



Tubos de Acero de México, S.A.
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**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE
(DIN EN 10204:2004E - ISO 10474 3.1.B)**

Numero:
Number:
24451

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Vendido a: Sold to:	PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	5960 -	Lista de Empaque: Packing List:	12589	Fecha/Date:	28 de Marzo de 2011
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 01.76-2003 Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB, NACE MR0103-2003		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007 and ASME B 16.28 - 1994			Factura/Invoice: Bocas / Ends Biselado / Bevelled ends		

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 HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T50879	150	CODO 8 X 45° CED-XS	295	482	44	91					
2	T50879	50	CODO 8 X 90° R.I. CED-XS	295	482	44	91					
3	S42235	300	CODO 4 X 45° CED-XS	299	472	36	105					

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	T50879	50879	0.310	0.180	0.660	0.014	0.002	0.290	0.040	0.049	0.014	0.030	0.000	0.000
HF	T50879	50879	0.310	0.180	0.660	0.014	0.002	0.290	0.040	0.049	0.014	0.030	0.000	0.000
HF	S42235	42235	0.330	0.190	0.770	0.013	0.001	0.310	0.030	0.033	0.010	0.027	0.002	0.002

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) certifies conform to ASTM A106 Grade B N°:
10037273 10037273 10053802

"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".

<p>Notas:</p> <p>Formado en caliente a 820°C-980°C, enfriado al aire.</p> <p>Hot formed fittings in a range from 820°C to 980°C, cooled in still air.</p> <p>Formado en frio normalizado a 940°C max.</p> <p>Cold formed normalized at 940°C max.</p> <p>Tiempo de permanencia 10'.</p> <p>Holding time 10'.</p> <p>Inspección Dimensional: Satisfactoria.</p> <p>Visual dimensional check: Satisfactory</p> <p>HF: FORMADO EN CALIENTE/HOT FORMED</p> <p>CF: FORMADO EN FRIO/COLD FORMED</p>	<p>Quality Manager / Jefe de Calidad: ING. WALDO GALLEGOS GALVAN</p>	<p>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.</p> <p>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.</p>
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