

**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: **PIESA ANAHUAC Y CIA. S.A. DE C.V.** Pedido del Cliente No: **5624 - 5628** Numero: **21953** Pagina/Page: **1 DE 1** Fecha/Date: **16 de Enero de 2009**
 Sold to: **PIESA ANAHUAC Y CIA. S.A. DE C.V.** Customers Order No: **5624 - 5628** Number: **21953** Packing List: **11187** Factural/Invoice: **Bocas / Ends**
 Especificaciones y Grados / Standard or Specification and Steel Grade **Dimensiones y tolerancias / Dimension and tolerances** ASME B 16.9 - 2007 and ASME B 16.28 - 1994

Seamless Fittings according to ASTM A 234"W" WPB-07, A234"W" WPB-05a, NACE MR 01.75-2003
 Conforms to ASME II Ed. 2001 ASME SA-234"W" Grade WPB, NACE MR0103-2003

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 HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
12	T42080	6	CODO 6 X 90° R.I. CED-STD.	321	523	35	100					
13	T41467	1	CODO 6 X 90° R.I. CED-STD.	322	505	42	137					
14	T41468	2	CODO 6 X 90° R.I. CED-STD.	277	501	36	138					
15	T41644	8	TEE 8 CED-STD	283	461	37	98					
16	T36485	5	TEE 4 CED-STD	253	445	40	126					
17	T41224	50	TEE 4 CED-STD	297	481	39	124					
18	T41827	10	RED. CONC. 8 X 4 CED-STD	240	434	35	109					
19	S22662	24	CODO 4 X 45° CED-STD	334	482	32	99					
20	S31760	36	CODO 4 X 45° CED-STD	262	445	30	112					
21	T41032	12	RED. CONC. 8 X 6 CED-STD	418	591	31	106					
22	T39049	18	RED. CONC. 8 X 6 CED-STD	311	481	39	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	T42080	42080	0.320	0.180	0.680	0.009	0.000	0.260	0.063	0.023	0.040	0.000	0.000	0.000
HF	T41467	41467	0.330	0.190	0.740	0.009	0.002	0.280	0.061	0.005	0.030	0.000	0.000	0.000
HF	T41468	41468	0.330	0.180	0.830	0.008	0.001	0.280	0.062	0.006	0.030	0.000	0.000	0.000
HF	T41644	41644	0.300	0.170	0.680	0.010	0.002	0.280	0.055	0.005	0.030	0.000	0.000	0.000
HF	T36485	36485	0.310	0.170	0.760	0.010	0.001	0.280	0.061	0.020	0.030	0.000	0.000	0.000
HF	T41224	41224	0.300	0.170	0.660	0.013	0.002	0.280	0.057	0.016	0.030	0.000	0.000	0.000
CF	T41827	41827	0.310	0.170	0.660	0.011	0.001	0.280	0.064	0.031	0.040	0.000	0.000	0.003
HF	S22662	22662	0.320	0.180	0.730	0.010	0.002	0.270	0.034	0.010	0.023	0.001	0.000	0.003
HF	S31760	31760	0.340	0.200	0.740	0.009	0.002	0.260	0.041	0.000	0.017	0.001	0.000	0.000
CF	T41032	41032	0.310	0.180	0.670	0.007	0.002	0.270	0.040	0.009	0.030	0.000	0.000	0.000
CF	T39049	39049	0.300	0.170	0.670	0.009	0.002	0.290	0.056	0.010	0.030	0.000	0.000	0.000

Notes: Hot formed fittings in a range from 620°C to 960°C, cooled in still air.
 Cold formed normalized at 940°C max.
 Holding time 10'.
 Visual dimensional check. Satisfactory.

Formado en caliente a 620°C-960°C, enfriado al aire.
 Formado en frio normalizado a 940°C max.
 Tiempo de Permanencia 10'.
 Inspección Dimensional: Satisfactoria.

HF: FORMADO EN CALENT/HOT FORMED
 CF: FORMADO EN FRIO/COLD FORMED

ING. WALDO GALLEGOS GALVAN
 Quality Manager/gerente de Calidad:
 CC-008

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. The values of hardness for fittings NPS 2 1/2" and smaller ones obtain from the conversion of hardness Rockwell B to hardness Brinell HBW by means of table WILSON DESK CHART 60. 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