



Tubos de Acero de México, S.A.
Carr. Mtý-Laredo Km 24.2
Apartado Postal 43
65550) C. de Flores, N.L. Méx.
52) 81 8305 9600 tel
52) 81 8305 9620 fax

CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number: 26594	Pagina/Page: 1
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Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 14222	Lista de Empaque: Packing List: 13794	Fecha/Date: 22 de Noviembre de 2012
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		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	T60997	12	CODO 6 X 45° CED-XS	311	468	32	156					
2	T4465	18	CODO 6 X 45° CED-XS	310	492	35	138					
3	T57980	7	CODO 8 X 45° CED-XS	285	474	44	123					
4	T62433	24	CODO 14 X 90° R.L. CED-STD	310	477	34	131					
5	T60438	2	CODO 16 X 90° R.L. CED-XS	260	469	36	143					
6	T61276	3	CODO 16 X 90° R.L. CED-XS	336	497	37	141					
7	T5008	15	CODO 6 X 45° CED-STD	315	494	32	144					
8	T59834	45	CODO 6 X 45° CED-STD	324	493	36	148					
9	T5010	160	CODO 3 X 90° R.L. CED-XS	282	481	35	146					
10	T59684	15	RED. CONC. 10 X 8 CED-STD	263	442	37	149					
11	T59519	15	RED. CONC. 10 X 8 CED-STD	326	493	33	143					

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	T60997	60997	0.300	0.170	0.690	0.013	0.001	0.280	0.050	0.067	0.016	0.030	0.000	0.000
HF	T4465	4465	0.320	0.180	0.790	0.006	0.001	0.330	0.010	0.021	0.004	0.010	0.000	0.000
HF	T57980	57980	0.300	0.170	0.670	0.012	0.001	0.270	0.040	0.059	0.015	0.040	0.000	0.000
HF	T62433	62433	0.000	0.180	0.690	0.015	0.001	0.300	0.050	0.054	0.023	0.030	0.000	0.000
HF	T60438	60438	0.320	0.180	0.720	0.016	0.000	0.260	0.060	0.057	0.026	0.030	0.000	0.000
HF	T61276	61276	0.340	0.190	0.750	0.017	0.002	0.320	0.040	0.068	0.028	0.030	0.000	0.000
HF	T5008	5008	0.320	0.180	0.780	0.005	0.001	0.310	0.020	0.033	0.005	0.020	0.000	0.000
HF	T59834	59834	0.320	0.180	0.730	0.013	0.002	0.270	0.040	0.075	0.020	0.040	0.000	0.000
HF	T5010	5010	0.330	0.190	0.810	0.003	0.001	0.310	0.020	0.035	0.005	0.020	0.000	0.000
CF	T59684	59684	0.310	0.180	0.660	0.017	0.002	0.280	0.060	0.071	0.023	0.040	0.000	0.000
CF	T59519	59519	0.310	0.180	0.660	0.017	0.001	0.300	0.040	0.077	0.012	0.040	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°: 12036575 12072364 11057971 12073435 12027565 12038223 12080136 12029193 12067326 12026101 12036719

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°: 12036575 12072364 11057971 12073435 12027565 12038223 12080136 12029193 12067326 12026101 12036719

"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-980°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria. HF: FORMADO EN CALIENTE/HOT FORMED	Notes: Hot formed fittings in a range from 620°C to 980°C, cooled in still air. Cold formed normalized at 940°C max. Holding time 10'. Visual dimensional check: Satisfactory CF: FORMADO EN FRIO/COLD FORMED	 Quality Manager / Jefe de Calidad: ING. WALDO GALLEGOS GALVAN
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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.