



Tubos de Acero de México, S.A.  
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<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number:  26366	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: 13775 - 13409	Lista de Empaque: Packing List: 13686	Fecha/Date: 5 de Octubre de 2012
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-07, 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	T57980	5	CODO 8 X 45° CED-XS	285	474	44	123					
2	T59835	5	CODO 8 X 45° CED-XS	311	472	37	151					
3	T60763	80	CODO 4 X 45° CED-STD	308	476	33	155					
4	T60551	4	CODO 8 X 45° CED-STD	326	484	36	143					
5	T4889	12	CODO 8 X 45° CED-STD	338	493	35	146					
6	T61224	4	CODO 8 X 45° CED-STD	333	501	40	124					
7	T61153	36	CODO 12 X 90° R.L. CED-STD	269	462	37	142					
8	T61153	40	CODO 12 X 45° CED-STD	269	462	37	142					
9	T4889	119	CODO 8 X 90° R.L. CED-STD	338	493	35	146					
10	T4888	61	CODO 8 X 90° R.L. CED-STD	322	483	36	142					
11	T49808	30	TEE 10 CED-STD	316	479	30	104					

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	T57980	57980	0.300	0.170	0.670	0.012	0.001	0.270	0.040	0.059	0.015	0.040	0.000	0.000
HF	T59835	59835	0.300	0.170	0.670	0.011	0.001	0.300	0.050	0.076	0.016	0.040	0.000	0.000
HF	T60763	60763	0.300	0.160	0.680	0.014	0.002	0.290	0.060	0.070	0.028	0.040	0.000	0.000
HF	T60551	60551	0.310	0.170	0.660	0.016	0.001	0.300	0.060	0.075	0.031	0.040	0.000	0.000
HF	T4889	4889	0.300	0.170	0.760	0.006	0.002	0.330	0.010	0.015	0.003	0.010	0.000	0.000
HF	T61224	61224	0.320	0.180	0.670	0.016	0.001	0.310	0.050	0.065	0.040	0.030	0.000	0.000
HF	T61153	61153	0.310	0.180	0.690	0.011	0.002	0.290	0.030	0.050	0.016	0.030	0.000	0.000
HF	T61153	61153	0.310	0.180	0.690	0.011	0.002	0.290	0.030	0.050	0.016	0.030	0.000	0.000
HF	T4889	4889	0.300	0.170	0.760	0.006	0.002	0.330	0.010	0.015	0.003	0.010	0.000	0.000
HF	T4888	4888	0.310	0.180	0.780	0.006	0.001	0.320	0.010	0.020	0.004	0.010	0.000	0.000
HF	T49808	49808	0.320	0.190	0.660	0.011	0.003	0.300	0.040	0.064	0.020	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°: 11057971 12020685 12033866 12029272 12060117 12048888 12044730 12044730 12060117 12060309 10028970

"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	 <b>Quality Manager / Jefe de Calidad:</b> <b>ING. WALDO GALLEGOS GALVAN</b>
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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.