



**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**

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

Tubos de Acero de México, S.A.
Car. 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:	PROVEEDORA DE MATERIALES ANGER, S.A.	Pedido del Cliente No:	5205 - 5196	Lista de Empaque:	1 0 4 7 9	Fecha/Date:	15 de Mayo de 2008
Sold to:	DE C. V.	Customers Order No:		Packing List:			
Especificaciones y Grados / Standard or Specification and Steel Grade				Dimensiones y Tolerancias / Dimension and Tolerances			
Seamless Fittings according to ASTM A 234 "M" WPB-9T, A234 "M" WPB-05, NACE MR 01.76-2003				ASME B 16.9 - 2003 and ASME B 16.28 - 1994			
Conform to ASME II Ed. 2001 ASME SA-234 "M" Grade WPB, NACE MR0 103-2003				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
1	S23663	456	CODO 4 X 90° R. I. CED-STD	310	494	35	121					
2	S26549	88	CODO 4 X 90° R. I. CED-STD	290	474	32	93					
3	S26551	528	CODO 3 X 90° R. I. CED-STD	334	485	29	111					
4	T38461	20	CODO 6 X 90° R. I. CED-STD	339	498	39	122					
5	T38887	20	CODO 8 X 90° R. I. CED-STD	274	450	36	98					
6	S39564	1	CODO 1 1/4 X 90° R. I. CED-STD	455	585	36	114					
7	S45280	2	CODO 1 1/4 X 90° R. I. CED-STD	357	511	28	122					
8	S22135	279	CODO 1 1/4 X 90° R. I. CED-STD	365	529	48	137					
9	S22620	114	CODO 1 1/4 X 90° R. I. CED-STD	325	530	45	137					
10	BNS	1	CODO 1 1/4 X 90° R. I. CED-STD	334	514	50	124					
11	JXS	3	CODO 1 1/4 X 90° R. I. CED-STD	390	536	54	128					

ANALISIS QUIMICO / CHEMICAL ANALYSIS

PROCESO PROCESS	COLADA HEAT CODE	COLADAMENT M.P/MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	S23663	23663	0.340	0.200	0.710	0.012	0.001	0.300	0.040	0.073	0.030	0.033	0.001	0.001
HF	S26549	26549	0.320	0.180	0.750	0.014	0.001	0.300	0.050	0.032	0.010	0.015	0.001	0.001
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	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	T38887	38887	0.290	0.160	0.660	0.010	0.002	0.280	0.060	0.050	0.018	0.040	0.000	0.000
HF	S39564	39564	0.319	0.180	0.740	0.011	0.003	0.320	0.040	0.030	0.020	0.020	0.002	0.001
HF	S45280	45280	0.323	0.180	0.730	0.010	0.001	0.300	0.050	0.055	0.020	0.048	0.001	0.000
HF	S22135	22135	0.330	0.170	0.800	0.011	0.001	0.300	0.040	0.024	0.010	0.017	0.001	0.002
HF	S22620	22620	0.330	0.180	0.760	0.013	0.001	0.250	0.050	0.024	0.010	0.022	0.001	0.000
HF	BNS	43300	0.325	0.180	0.770	0.010	0.000	0.300	0.040	0.040	0.020	0.020	0.001	0.001
HF	JXS	21962	0.334	0.180	0.810	0.010	0.001	0.290	0.040	0.040	0.030	0.030	0.001	0.001

Notes:

Formado en caliente a 820°C-890°C, enfriado al
 Hot formed fittings in a range from 820°C to 890°C, cooled in air at:
 Hf. Formado en frío normalizado a 840°C máx.
 Cold formed normalized at 840°C máx.
 Tiempo de permeancia 10'.
 Holding time 10'.
 Inspección Dimensional: Satisfactoria.
 Visual dimensional check: Satisfactory
 CP FORMADO EN CALIENTE/HOT FORMED
 CP FORMADO EN FRIO/COLD FORMED
 ING. WALDO GALLEGOS GALVAN
 Quality Manager/ Jefe de Calidad:
 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.
 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.
 Certificamos que los resultados de los Analisis Quimicos y Pruebas Mecanicas son verdaderos 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°
 395655 420901 424210 8011774 8019113 266490 329135
 7046079 414263 2005327 152467