



**CERTIFICADO DE CALIDAD  
INSPECTION CERTIFICATE  
(DIN EN 10204:2004E - ISO 10474 3.1.B)**

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Tubos de Acero de Mear S.A.  
Carr. Mérida-Laredo Km 24.2  
Apartado Postal 43  
595500 C. de Tlaxiaco, N.L. Méx.  
Tel: 81 8305 9608188  
Fax: 81 8305 9630188

Vendido a: Sold to:	PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	5960 - 5939 - 5962 - 5945	Lista de Empaque: Packing List:	12617	Fecha/Date:	12 de Abril de 2011
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 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 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T51525	6	CODO 16 X 45° CED-STD	327	489	43	124					
2	T53775	200	CODO 6 X 90° R.L. CED-STD.	325	487	39	124					
3	T51887	17	CODO 10 X 45° CED-STD	332	502	38	102					
4	S32307	360	CODO 2 1/2 X 45° CED-STD	314	485	31	122					
5	S31050	1741	CODO 1 1/2 X 90° R.L. CED-STD.	367	534	32	130					
6	T52308	6	RED. CONC. 6 X 5 CED-STD	315	484	42	122					
7	S31050	369	CODO 1 1/4 X 90° R.L. CED-STD	367	534	32	130					
8	S33571	17	CODO 3 X 90° R.C. CED-XS	298	469	31	137					
9	S31050	200	CODO 1 1/4 X 45° CED-STD	367	534	32	130					
10	S31050	204	CODO 1 1/2 X 45° CED-STD	367	534	32	130					
11	S23663	100	RED. CONC. 2 1/2 X 1 1/2 CED-STD	359	555	50	117					

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	T51525	51525	0.320	0.190	0.680	0.014	0.002	0.280	0.040	0.063	0.016	0.030	0.000	0.000	
HF	T53775	53775	0.320	0.180	0.700	0.011	0.001	0.300	0.060	0.059	0.028	0.030	0.000	0.000	
HF	T51887	51887	0.340	0.160	0.820	0.009	0.001	0.260	0.050	0.062	0.023	0.040	0.000	0.000	
HF	S32307	22307	0.330	0.190	0.710	0.012	0.002	0.260	0.050	0.039	0.010	0.028	0.001	0.001	
HF	S31050	31050	0.330	0.190	0.760	0.007	0.002	0.270	0.030	0.023	0.010	0.013	0.001	0.000	
CF	T52308	52308	0.310	0.180	0.690	0.012	0.001	0.280	0.030	0.063	0.023	0.030	0.000	0.000	
HF	S31050	31050	0.330	0.190	0.760	0.007	0.002	0.270	0.030	0.023	0.010	0.013	0.001	0.000	
HF	S33571	33571	0.320	0.190	0.710	0.010	0.003	0.290	0.030	0.027	0.010	0.016	0.001	0.000	
HF	S31050	31050	0.330	0.190	0.760	0.007	0.002	0.270	0.030	0.023	0.010	0.013	0.001	0.000	
HF	S31050	31050	0.330	0.190	0.760	0.007	0.002	0.270	0.030	0.023	0.010	0.013	0.001	0.000	
CF	S23663	23663	0.340	0.200	0.720	0.011	0.002	0.290	0.040	0.076	0.020	0.033	0.001	0.002	

Certificamos que los resultados de los Analisis Quimicos 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°: 10049515 11012972 10055457 468319 479680 11012160 479680 479005 479680 479680 395159

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°: 10049515 11012972 10055457 468319 479680 11012160 479680 479005 479680 479680 395159

"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".

Notes:  
Formado en caliente a 520°C-660°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

**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.

CC-008