Tenaris

Tubos de Acero de México, S.A.
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CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE
(DIN EN 10204:2004E - ISO 10474 3.1.B)

Numero: Number:	Pagina/Page:
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Vendido a: Sold to: PROVEEDORA DE MATERIALES ANCER, S.A. DE C.V.

Pedido del Cliente No: Customers Order No: 5204 - 5196

Lista de Empaque: Packing List: 10462

Fecha/Date: 9 de Mayo 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 MRO 103-2003

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	S24067	528	CODO 3 X 90° R.L. CED-STD	315	479	31	114					
2	S22312	68	CODO 2 1/2 X 90° R.L. CED-STD	324	498	30	123					
3	S45280	600	CODO 1 1/2 X 90° R.L. CED-STD.	357	511	28	122					
4	T20345	168	CODO 1 X 90° R.L. CED-STD	344	500	49	118					
5	S23751	50	RED. CONC. 2 X 1 1/2 CED-STD	345	511	29	120					
6	T22635	7	CODO 5 X 90° R.L. CED-XS	311	455	46	103					
7	S38031	1	CODO 5 X 90° R.L. CED-XS	334	492	35	112					
8	S37410	22	CODO 5 X 90° R.L. CED-XS	335	476	40	139					
9	S45664	20	CODO 2 X 45° CED-XS	309	496	34	130					
10	S38903	1	CODO 5 X 45° CED-XS	326	481	39	99					
11	T22409	10	CODO 5 X 45° CED-XS	396	508	34	116					

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	S24067	24067	0.340	0.190	0.760	0.011	0.001	0.280	0.060	0.061	0.040	0.055	0.001	0.000
HF	S22312	22312	0.320	0.180	0.750	0.011	0.001	0.300	0.030	0.019	0.010	0.011	0.001	0.002
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	T20345	20345	0.340	0.169	0.900	0.010	0.002	0.250	0.044	0.021	0.033	0.025	0.000	0.000
CF	S23751	23751	0.340	0.180	0.800	0.009	0.001	0.300	0.060	0.040	0.030	0.025	0.001	0.002
HF	T22635	22635	0.310	0.170	0.680	0.008	0.000	0.270	0.050	0.070	0.044	0.030	0.000	0.000
HF	S38031	38031	0.322	0.190	0.730	0.011	0.001	0.280	0.020	0.037	0.010	0.018	0.001	0.001
HF	S37410	37410	0.308	0.170	0.720	0.014	0.001	0.290	0.040	0.038	0.030	0.018	0.001	0.001
HF	S45664	45664	0.340	0.200	0.770	0.010	0.001	0.300	0.030	0.022	0.020	0.017	0.001	0.002
HF	S38903	38903	0.324	0.180	0.770	0.009	0.002	0.280	0.030	0.028	0.030	0.021	0.001	0.001
HF	T22409	22409	0.300	0.170	0.670	0.007	0.000	0.270	0.040	0.054	0.017	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:

405032 379462 329135 0 412884 5013270 257247 257541 321679 261372 5013693

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

"The material of this certificate heat number mentioned above is in compilance with the requirements specified in the order".

Notas:

Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frío 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 nomalized 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.