



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:
29914	1
Lista de Empaque: Packing List:	Fecha/Date:
15577	24 de septiembre de 2015

Vendido a: Sold to:	TUBERIA Y VALVULAS DEL NORTE, S.A. DE C.V.	Pedido del Cliente No: Customers Order No:	17051 -
Especificaciones y Grados / Standard or Specification and Steel Grade		Dimensiones y tolerancias / Dimension and tolerances	
Seamless Fittings according to ASTM A 234 WPB-13e		ASME B 16.9 - 2012	
Conform to ASME II Ed. 2013 ASME SA-234, Grade WPB		Factura/Invoice: Bocas / Ends Biselado / Bevelled ends	

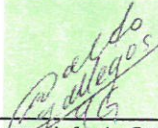
DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION				PRUEBAS MECANICAS / MECHANICAL TEST				PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C				
ART. ITEM	COLADA HEAT CODE	CANTIDAD QUANTITY	DESCRIPCION / DESCRIPTION	ESF. CEDENCIA YIELD STRENGTH (Mpa)	ESF. RUPTURA TENSILE STRENGTH (Mpa)	ELONG. %2"	DUREZA HARDNESS HBW	DIMENSIONES SAMPLE DIM mm	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T75114	228	CODO 4 X 90° R.L. CED-STD	317	497	32	160					
2	T6969	100	CODO 6 X 90° R.C. CED-STD	295	475	41	143					
3	T77288	12	CODO 14 X 90° R.L. CED-STD	296	488	32	141					
4	T72421	36	CODO 12 X 90° R.L. CED-STD	282	455	30	142					
5	T72523	18	CODO 12 X 45° CED-STD	336	501	33	149					
6	T72798	2	CODO 12 X 45° CED-STD	281	435	35	144					
7	S36056	70	CODO 1 1/2 X 45° CED-STD	370	513	47	126					
8	S28476	100	CODO 2 1/2 X 90° R.C. CED-XS	315	485	30	142					
9	T77918	150	CODO 2 1/2 X 180° R.L. CED-XS	346	500	40	126					
10	T8431	26	CODO 8 X 90° R.C. CED-XS	325	481	33	147					

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	T75114	75114	0.340	0.180	0.800	0.007	0.002	0.280	0.060	0.069	0.031	0.060	0.000	0.000
HF	T6969	6969	0.310	0.180	0.700	0.008	0.000	0.280	0.020	0.051	0.007	0.020	0.000	0.000
HF	T77288	77288	0.310	0.180	0.670	0.006	0.001	0.280	0.040	0.069	0.021	0.040	0.000	0.000
HF	T72421	72421	0.320	0.180	0.680	0.004	0.000	0.280	0.060	0.071	0.014	0.050	0.000	0.000
HF	T72523	72523	0.310	0.180	0.660	0.009	0.001	0.270	0.060	0.057	0.012	0.040	0.000	0.000
HF	T72798	72798	0.340	0.180	0.780	0.007	0.001	0.280	0.060	0.079	0.042	0.040	0.000	0.000
HF	S36056	36056	0.320	0.170	0.760	0.012	0.001	0.270	0.050	0.050	0.020	0.025	0.001	0.001
HF	S28476	28476	0.340	0.190	0.770	0.015	0.002	0.270	0.050	0.050	0.030	0.083	0.001	0.001
HF	T77918	77918	0.310	0.180	0.680	0.007	0.001	0.270	0.040	0.055	0.014	0.040	0.000	0.000
HF	T8431	8431	0.310	0.180	0.700	0.008	0.002	0.280	0.030	0.016	0.006	0.010	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 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°: 15000970 15018937 15020608 14048819 14050899 15012674 15013895 13064763 15026432 14046623

"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:
Formado en caliente a 620°C-980°C, enfriado al aire; Formado en frío normalizado a 940°C max. Tiempo de permanencia 10'.	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'.
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.

MATERIAL ACCORDING TO NACE MR0175 / ISO 15156-1, 2009 AND NACE MR0103, 2012 ONLY HARDNESS

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