



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

Tubos de Acero de México, S.A.
Sant. My-Laredo Km 24.2
Apartado Postal 43
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Vendido a:	PROVEEDORA DE MATERIALES ANGER, S.A.	Pedido del Cliente No:	5282 - 5282 - 5275 -	Lista de Empaque:	1 0818	Fecha/Date:	12 de Septiembre de 2008
Sold to:	DE C.V.	Customers Order No:		Packing List:		Factura/Invoice:	Bocas / Ends
Dimensiones y tolerancias	Dimensiones y tolerancias / Dimension and tolerances			Factura/Invoice:	Biselado / Bevelled ends		

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	S25836	20	CODO 6 X 90° R.C. CED-STD	283	459	33	98						
2	T40846	6	CODO 16 X 90° R.L. CED-XS	321	492	46	124						
3	T40745	30	CODO 8 X 90° R.L. CED-XS	298	472	42	118						
4	S21171	570	CODO 2 1/2 X 90° R.L. CED-STD	327	500	31	116						
5	T40156	4	CODO 14 X 90° R.L. CED-40	325	524	42	122						
6	T38541	1	CODO 14 X 90° R.L. CED-40	243	438	36	100						
7	T38642	4	RED. CONC. 16 X 12 CED-XS	326	464	40	94						

PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	ANALISIS QUIMICO / CHEMICAL ANALYSIS												
			%C	%E	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb	
HF	S25836	25836	0.320	0.180	0.750	0.010	0.002	0.300	0.030	0.036	0.010	0.020	0.001	0.001	
HF	T40846	40846	0.310	0.190	0.650	0.010	0.004	0.300	0.040	0.048	0.012	0.020	0.001	0.000	
HF	T40745	40745	0.290	0.170	0.670	0.009	0.001	0.280	0.030	0.042	0.005	0.020	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	T40156	40156	0.300	0.170	0.700	0.011	0.001	0.290	0.040	0.049	0.006	0.030	0.000	0.000	
HF	T38541	38541	0.310	0.180	0.680	0.007	0.002	0.290	0.050	0.073	0.014	0.040	0.000	0.000	
CF	T38642	38642	0.310	0.170	0.670	0.012	0.002	0.270	0.040	0.050	0.040	0.090	0.000	0.000	

Notes:
 Formado en caliente a 620°C-680°C, enfriado al
 Hot formed fittings in a range from 620°C to 680°C, cooled in air.
 Afer. Formado en frío normalizado a 840°C max.
 Cold formed normalized at 840°C max.
 Tiempo de permanencia 10'.
 Holding time 10'.
 Inspección Dimensional: Satisfactoria.
 Visual dimensional check: Satisfactory
 HF: FORMADO EN CALIENTE/HOT FORMED
 CF: FORMADO EN FRIJO/COLD FORMED

Notes:
 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.

Quality Manager
 Ing. Waldo Gallegos Galvan

 CC-008