



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

Tubos de Acero de México, S.A.
Carr. Mtz.-Laredo Km 24.2
Apartado Postal 43
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Vendido a: **PROVEEDORA DE MATERIALES ANGER, S.A.**
DE C.V.
Pedido del Cliente No: **5274 - 5271 -**
Customers Order No: **Dimensiones y tolerancias / Dimension and tolerances**
ASME B 16.9 - 2003 and ASME B 16.28 - 1994Factura/Invoice: **Bocas / Ends**
Biselado / Bevelled endsFecha/Date: **18 de Septiembre de 200**

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)	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T41467	200	CODO 6 X 90° R.I. CED-STD.	322	505	42	137				
2	T41467	288	CODO 6 X 45° CED-STD	322	505	42	137				
3	S23751	100	RED. CONC. 2 X 1 CED-STD	345	511	29	120				
4	T39645	5	TEE 6 CED-STD	309	522	35	97				
5	T39049	1	TEE 6 CED-STD	267	468	40	97				
6	T40571	19	TEE 6 CED-STD	348	496	31	106				
7	S29142	200	CODO 2 X 45° CED-XS	317	491	31	120				
8	S21172	75	CODO 4 X 45° CED-XS	467	478	39	105				
9	S48650	4	CODO 4 X 45° CED-XS	332	478	36	107				
10	S20540	121	CODO 4 X 45° CED-XS	309	486	37	106				

ANALISIS QUIMICO / CHEMICAL ANALYSIS

PROCESO PROCESS	COLADA HEAT CODE	M.P./MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T41467	41467	0.330	0.190	0.740	0.009	0.002	0.280	0.040	0.061	0.005	0.030	0.000	0.000
HF	T41467	41467	0.330	0.190	0.740	0.009	0.002	0.280	0.040	0.061	0.005	0.030	0.000	0.000
CF	S23751	23751	0.340	0.180	0.800	0.009	0.001	0.300	0.060	0.040	0.030	0.025	0.001	0.002
HF	T39645	39645	0.300	0.170	0.670	0.009	0.001	0.280	0.050	0.047	0.008	0.030	0.000	0.000
HF	T39049	39049	0.300	0.170	0.670	0.010	0.002	0.280	0.050	0.056	0.010	0.030	0.000	0.000
HF	T40571	40571	0.300	0.170	0.690	0.009	0.004	0.280	0.050	0.057	0.010	0.030	0.000	0.000
HF	S29142	29142	0.340	0.190	0.770	0.010	0.001	0.280	0.040	0.034	0.030	0.034	0.001	0.000
HF	S21172	21172	0.320	0.180	0.780	0.012	0.001	0.290	0.020	0.021	0.010	0.016	0.001	0.002
HF	S48650	48650	0.330	0.190	0.750	0.010	0.001	0.300	0.050	0.040	0.010	0.028	0.001	0.001
HF	S20540	20540	0.320	0.180	0.770	0.013	0.001	0.280	0.050	0.038	0.010	0.022	0.001	0.001

NOTES:
Hot formed fittings in a range from 620°C to 800°C, cooled in still air.
Cold formed normalized at 940°C max.
Holding time: 10'.
Visual dimensional check: Satisfactory
CF: FORMADO EN FRIOCOLD FORMED

Quality Manager/Jeft de Calidad:
[Signature]
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.

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.

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 (Tuberías 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°. 8049483 8049483 412884 8027219 8018567 8038616 44329 369604 346340 365216

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