

**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
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Vendido a: PLESA ANAHUAC Y CIA. S.A. DE C.V. Pedido del Cliente No: 5201
 Sold to: Customers Order No: Dimensiones y tolerancias / Dimension and tolerances
 Especificaciones y Grados / Standard or Specification and Steel Grade ASME B 16.9 - 2003 and ASME B 16.28 - 1994
 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, NACE MR0103-2003

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 Listado de Empaque: 10905 Fecha/Date: 9 de Octubre de 2008
 Factura/Invoice: Bocas / Ends
 Biselado / Bevelled ends

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)	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules	
1	S28475	228	CODO 4 X 90° R.I. CED-STD	322	498	32	105				
2	S29077	175	CODO 3 X 90° R.I. CED-STD	323	500	30	127				
3	S21986	11	CODO 3 X 90° R.I. CED-STD	355	496	34	112				
4	S22312	4	CODO 3 X 90° R.I. CED-STD	356	491	38	114				
5	S29604	6	CODO 3 X 90° R.I. CED-STD	301	500	30	132				
6	S26551	35	CODO 3 X 90° R.I. CED-STD	334	485	29	111				
7	S26945	11	CODO 3 X 90° R.I. CED-STD	279	462	28	112				
8	S27377	22	CODO 3 X 90° R.I. CED-STD	343	520	32	116				
9	T40745	100	CODO 6 X 90° R.I. CED-STD	285	473	33	100				
10	T38461	16	CODO 6 X 45° CED-STD	339	498	39	122				
11	T39508	25	CODO 6 X 45° CED-STD	351	545	40	126				

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	S28475	28475	0.360	0.200	0.830	0.007	0.001	0.310	0.050	0.059	0.020	0.035	0.001	0.000
HF	S29077	29077	0.320	0.180	0.740	0.011	0.002	0.280	0.040	0.028	0.020	0.018	0.001	0.000
HF	S21986	21986	0.320	0.180	0.770	0.008	0.002	0.300	0.040	0.031	0.010	0.033	0.001	0.001
HF	S22312	22312	0.320	0.190	0.740	0.010	0.001	0.290	0.030	0.019	0.010	0.010	0.001	0.001
HF	S29604	29604	0.330	0.180	0.750	0.008	0.001	0.270	0.070	0.035	0.010	0.022	0.001	0.000
HF	S26551	26551	0.310	0.180	0.720	0.011	0.001	0.280	0.040	0.023	0.010	0.015	0.001	0.000
HF	S26945	26945	0.330	0.190	0.720	0.011	0.001	0.280	0.050	0.027	0.010	0.018	0.001	0.000
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	T40745	40745	0.300	0.170	0.670	0.009	0.002	0.280	0.040	0.044	0.006	0.020	0.000	0.000
HF	T38461	38461	0.310	0.170	0.710	0.014	0.002	0.270	0.070	0.043	0.033	0.030	0.000	0.000
HF	T39508	39508	0.300	0.170	0.670	0.012	0.003	0.250	0.060	0.046	0.017	0.030	0.000	0.000

Notes:

Hot formed fittings in a range from 520°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 FRIGIO/COLD FORMED

Formado en caliente a 520°C-980°C, enfriado al aire.
 Formado en frio normalizado a 940°C max.
 Tiempo de permanencia 10'.
 Inspeccion Dimensional Satisfactoria.
 CF: FORMADO EN CALIENTE/HOT FORMED

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

CC-008