



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

Numero:
Number:
28602

Pagina/Page:
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Vendido a: Sold to:	PROVEEDORA DE MATERIALES ANKER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	6932	Lista de Empaque: Packing List:	14901	Fecha/Date:	3 de junio de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007			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	T7536	228	CODO 4 X 90° R.L. CED-STD	330	483	38	155					
2	T6972	84	CODO 8 X 45° CED-XS	305	468	38	156					
3	T6407	16	CODO 8 X 45° CED-XS	266	463	36	146					
4	T6404	148	CODO 4 X 45° CED-STD	336	485	39	153					
5	T7536	187	CODO 4 X 45° CED-STD	330	483	38	155					
6	T5872	33	CODO 4 X 45° CED-STD	352	513	33	152					
7	T61225	3	CODO 4 X 45° CED-STD	339	502	32	146					
8	T65038	48	CODO 10 X 45° CED-STD	339	488	34	148					
9	T66113	2	CODO 10 X 45° CED-STD	296	477	37	146					
10	T6080	217	CODO 8 X 90° R.L. CED-STD	300	467	34	153					
11	T5967	136	CODO 8 X 90° R.L. CED-STD	301	484	32	146					

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	T7536	7536	0.300	0.170	0.700	0.006	0.000	0.280	0.020	0.039	0.007	0.020	0.000	0.000
HF	T6972	6972	0.300	0.170	0.720	0.005	0.002	0.280	0.010	0.032	0.007	0.020	0.000	0.000
HF	T6407	6407	0.300	0.170	0.710	0.005	0.001	0.280	0.020	0.031	0.007	0.020	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	T7536	7536	0.300	0.170	0.700	0.006	0.000	0.280	0.020	0.039	0.007	0.020	0.000	0.000
HF	T5872	5872	0.290	0.160	0.760	0.005	0.000	0.300	0.010	0.045	0.007	0.020	0.000	0.000
HF	T61225	61225	0.320	0.180	0.690	0.012	0.002	0.310	0.050	0.069	0.045	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	T66113	66113	0.310	0.180	0.660	0.009	0.002	0.280	0.060	0.068	0.020	0.040	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	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

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°:
14022670 14001615 13068483 13056484 14022670
13018720 12045985 13032042 13064755 13025954
13025316
"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 frio 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 FRIJO/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

CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number: 28625	Pagina/Page: 2
Vendido a: Sold to: PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 6932 - 6938	Lista de Empaque: Packing List: 14918	Fecha/Date: 19 de junio de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2001 ASME SA-234, Grade WPB	Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007		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	T6405	15	CODO 8 X 45° CED-STD	307	463	35	147					
13	T5967	40	CODO 8 X 90° R.L. CED-STD	301	484	32	146					
14	T68667	20	CODO 10 X 45° CED-XS	273	472	37	138					
15	T64154	10	CODO 12 X 90° R.L. CED-XS	333	501	36	153					
16	T5292	20	RED. CONC. 3 X 1 1/2 CED-STD	357	504	39	147					
17	T65956	20	RED. CONC. 8 X 4 CED-XS	296	482	44	146					
18	T5873	200	RED. CONC. 4 X 3 CED-STD	333	495	37	167					
19	T7536	20	RED. CONC. 3 X 2 CED-XS	347	490	43	163					
20	T62024	4	CODO 10 X 45° CED-80	301	470	38	137					
21	T62067	1	TEE RED. 10 X 8 CED-80	305	473	40	146					
22	T6967	262	CODO 4 X 45° CED-XS	357	489	32	155					

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	T6405	6405	0.310	0.180	0.720	0.005	0.002	0.280	0.020	0.036	0.006	0.020	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	T68667	68667	0.300	0.170	0.680	0.006	0.001	0.260	0.040	0.062	0.013	0.030	0.000	0.000
HF	T64154	64154	0.320	0.190	0.670	0.015	0.001	0.300	0.020	0.055	0.020	0.030	0.000	0.000
CF	T5292	5292	0.320	0.180	0.820	0.003	0.000	0.350	0.010	0.033	0.006	0.020	0.000	0.000
CF	T65956	65956	0.310	0.180	0.670	0.008	0.001	0.310	0.050	0.065	0.017	0.040	0.000	0.000
CF	T5873	5873	0.300	0.160	0.770	0.004	0.001	0.320	0.010	0.036	0.007	0.020	0.000	0.000
CF	T7536	7536	0.290	0.170	0.690	0.006	0.000	0.270	0.020	0.039	0.007	0.020	0.000	0.000
HF	T62024	62024	0.310	0.180	0.660	0.010	0.001	0.290	0.060	0.075	0.026	0.040	0.000	0.000
HF	T62067	62067	0.330	0.190	0.670	0.008	0.001	0.300	0.060	0.066	0.032	0.040	0.000	0.000
HF	T6967	6967	0.300	0.180	0.700	0.008	0.000	0.280	0.020	0.023	0.006	0.020	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°: 13076481 13025317 13093398 13013428 12080804 13053795 13023754 14009597 12063317 12073168 14009598

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°: 13076481 13025317 13093398 13013428 12080804 13053795 13023754 14009597 12063317 12073168 14009598

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	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
Quality Manager Jefe de Calidad: ING. WALDO GALLEGOS GALVAN		FOR03161