



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: 28069
Pagina/Page: 1

Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 16529	Lista de Empaque: Packing List: 14592	Fecha/Date: 29 de Octubre 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	T6402	55	TEE 4 CED-XS	306	478	41	145					
2	T6079	30	CODO 4 X 90° R.C. CED-STD	338	491	39	163					
3	T64572	20	CODO 5 X 45° CED-STD	326	475	35	158					
4	T6593	35	CODO 3 X 90° R.C. CED-XS	323	491	32	150					
5	T5590	30	CODO 5 X 90° R.L. CED-XS	283	487	34	145					
6	T66113	10	CODO 10 X 90° R.L. CED-80	308	467	38	141					
7	T66050	3	CODO 12 X 45° SHC-80	289	459	39	142					
8	T65064	1	CODO 12 X 45° SHC-80	316	485	40	157					
9	T51311	2	CODO 12 X 45° SHC-80	303	477	35	111					
10	T65030	2	CODO 12 X 45° SHC-80	314	471	39	156					
11	T47856	1	CODO 12 X 45° SHC-80	315	476	38	130					

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	T6402	6402	0.300	0.170	0.710	0.005	0.001	0.310	0.020	0.058	0.009	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
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
HF	T6593	6593	0.300	0.170	0.730	0.005	0.001	0.270	0.020	0.052	0.012	0.020	0.000	0.000
HF	T5590	5590	0.300	0.160	0.790	0.004	0.001	0.310	0.020	0.029	0.008	0.020	0.000	0.000
HF	T66113	66113	0.310	0.180	0.650	0.009	0.002	0.280	0.060	0.067	0.022	0.040	0.000	0.000
HF	T66050	66050	0.300	0.170	0.650	0.007	0.001	0.270	0.060	0.056	0.016	0.030	0.000	0.000
HF	T65064	65064	0.310	0.180	0.670	0.012	0.002	0.300	0.060	0.069	0.023	0.030	0.000	0.000
HF	T51311	51311	0.310	0.180	0.660	0.011	0.001	0.270	0.040	0.062	0.027	0.040	0.000	0.000
HF	T65030	65030	0.310	0.180	0.650	0.010	0.003	0.270	0.060	0.057	0.034	0.030	0.000	0.000
HF	T47856	47856	0.330	0.180	0.780	0.007	0.002	0.270	0.050	0.078	0.025	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°:
13052025 13032044 13023777 13069021 13018894 13055077
13067201 13029443 10040931 13029443 10006109
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.

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



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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	S45280	1	CODO 1 1/2 X 45° CED-STD	357	511	28	122					
13	S44801	22	CODO 1 1/2 X 45° CED-STD	381	516	48	116					
14	S25806	49	CODO 1 1/2 X 45° CED-STD	397	537	44	133					
15	T65887	24	CODO 12 X 45° CED-40	317	472	69	133					
16	T66050	12	CODO 12 X 90° R.L. CED-80	289	459	39	142					
17	T65886	10	TEE RED. 8 X 3 STD	551	481	35	141					
18	T66050	10	TEE RED. 8 X 4 CED-XS	288	476	46	118					

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	S45280	45280	0.330	0.180	0.790	0.010	0.001	0.300	0.040	0.038	0.030	0.021	0.001	0.002
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
HF	S25806	25806	0.340	0.190	0.730	0.014	0.001	0.300	0.050	0.070	0.040	0.033	0.003	0.002
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	T66050	66050	0.300	0.170	0.650	0.007	0.001	0.270	0.060	0.056	0.016	0.030	0.000	0.000
HF	T65886	65886	0.310	0.180	0.670	0.006	0.001	0.270	0.040	0.066	0.014	0.030	0.000	0.000
HF	T66050	66050	0.300	0.170	0.660	0.008	0.002	0.270	0.060	0.055	0.016	0.030	0.000	0.000

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"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:
Firmado 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.
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