



**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. Mex.
(52) 81 8305 9600 tel
(52) 81 8305 9620 fax

Vendido a: **PROVEEDORA DE MATERIALES ANGER, S.A.**
DE C.V.
Pedido del Cliente No: **5292 - 5299 - 5279 - 5274 - 5300 - 5295 - 5271 - 5275 - 5288**
Customers Order No: **5271 - 5275 - 5288**

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
Conform 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
Dimensiones y tolerancias / Dimension and tolerances
Lista de Empaque: **1 09 69**
Factura/Invoices: **Bocas / Ends**
Biselado / Bevelled ends
Fecha/Date: **29 de Octubre de 2008**

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. RUPURA TENSILE STRENGTH (Mpa)	ELONG. % ^{2"}	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules	
1	T40846	4	TEE RED. 10 X 8 CED-STD	336	496	34	108						
2	T41272	4	CODO 14 X 90° R.I. CED-STD	327	509	42	122						
3	T40822	9	TEE 12 CED-STD	284	460	40	100						
4	T40571	100	RED. CONC. 8 X 6 CED-STD	306	485	35	113						
5	T41272	24	CODO 14 X 45° CED-STD	327	509	42	122						
6	T41315	9	CODO 12 X 45° CED-STD	339	507	32	119						
7	T40846	5	CODO 16 X 90° R.I. CED-STD	334	491	36	112						
8	T41139	13	CODO 16 X 90° R.I. CED-STD	276	485	34	111						
9	T40298	1	TEE 10 CED-STD	305	477	36	119						
10	T40546	11	TEE 10 CED-STD	280	473	35	103						
11	S38130	48	CODO 1 1/2 X 90° R.I. CED-XS	358	524	34	130						

PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	ANALISIS QUIMICO / CHEMICAL ANALYSIS												
			%C	%E	%Mn	%P	%S	%Si	%Cr	%Cu	%Ni	%Nb	%V	%Nb	
HF	T40846	40846	0.310	0.180	0.700	0.009	0.003	0.290	0.050	0.047	0.008	0.030	0.000	0.000	
HF	T41272	41272	0.330	0.180	0.820	0.017	0.001	0.310	0.050	0.040	0.011	0.030	0.000	0.000	
HF	T40822	40822	0.290	0.170	0.650	0.008	0.001	0.270	0.040	0.048	0.006	0.030	0.000	0.000	
CF	T40571	40571	0.310	0.170	0.720	0.009	0.004	0.280	0.050	0.057	0.011	0.030	0.000	0.000	
HF	T41272	41272	0.330	0.180	0.820	0.017	0.001	0.310	0.050	0.040	0.011	0.030	0.000	0.000	
HF	T41315	41315	0.350	0.190	0.840	0.011	0.002	0.280	0.040	0.055	0.008	0.030	0.000	0.000	
HF	T40846	40846	0.320	0.190	0.700	0.010	0.004	0.290	0.040	0.049	0.013	0.020	0.006	0.000	
HF	T41139	41139	0.000	0.180	0.660	0.009	0.001	0.280	0.040	0.052	0.008	0.030	0.000	0.000	
HF	T40298	40298	0.330	0.190	0.670	0.007	0.003	0.270	0.050	0.080	0.027	0.040	0.003	0.001	
HF	T40546	40546	0.310	0.180	0.670	0.009	0.001	0.290	0.050	0.060	0.010	0.030	0.000	0.000	
HF	S38130	38130	0.313	0.180	0.710	0.009	0.001	0.280	0.030	0.043	0.020	0.022	0.001	0.001	

Notes: Formado en caliente a 820°C-980°C, enfriado al aire; Formado en frío normalizado a 840°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria.

Notes: Hot formed fittings in a range from 820°C to 980°C, cooled in still air. Cold formed normalized at 840°C max. Holding time 10'. Visual dimensional check: satisfactory.

CF: FORMADO EN FRIO/COLD FORMED

ING. WALDO GALLEGOS GALVAN

Quality Manager/ Jefe de Calidad:

CC-008