

Tenaris

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

Número:
Number: 22688
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Vendido a: Sold to: TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No: 6633 - 6631 - 6990	Lista de Empaque: Packing List: 11563	Fecha/Date: 8 de Agosto 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	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T41140	1	CODO 16 X 90° R.L. CED-XS	245	481	37	115					
2	T43130	8	CODO 16 X 90° R.L. CED-XS	321	500	44	120					
3	T24282	2	CODO 4 X 45° CED-STD	350	484	41	122					
4	T15277	9	CODO 4 X 45° CED-STD	335	479	27	122					
5	T21775	7	CODO 4 X 45° CED-STD	359	456	40	112					
6	T42340	72	CODO 12 X 90° R.L. CED-STD	321	492	42	118					
7	T42699	20	TEE RED. 8 X 6 CED-STD	331	522	32	123					
8	T43376	20	CODO 12 X 90° R.L. CED-40	343	503	33	105					
9	T41487	20	TEE RED. 6 X 3 CED-STD	259	478	34	101					
10	T41224	5	RED. CONC. 6 X 2 1/2 CED-STD	317	487	36	112					
11	T43299	10	RED. CONC. 5 X 4 CED-STD	314	476	42	114					

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	T41140	41140	0.320	0.180	0.790	0.010	0.002	0.290	0.030	0.044	0.005	0.020	0.000	0.000
HF	T43130	43130	0.330	0.150	0.750	0.012	0.001	0.280	0.060	0.043	0.012	0.030	0.000	0.000
HF	T24282	24282	0.310	0.170	0.700	0.008	0.001	0.280	0.050	0.071	0.034	0.030	0.000	0.000
HF	T15277	15277	0.340	0.180	0.820	0.008	0.005	0.270	0.060	0.073	0.042	0.040	0.000	0.000
HF	T21775	21775	0.300	0.170	0.660	0.009	0.003	0.300	0.050	0.069	0.024	0.030	0.000	0.000
HF	T42340	42340	0.300	0.170	0.670	0.011	0.003	0.280	0.050	0.065	0.007	0.030	0.000	0.000
HF	T42699	42699	0.340	0.190	0.810	0.018	0.001	0.290	0.040	0.066	0.022	0.030	0.000	0.000
HF	T43376	43376	0.320	0.180	0.700	0.016	0.005	0.280	0.050	0.064	0.013	0.030	0.000	0.000
HF	T41487	41487	0.300	0.170	0.670	0.011	0.000	0.270	0.040	0.057	0.007	0.030	0.000	0.000
CF	T41224	41224	0.310	0.180	0.670	0.014	0.002	0.280	0.050	0.056	0.017	0.030	0.000	0.000
CF	T43299	43299	0.290	0.160	0.660	0.012	0.001	0.280	0.050	0.053	0.012	0.040	0.000	0.000

Certificamos que los resultados de los Análisis Químicos y Pruebas Mecánicas son verdaderos o una copia fiel de los certificados enviados por el Fabricante y/o el proveedor de Matena Prima (Tubería Sin Costura) conforme ASTM A106 Grado B 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 (Seamless Pipe) certf conform to ASTM A106 Grade B N°: 8052694 9008187 5021213 4009660 5014628 9002777 9007701 9022180 8065052 8048841 9012287

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 820°C-880°C, enfriado al
Hot formed fittings in a range from 820°C to 880°C, cooled in still air.
No. Formado en frío normalizado a 940°C max.
Cold formed normalized at: 940°C max.
Tiempo de permanencia 10'.
Holding time 10'.
Inspección Dimensional Satisfactoria.
Visual dimensional check: Satisfactory

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.