Tenaris

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

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Tubos de Acero de México, S.A.
Carr. Mty-Laredo Km 24.2
Apartado Postal 43
(66550) C. de Flores, N.L. Méx.
(52) 81 8305 9600 tel
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Vendido a: / Sold to: TUVANSA MONTERREY	Pedido del Cliente No: / Customers Order No: 4887 - 4157 - 4671	Lista de Empaque: / Packing List: 10682	Fecha/Date: 30 de Julio 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	S21171	488	CODO 2 1/2 X 90° R.L. CED-STD	327	500	31	116					
2	S45280	120	CODO 3 X 90° R.C. CED-XS	323	485	35	123					
3	T31643	5	RED. CONC. 10 X 6 CED-XS	315	481	31	86					
4	T32354	3	TEE RED. 10 X 4 CED-STD	346	481	37	84					
5	T34687	13	TEE RED. 10 X 4 CED-STD	344	489	34	84					
6	T37883	4	TEE RED. 10 X 4 CED-STD	330	492	41	120					
7	T40516	12	CODO 12 X 90° R.L. CED-80	293	482	46	120					
8	T39319	5	CODO 12 X 90° R.L. CED-80	260	468	34	92					
9	T40157	3	CODO 12 X 90° R.L. CED-80	290	478	47	118					
10	MC5	21	CODO 1 X 90° R.C. CED-STD	254	432	60	124					
11	LH5	29	CODO 1 X 90° R.C. CED-STD	294	439	52	123					

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	S21171	21171	0.310	0.180	0.740	0.010	0.001	0.290	0.010	0.018	0.010	0.010	0.001	0.002
HF	S45280	45290	0.330	0.180	0.780	0.011	0.003	0.280	0.040	0.048	0.030	0.046	0.001	0.001
CF	T31643	31643	0.330	0.180	0.730	0.009	0.002	0.280	0.070	0.086	0.040	0.030	0.000	0.000
HF	T32354	32354	0.320	0.180	0.690	0.008	0.001	0.260	0.060	0.060	0.021	0.030	0.000	0.000
HF	T34687	34687	0.330	0.180	0.740	0.009	0.002	0.280	0.070	0.084	0.030	0.030	0.000	0.000
HF	T37883	37883	0.330	0.180	0.780	0.011	0.003	0.280	0.040	0.056	0.013	0.030	0.000	0.000
HF	T40516	40516	0.320	0.180	0.720	0.009	0.001	0.280	0.060	0.071	0.008	0.030	0.000	0.000
HF	T39319	39319	0.300	0.180	0.670	0.009	0.002	0.280	0.030	0.049	0.009	0.030	0.000	0.000
HF	T40157	40157	0.300	0.170	0.670	0.010	0.001	0.280	0.040	0.048	0.007	0.030	0.000	0.000
HF	MC5	21646	0.257	0.150	0.540	0.008	0.001	0.209	0.039	0.057	0.019	0.028	0.001	0.000
HF	LH5	21647	0.265	0.150	0.569	0.008	0.001	0.200	0.039	0.054	0.029	0.034	0.001	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 (Tuberia 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:

369597 316357 6045448 7011078 7037387 8009110 8040230 8027239 8040198 T-1128/1 T-1057/1

"Este material cumple con los requerimientos especificados en la orden".

"The material of this certificate heat number mentioned above is in compliance 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.

CC-008