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

enaris

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: PLESA ANAHUAC Y CIA. S.A. DE C.V.

Pedido del Cliente No: Customers Order No: 15668 - 15147 -

Lista de Empaque: Packing List: 14424

Fecha/Date: 31 de Julio de 2013

Especificaciones y Grados / Standard or Specification and Steel Grade
Seamless Fittings according to ASTM A 234 WPB-10, NACE MR 01.75-2003
Conform to ASME II Ed. 2001 ASME SA-234,Grade WPB, NACE MR0103-2003

Dimensiones y tolerancias / Dimension and tolerances
ASME B 16.9 - 2007

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	T65886	32	TEE 8 CED-STD	279	473	45	114					
2	T63744	4	TEE RED. 10 X 4 CED-STD	331	498	32	145					
3	T65019	10	TEE RED. 12 X 8 CED-STD	258	464	37	150					
4	T65886	10	TEE RED. 8 X 4 CED-STD	290	480	44	116					
5	T65451	30	TEE RED. 6 X 4 CED-STD	299	475	70	148					
6	T59915	6	TEE 12 CED-40	283	471	38	140					

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	T65886	65886	0.310	0.180	0.660	0.006	0.001	0.270	0.040	0.066	0.014	0.030	0.000	0.000
HF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.290	0.050	0.080	0.037	0.040	0.000	0.000
HF	T65019	65019	0.320	0.170	0.780	0.014	0.001	0.270	0.050	0.065	0.028	0.030	0.000	0.000
HF	T65886	65886	0.310	0.180	0.670	0.006	0.001	0.280	0.040	0.064	0.014	0.040	0.000	0.000
HF	T65451	65451	0.310	0.170	0.680	0.011	0.000	0.270	0.080	0.050	0.026	0.030	0.000	0.000
HF	T59915	59915	0.330	0.180	0.780	0.015	0.001	0.300	0.040	0.080	0.031	0.040	0.000	0.000

Certificamos que los resultados de los Análisis Quimicos 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:

13041349 13009957 13029801 13051095 13034857 12065457

"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 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.

FOR03161

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: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 15528 - 15965	Lista de Empaque: Packing List: 14424	Fecha/Date: 31 de Julio de 2013
Especificaciones y Grados / Standard or Specification and Steel Grade **Seamless Fittings according to ASTM A 234 WPB-10, NACE MR 01.75-2003** **Conform to ASME II Ed. 2001 ASME SA-234,Grade WPB, NACE MR0103-2003**	Dimensiones y tolerancias / Dimension and tolerances **ASME B 16.9 - 2007**	**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	T64661	264	CODO 3 X 90° R.L. CED-STD	333	502	31	142					
2	T64661	250	CODO 3 X 90° R.L. CED-XS	343	495	40	153					
3	T64199	6	CODO 16 X 45° CED-XS	272	484	41	145					
4	T5588	20	CODO 5 X 90° R.C. CED-STD	278	505	33	151					
5	T63744	20	RED. CONC. 12 X 10 CED-STD	331	498	32	145					
6	T63744	4	TEE RED. 10 X 4 CED-STD	331	498	32	145					
7	T65019	4	TEE RED. 12 X 8 CED-STD	258	464	37	150					
8	S44801	20	CODO 1 1/4 X 45° CED-STD	381	516	48	116					
9	T64678	2	CODO 12 X 45° CED-40	340	499	37	150					
10	T65887	8	CODO 12 X 45° CED-40	317	472	69	133					
11	T65064	2	CODO 12 X 45° CED-40	288	472	69	136					

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	T64661	64661	0.310	0.180	0.680	0.014	0.001	0.290	0.030	0.036	0.016	0.030	0.000	0.000
HF	T64661	64661	0.310	0.180	0.680	0.015	0.001	0.290	0.030	0.040	0.016	0.030	0.000	0.000
HF	T64199	64199	0.310	0.180	0.670	0.010	0.001	0.290	0.050	0.058	0.019	0.030	0.000	0.000
HF	T5588	5588	0.310	0.170	0.810	0.004	0.001	0.310	0.020	0.029	0.008	0.020	0.000	0.000
CF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.290	0.050	0.080	0.037	0.040	0.000	0.000
HF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.290	0.050	0.080	0.037	0.040	0.000	0.000
HF	T65019	65019	0.320	0.170	0.780	0.014	0.001	0.270	0.050	0.065	0.028	0.030	0.000	0.000
HF	S44801	44801	0.310	0.160	0.830	0.012	0.001	0.280	0.040	0.050	0.010	0.035	0.001	0.002
HF	T64678	64678	0.300	0.170	0.660	0.015	0.001	0.270	0.060	0.058	0.030	0.040	0.000	0.000
HF	T65887	65887	0.320	0.190	0.670	0.007	0.000	0.280	0.030	0.055	0.010	0.030	0.000	0.000
HF	T65064	65064	0.310	0.180	0.660	0.013	0.002	0.300	0.060	0.068	0.023	0.040	0.000	0.000

Certificamos que los resultados de los Análisis Quimicos 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:

13024464 13025664 13018299 13018724 13009957 13009957
13029801 13025325 13022218 13040116 13032132

"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 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.

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Apartado Postal 43
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(52) 81 8305 9600 tel
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CERTIFICADO DE CALIDAD
INSPECTION CERTIFICATE
(DIN EN 10204:2004E - ISO 10474 3.1.B)

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endido a: / old to: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: / Customers Order No: 15528 - 15965 -	Lista de Empaque: / Packing List: 14424	Fecha/Date: 31 de Julio de 2013
specificaciones y Grados / Standard or Specification and Steel Grade eamless Fittings according to ASTM A 234 WPB-10, NACE MR 01.75-2003 onform to ASME II Ed. 2001 ASME SA-234,Grade WPB, NACE MR0103-2003	Dimensiones y tolerancias / Dimension and tolerances ASME B 16.9 - 2007	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. TEM	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	T65886	2	TEE RED. 8 X 4 CED-STD	290	480	44	116					
13	T62433	8	TEE RED. 8 X 4 CED-STD	363	490	32	128					
14	T63744	10	RED. CONC. 12 X 6 CED-STD	331	498	32	145					
15	S44801	42	CODO 1 1/2 X 90° R.C. CED-STD	381	516	48	116					
16	T65451	60	TEE RED. 6 X 4 CED-STD	299	475	70	148					
17	T62432	10	TEE RED. 8 X 4 CED-XS	290	462	37	152					
18	T64678	10	RED. CONC. 10 X 4 CED-STD	310	490	42	146					
19	T51542	2	CODO 14 X 45 CED-XS	311	489	42	120					
20	T54971	1	CODO 14 X 45 CED-XS	309	464	38	93					

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	T65886	65886	0.310	0.180	0.670	0.006	0.001	0.280	0.040	0.064	0.014	0.040	0.000	0.000
HF	T62433	62433	0.320	0.180	0.690	0.015	0.001	0.300	0.050	0.054	0.024	0.030	0.000	0.000
CF	T63744	63744	0.330	0.170	0.820	0.015	0.001	0.290	0.050	0.080	0.037	0.040	0.000	0.000
HF	S44801	44801	0.310	0.160	0.830	0.012	0.001	0.280	0.040	0.050	0.010	0.035	0.001	0.002
HF	T65451	65451	0.310	0.170	0.680	0.011	0.000	0.270	0.080	0.050	0.026	0.030	0.000	0.000
HF	T62432	62432	0.320	0.180	0.690	0.011	0.001	0.290	0.050	0.057	0.028	0.030	0.000	0.000
CF	T64678	64678	0.300	0.160	0.670	0.016	0.001	0.260	0.060	0.058	0.030	0.040	0.000	0.000
HF	T51542	51542	0.320	0.180	0.710	0.011	0.003	0.280	0.040	0.061	0.018	0.030	0.000	0.000
HF	T54971	54971	0.310	0.180	0.670	0.008	0.003	0.270	0.060	0.048	0.023	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:

13051095 12076693 13009957 13025325 13034857 12073152
13025328 11020787 11030432

"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".

tas:
rmado en caliente a 620°C-980°C, enfriado al
e; Formado en frio normalizado a 940°C max.
mpo de permanencia 10'.
pección Dimensional: Satisfactoria.
: 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 Brineli HBW mediante la tabla WILSON DESK CHART 60.

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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: PLESA ANAHUAC Y CIA. S.A. DE C.V.	Pedido del Cliente No: Customers Order No: 14147 -	Lista de Empaque: Packing List: 14457	Fecha/Date: 31 de Julio de 2013
Especificaciones y Grados / Standard or Specification and Steel Grade **Seamless Fittings according to ASTM A 234 WPB-10, NACE MR 01.75-2003** **Conform to ASME II Ed. 2001 ASME SA-234,Grade WPB, NACE MR0103-2003**	Dimensiones y tolerancias / Dimension and tolerances **ASME B 16.9 - 2007**	**Factura/Invoice:** **Bocas / Ends** Biselado / Bevelled ends	

DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION

ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION
1	T65019	3	TEE 12 CED-40

PRUEBAS MECANICAS / MECHANICAL TEST

ESF. CEDENCIA YIELD STRENGTH (Mpa)	ESF. RUPTURA TENSILE STRENGTH (Mpa)	ELONG. %2"	DUREZA HARDNESS HBW
258	464	37	150

PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C

DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules

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	T65019	65019	0.320	0.170	0.780	0.014	0.001	0.270	0.050	0.065	0.028	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:

13029801

"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 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.

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