

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

Numero:  
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Tubos de Acero de Mexico, S.A.  
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 Via Xalapa  
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Vendido a:  
 Purchased by:

Pedido del cliente No:  
 Customers Order No:

Lista de empaque:  
 Packing List:

Fecha/Date: 21 de 2003

Especificaciones y Grados / Standard or Specification and Steel Grade  
 Seamless Fittings according to ASTM/ASME ASA 234 WPB - NACE MR 01.75 ed. 02 -  
 Conform to ASME II Ed. 2001

Dimensiones y tolerancias / Dimension and tolerances  
 ASME B 16.9 and ASME B 16.28 edition 2001

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. RUP.TURA / TENSILE STRENGTH (MPa)	ELONG. / %2"	DUREZA / HARDNESS HB	DIMENSIONES / SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO / AVERAGE Joules
1	TN25	5	RED. CONC. 16 X 10 STD	355	492	46	144	N/A	N/A	N/A	N/A	N/A
2	TXP5	10	RED. CONC. 8 X 4 STD	323	491	46	144	N/A	N/A	N/A	N/A	N/A
3	TU55	20	RED. CONC. 6 X 5 STD	312	494	42	132	N/A	N/A	N/A	N/A	N/A
4	TXP5	25	RED. CON. 8 X 6 STD	323	491	46	144	N/A	N/A	N/A	N/A	N/A
5	TRW5	25	RED. CONC. 8 X 6 STD	321	476	44	139	N/A	N/A	N/A	N/A	N/A
6	TWZ5	3	RED. CONC. 14 X 8 STD	311	482	43	139	N/A	N/A	N/A	N/A	N/A
7	IX5	5	RED. CONC. 4 X 3 XS	316	499	32	141	N/A	N/A	N/A	N/A	N/A
8	IB5	10	RED. EXC. 4 X 3 STD	320	462	38	156	N/A	N/A	N/A	N/A	N/A
9	SWA5	20	RED. CONC. 4 X 2 STD	310	460	40	137	N/A	N/A	N/A	N/A	N/A
10	SZ5	20	RED. CONC. 4 X 2 1/2 STD	333	468	39	156	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	TN25	98847	0.3070	0.170	0.650	0.010	0.002	0.270	0.070	0.064	0.040	0.030	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
CF	TU55	10406	0.3340	0.190	0.740	0.013	0.002	0.290	0.050	0.061	0.025	0.030	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
CF	TRW5	99646	0.3090	0.180	0.650	0.007	0.000	0.260	0.040	0.080	0.024	0.040	0.000	0.000
CF	TWZ5	10327	0.3140	0.180	0.660	0.006	0.002	0.270	0.050	0.074	0.033	0.040	0.000	0.000
CF	IX5	96135	0.3160	0.180	0.660	0.006	0.002	0.290	0.050	0.077	0.043	0.040	0.000	0.000
CF	IB5	45137	0.3210	0.180	0.650	0.008	0.002	0.230	0.070	0.120	0.030	0.060	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	SZ5	48349	0.3290	0.140	1.030	0.010	0.001	0.260	0.030	0.080	0.020	0.020	0.001	0.001

Notas:  
 Formado en caliente a 780°C-940°C, enfriado al aire; Formado en frío normalizado a 940°C max.  
 Hot formed fittings in a range from 780°C to 940°C. Cooled in still air.  
 Cold formed normalized at 940°C max.  
 Tiempo de permanencia 10' / Holding time 10'  
 Inspección Dimensional Satisfactoria / Visual dimensional check Satisfactory.  
 CF: FORMADO EN CALIENTE/HOT FORMED / CF: FORMADO EN FRIO/COLD FORMED

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 serials N°:  
 02018701 03011290 03004116  
 03002508 03007581 02008108  
 42376 161657 03003742

Gerente de Aseguramiento de Calidad:  
 Quality Assurance Manager:  
 ING. JOSE MARTINEZ MACIAS

CC-008