Tenaris

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
(65550) C. de Flores, N.L. Méx.
(52) 81 8305 9600 tel
(52) 81 8305 9620 fax

Numero: Number:	Pagina/Page:
21243	1 DE 1

Vendido a:
Sold to: TUVANSA MONTERREY

Pedido del Cliente No:
Customers Order No: 4671 - 4157 -

Lista de Empaque:
Packing List: 10913

Fecha/Date: 13 de Octubre de 2008

Especificaciones y Grados / Standard or Specification and Steel Grade
Seamless Fittings according to ASTM A 234"M" WPB-97, A234"M" WPB-05a, NACE MR 01.75-2003
Conform to ASME II Ed. 2001 ASME SA-234"M",Grade WPB, NACE MR0103-2003

Dimensiones y tolerancias / Dimension and tolerances
ASME B 16.9 - 2003 and ASME B 16.28 - 1994

Factura/Invoice:
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 HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T41224	22	CODO 6 X 90° R.L. CED-STD.	321	488	33	118					
2	T41467	178	CODO 6 X 90° R.L. CED-STD.	341	483	38	149					
3	S28276	170	CODO 6 X 90° R.L. CED-XS	326	482	33	89					
4	T40518	36	CODO 12 X 90° R.L. CED-STD	358	503	31	108					
5	T41467	32	CODO 8 X 90° R.L. CED-STD	326	503	34	118					
6	T41466	148	CODO 8 X 90° R.L. CED-STD	276	471	39	109					

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	T41224	41224	0.300	0.170	0.660	0.016	0.001	0.290	0.050	0.048	0.018	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
HF	S28276	28276	0.330	0.190	0.720	0.008	0.001	0.270	0.040	0.029	0.020	0.029	0.001	0.001
HF	T40518	40518	0.300	0.170	0.680	0.008	0.002	0.280	0.060	0.057	0.013	0.030	0.000	0.000
HF	T41467	41467	0.310	0.180	0.670	0.010	0.001	0.280	0.040	0.061	0.005	0.030	0.000	0.000
HF	T41466	41466	0.310	0.180	0.670	0.010	0.002	0.280	0.040	0.061	0.006	0.030	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 (Tubería Sin Costura) conforme ASTM A106 Grado B con Nº:
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 suplier Raw material (Seamless Pipe) certs conform to ASTM A106 Grade B Nº.
8048846 8048846 433163 8043807 8054635 8052559

"Este material cumple con los requerimientos especificados en la orden".
"The material of this certificate heat number mentioned above is in conformance with the requirements specified in the order".

Notas:
Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frio normalizado a 940°C max.
Tiempo de permanencia 10'.
Inspección Dimensional: Satisfactoria.
HF: FORMADO EN CALIENTE/HOT FORMED

Notes:
Hot formed fittings in a range from 620°C to 980°C, cooled in still air.
Cold formed normalized at 940°C max.
Holding time 10'
Visual dimensional check: Satisfactory
CF: FORMADO EN FRIO/COLD FORMED

Quality Manager/Jefe de Calidad:
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.