Tubos de Acero de México, S.A.
Carr. Mty-Laredo Km 24.2
Apartado Postal 43
(65550) C. de Flores, N.L. Méx.
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Tenaris

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

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Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 17612 - 17355 - 17081	Lista de Empaque: Packing List: 14797	Fecha/Date: 28 de marzo de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade **Seamless Fittings according to ASTM A 234 WPB-10** **Conform to ASME II Ed. 2001 ASME SA-234,Grade WPB**	Dimensiones y tolerancias / Dimension and tolerances **ASME B 16.9 - 2007**	**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	T68667	20	TEE 6 CED-XS	246	455	38	154					
2	T66648	3	RED. CONC. 8 X 4 CED-STD	267	446	37	158					
3	T68667	12	RED. CONC. 8 X 4 CED-STD	260	472	36	145					
4	T61865	5	RED. CONC. 8 X 4 CED-STD	324	490	41	155					
5	T65689	10	TEE RED. 8 X 6 CED-STD	273	446	39	144					
6	T55033	6	RED. CONC. 16 X 8 CED-STD	327	476	32	146					
7	T69256	10	TEE RED. 6 X 4 CED-XS	293	471	39	161					
8	T66648	10	CODO 10 X 90° R.L. CED-80	307	472	39	142					
9	T68864	40	TEE RED. 8 X 4 CED-STD	309	466	36	144					
10	T62067	5	TEE RED. 10 X 8 CED-80	305	473	40	146					
11	T65548	20	RED. CONC. 12 X 8 CED-STD	318	482	30	143					

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	T68667	68667	0.310	0.180	0.680	0.008	0.002	0.260	0.040	0.062	0.013	0.030	0.000	0.000
CF	T66648	66648	0.290	0.160	0.680	0.009	0.001	0.290	0.040	0.072	0.015	0.040	0.000	0.000
CF	T68667	68667	0.300	0.170	0.670	0.007	0.001	0.260	0.040	0.063	0.013	0.030	0.000	0.000
CF	T61865	61865	0.300	0.170	0.670	0.016	0.001	0.280	0.040	0.053	0.018	0.030	0.000	0.000
HF	T65689	65689	0.320	0.180	0.690	0.008	0.001	0.280	0.060	0.054	0.014	0.030	0.000	0.000
CF	T55033	55033	0.310	0.170	0.690	0.008	0.001	0.280	0.070	0.036	0.026	0.030	0.000	0.000
HF	T69256	69256	0.320	0.180	0.660	0.011	0.001	0.300	0.070	0.070	0.021	0.040	0.000	0.000
HF	T66648	66648	0.300	0.170	0.670	0.008	0.000	0.280	0.040	0.072	0.015	0.040	0.000	0.000
HF	T68864	68864	0.300	0.170	0.670	0.007	0.001	0.290	0.050	0.054	0.017	0.030	0.000	0.000
HF	T62067	62067	0.330	0.190	0.670	0.008	0.001	0.300	0.060	0.066	0.032	0.040	0.000	0.000
CF	T65548	65548	0.310	0.180	0.670	0.012	0.001	0.280	0.040	0.058	0.011	0.030	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 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:

14000656 13067202 13091769 12065456 13047009 13056830 14000634 13067195 14000661 12073168 13047572

"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.

MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-2, 2009 AND NACE MR0103, 2010 ONLY HARDNESS

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Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 17355 -	Lista de Empaque: Packing List: 14797	Fecha/Date: 28 de marzo de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade **Seamless Fittings according to ASTM A 234 WPB-10** **Conform to ASME II Ed. 2001 ASME SA-234,Grade WPB**	Dimensiones y tolerancias / Dimension and tolerances **ASME B 16.9 - 2007**	**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
12	T7537	10	CODO 5 X 45° CED-XS	303	472	39	150					
13	T23030	50	CODO 1 X 45° CED-STD	310	449	49	151					

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	T7537	7537	0.300	0.170	0.720	0.007	0.002	0.270	0.030	0.042	0.008	0.020	0.000	0.000
HF	T23030	23030	0.310	0.150	0.550	0.009	0.000	0.180	0.080	0.080	0.043	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 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:
14011757 12792

"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 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 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.
MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-2, 2009 AND NACE MR0103, 2010 ONLY HARDNESS