



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:
24628

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Vendido a: Sold to:	PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	5996 -	Lista de Empaque: Packing List:	12701	Fecha/Date:	2 de Junio de 2011
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 01.75-2003 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	S42141	1519	CODO 3 X 90° R.L. CED-STD	348	526	31	124					
2	S42775	10	CODO 3 X 90° R.L. CED-STD	316	484	31	128					
3	S42831	1111	CODO 3 X 90° R.L. CED-STD	338	508	32	122					
4	T52716	120	CODO 10 X 90° R.L. CED-STD	320	492	40	122					
5	T52235	40	CODO 10 X 90° R.L. CED-STD	310	481	41	122					
6	T54713	80	CODO 10 X 90° R.L. CED-STD	306	482	39	122					
7	T54644	20	TEE RED 8 X 4 CED-STD	315	488	38	120					

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	S42141	42141	0.340	0.190	0.800	0.010	0.001	0.330	0.030	0.040	0.010	0.028	0.002	0.002
HF	S42775	42775	0.330	0.200	0.730	0.009	0.001	0.300	0.020	0.020	0.010	0.013	0.002	0.002
HF	S42831	42831	0.330	0.190	0.800	0.012	0.002	0.320	0.020	0.014	0.010	0.009	0.001	0.002
HF	T52716	52716	0.320	0.180	0.680	0.010	0.002	0.300	0.040	0.072	0.028	0.050	0.000	0.000
HF	T52235	52235	0.300	0.170	0.690	0.015	0.002	0.280	0.040	0.060	0.021	0.040	0.000	0.000
HF	T54713	54713	0.310	0.180	0.660	0.008	0.002	0.280	0.030	0.072	0.015	0.040	0.000	0.000
HF	T54644	54644	0.310	0.180	0.670	0.007	0.003	0.280	0.050	0.072	0.023	0.050	0.000	0.000

Certificamos que los resultados de los Análisis Químicos y Pruebas Mecánicas 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°.
10057876 11008213 11001308 11013652 10053786 11022889 11016577
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 520°C-980°C, enfriado al aire, Formado en frío normalizado a 940°C max.</p> <p>Tiempo de permanencia 10'.</p> <p>Inspección Dimensional: Satisfactoria.</p> <p>HF: FORMADO EN CALIENTE/HOT FORMED</p>	<p>Notas:</p> <p>Hot formed fittings in a range from 520°C to 980°C, cooled in still air.</p> <p>Cold formed normalised at 940°C max.</p> <p>Holding time 10'.</p> <p>Visual dimensional check: Satisfactory</p> <p>CF: FORMADO EN FRIO/COLD FORMED</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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Quality Manager/Jefe de Calidad:
ING. WALDO GALLEGOS GALVAN