



Tubos de Acero de México, S.A.  
Carr. 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

<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> ( DIN EN 10204:2004E - ISO 10474 3.1.B )		Numero: Number:  28318	Pagina/Page:  1
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Vendido a: Sold to: <b>PLESA ANAHUAC Y CIA. S.A. DE C.V.</b>	Pedido del Cliente No: Customers Order No: 17009	Lista de Empaque: Packing List: 14735	Fecha/Date: 21 de febrero de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-10, 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	T29388	1	CODO 6 X 45° CED-STD	320	497	42	126					
2	T28070	2	CODO 6 X 45° CED-STD	289	469	42	116					
3	T5968	4	CODO 6 X 45° CED-STD	338	489	33	157					
4	T50952	4	CODO 6 X 45° CED-STD	328	500	38	106					
5	T5873	1	CODO 6 X 45° CED-STD	328	495	32	161					
6	T36860	1	CODO 6 X 45° CED-STD	352	493	38	93					
7	T46926	4	CODO 6 X 45° CED-STD	355	496	39	117					
8	T6456	43	CODO 6 X 45° CED-STD	306	476	32	153					
9	T65452	30	RED. CONC. B X 6 CED-STD	322	502	40	142					
10	T5967	40	CODO 8 X 45° CED-STD	301	484	32	146					
11	T6079	9	CODO 4 X 90° R.C. CED-STD	338	491	39	149					

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	T29388	29388	0.303	0.170	0.680	0.010	0.001	0.270	0.040	0.060	0.026	0.030	0.000	0.000
HF	T28070	28070	0.308	0.170	0.660	0.009	0.003	0.290	0.060	0.083	0.041	0.040	0.000	0.000
HF	T5968	5968	0.300	0.170	0.760	0.005	0.001	0.310	0.010	0.022	0.004	0.010	0.000	0.000
HF	T50952	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	T5873	5873	0.310	0.170	0.780	0.005	0.001	0.330	0.010	0.035	0.006	0.020	0.000	0.000
HF	T36860	36860	0.320	0.180	0.690	0.009	0.002	0.290	0.060	0.043	0.038	0.030	0.000	0.000
HF	T46926	46926	0.310	0.170	0.690	0.010	0.003	0.290	0.040	0.063	0.038	0.030	0.000	0.000
HF	T6456	6456	0.330	0.190	0.740	0.006	0.001	0.270	0.030	0.046	0.020	0.020	0.000	0.000
CF	T65452	65452	0.330	0.180	0.740	0.016	0.001	0.300	0.070	0.041	0.018	0.030	0.000	0.000
HF	T5967	5967	0.320	0.180	0.760	0.005	0.001	0.310	0.020	0.047	0.006	0.020	0.000	0.000
HF	T6079	6079	0.310	0.180	0.730	0.005	0.001	0.270	0.020	0.038	0.007	0.020	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°:  
6018670 06014456 13032047 10046654 13029444 7054720  
10017109 13056477 13042557 13025208 13032044

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>Notas:</p> <p>Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10".</p> <p>Inspección Dimensional: Satisfactoria.</p> <p>HF: FORMADO EN CALENTE/HOT FORMED</p>	<p>Notes:</p> <p>Hot formed fittings in a range from 620°C to 980°C, cooled in still air. Cold formed normalized at 940°C max. Holding time 10".</p> <p>Visual dimensional check: Satisfactory</p> <p>CF: FORMADO EN FRIO/COLD FORMED</p>	<p style="text-align: center;">   <b>Quality Manager / Jefe de Calidad:</b>  <b>ING. WALDO GALLEGOS GALVAN</b> </p>	<p>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.</p>
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**CERTIFICADO DE CALIDAD  
INSPECTION CERTIFICATE  
( DIN EN 10204:2004E - ISO 10474 3.1.B )**

Numero: 28319  
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Pedido del Cliente No: 17009 -  
Customers Order No: 17009 -  
Lista de Empaque: 14735  
Packing List: 14735  
Fecha/Date: 21 de febrero de 2014

Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless Fittings according to ASTM A 234 WPB-10, 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
12	T5295	1	CODO 4 X 90° R.C. CED-STD	362	513	38	145					
13	T4888	1	CODO 4 X 90° R.C. CED-STD	317	469	31	151					
14	T5291	19	CODO 4 X 90° R.C. CED-STD	273	493	30	154					
15	T65007	15	CODO 16 X 90° R.L. CED-STD	277	486	36	143					
16	T63744	3	CODO 16 X 90° R.L. CED-STD	349	505	36	153					
17	T51561	3	TEE 16 CED-STD	329	468	35	99					
18	S44801	42	CODO 1 1/2 X 90° R.C. CED-STD	381	516	48	116					

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	T5295	5295	0.310	0.170	0.790	0.007	0.001	0.320	0.020	0.029	0.006	0.020	0.000	0.000
HF	T4888	4888	0.300	0.170	0.780	0.005	0.001	0.320	0.010	0.019	0.004	0.010	0.000	0.000
HF	T5291	5291	0.320	0.180	0.780	0.005	0.002	0.330	0.020	0.032	0.007	0.020	0.000	0.000
HF	T65007	65007	0.340	0.190	0.760	0.011	0.002	0.290	0.060	0.073	0.043	0.040	0.000	0.000
HF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.300	0.050	0.080	0.038	0.040	0.000	0.000
HF	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
HF	S44801	44801	0.310	0.160	0.830	0.012	0.001	0.280	0.040	0.050	0.010	0.035	0.001	0.002

Verificamos 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°:  
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°:  
12088340 12075116 12085284 13025935 13011654 10053949 13025325  
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 620°C-960°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria.  
Notes: Hot formed fittings in a range from 620°C to 960°C, cooled in still air. Cold formed normalized at 940°C max. Holding time 10'. Visual dimensional check: Satisfactory.  
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.

Quality Manager/Jefe de Calidad:  
ING. WALDO GALLEGOS GALVAN

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