



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

Numero: 20830  
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Tubos de Acero de México, S.A.  
Carr. Mty-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: 5256 - 5240 - 5254 - 5238 - 5260 -  
Sold to: DE C.V. Customers Order No:  
Lista de Empaque: 10731  
Fecha/Date: 14 de Agosto de 200

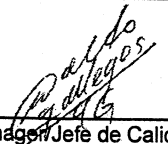
Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless Fittings according to ASTM A 234"M" WPB-97, A234"M" WPB-05a, NACE MR 01.75-2003  
Conform to ASME II Ed. 2001 ASME SA-234"M", Grade WPB, NACE MR0103-2003  
Dimensiones y tolerancias / Dimension and tolerances  
ASME B 16.9 - 2003 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
12	T40182	20	CODO 8 X 45° CED-STD	340	481	31	95					
13	S21171	120	CODO 2 1/2 X 45° CED-STD	327	500	31	122					
14	S22620	46	CODO 1 1/4 X 90° R.L. CED-STD	325	530	45	137					
15	T40571	10	RED. CONC. 8 X 4 CED-XS	306	481	44	111					
16	T39736	24	TEE 10 CED-STD	311	476	45	118					
17	S27721	50	RED. CONC. 4 X 2 CED-STD	288	473	33	105					
18	S22585	50	RED. CONC. 2 1/2 X 1,1/2 CED-STD	339	499	32	109					
19	T37155	19	TEE RED. 6 X 2 CED-STD	327	471	37	96					

ANALISIS QUIMICO / CHEMICAL ANALYSIS															Certificamos que los resultados de los Analisis Quimicos y Pruebas Mecanicas 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°: 8043135 369597 7043236 8039770 8037858 434116 383521 7058617
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	T40182	40182	0.310	0.170	0.680	0.013	0.002	0.270	0.070	0.063	0.009	0.030	0.000	0.000	
HF	S21171	21171	0.310	0.180	0.740	0.010	0.001	0.290	0.010	0.018	0.010	0.010	0.001	0.002	
HF	S22620	22620	0.320	0.180	0.770	0.013	0.001	0.250	0.050	0.021	0.010	0.022	0.001	0.001	
CF	T40571	40571	0.300	0.170	0.690	0.009	0.004	0.280	0.040	0.057	0.009	0.030	0.000	0.000	
HF	T39736	39736	0.290	0.160	0.680	0.008	0.001	0.260	0.040	0.049	0.010	0.020	0.000	0.000	
CF	S27721	27721	0.340	0.200	0.740	0.011	0.001	0.290	0.040	0.050	0.010	0.027	0.001	0.002	
CF	S22585	22585	0.310	0.170	0.760	0.011	0.001	0.290	0.040	0.027	0.010	0.022	0.001	0.002	
HF	T37155	37155	0.300	0.170	0.680	0.011	0.002	0.270	0.060	0.039	0.015	0.020	0.000	0.000	

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

  
**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.