



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: 24646	Pagina/Page: 1
Vendido a: Sold to: TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No: 10118 - 10448 - 10085 - 10304	Lista de Empaque: Packing List: 12709	Fecha/Date: 7 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	T50380	150	RED. CONC. 8 X 6 CED-STD	301	494	42	120					
2	T54399	360	CODO 8 X 90° R.L. CED-STD	300	473	42	118					
3	S&G6	2	RED. CONC. 4 X 2 1/2 CED-XS	307	467	41	138					
4	TK5	9	RED. CONC. 4 X 2 1/2 CED-XS	346	487	31	141					
5	T54399	128	RED. CONC. 6 X 3 CED-STD	309	475	40	118					
6	S32803	5	RED. CONC. 4 X 2 CED-XS	285	477	35	130					
7	S45402	242	CODO 2 1/2 X 90° R.L. CED-XS	294	466	36	130					
8	S32624	156	CODO 5 X 90° R.L. CED-STD	292	479	33	137					
9	S32858	74	CODO 5 X 90° R.L. CED-STD	282	469	33	137					
10	S48307	29	CODO 1 1/2 X 90° R.C. CED-XS	302	462	53	120					
11	T52341	12	TEE 14 CED-XS	342	487	50	120					

ANALISIS QUIMICO / CHEMICAL ANALYSIS														Certificamos que los resultados de los Analisis 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°: 10036247 11015908 165684 161658 11015930 471435 317311 473980 473980 354080 11015856
PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	
CF	T50380	50380	0.310	0.188	0.680	0.011	0.002	0.286	0.050	0.059	0.024	0.030	0.000	0.000
HF	T54399	54399	0.300	0.170	0.680	0.010	0.001	0.280	0.050	0.062	0.015	0.030	0.000	0.000
CF	S&G6	26222	0.301	0.170	0.730	0.007	0.001	0.270	0.020	0.030	0.010	0.020	0.001	0.001
CF	TK5	24822	0.314	0.180	0.740	0.007	0.001	0.290	0.020	0.040	0.010	0.020	0.001	0.001
CF	T54399	54399	0.300	0.170	0.680	0.010	0.001	0.280	0.050	0.063	0.015	0.030	0.000	0.000
CF	S32803	32803	0.340	0.200	0.740	0.014	0.000	0.280	0.040	0.044	0.010	0.032	0.001	0.000
HF	S45402	45402	0.320	0.180	0.740	0.010	0.001	0.290	0.040	0.045	0.020	0.022	0.001	0.001
HF	S32624	32624	0.320	0.180	0.760	0.011	0.002	0.290	0.040	0.046	0.010	0.030	0.001	0.001
HF	S32858	32858	0.320	0.180	0.740	0.012	0.001	0.280	0.040	0.060	0.010	0.030	0.001	0.001
HF	S48307	48307	0.320	0.180	0.750	0.010	0.001	0.290	0.040	0.030	0.020	0.036	0.001	0.000
HF	T52341	52341	0.338	0.190	0.690	0.014	0.002	0.290	0.050	0.068	0.023	0.030	0.000	0.000

<p>Notas:</p> <p>Formado en caliente a 620°C-980°C, enfriado al aire. Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria.</p> <p>HF: FORMADO EN CALIENTE/HOT FORMED</p>	<p>Notes:</p> <p>Hot formed fittings in a range from 620°C to 980°C, cooled in air. Cold formed normalized at 940°C max. Holding time 10'. Visual dimensional check: Satisfactory.</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 E 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.</p>
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