

Tubos de Acero de México, 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

tenaris

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

Numero:
Number:

29193

Pagina/Page:

2

Vendido a: Sold to:	PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	19632 - 19849	Lista de Empaque: Packing List:	15197	Fecha/Date:	25 de noviembre de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade	Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB	Dimensiones y tolerancias / Dimension and tolerances	ASME B 16.9 - 2012	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
12	S32203	1	CODO 6 X 90° R.C. CED-STD	291	481	30	134					
13	T71985	5	CODO 14 X 90° R.L. CED-STD	301	488	44	122					
14	T71380	7	CODO 14 X 90° R.L. CED-STD	307	485	37	144					
15	T7538	40	CODO 6 X 90° R.L. CED-XS	248	468	37	156					
16	T8431	20	CODO 5 X 45° CED-STD	329	482	30	145					
17	T72389	18	CODO 16 X 90° R.L. CED-STD	241	447	36	141					
18	T8113	15	CODO 8 X 90° R.C. CED-STD	306	493	30	149					
19	T69908	3	TEE 16 CED-STD	292	436	40	135					
20	T72971	8	CODO 10 X 90° R.L. CED-80	342	484	35	142					
21	T72971	10	CODO 10 X 45° CED-80	342	484	35	142					
22	T5007	10	CODO 3 X 90° R.C. CED-STD	362	518	39	154					

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	S32203	32203	0.350	0.200	0.790	0.009	0.000	0.280	0.050	0.042	0.010	0.017	0.001	0.000
HF	T71985	71985	0.320	0.180	0.680	0.008	0.002	0.280	0.070	0.074	0.020	0.050	0.000	0.000
HF	T71380	71380	0.300	0.170	0.660	0.007	0.001	0.280	0.050	0.063	0.015	0.040	0.000	0.000
HF	T7538	7538	0.300	0.170	0.710	0.005	0.001	0.260	0.030	0.043	0.009	0.020	0.000	0.000
HF	T8431	8431	0.310	0.180	0.710	0.007	0.001	0.300	0.030	0.017	0.010	0.010	0.000	0.000
HF	T72389	72389	0.320	0.170	0.730	0.005	0.002	0.260	0.060	0.067	0.024	0.050	0.000	0.000
HF	T8113	8113	0.310	0.180	0.720	0.006	0.001	0.290	0.020	0.047	0.007	0.020	0.000	0.000
HF	T69908	69908	0.300	0.170	0.650	0.005	0.003	0.280	0.060	0.064	0.016	0.030	0.000	0.000
HF	T72971	72971	0.300	0.170	0.670	0.007	0.001	0.300	0.040	0.079	0.018	0.040	0.000	0.000
HF	T72971	72971	0.300	0.170	0.670	0.007	0.001	0.300	0.040	0.079	0.018	0.040	0.000	0.000
HF	T5007	5007	0.320	0.180	0.780	0.005	0.002	0.310	0.020	0.042	0.004	0.020	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 (Tuberia Sin Costura) conforme ASTM A106 Grado B con N°: 471435 14054862 14025130 14019949 14044642 14047067 14030872 14025131 14043110 14043110 12084850

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) certs conform to ASTM A106 Grade B N°: 471435 14054862 14025130 14019949 14044642 14047067 14030872 14025131 14043110 14043110 12084850

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:	Notes:	<p>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.</p> <p>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.</p>
Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frío normalizado a 940°C max.	Hot formed fittings in a range from 620°C to 980°C, cooled in still air, Cold formed normalized at 940°C max.	
Tiempo de permanencia 10'.	Holding time 10'.	
Inspección Dimensional: Satisfactoria.	Visual dimensional check: Satisfactory	
HF: FORMADO EN CALIENTE/HOT FORMED	CF: FORMADO EN FRIO/COLD FORMED	<p>Quality Manager/Jefe de Calidad: ING. WALDO GALLEGOS GALVAN</p> <p>MATE: ACCORDING TO NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS</p>

FOR03161

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

Numero:
 Number: 29192
 Pagina/Page: 1

Vendido a: Sold to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 19632	Lista de Empaque: Packing List: 15197	Fecha/Date: 25 de noviembre de 2014
Especificaciones y Grados / Standard or Specification and Steel Grade Seamless Fittings according to ASTM A 234 WPB-13e Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB	Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2012		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	T7536	225	CODO 4 X 90° R.L. CED-STD	330	483	38	155					
2	T7193	3	CODO 4 X 90° R.L. CED-STD	278	479	36	146					
3	T72389	4	CODO 16 X 45° CED-STD	241	447	36	141					
4	T63264	1	CODO 16 X 45° CED-STD	336	489	36	130					
5	T64199	2	CODO 16 X 45° CED-STD	321	481	36	150					
6	T62075	1	CODO 16 X 45° CED-STD	318	476	35	133					
7	T63744	3	CODO 16 X 45° CED-STD	349	505	36	153					
8	T55130	1	CODO 16 X 45° CED-STD	314	476	36	155					
9	S48206	4	CODO 6 X 90° R.C. CED-STD	276	464	35	93					
10	T5584	3	CODO 6 X 90° R.C. CED-STD	333	500	38	163					
11	T8111	14	CODO 6 X 90° R.C. CED-STD	328	491	40	132					

ANALISIS QUIMICO / CHEMICAL ANALYSIS														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 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) certs conform to ASTM A106 Grade B N°: 14022642 14020746 14047067 13006476 13015433 12075073 13009697 11039229 11061961 13015017 14026658 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".
PROCESO PROCESS	COLADA HEAT CODE	COLADA/HEAT M.P./MOTHER PIPE	%C.E.	%C	%Mn	%P	%S	%Si	%Cr	%Cu	%Mo	%Ni	%V	
HF	T7536	7536	0.320	0.190	0.710	0.007	0.002	0.280	0.020	0.041	0.007	0.020	0.000	0.000
HF	T7193	7193	0.310	0.180	0.730	0.007	0.001	0.270	0.020	0.034	0.009	0.020	0.000	0.000
HF	T72389	72389	0.320	0.170	0.730	0.005	0.002	0.260	0.060	0.067	0.024	0.050	0.000	0.000
HF	T63264	63264	0.320	0.190	0.660	0.012	0.001	0.280	0.060	0.063	0.031	0.040	0.000	0.000
HF	T64199	64199	0.300	0.170	0.670	0.011	0.001	0.300	0.050	0.059	0.019	0.030	0.000	0.000
HF	T62075	62075	0.000	0.190	0.750	0.008	0.000	0.280	0.050	0.073	0.034	0.040	0.000	0.000
HF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.300	0.050	0.080	0.038	0.040	0.000	0.000
HF	T55130	55130	0.310	0.180	0.670	0.007	0.000	0.270	0.050	0.068	0.019	0.030	0.000	0.000
HF	S48206	48206	0.340	0.200	0.740	0.010	0.002	0.280	0.030	0.034	0.020	0.015	0.002	0.002
HF	T5584	5584	0.310	0.170	0.770	0.004	0.001	0.310	0.020	0.036	0.008	0.020	0.000	0.000
HF	T8111	8111	0.310	0.180	0.710	0.006	0.002	0.280	0.020	0.049	0.007	0.020	0.000	0.000

Notas: Formado en caliente a 620°C-980°C, enfriado al **Formado en caliente a 620°C-980°C, enfriado al**
 enfriado a 940°C max. **enfriado a 940°C max.**
 Holding time 10".
 Visual dimensional check: factory
 FORMADO EN FRIO/C: 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: factory
 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 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS

FOR03161

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

Numero:
Number:
29194

Pagina/Page:
3


Vendido a: **PLESA ANAHUAC Y CIA. S.A. DE C.V.** Pedido del Cliente No: **19632 -** Lista de Empaque: **15197** Fecha/Date: **25 de noviembre de 2014**
Sold to: Customers Order No:

Especificaciones y Grados / Standard or Specification and Steel Grade Dimensiones y tolerancias / Dimension and tolerances Factura/Invoice:
Seamless Fittings according to ASTM A 234 WPB-13e **ASME B 16.9 - 2012** **KA 75695 75696** **Bocas / Ends**
Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB **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
23	T8431	50	CODO 5 X 90° R.L. CED-STD	329	482	30	145					
24	T71768	3	TEE 12 CED-40	309	472	35	142					
25	T7195	5	CODO 2 1/2 X 45° CED-XS	319	483	42	142					

ANALISIS QUIMICO / CHEMICAL ANALYSIS														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 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) certs conform to ASTM A106 Grade B N°: 14044642 14057080 14020453 "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".	
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	T8431	8431	0.310	0.180	0.710	0.007	0.001	0.300	0.030	0.017	0.010	0.010	0.000		0.000
HF	T71768	71768	0.320	0.180	0.690	0.009	0.001	0.270	0.070	0.074	0.027	0.040	0.000		0.000
HF	T7195	7195	0.310	0.180	0.720	0.005	0.001	0.270	0.040	0.031	0.006	0.020	0.000	0.000	

Notas: Notes:
Formado en caliente a 620°C-880°C, enfriado al aire; Formado en frío normalizado a 940°C max. Hot formed fittings in a range from 620°C to 980°C, cooled in still air, Cold formed normalized at 940°C max.
Tiempo de permanencia 10'. Holding time 10'.
Inspección Dimensional: Satisfactoria. Visual dimensional check: Satisfactory
HF: FORMADO EN CALIENTE/HOT FORMED 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.
MATERIALES DE ACUERDO A NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS

FOR03161