



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.
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CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number: 29976	Pagina/Page: 1
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Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 22204	Lista de Empaque: Packing List: 15609	Fecha/Date: 29 de octubre de 2015
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB	Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2012		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	T5591	20	CODO 8 X 45° CED-XS	279	468	37	150					
2	T76221	16	TEE 8 CED-STD	280	453	36	138					
3	T76221	8	TEE 8 CED-XS	262	418	39	129					
4	T77766	30	RED. CONC. 8 X 6 CED-STD	311	489	43	151					
5	T77187	55	CODO 6 X 90° R.L. CED-XS	261	455	37	149					
6	T8768	4	CODO 6 X 90° R.L. CED-XS	358	448	31	143					
7	T5874	1	CODO 6 X 90° R.L. CED-XS	312	479	36	143					
8	T72523	14	CODO 12 X 90° R.L. CED-STD	336	501	33	138					
9	T72798	4	CODO 12 X 90° R.L. CED-STD	281	435	35	144					
10	T65038	6	CODO 10 X 45° CED-STD	339	488	34	148					
11	T77766	4	CODO 10 X 45° CED-STD	305	485	41	148					

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	T5591	5591	0.310	0.170	0.800	0.005	0.001	0.300	0.020	0.031	0.007	0.020	0.000	0.000
HF	T76221	76221	0.310	0.180	0.660	0.005	0.002	0.270	0.060	0.068	0.027	0.040	0.000	0.000
HF	T76221	76221	0.300	0.160	0.670	0.006	0.002	0.260	0.060	0.066	0.027	0.040	0.000	0.000
CF	T77766	77766	0.310	0.180	0.680	0.006	0.003	0.260	0.050	0.057	0.015	0.030	0.000	0.000
HF	T77187	77187	0.310	0.180	0.680	0.006	0.002	0.300	0.040	0.065	0.014	0.030	0.000	0.000
HF	T8768	8768	0.310	0.190	0.700	0.007	0.001	0.280	0.010	0.018	0.007	0.010	0.000	0.000
HF	T5874	5874	0.300	0.160	0.770	0.005	0.001	0.320	0.020	0.031	0.007	0.020	0.000	0.000
HF	T72523	72523	0.310	0.180	0.660	0.009	0.001	0.270	0.060	0.057	0.012	0.040	0.000	0.000
HF	T72798	72798	0.340	0.180	0.780	0.007	0.001	0.280	0.060	0.079	0.042	0.040	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	T77766	77766	0.310	0.190	0.680	0.005	0.002	0.260	0.050	0.059	0.015	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°:
13015271 15012673 15010686 15027927 15025870 15007295
13019748 14050899 15012179 13032042 15025882
"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
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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.
MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS

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CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number:	Pagina/Page:
		29977	2

Vendido a: Sold to:	PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	22204	Lista de Empaque: Packing List:	15609	Fecha/Date:	29 de octubre de 2015
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2012			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	T76370	2	CODO 10 X 45° CED-STD	250	430	35	140					
13	T72619	10	CODO 10 X 90° R.L. CED-XS	290	451	34	136					
14	T72870	3	RED. CONC. 12 X 10 CED-80	276	460	31	139					
15	T77562	24	TEE 10 CED-STD	297	444	35	127					
16	T77390	18	CODO 5 X 90° R.L. CED-XS	307	484	41	159					
17	T7192	12	CODO 5 X 90° R.L. CED-XS	323	472	36	151					
18	T73886	7	RED. CONC. 14 X 12 CED-STD	317	500	36	140					
19	T65888	6	TEE 16 CED-XS	310	467	39	145					
20	T76221	6	CODO 14 X 90° R.L. CED-40	280	453	36	138					
21	T73977	4	CODO 14 X 45° CED-40	321	477	36	147					
22	T74341	5	TEE RED. 10 X 8 CED-80	255	440	39	134					

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	T76370	76370	0.320	0.180	0.700	0.010	0.002	0.340	0.050	0.070	0.021	0.040	0.000	0.000
HF	T72619	72619	0.310	0.180	0.670	0.007	0.001	0.280	0.040	0.066	0.024	0.040	0.000	0.000
CF	T72870	72870	0.310	0.180	0.670	0.006	0.002	0.280	0.040	0.062	0.016	0.040	0.000	0.000
HF	T77562	77562	0.310	0.180	0.690	0.005	0.002	0.280	0.030	0.055	0.017	0.030	0.000	0.000
HF	T77390	77390	0.310	0.160	0.780	0.006	0.001	0.260	0.040	0.097	0.016	0.040	0.000	0.000
HF	T7192	7192	0.310	0.180	0.720	0.006	0.001	0.270	0.030	0.035	0.010	0.020	0.000	0.000
CF	T73886	73886	0.320	0.190	0.660	0.005	0.001	0.280	0.050	0.077	0.020	0.040	0.000	0.000
HF	T65888	65888	0.310	0.180	0.670	0.007	0.002	0.280	0.030	0.050	0.011	0.030	0.000	0.000
HF	T76221	76221	0.310	0.180	0.660	0.005	0.002	0.270	0.060	0.068	0.027	0.040	0.000	0.000
HF	T73977	73977	0.320	0.190	0.670	0.014	0.002	0.280	0.070	0.058	0.013	0.040	0.000	0.000
HF	T74341	74341	0.310	0.170	0.680	0.005	0.002	0.280	0.070	0.071	0.023	0.060	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°:
15011708 15000972 14041056 15024047 15022535 14011757
15005453 13066195 15012673 14054482 14058027
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.</p> <p>Tiempo de permanencia 10'.</p> <p>Inspección Dimensional: Satisfactoria.</p> <p>HF: FORMADO EN CALIENTE/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.</p> <p>Holding time 10'.</p> <p>Visual dimensional check: Satisfactory</p> <p>CF: FORMADO EN FRIO/COLD FORMED</p>	<p>Quality Manager/Jefe de Calidad: ING. WALDO GALLEGOS GALVAN</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.</p> <p>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> <p>MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS</p>
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		29978	3

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Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2012			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
23	T74341	10	TEE 10 CED-80	255	440	39	134					
24	S34704	60	CODO 2 X 45° CED-XS	322	491	31	87					
25	T72870	5	TEE RED. 10 X 4 CED-80	276	460	31	139					
26	T76387	22	CODO 12 X 90° R.L. CED-80	319	477	40	134					
27	T75781	2	CODO 12 X 90° R.L. CED-80	321	474	39	131					
28	T72870	5	TEE RED. 10 X 6 CED-80	276	460	31	139					

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	T74341	74341	0.310	0.170	0.680	0.005	0.002	0.280	0.070	0.071	0.023	0.060	0.000	0.000
HF	S34704	34704	0.330	0.190	0.750	0.010	0.001	0.300	0.040	0.080	0.010	0.020	0.002	0.001
HF	T72870	72870	0.310	0.180	0.670	0.006	0.002	0.280	0.040	0.062	0.016	0.040	0.000	0.000
HF	T76387	76387	0.310	0.180	0.660	0.006	0.001	0.270	0.050	0.063	0.027	0.040	0.000	0.000
HF	T75781	75781	0.310	0.180	0.660	0.006	0.001	0.260	0.060	0.064	0.021	0.060	0.000	0.000
HF	T72870	72870	0.310	0.180	0.670	0.006	0.002	0.280	0.040	0.062	0.016	0.040	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°: 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°: 14058027 14055779 14041056 15010671 15011707 14041056

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. MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS	FOR03161
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