

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

Tubos de Acero de México, S.A.  
Carr. Mty-Laredo Km 24.2  
Apartado Postal 43  
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Vendido a: PLESA ANAHUAC Y CIA. S.A. DE C.V.

Pedido del Cliente No: 5405-5406-5345-5344  
Customers Order No:

Lista de Empaque: 11045  
Packing List:

Fecha/Date: 21 de Noviembre de 2008

Especificaciones y Grados / Standard or Specification and Steel Grade  
Seamless Fittings according to ASTM A 234"W", WPB-07, A234"W", WPB-05a, NACE MR 0175-2003  
Conform to ASME II Ed. 2001 ASME SA-234"W", Grade WPB, NACE MR0103-2003

Dimensiones y tolerancias / Dimension and tolerances  
ASME B 16.9 - 2007 and ASME B 16.28 - 1994

Factura/Invoice: Bocas / Ends  
Biselado / Bevelled ends

Numero: 21602  
Number: 21602  
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ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION	ANALISIS QUIMICO / CHEMICAL ANALYSIS										PRUEBAS MECANICAS / MECHANICAL TEST				PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C						
				%C	%E	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb	ESF. YIELD STRENGTH (Mpa)	ESF. RUPURA TENSILE STRENGTH (Mpa)	ELONG. %2"	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
12	S20539	46	CODO 4 X 90° R.I. CED-XS	0.330	0.190	0.750	0.013	0.001	0.300	0.050	0.032	0.020	0.022	0.001	0.001	0.001	102							
13	S45280	25	CODO 1 1/2 X 90° R.I. CED-STD.	0.323	0.180	0.730	0.010	0.001	0.300	0.050	0.055	0.020	0.048	0.001	0.000	0.000	122							
14	T41645	10	TEE RBD. 8 X 6 CED-STD	0.310	0.180	0.660	0.013	0.002	0.280	0.050	0.051	0.009	0.030	0.000	0.000	0.000	118							
15	T40571	1	TEE 6 CED-STD	0.300	0.170	0.690	0.009	0.004	0.280	0.050	0.057	0.010	0.030	0.000	0.000	0.000	106							
16	T32956	1	TEE 6 CED-STD	0.300	0.170	0.660	0.009	0.004	0.280	0.050	0.055	0.019	0.030	0.000	0.000	0.000	110							
17	T39958	48	TEE 6 CED-STD	0.300	0.170	0.660	0.008	0.001	0.260	0.050	0.058	0.007	0.030	0.000	0.000	0.000	136							
18	T40042	2	TEE RBD. 10 X 4 CED-STD	0.310	0.180	0.670	0.012	0.001	0.270	0.040	0.052	0.006	0.020	0.000	0.000	0.000	109							
19	S45280	36	CODO 1 1/2 X 45° CED-STD	0.330	0.180	0.730	0.010	0.001	0.300	0.050	0.055	0.020	0.048	0.001	0.000	0.000	122							
20	S33992	1	CODO 2 X 45° CED-XS	0.330	0.130	1.110	0.002	0.012	0.270	0.030	0.037	0.030	0.015	0.001	0.001	0.001	116							
21	S29143	8	CODO 2 X 45° CED-XS	0.330	0.190	0.740	0.008	0.002	0.280	0.040	0.031	0.030	0.024	0.001	0.000	0.000	101							
22	S45663	5	CODO 2 X 45° CED-XS	0.310	0.180	0.730	0.009	0.001	0.300	0.030	0.022	0.020	0.017	0.001	0.002	0.002	120							

PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	%C	%E	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	S20539	20539	0.330	0.190	0.750	0.013	0.001	0.300	0.050	0.032	0.020	0.022	0.001	0.001
HF	S45280	45280	0.323	0.180	0.730	0.010	0.001	0.300	0.050	0.055	0.020	0.048	0.001	0.000
HF	T41645	41645	0.310	0.180	0.660	0.013	0.002	0.280	0.050	0.051	0.009	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	T32956	32956	0.300	0.170	0.660	0.009	0.004	0.280	0.050	0.055	0.019	0.030	0.000	0.000
HF	T39958	39958	0.300	0.170	0.670	0.008	0.001	0.260	0.050	0.058	0.007	0.030	0.000	0.000
HF	T40042	40042	0.310	0.180	0.670	0.012	0.001	0.270	0.040	0.052	0.006	0.020	0.000	0.000
HF	S45280	45280	0.323	0.180	0.730	0.010	0.001	0.300	0.050	0.055	0.020	0.048	0.001	0.000
HF	S33992	33992	0.330	0.130	1.110	0.002	0.012	0.270	0.030	0.037	0.030	0.015	0.001	0.001
HF	S29143	29143	0.330	0.190	0.740	0.008	0.002	0.280	0.040	0.031	0.030	0.024	0.001	0.000
HF	S45663	45663	0.310	0.180	0.730	0.009	0.001	0.300	0.030	0.022	0.020	0.017	0.001	0.002

Notes:  
Formado en caliente a 620°C-980°C, enfriado al aire.  
Hot formed fittings in a range from 620°C to 980°C, cooled in still air.  
Time of 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/ Jefe de Calidad:  
ING. WALDO GALLEGOS GALVAN