Tenaris

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

Tubos de Acero de Mexico, 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

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Vendido a: Sold to: TUVANSA MONTERREY

Pedido del Cliente No: 6631 - 6633 - 7574
Customers Order No:

Lista de Empaque: Packing List: 11693

Fecha/Date: 4 de Noviembre de 2009

Especificaciones y Grados / Standard or Specification and Steel Grade
Seamless Fittings according to ASTM A 234M WPB-07, NACE MR 01.75-2003
Conform to ASME II Ed. 2001 ASME SA-234M 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

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	Joules	Joules	Joules	PROMEDIO AVERAGE Joules
1	S33942	202	CODO 4 X 90° R.L. CED-STD	317	484	32	140					
2	S28891	253	CODO 4 X 90° R.L. CED-STD	392	508	32	117					
3	S31761	1	CODO 4 X 90° R.L. CED-STD	305	479	32	111					
4	S31625	264	CODO 3 X 90° R.L. CED-STD	331	510	32	124					
5	T42417	100	CODO 6 X 90° R.L. CED-STD	350	483	40	118					
6	T43130	6	CODO 16 X 90° R.L. CED-XS	321	500	44	120					
7	T42699	63	TEE 8 CED-STD	331	522	32	123					
8	T41977	1	TEE 8 CED-STD	303	478	42	114					
9	T42101	50	CODO 8 X 90° R.L. CED-XS	305	472	42	118					
10	S33737	85	CODO 6 X 90° R.L. CED-XS	280	466	37	135					
11	T42699	4	CODO 14 X 90° R.L. CED-40	331	522	32	123					

TUBOS DE ACERO DE MEXICO, S.A.

CONTROL DE CALIDAD

FECHA 17 JUN 2010

FIRMA E. RUIZ

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	S33942	33942	0.320	0.180	0.730	0.014	0.001	0.290	0.040	0.069	0.010	0.032	0.001	0.000
HF	S28891	28891	0.320	0.180	0.730	0.011	0.003	0.260	0.040	0.024	0.010	0.028	0.001	0.000
HF	S31761	31761	0.320	0.180	0.740	0.008	0.001	0.250	0.040	0.042	0.010	0.023	0.001	0.000
HF	S31625	31625	0.310	0.170	0.750	0.012	0.002	0.260	0.040	0.034	0.010	0.016	0.001	0.001
HF	T42417	42417	0.320	0.190	0.650	0.013	0.001	0.300	0.040	0.059	0.026	0.040	0.000	0.000
HF	T43130	43130	0.330	0.190	0.750	0.012	0.001	0.280	0 060	0.043	0.012	0.030	0 000	0.000
HF	T42699	42699	0.350	0.190	0.840	0.018	0.001	0.320	0.040	0.062	0.023	0.020	0 000	0.000
HF	T41977	41977	0.300	0.170	0.660	0.012	0.002	0.270	0.040	0.048	0.011	0.030	0.000	0.000
HF	T42101	42101	0.300	0.170	0.680	0.008	0.002	0.300	0.050	0.045	0.016	0.030	0.000	0 000
HF	S33737	33737	0.340	0.200	0.750	0.009	0.001	0.270	0.040	0.034	0 010	0 017	0.001	0 002
HF	T42699	42699	0.350	0.190	0.840	0.018	0.001	0.320	0.040	0.062	0.023	0.020	0.000	0.000

Certificamos que los resultados de los Analisis Quimicos y Pruebas Mecánicas 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:

480575 450995 462049 460632 9053819 9008083 9002217 9033565 9002032 479806 9002217

"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".

Notes:
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.