



Tubos de Acero de México, S.A.
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**CERTIFICADO DE CALIDAD
 INSPECTION CERTIFICATE**
 (DIN EN 10204:2004E - ISO 10474 3.1.B)

Numero:
 Number:
 25283

Página/Page:
 1

Vendido a: Sold to:	TUVANSA MTY	Pedido del Cliente No: Customers Order No:	10984 - 10982	Lista de Empaque: Packing List:	13054	Fecha/Date:	5 de Enero de 2012
Especificaciones y Grados / Standard of 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		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	T54399	240	TEE 4 CED-STD	311	477	40	122					
2	T55201	22	TEE 4 CED-STD	269	471	39	101					
3	T53775	13	TEE 4 CED-STD	299	471	39	99					
4	S42775	251	CODO 4 X 45° CED-STD	324	504	33	109					
5	S42828	235	CODO 4 X 45° CED-STD	325	493	32	133					
6	S46803	475	CODO 2 1/2 X 90° R.L. CED-STD	328	498	30	98					
7	T57653	279	CODO 10 X 90° R.L. CED-STD	311	483	40	122					
8	T58243	201	CODO 10 X 90° R.L. CED-STD	325	603	39	133					
9	T56718	32	CODO 10 X 90° R.L. CED-YS	301	471	35	106					
10	T51982	22	RED. CONC. 8 X 4 CED-YS	306	503	45	86					
11	T50380	56	RED. CONC. 8 X 4 CED-YS	314	488	44	128					

ANALISIS QUIMICO / CHEMICAL ANALYSIS														
PROCESO PROCESS	COLADA HEAT CODE	COLADAMATERIAL M.P./MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T54399	54399	0.300	0.170	0.680	0.010	0.001	0.280	0.050	0.063	0.015	0.030	0.000	0.000
HF	T55201	55201	0.300	0.170	0.670	0.007	0.001	0.280	0.050	0.065	0.015	0.030	0.000	0.000
HF	T53775	53775	0.320	0.180	0.680	0.010	0.000	0.290	0.060	0.058	0.028	0.030	0.000	0.000
BF	S42775	42775	0.300	0.170	0.730	0.010	0.001	0.300	0.030	0.029	0.010	0.020	0.002	0.002
HF	S42828	42828	0.330	0.190	0.780	0.012	0.001	0.330	0.030	0.033	0.020	0.020	0.003	0.002
HF	S46803	46803	0.340	0.190	0.760	0.010	0.001	0.300	0.040	0.047	0.020	0.060	0.002	0.001
HF	T57653	57653	0.310	0.180	0.670	0.008	0.001	0.290	0.040	0.060	0.017	0.030	0.000	0.000
HF	T58243	58243	0.330	0.180	0.740	0.014	0.001	0.280	0.080	0.054	0.015	0.030	0.000	0.000
HF	T56718	56718	0.300	0.170	0.680	0.010	0.001	0.270	0.040	0.075	0.016	0.030	0.000	0.000
CF	T51982	51982	0.340	0.180	0.840	0.011	0.001	0.260	0.040	0.078	0.042	0.040	0.000	0.000
CF	T50380	50380	0.320	0.180	0.690	0.011	0.001	0.280	0.060	0.063	0.023	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) certs conform to ASTM A106 Grade B N°:
 11029775 11030462 11039142 11001303 11042558 11042717
 11058671 11058039 11045470 11044090 10049560

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.

Notas:
 Formado en caliente a 820°C-850°C, enfriado al
 Hot formed fittings in a range from 820°C to 850°C, cooled in still air.
 He: 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

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.

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