



Tubos de Acero de México, S.A.
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**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**

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

Vendido a:	PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No:	4572	Numero:	20286	Pagina/Page:	1 DE 1
Sold to:	PLESA ANAHUAC Y CIA. S.A. DE C.V.	Customers Order No:	4572	Number:	20286		
Especificaciones y Grados / Standard or Specification and Steel Grade	Seamless Fittings according to ASTM A 234" W" WPB-97, A234" W" WPB-96a, NACE MR 01.75-2003	Dimensions and tolerances / Dimension and tolerances		Lista de Empaque:	10473	Fecha/Date:	14 de Mayo de 2008
Conform to ASME II Ed. 2001 ASME SA-234" W, Grade WPB, NACE MRO 103-2003				Packing List:		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. CEDECIA 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	T37516	1	TEE 12 CED-STD	320	478	37	97					
2	T38642	7	TEE 12 CED-STD	326	464	40	94					
3	T38167	1	TEE 12 CED-STD	244	466	39	96					
4	S25835	14	CODO 6 X 90° R.L. CED-XS	244	451	32	122					
5	S21572	26	CODO 6 X 90° R.L. CED-XS	329	455	40	94					
6	S21172	24	CODO 4 X 90° R.L. CED-XS	278	467	39	105					
7	S22312	34	CODO 4 X 90° R.L. CED-XS	307	475	36	104					
8	S22161	42	CODO 4 X 90° R.L. CED-XS	338	490	38	105					
9	T27384	5	TEE 10 CED-80	316	504	50	100					
10	T38264	40	TEE RED 6 X 4 CED-STD	314	486	43	97					
11	T25885	5	RED CONC. 12 X 6 CED-80	310	480	42	98					

ANALISIS QUIMICO / CHEMICAL ANALYSIS													
PROCESO PROCESS	COLADA HEAT CODE	COLADA/M.P./MOTHER PIPE	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T37516	37516	0.290	0.160	0.010	0.002	0.280	0.040	0.049	0.020	0.040	0.000	0.000
HF	T38642	38642	0.310	0.170	0.012	0.002	0.270	0.040	0.050	0.040	0.090	0.000	0.000
HF	T38167	38167	0.290	0.160	0.008	0.001	0.280	0.060	0.050	0.018	0.030	0.000	0.000
HF	S25835	25835	0.320	0.180	0.009	0.001	0.290	0.030	0.035	0.010	0.025	0.001	0.001
HF	S21572	21572	0.320	0.190	0.009	0.002	0.280	0.030	0.029	0.010	0.020	0.001	0.002
HF	S21172	21172	0.320	0.180	0.012	0.001	0.290	0.020	0.021	0.010	0.016	0.001	0.002
HF	S22312	22312	0.320	0.190	0.010	0.001	0.280	0.040	0.018	0.010	0.010	0.001	0.001
HF	S22161	22161	0.330	0.200	0.010	0.001	0.290	0.030	0.017	0.010	0.010	0.001	0.001
HF	T27384	27384	0.290	0.160	0.008	0.002	0.270	0.050	0.067	0.028	0.030	0.000	0.000
HF	T38264	38264	0.300	0.180	0.010	0.001	0.260	0.040	0.047	0.007	0.030	0.000	0.000
CF	T25885	25885	0.310	0.170	0.012	0.002	0.290	0.070	0.124	0.020	0.050	0.000	0.000

Hot formed fittings in a range from 620°C to 800°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

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CF: FORMADO EN FRIO/COLD FORMED

Quality Manager / Jefe de Calidad:
ING. WALDO GALLEGOS GALVAN