

## CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE

(DIN EN 10204:2004E - ISO 10474 3.1.B)


Tubos de Acero de México, S.A.  
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<b>Vendido a:</b> PLESA ANAHUAC Y CIA. S. A. DE C. V. <b>Sold to:</b>		<b>Numero:</b> Number: 1.8906	<b>Pagina/Page:</b> 1 DE 1
<b>Pedido del Cliente No:</b> 3508 Customers Order No:		<b>Lista de Empaque:</b> 9729 Packing List:	
<b>Dimensiones y tolerancias / Standard or Specification and Steel Grade</b> Seamless Fittings according to ASTM A 234"W" WPB-97, A234"W" WPB-05a, NACE MR 01.75-2003 Conform to ASME II Ed. 2001 ASME SA-234"W", Grade WPB.		<b>Factura/Invoice:</b> Bocas / Ends Biselado / Bevelled ends	
<b>Fecha/Date:</b> 5 de Octubre de 2007			

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 HB	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
12	T21445	7	CODO 4 X 45° CED-STD	341	482	26	110					
13	T19866	3	CODO 4 X 45° CED-STD	307	489	26	137					
14	S37671	1	CODO 4 X 45° CED-STD	340	487	35	103					
15	S49120	2	CODO 4 X 45° CED-STD	331	494	35	107					
16	S20249	18	CODO 4 X 45° CED-STD	279	478	35	111					
17	T21775	7	CODO 4 X 45° CED-STD	340	498	40	112					
18	S45664	40	CODO 2 X 90° R. I. CED-XS	309	496	34	122					
19	S21394	27	CODO 2 X 90° R. I. CED-STD	302	472	28	133					
20	S22620	73	CODO 2 X 90° R. I. CED-STD	355	514	26	128					
21	T35903	25	TEE 6 CED-STD	298	473	42	86					
22	S38130	50	CODO 1 1/2 X 90° R. I. CED-XS	358	524	34	130					

ANALISIS QUIMICO / CHEMICAL ANALYSIS													
PROCESO PROCESS	COLADA HEAT CODE	COLADA HEAT M.P./MOTHER PIPE	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T21445	21445	0.320	0.170	0.008	0.002	0.300	0.050	0.084	0.024	0.040	0.000	0.000
HF	T19866	19866	0.320	0.180	0.007	0.003	0.270	0.050	0.077	0.052	0.040	0.000	0.000
HF	S37671	37671	0.305	0.170	0.010	0.001	0.280	0.030	0.061	0.010	0.036	0.001	0.001
HF	S49120	49120	0.340	0.200	0.011	0.001	0.290	0.050	0.031	0.010	0.018	0.001	0.001
HF	S20249	20249	0.320	0.180	0.013	0.001	0.310	0.040	0.031	0.010	0.024	0.001	0.000
HF	T21775	21775	0.300	0.170	0.009	0.003	0.290	0.050	0.069	0.024	0.030	0.000	0.000
HF	S45664	45664	0.340	0.200	0.010	0.001	0.300	0.030	0.022	0.020	0.017	0.001	0.002
HF	S21394	21394	0.310	0.180	0.011	0.001	0.260	0.030	0.036	0.010	0.021	0.001	0.001
HF	S22620	22620	0.330	0.190	0.013	0.001	0.270	0.050	0.033	0.010	0.022	0.001	0.002
HF	T35903	35903	0.320	0.180	0.012	0.002	0.290	0.040	0.055	0.029	0.030	0.000	0.000
HF	S38130	38130	0.313	0.180	0.009	0.001	0.280	0.030	0.043	0.020	0.022	0.001	0.001

**Notas:**  
 Formado en caliente a 620°C-980°C, enfriado al aire. Formado in fire normalized a 940°C max. Holding time 10'.  
 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  
 Inspección Dimensional: Satisfactoria  
 CF: FORMADO EN CALIENTE/HOT FORMED  
 CF: FORMADO EN FRIO/COLD FORMED

**Jefe de Calidad:**  
 Quality Manager:  
  
 ING. JOSE MARTINEZ MACIAS

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.