

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

Tubos de Acero de México, S.A.  
Carr. Wty-Laredo Km 24.2  
Apartado Postal 43  
(65550) C. de Flores, N.L. Méx.  
(52) 81 8305 9600 tel.  
(52) 81 8305 9620 fax.

Vendido a:	PROVEEDORA DE MATERIALES ANGER, S.A. DE C.V.	Pedido del Cliente No:	7831 -	Lista de Empaque:	1 5989	Fecha/Date:	7 de octubre de 2016
Especificaciones y Grados / Standard or Specification and Steel Grade		Customers Order No:		Packing List:		Factural/invoice:	Bocas / Ends Biselado / Bevelled ends
Seamless Fittings according to ASTM A 234 WPB-13e							
Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB							

ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION	PRUEBAS MECANICAS / MECHANICAL TEST			PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C					
				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	T80806	5	CODO 16 X 45° CED-STD	337	492	41	135					
2	T80981	32	TBE 4 CED-STD	322	487	41	146					
3	T80753	8	TBE 4 CED-STD	335	515	39	144					

**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	Comentarios
HF	T80806	80806	0.300	0.170	0.680	0.004	0.001	0.270	0.020	0.060	0.012	0.030	0.000	0.000	de Materia Prima (Tubería Sin Costura) conforme ASTM A106 Grado B con N°.
HF	T80981	80981	0.340	0.180	0.830	0.008	0.002	0.300	0.060	0.056	0.022	0.040	0.000	0.000	We certify that result of chemical analysis and mechanical test are true and correct.
HF	T80753	80753	0.310	0.170	0.700	0.007	0.001	0.280	0.040	0.078	0.019	0.040	0.000	0.000	copy of the test certificate issued by the manufacturer and/or supplier Raw material (Seamless Pipe) certs conform to ASTM A106 Grade B N°:

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°.

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°:

16011801 16019902 16019902

**Notes:**

Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'.

**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'.

Inspección Dimensional: Satisfactoria.

Visual dimensional check: Satisfactory

HF: FORMADO EN CALIENTE/HOT FORMED

CF: FORMADO EN FRIO/COLD FORMED



Quality Manager/Jefe de Calidad:  
ING. ALFONSO ORTEGA GARCIA

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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