



Tubos de Acero de México, S.A.
Carr. Mtz-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:
25442

Pagina/Page:
1

Vendido a: Sold to: TUVANSA MTY	Pedido del Cliente No: Customers Order No: 11779	Lista de Empaque: Packing List: 13138	Fecha/Date: 17 de Febrero de 2012
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 MR 0103-2003	Dimensiones y tolerancias / Dimension and tolerances ASME B 16.5 - 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	TS6078	310	CODO 6 X 90° R.L. CED-STD.	325	495	40	101					
2	TS5440	100	CODO 6 X 90° R.L. CED-STD.	311	471	40	122					
3	TS0952	3	CODO 6 X 90° R.L. CED-STD.	328	500	38	106					
4	TS4867	17	CODO 6 X 90° R.L. CED-STD.	310	495	42	118					
5	TS4644	58	TEE 8 CED-STD	244	432	33	111					
6	TS4971	2	TEE 8 CED-STD	309	478	43	116					
7	TS2029	4	TEE 8 CED-STD	305	468	31	126					
8	TS8293	6	RED. CONC. 10 X 8 CED-STD	317	490	41	100					
9	TS7395	100	CODO 8 X 45° CED-STD	313	478	39	96					
10	TS6641	60	CODO 8 X 90° R.L. CED-STD	309	470	36	101					
11	TS6640	120	CODO 8 X 90° R.L. CED-STD	313	464	32	98					

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	TS6078	56078	0.300	0.170	0.680	0.013	0.002	0.270	0.050	0.046	0.011	0.030	0.000	0.000	<p>Certificamos que los resultados de los Analisis 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°.</p> <p>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°.</p> <p>11045472 11030361 10046654 11033048 11018785 11033978 11033978 12002317 11032523 11043880 12005047</p> <p>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.</p>
HF	TS5440	55440	0.300	0.170	0.590	0.008	0.001	0.290	0.040	0.060	0.013	0.030	0.000	0.000	
HF	TS0952	50952	0.310	0.180	0.670	0.013	0.000	0.300	0.040	0.076	0.034	0.030	0.000	0.000	
HF	TS4867	54867	0.310	0.180	0.670	0.006	0.001	0.280	0.040	0.055	0.013	0.030	0.000	0.000	
HF	TS4644	54644	0.310	0.180	0.660	0.006	0.003	0.280	0.050	0.071	0.022	0.050	0.000	0.000	
HF	TS4971	54971	0.300	0.170	0.670	0.007	0.002	0.270	0.060	0.047	0.022	0.030	0.000	0.000	
HF	TS2029	52229	0.310	0.180	0.690	0.012	0.001	0.280	0.040	0.057	0.022	0.030	0.000	0.000	
CF	TS8293	58293	0.300	0.170	0.670	0.006	0.002	0.280	0.060	0.052	0.016	0.030	0.000	0.000	
HF	TS7395	57395	0.310	0.170	0.700	0.010	0.002	0.260	0.040	0.065	0.021	0.030	0.000	0.000	
HF	TS6641	56641	0.310	0.190	0.670	0.012	0.001	0.270	0.050	0.053	0.014	0.030	0.000	0.000	
HF	TS6640	56640	0.300	0.170	0.670	0.014	0.001	0.270	0.040	0.053	0.018	0.030	0.000	0.000	

Notas:
Formado en caliente a 820°C-950°C, enfriado al aire / Formado en frío normalizado a 940°C max.
Tempo de permanencia 10.
Inspección Dimensional: Satisfactoria.
HF: FORMADO EN CALIENTE/ HOT FORMED

Notas:
Hot formed fittings in a range from 820°C to 950°C, cooled in air.
Cold formed normalized at 940°C max.
Holding time 10'.
Visual dimensional check: Satisfactory.
CF: FORMADO EN FRIO/COLD FORMED

Waldo Gallegos Galvan
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 OESK 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.