



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

Numero: 24575  
 Pagina/Page: 1 DE 1

Vendido a: **PROVEEDORA DE MATERIALES ANGER, S.A.** Pedido del Cliente No: **5960** Lista de Empaque: **12658** Fecha/Date: **11 de Mayo de 2011**  
 Sold to: **DE C.V.** Customers Order No:  Packing List:   
 Especificaciones y Grados / Standard or Specification and Steel Grade: **Seamless Fittings according to ASTM A 234 WPB-07, NACE MR 01.75-2003** Dimensiones y tolerancias / Dimension and tolerances: **ASME B 16.9 - 2007 and ASME B 16.28 - 1994** Factura/Invoice: **Bocas / Ends**  
 Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB, NACE MR0103-2003 **ASME B 16.9 - 2007 and ASME B 16.28 - 1994** 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	T51561	22	TEE 16 CED-STD	339	481	49	118					
2	T52716	40	TEE RED. 6 X 3 CED-STD	320	492	40	122					
3	T47708	12	TEE RED. 6 X 4 CED-STD	309	473	41	108					
4	T50825	6	TEE RED. 6 X 4 CED-STD	315	479	33	111					
5	T38751	1	TEE 14 CED-STD	337	471	36	108					
6	T40894	11	TEE 14 CED-STD	339	474	48	122					
7	T52341	14	TEE 14 CED-STD	349	478	45	120					
8	T50526	9	TEE RED. 8 X 4 CED-IS	318	487	43	120					

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
RF	T51561	51561	0.290	0.160	0.670	0.007	0.002	0.260	0.040	0.080	0.014	0.040	0.000	0.000
RF	T52716	52716	0.320	0.180	0.680	0.019	0.002	0.300	0.040	0.072	0.028	0.050	0.000	0.000
RF	T47708	47708	0.300	0.170	0.689	0.012	0.002	0.300	0.040	0.072	0.015	0.030	0.000	0.000
RF	T50825	50825	0.310	0.180	0.660	0.011	0.001	0.278	0.050	0.049	0.012	0.020	0.000	0.000
RF	T38751	38751	0.310	0.180	0.660	0.011	0.002	0.280	0.050	0.060	0.016	0.030	0.000	0.000
RF	T40894	40894	0.310	0.180	0.660	0.011	0.001	0.298	0.050	0.066	0.009	0.030	0.000	0.000
RF	T52341	52341	0.310	0.180	0.680	0.013	0.001	0.290	0.050	0.067	0.021	0.030	0.000	0.000
RF	T50526	50526	0.310	0.180	0.670	0.013	0.002	0.280	0.050	0.059	0.019	0.030	0.000	0.000

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 (Tuberia Sin Costura) conforme ASTM A106 Grado B con N°: 10053949 10060272 10018311 10048765 8023140 8050711 11007835 10047127  
 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°: 10053949 10060272 10018311 10048765 8023140 8050711 11007835 10047127  
 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.

**Nota:**  
 Producto de acero a 820°C-980°C, enfriado al aire.  
 Hot formed fittings in a range from 820°C to 980°C, cooled in air.  
 Especificaciones en frío normalizado a 940°C max.  
 Cooling time 10'.  
 Verificar Dimensional Satisfactorio.  
 Dimensional check Satisfactory.  
**FORMADO EN CALIENTE/HOT FORMED**      **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 specifications 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.