	0.001	0.290	0.040	0.075	0.027	0.030	0.000	0.000
CF	T37363	37363	0.320	0.180	0.690	0.009	0.003	0.280	0.070	0.057	0.039	0.030	0.000	0.000
CF	T38887	38887	0.290	0.160	0.670	0.009	0.001	0.270	0.060	0.049	0.018	0.040	0.000	0.000
CF	T39807	39807	0.300	0.170	0.670	0.009	0.002	0.270	0.050	0.075	0.015	0.030	0.000	0.000
HF	T39452	39452	0.310	0.170	0.680	0.010	0.002	0.280	0.070	0.079	0.041	0.040	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 (Tuberías 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) casts conform to ASTM A106 Grade B N°: 7048259 8010707 8033813 8044211 8045768

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.

Notes: Formado en caliente a 620°C-980°C, enfriado al aire. Formado en frío normalizado a 940°C max. Cold formed normalized at 940°C max. Holding time: 10'. Visual dimensional check: Satisfactory

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

Inspección Dimensional: Satisfactoria. Visual dimensional check: Satisfactory

HF: FORMADO EN CALIENTE/HOT FORMED CF: FORMADO EN FRIO/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.