



Tubos de Acero de México, S.A  
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<b>CERTIFICADO DE CALIDAD</b> <b>INSPECTION CERTIFICATE</b> (DIN EN 10204:2004E - ISO 10474 3.1.B)		Número: 23405	Página/Page: 1 DE 1
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Vendido a: Sold to:	TUVANSA MONTERREY	Pedido del Cliente No: Customer Order No:	8305 - 8519 - 8302	Lista de Empaque: Packing List:	11949	Fecha/Date:	30 de Abril de 2010
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234M WPB-07, NACE MR 01.75-2003 Conform to ASME II Ed. 2001 ASME SA-234M Grade WPB, NACE MR0103-2003		Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007 and ASME B 16.28 - 1994			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	2	3	PROMEDIO AVERAGE Joules
1	T48724	288	CODO 6 X 45° CED-STD	325	490	39	120					
2	T27420	9	TEE 4 CED-XS	312	484	41	124					
3	T41223	15	TEE 4 CED-XS	304	477	40	120					
4	T45662	126	TEE 4 CED-XS	301	480	42	120					
5	S31052	45	CODO 2 X 90° R.L. CED-STD	321	477	30	118					
6	S32706	849	CODO 2 X 90° R.L. CED-STD	341	507	30	118					
7	T47708	100	CODO 10 X 90° R.L. CED-STD	317	485	40	120					
8	T48082	120	CODO 8 X 90° R.L. CED-STD	310	478	38	120					
9	S28475	156	CODO 4 X 90° R.L. CED-XS	297	477	32	140					
10	S28276	72	CODO 4 X 90° R.L. CED-XS	278	456	32	117					
11	T48739	30	CODO 10 X 90° R.L. CED-80	311	492	38	120					

CONTROL DE CALIDAD

24 JUNIO 2010

E1026

E. RUIZ

FECHA

FIRMA

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
HP	T48724	48724	0.310	0.180	0.650	0.013	0.002	0.280	0.040	0.068	0.017	0.030	0.000	0.000
HP	T27420	27420	0.320	0.170	0.700	0.012	0.003	0.280	0.080	0.076	0.029	0.040	0.000	0.000
HP	T41223	41223	0.300	0.170	0.660	0.013	0.002	0.260	0.050	0.071	0.013	0.030	0.000	0.000
HP	T45662	45662	0.330	0.190	0.700	0.016	0.004	0.280	0.040	0.062	0.025	0.030	0.000	0.000
HP	S31052	31052	0.320	0.180	0.730	0.013	0.001	0.250	0.040	0.051	0.010	0.020	0.001	0.001
HP	S32706	32706	0.320	0.180	0.750	0.013	0.001	0.290	0.030	0.046	0.010	0.027	0.001	0.001
HP	T47708	47708	0.300	0.170	0.670	0.012	0.002	0.300	0.040	0.078	0.014	0.030	0.000	0.000
HP	T48082	48082	0.310	0.180	0.650	0.008	0.002	0.300	0.040	0.068	0.020	0.030	0.000	0.000
HP	S28475	28475	0.340	0.180	0.830	0.008	0.001	0.300	0.050	0.056	0.020	0.035	0.001	0.000
HP	S28276	28276	0.320	0.190	0.720	0.009	0.001	0.270	0.040	0.030	0.010	0.020	0.001	0.000
HP	T48739	48739	0.320	0.180	0.740	0.012	0.002	0.290	0.050	0.068	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 Materias Primas (Tubería Sin Costura) conforme ASTM A108 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) certifies conform to ASTM A108 Grade B N°:

10017088 6014478 9049429 10017108 479030 479030  
 10006110 10007842 438333 438333 10017094

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 820°C-980°C, enfriado al aire; Formado en file normalizado a 940°C máx. Tiempo de permeación 10'. Inspección Dimensional: Satisfactoria. HE: FORMADO EN CALIENTE/MOT FORMED	Notes: 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 CF: FORMADO EN FRIJO/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 53. 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 53.
Quality Manager/Jefe de Calidad: ING. WALDO GALLEGOS GALVAN		CC-008