



Tubos de Acero de México, S.A.
Carr. Mty-Laredo Km 24.2
Apartado Postal 43
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**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**
(DIN EN 10204:2004E - ISO 10474 3.1 B)

Numero:
Number:
24652

Pagina/Page:
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Vendido a: **PROVEEDORA DE MATERIALES ANGER, S.A.**
Sold to: **DE C.V.**

Pedido del Cliente No: **5960 - 5996 - 5945**
Customers Order No:

Lista de Empaque: **12714**
Packing List:

Fecha/Date: **10 de Junio de 2011**

Especificaciones y Grados / Standard or Specification and Steel Grade
Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 0175-2003
Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB, NACE MR0103-2003

Dimensiones y tolerancias / Dimension and tolerances
ASME B 16.9 - 2007 and ASME B 16.28 - 1994

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. 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	T49435	36	TEE 10 CED-XS	317	488	43	122					
13	S29506	736	CODO 1 1/4 X 90° R.L. CED-STD	342	498	44	142					
14	T54766	12	RED. CONC. 12 X 10 CED-STD	334	502	40	126					
15	T47436	19	TEE 16 CED-XS	359	488	48	120					
16	T51561	5	TEE 16 CED-XS ¹	345	484	48	122					
17	S29506	53	CODO 1 1/2 X 45° CED-STD	342	498	44	142					
18	T52744	100	CODO 3 X 45° CED-XS	343	490	37	124					
19	S45402	200	CODO 2 1/2 X 90° R.L. CED-XS	294	466	36	130					
20	T52341	10	TEE 14 CED-STD	349	478	45	120					
21	T40894	2	TEE 14 CED-STD	352	494	46	122					
22	T41950	7	TEE RED. 12 X 8 C-80	325	463	53	114					

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	T49435	49435	0.300	0.180	0.660	0.010	0.002	0.280	0.020	0.062	0.022	0.030	0.000	0.000
HF	S29506	29506	0.320	0.190	0.710	0.009	0.001	0.270	0.040	0.041	0.020	0.022	0.001	0.000
CF	T54766	54766	0.330	0.180	0.760	0.011	0.001	0.280	0.070	0.049	0.031	0.040	0.000	0.000
HF	T47436	47436	0.320	0.190	0.660	0.013	0.004	0.300	0.050	0.066	0.023	0.040	0.000	0.000
HF	T51561	51561	0.300	0.170	0.680	0.009	0.002	0.270	0.040	0.079	0.015	0.040	0.000	0.000
HF	S29506	29506	0.320	0.190	0.710	0.009	0.001	0.270	0.040	0.041	0.020	0.022	0.001	0.000
HF	T52744	52744	0.330	0.180	0.760	0.011	0.001	0.300	0.050	0.071	0.035	0.040	0.000	0.000
HF	S45402	45402	0.320	0.180	0.740	0.010	0.001	0.290	0.040	0.045	0.020	0.022	0.001	0.001
HF	T52341	52341	0.310	0.180	0.690	0.013	0.001	0.290	0.050	0.067	0.021	0.030	0.000	0.000
HF	T40894	40894	0.310	0.180	0.660	0.011	0.001	0.280	0.050	0.061	0.008	0.030	0.000	0.000
HF	T41950	41950	0.300	0.170	0.660	0.007	0.002	0.260	0.050	0.040	0.020	0.030	0.000	0.000

Confirmamos que los resultados de los Análisis Químicos y Pruebas Mecánicas son correctos o una copia fiel de los certificados enviados por el Fabricante y/o el proveedor de Materia Prima (Tubería Sin Costura) conforme ASTM A106 Grado B con N°.

We certify that result of chemical analysis and mechanical test are true and correct copy of the test certificate issued by the manufacturer and/or supplier Raw material (Seamless Pipe) certs conform to ASTM A106 Grade B N°:

10024829 479680 11018485 10049792 10053947 479680
11012176 317311 11007835 8069914 10024420

Este material cumple con los requerimientos especificados en la orden.
The material of this certificate heat number mentioned above is in compliance with the requirements specified in the order.

Notes:
Certificado en caliente a 620°C/950°C. Artículo al Hot formed fittings in a range from 620°C to 950°C, tested in air air.
Formado en frío normalizado a 340°C max. Cold formed normalized at 340°C max.
Tiempo de permanencia 10'. Holding time 10'.
Inspección Dimensional: Satisfactoria. Visual dimensional check. Satisfactory.

Quality Manager Jefe de Calidad:
ING. WALDO GALLEGOS GALVAN

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.