



Tubos de Acero de México, S.A.
Carr. Miñ-Laredo Km 24.2
Apartado Postal 43
65550 C. de Flores, N.L. Méx.
(52) 81 8305 9600 tel
(52) 81 8305 9620 fax

**CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE**
(DIN EN 10204:2004E - ISO 10474 3.1.B)

Numero:
Number: 25149
Pagina/Page: 1

Vendido a: Sold to: TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No: 10882 - 11336 - 10984 -	Lista de Empaque: Packing List: 12985	Fecha/Date: 28 de Noviembre de 2011
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 01.75-2003 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
1	T56665	18	CODO 16 X 45° CED-STD	327	489	67	103					
2	T51306	12	CODO 14 X 90° R.L. CED-STD	313	488	42	122					
3	T51308	12	CODO 14 X 90° R.L. CED-STD	278	477	34	103					
4	T56767	10	RED. CONC. 10 X 8 CED-STD	315	493	45	118					
5	T57065	96	CODO 10 X 45° CED-STD	304	483	40	118					
6	T57238	36	CODO 12 X 45° CED-STD	319	496	39	124					
7	T52935	18	CODO 16 X 90° R.L. CED-STD	348	495	42	122					
8	T54815	4	TEE 14 CED-STD	317	481	33	107					

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	T56665	56665	0.300	0.170	0.670	0.010	0.002	0.280	0.040	0.069	0.026	0.030	0.000	0.000
HF	T51306	51306	0.310	0.180	0.660	0.011	0.001	0.260	0.040	0.050	0.022	0.030	0.000	0.000
HF	T51308	51308	0.310	0.180	0.650	0.014	0.001	0.290	0.050	0.053	0.023	0.030	0.000	0.000
CF	T56767	56767	0.320	0.190	0.700	0.015	0.003	0.270	0.050	0.068	0.025	0.040	0.000	0.000
HF	T57065	57065	0.310	0.170	0.689	0.013	0.002	0.280	0.070	0.067	0.016	0.040	0.000	0.000
HF	T57238	57238	0.320	0.180	0.680	0.013	0.001	0.310	0.050	0.078	0.020	0.040	0.000	0.000
HF	T52935	52935	0.320	0.190	0.660	0.007	0.002	0.280	0.040	0.067	0.017	0.040	0.000	0.000
HF	T54815	54815	0.310	0.180	0.670	0.007	0.001	0.290	0.050	0.053	0.020	0.030	0.000	0.000

Certificamos que los resultados de los Análisis Químicos y Pruebas Mecánicas 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) certis conform to ASTM A106 Grade B N°.
11039738 10041116 10040714 11048477 11044003 11050242 11011010 11024893
Este material cumple con los requerimientos especificados en la orden.
The material of this certificate test number mentioned above is in compliance with the requirements specified in the order.

Notes:
Formado en caliente a 620°C-980°C, enfriado al aire.
Hot formed fittings in a range from 620°C to 980°C, cooled in air.
Formado en frío normalizado a 940°C max.
Cold formed normalized at 940°C max.
Tiempo de permanencia 10'.
Holding time 10'.
Inspección Dimensional: Satisfactoria.
Visual dimensional check: Satisfactory.
MP: FORMADO EN CALIENTE/HOT FORMED. CF: FORMADO EN FRIO/COLD FORMED.

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 arise 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.

CC-008