



Tubos de Acero de México, S.A.  
Carr. Mty-Laredo Km 24.2  
Apartado Postal 43  
(65550) C. de Flores, N.L. Méx.  
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**CERTIFICADO DE CALIDAD  
INSPECTION CERTIFICATE**  
( DIN EN 10204:2004E - ISO 10474 3.1.B )

Numero:  
Number:  
28316

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Vendido a: Sold to:	PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	17355	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	T5297	43	CODO 6 X 45° CED-XS	274	470	38	139					
2	T59968	17	CODO 6 X 45° CED-XS	291	474	35	145					
3	T6404	228	CODO 4 X 90° R.L. CED-STD	336	485	39	153					
4	T5590	20	CODO 3 X 90° R.L. CED-STD	316	492	30	161					
5	T5010	137	CODO 3 X 90° R.L. CED-STD	355	514	37	171					
6	T6078	107	CODO 3 X 90° R.L. CED-STD	340	491	33	163					
7	T64660	90	CODO 6 X 90° R.L. CED-STD.	301	476	33	155					
8	T64572	100	CODO 6 X 90° R.L. CED-STD.	324	476	33	150					
9	T5873	10	CODO 6 X 90° R.L. CED-STD.	328	495	32	161					
10.	T5925	110	TEE 4 CED-STD	268	461	35	148					
11	T64660	40	CODO 4 X 45° CED-STD	346	488	30	152					

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	T5297	5297	0.310	0.170	0.780	0.005	0.002	0.310	0.020	0.033	0.006	0.020	0.000	0.000
HF	T59968	59968	0.000	0.170	0.690	0.013	0.001	0.290	0.040	0.065	0.015	0.030	0.000	0.000
HF	T6404	6404	0.310	0.180	0.740	0.005	0.001	0.270	0.020	0.047	0.009	0.030	0.000	0.000
HF	T5590	5590	0.330	0.180	0.820	0.005	0.001	0.310	0.020	0.028	0.008	0.020	0.000	0.000
HF	T5010	5010	0.330	0.190	0.810	0.003	0.000	0.320	0.010	0.034	0.005	0.020	0.000	0.000
HF	T6078	6078	0.320	0.190	0.720	0.005	0.002	0.280	0.020	0.047	0.007	0.020	0.000	0.000
HF	T64660	64660	0.300	0.170	0.670	0.015	0.001	0.270	0.040	0.043	0.022	0.030	0.000	0.000
HF	T64572	64572	0.300	0.170	0.670	0.015	0.001	0.290	0.040	0.061	0.015	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	T5925	5925	0.300	0.160	0.760	0.005	0.001	0.300	0.040	0.034	0.005	0.020	0.000	0.000
HF	T64660	64660	0.300	0.170	0.670	0.015	0.001	0.270	0.040	0.046	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°:

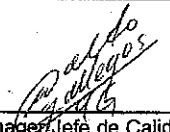
We certify that result of chemical analysis and mechanical test are true and correct copy of the test certificate issued by the manufacturer and/or supplier Raw material (Seamless Pipe) certs conform to ASTM A106 Grade B N°:

12081750 12020221 13049410 13013194 12071874 13040140 13032041 13019446 13032047 13056833 13023841

"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-980°C, enfriado al aire; Formado en frío normalizado a 940°C max.  
Tiempo de permanencia 10'.  
Inspección Dimensional: Satisfactoria.

Notas:  
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'.  
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.



**CERTIFICADO DE CALIDAD  
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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 <b>ASME B 16.9 - 2007</b>			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	T6403	40	CODO 6 X 90° R.L. CED-XS	327	476	35	152					
13	T5967	16	CODO 8 X 45° CED-STD	301	484	32	146					
14	T6078	9	CODO 8 X 45° CED-STD	269	474	34	145					
15	T6080	14	CODO 8 X 45° CED-STD	300	467	34	153					
16	T5013	1	CODO 8 X 45° CED-STD	339	492	34	148					
17	T65038	40	CODO 10 X 90° R.L. CED-STD	339	488	34	148					
18	T64572	40	CODO 5 X 45° CED-STD	326	475	35	158					
19	T63897	15	RED. CONC. 10 X 6 CED-STD	303	491	42	144					
20	T6079	40	CODO 4 X 45° CED-XS	293	436	33	149					
21	T65451	20	TBE RED. 6 X 3 CED-STD	332	483	37	146					
22	T68864	12	CODO 12 X 90° R.L. CED-80	281	476	39	143					

ANALISIS QUIMICO / CHEMICAL ANALYSIS														
PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	%C.I.E.	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T6403	6403	0.300	0.170	0.720	0.004	0.001	0.280	0.030	0.051	0.009	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	T6078	6078	0.290	0.170	0.690	0.004	0.001	0.270	0.020	0.042	0.006	0.020	0.000	0.000
HF	T6080	6080	0.300	0.170	0.720	0.006	0.001	0.270	0.020	0.037	0.006	0.020	0.000	0.000
HF	T5013	5013	0.320	0.180	0.800	0.003	0.001	0.320	0.020	0.037	0.005	0.020	0.000	0.000
HF	T65038	65038	0.320	0.180	0.660	0.013	0.001	0.270	0.060	0.059	0.039	0.030	0.000	0.000
HF	T64572	64572	0.300	0.170	0.660	0.013	0.001	0.280	0.040	0.058	0.015	0.030	0.000	0.000
CF	T63897	63897	0.320	0.180	0.760	0.011	0.003	0.260	0.040	0.058	0.017	0.030	0.000	0.000
HF	T6079	6079	0.320	0.190	0.720	0.005	0.002	0.280	0.020	0.039	0.007	0.020	0.000	0.000
HF	T65451	65451	0.320	0.180	0.690	0.012	0.000	0.280	0.080	0.049	0.027	0.030	0.000	0.000
HF	T68864	68864	0.300	0.170	0.670	0.007	0.000	0.290	0.050	0.052	0.017	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°: 13047548 13025208 13055407 13025208 12068145 13027248 13023777 13025951 13031256 13033928 14001052

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°: 13047548 13025208 13055407 13025208 12068145 13027248 13023777 13025951 13031256 13033928 14001052

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-980°C, enfriado al aire; Formado en frío normalizado a 940°C max.  
Tiempo de permanencia 10'.  
Inspección Dimensional: Satisfactoria.  
HF: FORMADO EN CALIENTE/HOT FORMED

Notes:  
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'.  
Visual dimensional check: Satisfactory  
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 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.