



QUALITY CERTIFICATE

APS P-9011

COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)																				
	C	Mn	Si	P	S	V	Cr	Ni	Mo	Cu	Nb	Sn	CEV								
106864	,083	1,170	,180	,018	,034	,001	,090	,160	,035	,350	,022	,027	,34								
106866	,079	1,190	,160	,014	,035	,002	,100	,160	,035	,340	,024	,031	,34								
106878	,085	1,200	,180	,018	,030	,002	,110	,180	,035	,430	,020	,027	,36								
106879	,078	1,160	,160	,018	,031	,002	,110	,180	,037	,390	,021	,022	,34								
106880	,090	1,130	,170	,014	,030	,001	,100	,180	,040	,360	,017	,025	,34								
106881	,092	1,160	,190	,016	,027	,001	,110	,200	,043	,400	,020	,026	,36								
106882	,072	1,170	,170	,017	,034	,002	,120	,190	,038	,350	,017	,023	,34								
106883	,080	1,190	,200	,017	,029	,002	,120	,210	,042	,330	,016	,026	,35								
106884	,080	1,170	,210	,015	,028	,001	,110	,180	,038	,330	,016	,026	,34								
106885	,077	1,270	,170	,017	,032	,001	,120	,170	,040	,360	,021	,027	,36								
106886	,086	1,210	,190	,018	,028	,002	,110	,160	,032	,340	,026	,027	,35								
106887	,078	1,120	,160	,017	,031	,001	,100	,170	,035	,340	,022	,024	,33								
106888	,095	1,210	,170	,016	,029	,002	,100	,160	,034	,370	,027	,024	,36								
106893	,090	1,180	,170	,023	,015	,002	,120	,170	,030	,380	,027	,025	,35								
106894	,076	1,230	,220	,021	,021	,002	,110	,160	,027	,350	,025	,021	,34								
106895	,080	1,250	,190	,024	,027	,002	,100	,170	,030	,360	,023	,027	,35								
106896	,092	1,190	,190	,020	,018	,003	,100	,170	,030	,380	,025	,021	,35								
106897	,085	1,190	,190	,023	,026	,002	,120	,160	,028	,400	,025	,022	,35								
106898	,096	1,150	,170	,026	,032	,002	,120	,180	,029	,420	,023	,021	,36								
106899	,080	1,230	,190	,022	,028	,002	,130	,210	,030	,420	,023	,021	,36								
106900	,098	1,200	,190	,026	,029	,002	,120	,160	,026	,420	,024	,023	,37								
106906	,093	1,190	,200	,021	,030	,002	,140	,190	,038	,430	,019	,044	,37								
106907	,080	1,210	,170	,019	,030	,002	,130	,220	,045	,410	,020	,032	,36								

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa C11		Rm MPa C12		A% LO=8" C13	
W-21x50	106400	399	385	508	592	26,7	26,6
W-21x50	106401	419	407	548	590	26,3	25,5
W-21x50	106864	427	427	535	593	25,5	25,2
W-21x50	106866	422	407	536	530	27,8	27,4
W-21x50	106878	410	407	543	519	25,5	24,3
W-21x50	106879	417	401	537	533	25,7	25,1
W-21x50	106880	414	404	544	520	25,7	25,6
W-21x50	106881	411	408	525	517	24,3	24,2
W-21x50	106882	401	401	517	585	27,7	26,8
W-21x50	106883	392	392	516	508	26,6	25,8
W-21x50	106884	402	399	543	519	26,6	26,5
W-21x50	106885	414	408	526	516	26,0	26,2
W-21x50	106886	398	384	507	493	27,6	27,5
W-21x50	106887	439	408	509	509	25,6	25,3
W-8x31	105044	396	394	514	506	23,6	22,8
W-8x31	105134	405	391	540	532	24,1	23,5
W-8x31	106894	367	357	518	510	24,2	23,5
W-8x31	106895	368	366	516	502	21,3	21,1
W-8x31	106896	362	361	512	508	22,3	22,
W-8x31	106897	356	356	534	510	23,	22,3
W-8x31	106898	362	360	523	521	23,3	22,9

A01

Arcelor Olaberria, S.L.
Long Carbon Steel Europe
Sections

CARRETERA MADRID - IRUN, KM. 419
20212 OLABERRIA (Guipúzcoa)
TELEF. (943) 80.50.00 - FAX (943) 88.04.04



QUALITY CERTIFICATE

APS P-9011

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa		Rm MPa		A% LO=8"	
<i>B11</i>	<i>B08</i>	<i>C11</i>		<i>C12</i>		<i>C13</i>	
W-8x31	106899	363	358	522	506	22,7	22,2
W-8x31	106900	384	368	536	521	22,2	21,6
W-8x35	103425	382	380	547	548	29,7	29,
W-8x35	103426	372	362	549	545	29,6	29,1
W-8x35	106888	369	354	522	513	26,2	25,3
W-8x35	106893	362	348	523	521	26,6	26,1
W-8x35	106894	391	389	550	537	30,8	30,3
W-8x40	103424	368	354	539	541	27,6	26,6
W-8x40	106906	374	370	536	524	24,8	24,
W-8x40	106907	368	358	533	517	23,3	23,2

30 análisis

D01: Certificamos que los aceros arriba indicados han sido satisfactoriamente probados de acuerdo con la especificación.

B08: Marca APO

Z01

Luis María Lakunza

FERRE BARNIEDO, S.A. DE C.V.
 ESTE CERTIFICADO ES COPIA FIDEL
 DEL ORIGINAL DE NUESTROS ARCHIVOS.
 PARA LA REMISION No. _____
 Tel: 943-36-10-00 Email: @ferrebarniedo.com.mx