



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

Numero:
Number: 25002
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Vendido a: Sold to: TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No: 10984 - 10118 - 10882	Lista de Empaque: Packing List: 12904	Fecha/Date: 11 de Octubre 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	T55201	172	TEE 4 CED-STD	289	471	39	122					
2	T55441	103	TEE 4 CED-STD	311	484	39	128					
3	S46244	2682	CODO 2 X 90° R.L. CED-STD	281	475	30	107					
4	T55089	96	CODO 10 X 45° CED-STD	315	492	40	122					
5	T54644	64	TEE RED. 8 X 6 CED-STD	284	477	41	118					
6	T51307	14	CODO 12 X 90° R.L. CED-XS	307	482	45	122					
7	T50961	1	CODO 12 X 90° R.L. CED-XS	303	482	45	120					
8	T51309	4	CODO 12 X 90° R.L. CED-XS	310	483	45	122					
9	T50508	71	CODO 8 X 90° R.C. CED-STD	313	491	42	122					
10	T55897	32	TEE 10 CED-STD	316	481	43	118					
11	T54867	40	CODO 10 X 90° R.C. CED-STD	304	480	40	122					

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	T55201	55201	0.308	0.170	0.570	0.007	0.001	0.280	0.050	0.065	0.015	0.030	0.000	0.000
HF	T55441	55441	0.320	0.180	0.580	0.010	0.001	0.290	0.070	0.053	0.017	0.030	0.000	0.000
HF	S46244	46244	0.330	0.190	0.740	0.012	0.000	0.290	0.050	0.035	0.020	0.020	0.002	0.032
HF	T55089	55089	0.310	0.180	0.680	0.009	0.002	0.280	0.040	0.056	0.012	0.030	0.000	0.030
HF	T54644	54644	0.310	0.180	0.660	0.006	0.003	0.280	0.050	0.071	0.022	0.050	0.000	0.000
HF	T51307	51307	0.320	0.190	0.660	0.010	0.001	0.280	0.040	0.047	0.019	0.030	0.000	0.000
HF	T50961	50961	0.310	0.180	0.670	0.011	0.003	0.270	0.030	0.056	0.029	0.040	0.000	0.000
HF	T51309	51309	0.300	0.170	0.660	0.012	0.001	0.280	0.050	0.051	0.017	0.030	0.000	0.000
HF	T50508	50508	0.320	0.180	0.680	0.010	0.002	0.270	0.060	0.071	0.024	0.030	0.000	0.000
HF	T55897	55897	0.300	0.170	0.680	0.012	0.001	0.320	0.050	0.059	0.014	0.030	0.000	0.000
HF	T54867	54867	0.000	0.180	0.670	0.006	0.001	0.280	0.040	0.052	0.013	0.030	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) certs conform to ASTM A106 Grade B N°:
11030462 11030655 598998 11037949 11018484 10042608
10042590 10042698 10040732 11044883 11034215

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.

Nota:
Formado en caliente a 620°C-680°C, enfriado al
Hot formed fittings in a range from 620°C to 680°C, cooled in air at
Tempo de permanencia 10'.
Holding time 10'.
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 obtained 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