



Tubos de Acero de Mexico, S.A.  
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<b>CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE</b> (DIN EN 10204:2004E - ISO 10474 3.1.B)		Numero: Number: 25302	Pagina/Page: 1
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Vendido a: Sold to: PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 6117	Lista de Empaque: Packing List: 13067	Fecha/Date: 17 de Enero 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	S42141	544	CODO 4 X 90° R.L. CED-STD	313	504	34	101					
2	S46665	456	CODO 4 X 90° R.L. CED-STD	305	481	30	140					
3	S48017	1528	CODO 3 X 90° R.L. CED-STD	334	508	30	104					
4	T57483	10	CODO 12 X 45° CED-XS	307	474	36	105					
5	T56078	200	CODO 6 X 90° R.L. CED-STD.	325	496	40	101					
6	T54537	200	CODO 6 X 90° R.L. CED-STD.	315	479	39	101					
7	T56078	288	CODO 6 X 45° CED-STD	325	496	40	101					
8	T55441	12	CODO 6 X 45° CED-STD	321	493	39	124					
9	S22135	33	CODO 3 X 90° R.L. CED-XS	312	480	37	120					
10	S42828	118	CODO 4 X 45° CED-STD	304	475	30	133					
11	S42775	239	CODO 4 X 45° CED-STD	324	504	33	109					

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	S42141	42141	0.350	0.200	0.800	0.010	0.001	0.330	0.030	0.050	0.010	0.029	0.003	0.002
HF	S46665	46665	0.340	0.200	0.740	0.009	0.001	0.290	0.050	0.053	0.010	0.025	0.001	0.002
HF	S48017	48017	0.330	0.180	0.770	0.010	0.001	0.300	0.050	0.032	0.020	0.019	0.002	0.002
HF	T57483	57483	0.330	0.190	0.710	0.014	0.001	0.290	0.080	0.065	0.015	0.030	0.000	0.000
HF	T56078	56078	0.300	0.170	0.680	0.013	0.001	0.270	0.050	0.046	0.011	0.030	0.000	0.000
HF	T54537	54537	0.320	0.180	0.690	0.009	0.001	0.320	0.050	0.061	0.020	0.030	0.000	0.000
HF	T56078	56078	0.300	0.170	0.680	0.013	0.001	0.270	0.050	0.046	0.011	0.030	0.000	0.000
HF	T55441	55441	0.000	0.180	0.690	0.010	0.001	0.290	0.060	0.057	0.016	0.030	0.000	0.000
HF	S22135	22135	0.320	0.170	0.800	0.012	0.001	0.280	0.040	0.025	0.010	0.018	0.001	0.001
HF	S42828	42828	0.330	0.190	0.760	0.009	0.003	0.290	0.050	0.038	0.020	0.022	0.001	0.002
HF	S42775	42775	0.300	0.170	0.730	0.010	0.001	0.300	0.030	0.029	0.010	0.020	0.002	0.002

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) certis conform to ASTM A106 Grade B N°:  
11035963 11039562 11061939 11046784 11045472  
11024527 11045472 11052503 385335 11035963 11035962  
"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.	Notas: 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	 <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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