



**CERTIFICADO DE CALIDAD  
INSPECTION CERTIFICATE**  
(DIN EN 10204:2004E - ISO 10474 3.1 B)

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

Vendido a: **PLESA ANAHUAC Y CIA. S.A. DE C.V.** Pedido del Cliente No: **4897 - 4921** Fecha/Date: **6 de Agosto de 2008**  
 Sold to: **PLESA ANAHUAC Y CIA. S.A. DE C.V.** Customers Order No: **4897 - 4921** Packing List: **10708** Factural/invoice: **Bocas / Ends**  
 Dimensiones y tolerancias / Dimension and tolerances

Especificaciones y Grados / Standard or Specification and Steel Grade  
 Seamless fittings according to ASTM A 234"W, WPB-97, A234"W, WPB-05a, NACE MR 0175-2003  
 Conforme to ASME II Ed. 2001 ASME SA-234"W, Grade WPB, NACE MR0103-2003  
 ASME B 16.9 - 2003 and ASME B 16.28 - 1994

ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION	PRUEBAS MECANICAS / MECHANICAL TEST			PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C						
				ESF. CEDENCIA YIELD STRENGTH (Mpa)	ESF. RUPTURA TENSILE STRENGTH (Mpa)	ELONG. % <sup>2"</sup>	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules	
12	S27377	72	CODO 3 X 45° CED-STD	343	520	32	116						
13	T40103	44	CODO 8 X 90° R.I. CED-XS	325	484	34	109						
14	S27576	20	CODO 6 X 90° R.I. CED-XS	323	487	37	112						
15	S21172	45	CODO 4 X 90° R.I. CED-XS	278	467	39	105						
16	S21712	30	CODO 4 X 90° R.C. CED-STD	324	470	39	112						
17	T39854	10	TEE RED. 8 X 6 CED-STD	262	480	37	107						
18	T39854	15	RED. CONC. 10 X 6 CED-STD	290	470	43	102						
19	S38904	12	CODO 4 X 90° R.C. CED-XS	290	477	37	113						
20	T33435	12	CODO 12 X 90° R.I. CED-40	340	492	35	86						
21	T39318	18	CODO 12 X 90° R.I. CED-40	294	486	42	120						
22	T33051	5	RED. CONC. 16 X 8 CED-STD	307	478	34	137						

PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	ANALISIS QUIMICO / CHEMICAL ANALYSIS											
			%C.E.	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	S27377	27377	0.350	0.200	0.790	0.017	0.000	0.270	0.040	0.034	0.010	0.033	0.001	0.002
HF	T40103	40103	0.300	0.170	0.670	0.011	0.002	0.260	0.050	0.071	0.010	0.030	0.000	0.000
HF	S27576	27576	0.340	0.190	0.830	0.011	0.001	0.290	0.030	0.033	0.010	0.016	0.001	0.001
HF	S21172	21172	0.320	0.180	0.780	0.012	0.001	0.290	0.020	0.021	0.010	0.016	0.001	0.002
HF	S21712	21712	0.320	0.190	0.720	0.012	0.001	0.250	0.040	0.041	0.010	0.023	0.001	0.001
HF	T39854	39854	0.300	0.170	0.680	0.011	0.002	0.270	0.030	0.052	0.005	0.020	0.000	0.000
CF	T39854	39854	0.310	0.180	0.690	0.013	0.002	0.290	0.040	0.056	0.008	0.030	0.000	0.000
HF	S38904	38904	0.313	0.170	0.780	0.009	0.002	0.280	0.030	0.024	0.020	0.021	0.001	0.001
HF	T33435	33435	0.310	0.180	0.670	0.010	0.002	0.270	0.050	0.058	0.034	0.030	0.000	0.000
HF	T39318	39318	0.310	0.180	0.680	0.009	0.002	0.280	0.040	0.058	0.014	0.030	0.000	0.000
CF	T33051	33051	0.320	0.180	0.690	0.011	0.002	0.320	0.060	0.053	0.023	0.030	0.000	0.000

**Notes:**  
 Formado en caliente a 620°C-980°C, enfriado al  
 aire. Formado en frío normalizado a 940°C max.  
 Tiempo de permanencia 10'.  
 Holding time 10'.  
 Visual dimensional check: Satisfactory  
 Visual dimensional check: Satisfactory  
 CF: FORMADO EN FRIO/COLD FORMED  
 HF: FORMADO EN CALIENTE/ HOT FORMED  
 ING. WALDO GALLEGOS GALVAN  
 Quality Manager/Jefe de Calidad:  
 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.