

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

Numero: 10413  
Página/Page: 1 DE 1  
Fecha/Date: JULIO 9 de 2003  
Tubos de Acero de México, S.A.  
Km 433.7 Carr. México-Veracruz  
Via Xalapa (91697) Veracruz, Ver. México  
(52) 229 989 1100 tel  
(52) 229 989 1120 fax


Vendido A: **TUBOS CONEXIONES Y TANQUES, S.A. DE C.V.**  
Sold to: **TUBOS CONEXIONES Y TANQUES, S.A. DE C.V.**  
Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless Fittings according to ASTM/ASME A5A 234 WPB - NACE MR 01.75 ed. 02 -  
Conform to ASME II Ed. 2001  
Pedido del cliente No: **6172, 6179, 6225, 6366,**  
Customers Order No: **6367 / 6369**  
Dimensiones y tolerancias / Dimension and tolerances  
ASME B 16.9 and ASME B 16.28 edition 2001  
Lista de empaque: **6079**  
Packing List: **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 HB	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	TEU5	4	TEE RED. 12 X 6 CED STD	322	490	43	140	N/A	N/A	N/A	N/A	N/A
2	TAO5	4	TEE RED. 12 X 6 CED STD	313	498	34	143	N/A	N/A	N/A	N/A	N/A
3	QG5	4	TEE RED. 6 X 3 CED XS	290	473	43	144	N/A	N/A	N/A	N/A	N/A
4	TVQ5	15	CODO R.L. 6 X 90 CED XS	278	486	42	135	N/A	N/A	N/A	N/A	N/A
5	SUV5	200	CODO 4 X 45 CED STD	333	488	34	135	N/A	N/A	N/A	N/A	N/A
6	CKX5	15	TEE RED. 2 X 1 CED STD	353	469	42	134	N/A	N/A	N/A	N/A	N/A
7	TA5	85	CODO R.L. 6 X 90 CED XS	317	491	42	139	N/A	N/A	N/A	N/A	N/A
8	TWK5	120	CODO R.L. 8 X 90 CED STD	308	477	40	135	N/A	N/A	N/A	N/A	N/A

**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
CF	TEU5	95851	0.3220	1.80	0.710	0.006	0.003	0.280	0.040	0.078	0.034	0.048	0.000	0.000
CF	TAO5	95080	0.3270	1.85	0.635	0.012	0.002	0.290	0.062	0.181	0.040	0.050	0.002	0.000
CF	QG5	99646	0.2990	1.70	0.650	0.007	0.004	0.260	0.040	0.079	0.024	0.040	0.000	0.000
HF	TVQ5	11195	0.3150	1.80	0.690	0.011	0.002	0.310	0.040	0.065	0.024	0.040	0.000	0.000
HF	SUV5	24824	0.3360	1.90	0.790	0.007	0.001	0.310	0.030	0.040	0.020	0.020	0.001	0.001
CF	CKX5	44347	0.2980	1.70	0.640	0.013	0.002	0.240	0.030	0.001	0.030	0.130	0.001	0.000
HF	TA5	10406	0.3240	1.80	0.750	0.012	0.003	0.290	0.040	0.061	0.024	0.030	0.000	0.000
HF	TWK5	11793	0.3100	1.80	0.670	0.008	0.002	0.280	0.040	0.081	0.023	0.004	0.000	0.000

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 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 certs N°:  
02006460  
02003788  
03001182  
161656  
41650  
03009199

Formado en caliente a 780°C-940°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permeancia 10'.  
Hot formed fittings in a range from 780°C to 940°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  
Gerente de Aseguramiento de Calidad:   
Quality Assurance Manager: ING. JOSE MARTINEZ MACIAS  
CC-008