



Tamsa

Tenaris Group

CERTIFICADO DE CALIDAD INSPECTION CERTIFICATE

Numero: 10655
Pagina/Page: 1 DE 1

Tubos de Acero de México, S.A.
Km 433.7 Carr. México-Veracruz
Via Xalapa
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Fecha/Date: **AGOSTO 25 de 2003**

Vendido A: **TUBOS CONEXIONES Y TANQUES, SA. DE C.V.**

Sold to: **TUBOS CONEXIONES Y TANQUES, SA. DE C.V.**

Pedido del cliente No: **6366, 6700**

Customers Order No: **6366, 6700**

Dimensiones y tolerancias / Dimension and tolerances

ASME B 16.9 and ASME B 16.28 edition 2001

Lista de empaque: **6182**

Packing List: **Biselado / Bevelled ends**

Bocas / Ends

Conform to ASME II Ed. 2001

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	ESTR. CEDENCIA YIELD STRENGTH (MPa)	ESTR. RUPTURA TENSILE STRENGTH (MPa)	ELONG. %2"	DUREZA HARDNESS HB	DIMENSIONES SAMPLE DIM (mm)	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	TWLS	18	CODO R.L. 8 X 90 CED STD	296	500	39	137	N/A	N/A	N/A	N/A	N/A
2	TSP5	8	RED. CONC. 12 X 6 CED STD	340	502	43	137	N/A	N/A	N/A	N/A	N/A
3	JY5	50	RED. CONC. 3 X 2 CED STD	337	491	34	141	N/A	N/A	N/A	N/A	N/A
4	SWA5	50	RED. CONC. 4 X 3 CED STD	310	460	40	137	N/A	N/A	N/A	N/A	N/A
5	TYA5	1	TEE RED. 6 X 3 CED XS	309	487	43	139	N/A	N/A	N/A	N/A	N/A
6	TAB5	6	TEE RED. 6 X 4 CED STD	336	491	36	144	N/A	N/A	N/A	N/A	N/A
7	TGF5	1	TEE RED. 6 X 4 CED STD	322	478	42	135	N/A	N/A	N/A	N/A	N/A
8	TXP5	36	TEE RED. 6 X 4 CED STD	323	491	46	144	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
HF	TWLS	11794	0.3550	0.190	0.820	0.011	0.002	0.290	0.060	0.095	0.035	0.040	0.000	0.000
CF	TSP5	10025	0.3280	0.180	0.740	0.007	0.003	0.280	0.060	0.092	0.024	0.030	0.000	0.000
CF	JY5	22138	0.3150	0.180	0.730	0.010	0.001	0.310	0.030	0.050	0.010	0.020	0.001	0.001
CF	SWA5	24822	0.3240	0.190	0.740	0.007	0.001	0.290	0.020	0.040	0.010	0.020	0.001	0.001
CF	TYA5	12167	0.3180	0.180	0.700	0.010	0.001	0.280	0.050	0.075	0.020	0.040	0.000	0.000
CF	TAB5	95111	0.3120	0.175	0.615	0.009	0.002	0.270	0.040	0.127	0.048	0.030	0.032	0.000
CF	TGF5	97024	0.3260	0.180	0.730	0.010	0.003	0.290	0.060	0.074	0.022	0.040	0.000	0.000
CF	TXP5	12167	0.3270	0.190	0.690	0.010	0.018	0.280	0.050	0.077	0.020	0.040	0.000	0.000

Notes: Formado en caliente a 780°C-940°C, enfriado al aire; Formado en frío normalizado a 940°C max. Holding time 10'. Visual dimensional check. Satisfactory. CF: FORMADO EN FRIO/COLD FORMED

Gerente de Aseguramiento de Calidad: **ING. JOSE MARTINEZ MACIAS**

Quality Assurance Manager:

CC-008