



Tubos de Acero de México, S.A.  
Carr. Interoceánico Km 24.2  
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<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> ( DIN EN 10204:2004E - ISO 10474 3.1.B )		Numero: Number:  27974	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: 16402	Lista de Empaque: Packing List: 14535	Fecha/Date: 20 de Septiembre de 2013
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	T5590	22	CODO 3 X 90° R.L. CED-STD	316	492	30	161					
2	T64661	167	CODO 3 X 90° R.L. CED-STD	333	502	31	142					
3	T5583	75	CODO 3 X 90° R.L. CED-STD	310	485	30	152					
4	T65019	5	TEE 12 CED-STD	258	464	37	150					
5	T66050	10	TEE 8 CED-XS	284	471	47	116					
6	T64153	18	CODO 12 X 90° R.L. CED-STD	289	485	35	141					
7	T64060	36	CODO 10 X 45° CED-STD	339	485	37	155					
8	T65038	40	CODO 10 X 90° R.L. CED-STD	339	488	34	148					
9	T65578	5	RED. CONC. 14 X 10 CED-STD	350	486	30	152					
10	T64154	2	CODO 12 X 90° R.L. CED-XS	333	501	36	153					
11	T64155	3	TEE 16 CED-STD	301	475	37	137					

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	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	T64661	64661	0.310	0.180	0.680	0.014	0.001	0.290	0.030	0.036	0.016	0.030	0.000	0.000
HF	T5583	5583	0.330	0.180	0.800	0.005	0.001	0.330	0.040	0.044	0.008	0.020	0.000	0.000
HF	T65019	65019	0.320	0.178	0.780	0.014	0.001	0.270	0.050	0.065	0.028	0.030	0.000	0.000
HF	T66050	66050	0.310	0.188	0.670	0.008	0.001	0.280	0.060	0.056	0.015	0.030	0.000	0.000
HF	T64153	64153	0.310	0.188	0.670	0.014	0.001	0.300	0.060	0.055	0.024	0.030	0.000	0.000
HF	T64060	64060	0.300	0.170	0.670	0.012	0.002	0.290	0.040	0.062	0.035	0.030	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
CF	T65578	65578	0.290	0.160	0.650	0.014	0.002	0.280	0.050	0.062	0.015	0.030	0.000	0.000
HF	T64154	64154	0.320	0.190	0.670	0.015	0.001	0.300	0.040	0.055	0.020	0.030	0.000	0.000
HF	T64155	64155	0.310	0.180	0.680	0.010	0.001	0.300	0.050	0.044	0.028	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°: 13013194 13024464 13015113 13029801 13051093 13013259 13032042 13027097 13047011 13013428 13018717

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°: 13013194 13024464 13015113 13029801 13051093 13013259 13032042 13027097 13047011 13013428 13018717

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.

Notes:  
Formado en caliente a 620°C-980°C, enfriado al aire.  
Hot formed fittings in a range from 620°C to 980°C, cooled in still air.

Formado en frío normalizado a 940°C max.  
Cold formed normalized at 940°C max.

Tiempo de permanencia 10'.  
Holding time 10'.

Inspección Dimensional: Satisfactoria.  
Visual dimensional check: Satisfactory

HF: FORMADO EN CALIENTE/HOT FORMED  
CF: FORMADO EN FRIO/COLD FORMED

Quality Manager / Jefe de Calidad:  
*Waldo Gallegos Galvan*  
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.



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<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> ( DIN EN 10204:2004E - ISO 10474 3.1.B )		Numero: Number:  27975	Pagina/Page:  2
Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 16402	Lista de Empaque: Packing List: 14535	Fecha/Date: 20 de Septiembre de 2013
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	T64678	13	CODO 12 X 90° R.I. CED-40	340	499	37	150					
13	T60717	5	CODO 12 X 90° R.I. CED-40	312	480	33	144					
14	T65887	17	CODO 12 X 90° R.I. CED-40	317	472	69	133					
15	T63314	1	CODO 12 X 90° R.I. CED-40	323	481	37	129					
16	T63744	10	TEE RED. 10 X 6 CED-STD	331	498	32	145					
17	T59684	6	RED. CONC. 10 X 4 CED-XS	296	462	39	148					
18	T64059	3	CODO 10 X 45° CED-80	324	479	39	146					
19	T62890	4	CODO 10 X 45° CED-80	330	499	38	140					
20	T64848	3	CODO 10 X 45° CED-80	319	475	38	146					
21	S47300	9	CODO 5 X 45° CED-XS	269	477	34	116					
22	S46666	1	CODO 5 X 45° CED-XS	295	467	40	135					

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	T64678	64678	0.300	0.170	0.660	0.015	0.001	0.270	0.060	0.058	0.030	0.040	0.000	0.000
HF	T60717	60717	0.300	0.170	0.680	0.012	0.004	0.280	0.040	0.067	0.021	0.030	0.000	0.000
HF	T65887	65887	0.320	0.190	0.670	0.007	0.000	0.280	0.030	0.055	0.010	0.030	0.000	0.000
HF	T63314	63314	0.300	0.170	0.680	0.006	0.001	0.270	0.050	0.050	0.025	0.030	0.000	0.000
HF	T63744	63744	0.330	0.170	0.830	0.016	0.001	0.300	0.050	0.080	0.038	0.040	0.000	0.000
CF	T59684	59684	0.310	0.180	0.660	0.015	0.000	0.280	0.060	0.073	0.023	0.040	0.000	0.000
HF	T64059	64059	0.300	0.170	0.660	0.014	0.002	0.280	0.050	0.064	0.037	0.040	0.000	0.000
HF	T62890	62890	0.350	0.190	0.810	0.013	0.001	0.290	0.040	0.073	0.037	0.040	0.000	0.000
HF	T64848	64848	0.320	0.180	0.670	0.019	0.002	0.280	0.070	0.062	0.024	0.030	0.000	0.000
HF	S47300	47300	0.330	0.200	0.750	0.012	0.001	0.290	0.020	0.034	0.010	0.015	0.001	0.002
HF	S46666	46666	0.320	0.180	0.750	0.009	0.002	0.290	0.040	0.037	0.020	0.020	0.001	0.002

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°:

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°:

13022218 12032537 13040116 13006681 13020740 12018753  
13016388 12086587 13025936 11046243 11041217

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.

Notes: Formado en caliente a 620°C-950°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 950°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	 <b>Quality Manager / Jefe de Calidad:</b> <b>ING. WALDO GALLEGOS GALVAN</b>	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.
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<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> ( DIN EN 10204:2004E - ISO 10474 3.1.B )		Numero: Number:  27976	Pagina/Page:  3
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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: 16402 -	Lista de Empaque: Packing List: 14535	Fecha/Date: 20 de Septiembre de 2013
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: <b>Bocas / Ends</b> 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	T65886	20	RED. CONC. 10 X 4 CED-STD	290	479	44	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
CF	T65886	65886	0.310	0.180	0.670	0.006	0.001	0.280	0.040	0.064	0.014	0.040	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°: 13046801.  
 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°: 13046801.  
 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.

<b>Notas:</b> Formado en caliente a 820°C-980°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'. Inspección Dimensional: Satisfactoria. <b>HF: FORMADO EN CALIENTE/HOT FORMED</b>	<b>Notes:</b> Hot formed fittings in a range from 820°C to 980°C, cooled in still air. Cold formed normalized at 940°C max. Holding time 10'. Visual dimensional check: Satisfactory. <b>CF: FORMADO EN FRIO/COLD FORMED</b>	 <b>Quality Manager / Jefe de Calidad:</b> <b>ING. WALDO GALLEGOS GALVAN</b>	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.
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