

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

Numero: Number:	Pagina/Page:
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Lista de Empaque: Packing List:	12607
Fecha/Date:	4 de Abril de 2008

Vendido a: Sold to:	TUVANSA MONTERREY	Pedido del Cliente No: Customers Order No:	10085
Especificaciones y Grados / Standard or Specification and Steel Grade	Seamless Fittings according to ASTM A 234 WPB-07, 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 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	PROMED AVERAG Joules
1	S42236	147	CODO 4 X 90° R.L. CED-STD	323	489	32	108					
2	S42236	198	CODO 4 X 90° R.L. CED-STD	300	473	35	135					
3	S42775	570	CODO 4 X 90° R.L. CED-STD	333	489	31	140					
4	S44010	1584	CODO 3 X 90° R.L. CED-STD	315	484	31	129					
5	T52307	100	CODO 6 X 90° R.L. CED-STD	320	486	42	122					
6	T50952	360	CODO 5 X 90° R.L. CED-STD	328	500	38	106					
7	T51817	40	CODO 6 X 90° R.L. CED-STD	322	505	42	126					
8	S32307	950	CODO 2 1/2 X 90° R.L. CED-STD	314	485	31	116					
9	T47392	15	TEE 10 CED-XS	305	478	46	122					
10	T49435	17	TEE 10 CED-XS	317	488	43	122					
11	T50463	11	CODO 1 1/2 X 90° R.L. CED-STD	319	494	33	96					

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	S42236	42236	0.330	0.190	0.760	0.011	0.001	0.290	0.040	0.031	0.020	0.035	0.002	0.002	
HF	S42236	42236	0.330	0.190	0.770	0.013	0.001	0.310	0.030	0.033	0.010	0.027	0.002	0.002	
HF	S42775	42775	0.300	0.170	0.730	0.010	0.001	0.300	0.030	0.029	0.010	0.020	0.002	0.002	
HF	S44010	44010	0.330	0.200	0.730	0.009	0.001	0.300	0.020	0.020	0.010	0.013	0.002	0.002	
HF	T52307	52307	0.300	0.170	0.670	0.012	0.002	0.270	0.040	0.060	0.023	0.030	0.000	0.000	
HF	T50952	50952	0.310	0.180	0.670	0.013	0.000	0.300	0.040	0.076	0.034	0.039	0.000	0.000	
HF	T51817	51817	0.330	0.190	0.730	0.012	0.001	0.300	0.050	0.052	0.027	0.030	0.000	0.000	
HF	S32307	32307	0.330	0.190	0.710	0.012	0.002	0.260	0.050	0.039	0.010	0.028	0.001	0.001	
HF	T47392	47392	0.320	0.190	0.670	0.009	0.002	0.280	0.050	0.064	0.023	0.030	0.000	0.000	
HF	T49435	49435	0.300	0.180	0.660	0.010	0.002	0.290	0.020	0.062	0.022	0.030	0.000	0.000	
HF	T50463	50463	0.320	0.180	0.700	0.010	0.002	0.280	0.060	0.054	0.022	0.030	0.000	0.000	

Certificamos que los resultados de los Análisis Químicos y Pruebas Mecánicas son verdaderos y una copia fiel de los certificados enviados por el Fabricante y lo si proveed de Materia Prima (Tubería Sin Costura) conforme ASTM A106 Grado B con N° 10053800 10053802 11001303 11007341 10058908 100461 10058121 466317 10007331 10024629 10053787

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) cuts conform to ASTM A106 Grade B N° 10053800 10053802 11001303 11007341 10058908 100461 10058121 466317 10007331 10024629 10053787

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 820°C-840°C, enfriado al aire. Formado en frío normalizado a 840°C máx. Tiempo de permanencia 10". Inspección Dimensional, Selectiva.	Notes: Hot formed fittings in a range from 820°C to 840°C, cooled in still air. Cold formed normalized at 840°C max. Holding time 10". Visual dimension check, Selectivity.
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Quality Manager / Jefe de Calidad
ING. WALDO CALLEGOS 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 DEBK CHART 80. Los valores de dureza para conexiones de NPS de 2 1/2" y menor se obtienen de la conversión de dureza Rockwell B a dureza Brinell HBW mediante la tabla WILSON DEBK CHART 80.