



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:
 25721

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Vendido a: Sold to:	TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No:	11826 - 12077	Lista de Empaque: Packing List:	13296	Fecha/Date:	25 de Abril de 2012
Especificaciones y Grados / Standard or Specification and Steel Grade		Dimensiones y tolerancias / Dimension and tolerances			Factura/Invoice:		
Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 01.75-2003		ASME B 16.9 - 2007			Bocas / Ends		
Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB, NACE MR0103-2003					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. %E	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T56000	36	TEE RED. 10 X 8 CED-STD	313	482	46	107					
2	T59967	200	CODO 6 X 90° R.L. CED-STD.	288	478	30	158					
3	T58293	250	RED. CONC. 10 X 8 CED-STD	317	490	41	100					
4	T51307	31	CODO 14 X 45° CED-STD	306	496	34	105					
5	T51306	56	CODO 14 X 45° CED-STD	320	484	37	105					
6	T51308	9	CODO 14 X 45° CED-STD	278	477	34	103					
7	T60104	120	CODO 10 X 90° R.L. CED-STD	311	484	39	110					
8	T59566	80	CODO 10 X 90° R.L. CED-STD	319	475	34	140					
9	T58973	80	CODO 10 X 90° R.L. CED-STD	205	460	37	140					
10	T59630	72	TEE RED. 10 X 4 CED-STD	307	461	37	144					
11	T51312	2	CODO 12 X 45° SHC-90	281	469	47	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	T56000	56000	0.310	0.170	0.710	0.011	0.001	0.290	0.040	0.070	0.020	0.030	0.000	0.000
HF	T59967	59967	0.300	0.170	0.670	0.014	0.001	0.280	0.050	0.072	0.018	0.030	0.000	0.000
CF	T58293	58293	0.300	0.170	0.670	0.006	0.002	0.280	0.060	0.052	0.016	0.030	0.000	0.000
HF	T51307	51307	0.310	0.180	0.650	0.011	0.001	0.280	0.040	0.049	0.020	0.030	0.000	0.000
HF	T51306	51306	0.300	0.170	0.660	0.012	0.001	0.260	0.040	0.051	0.022	0.030	0.000	0.000
HF	T51308	51308	0.310	0.180	0.660	0.014	0.001	0.280	0.040	0.054	0.023	0.030	0.000	0.000
HF	T60104	60104	0.310	0.180	0.680	0.012	0.002	0.290	0.050	0.078	0.015	0.040	0.000	0.000
HF	T59566	59566	0.310	0.180	0.660	0.012	0.002	0.280	0.040	0.070	0.022	0.030	0.000	0.000
HF	T58973	58973	0.320	0.190	0.670	0.015	0.002	0.290	0.030	0.057	0.025	0.030	0.000	0.000
HF	T59630	59630	0.320	0.190	0.690	0.009	0.001	0.280	0.050	0.061	0.024	0.040	0.000	0.000
HF	T51312	51312	0.310	0.180	0.660	0.011	0.001	0.270	0.040	0.062	0.027	0.040	0.000	0.000

Certificamos que los resultados de los Analisis Quimicos 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) certis conform to ASTM A106 Grade B N°. 11044511 12023702 12002317 10040714 11039747 10041849 12023982 12015449 12022623 12023718 10040931

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.

Notas: Formado en caliente a 620°C-650°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria.

Notes: Hot formed fittings in a range from 620°C to 650°C, cooled in still air. Cold formed normalized at 940°C max. Holding time 10'. Visual dimensional check: Satisfactory.

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.