

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

Numero:  
 Number:  
 16453

Pagina/Page:  
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Lista de Empaque:  
 Packing List:  
 8398

Fecha/Date:  
 1 de Agosto de 2006

Factura/Invoice:  
 Bocas / Ends  
 Biselado / Bevelled ends

Pedido del Cliente No:  
 Customers Order No:  
 386 392 391 388

Dimensiones y tolerancias / Dimension and tolerances

ASME B 16.9-01 and ASME B 16.28 edition 1994

Vendido a:  
 Sold to:

Especificaciones y Grados / Standard or Specification and Steel Grade  
 Seamless Fittings according to ASTM A 234-97, A234-04 / ASME B16.9-01 and ASME B16.28 edition 1994

NACE MR 01-75-2003 - Conform to ASME II Ed. 2001

DESCRIPCION DE MATERIAL / MATERIAL DESCRIPTION		PRUEBAS MECANICAS / MECHANICAL TEST			PRUEBA DE IMPACTO 0°C / IMPACT TEST 0°C						
ART. ITEM	COLADA HEAT CODE	CANTIDA QUANTITY	DESCRIPCION / DESCRIPTION	ESF. CEDENCIA YIELD STRENGTH (Mpa)	ESF. RUPTURA TENSILE STRENGTH (Mpa)	ELONG. %2"	DUREZA HARDNESS HB	1 Joules	2 Joules	3 Joules	PROMEDIO AVERAGE Joules
1	T29031	10	CODO 10 X 90 RL C20	310	470	41	105				
2	T28420	36	CODO 12 X 90 RL STD	280	470	46	116				
3	S32274	350	CODO 2 X 90 RL XS	318	486	38	121				
4	T28614	214	CODO 6 X 90 RL STD	300	475	43	126				
5	T29388	586	CODO 6 X 90 RL STD	320	497	42	126				
6	T27436	20	RED CONC 10 X 8 XS	316	473	44	121				
7	T29417	10	RED CONC 12 X 10 STD	318	476	46	124				
8	T27030	15	RED CONC 14 X 12 STD	307	478	45	106				
9	T24927	4	RED CONC 14 X 8 STD	339	498	42	124				
10	T29000	26	RED CONC 14 X 8 STD	325	481	45	126				

ANALISIS QUIMICO / CHEMICAL ANALYSIS													
PROCESO PROCESS	COLADA HEAT CODE	COLADA/M.P./MOTHER PIPE	%C	%Mn	%P	%S	%SI	%Cr	%Cu	%Mo	%Ni	%V	%Nb
HF	T29031	29031	0.297	0.160	0.670	0.009	0.001	0.280	0.050	0.038	0.040	0.000	0.000
HF	T28420	28420	0.311	0.170	0.680	0.009	0.001	0.290	0.060	0.037	0.040	0.000	0.000
HF	S32274	32274	0.320	0.120	1.081	0.010	0.001	0.250	0.030	0.040	0.022	0.002	0.001
HF	T28614	28614	0.305	0.170	0.680	0.008	0.002	0.290	0.040	0.028	0.030	0.000	0.000
HF	T29388	29388	0.303	0.170	0.680	0.010	0.001	0.270	0.040	0.026	0.030	0.000	0.000
CF	T27436	27436	0.303	0.160	0.680	0.011	0.001	0.280	0.070	0.036	0.040	0.000	0.000
CF	T29417	29417	0.303	0.170	0.670	0.000	0.008	0.260	0.040	0.032	0.030	0.000	0.000
CF	T27030	27030	0.322	0.180	0.700	0.011	0.002	0.300	0.050	0.032	0.050	0.000	0.000
CF	T24927	24927	0.341	0.190	0.750	0.010	0.004	0.280	0.040	0.036	0.040	0.000	0.000
CF	T29000	29000	0.304	0.170	0.680	0.012	0.001	0.280	0.050	0.020	0.030	0.000	0.000

Notas:  
 Formado en caliente a 780°C-840°C, enfriado al aire.  
 Formed in hot normalized at 840°C max.  
 Tiempo de permanencia 10".  
 Inspección Dimensional. Satisfactoria.  
 Visual Dimensionalcheck. Satisfactory  
 HF: FORMADO EN CALIENTE/HOT FORMED CF: FORMADO EN FRIO/COLD FORMED

Notas:  
 Hot formed fittings in a range from 780°C to 840°C, cooled in still air.  
 Cold formed normalized at 840°C max.  
 Holding time 10".  
 Visual Dimensionalcheck. Satisfactory  
 HF: FORMADO EN CALIENTE/HOT FORMED CF: FORMADO EN FRIO/COLD FORMED

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.

Jefe de Aseguramiento de Calidad:  
 Quality Assurance Coordinator

ING. JOSE MARTINEZ MACIAS