

CERTIFICADO DE CALIDAD

APS 3726

C70 E	MATERIAL SIZE	COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)														Cev
			C	Mn	Si	P	S	N	V	Cr	Ni	Mo	Cu	Nb	Al	Ti	
B11	B08	C71	C72	C73	C74	C75	C76	C77	C78								
W-14x61	60490	,07	,80	,23	,016	,018	,012	,001	,127	,138	,022	,544	,017	,003	,002		,28
W-14x61	60491	,08	,85	,21	,018	,017	,011	,002	,125	,125	,020	,568	,018	,002	,002		,30
W-14x61	60492	,09	,76	,20	,017	,016	,012	,002	,088	,121	,023	,590	,017	,002	,002		,28
W-14x61	60493	,08	,80	,20	,021	,017	,011	,002	,172	,100	,024	,530	,017	,002	,002		,29
W-14x68	60450	,09	,82	,21	,015	,022	,010	,002	,078	,115	,019	,502	,017	,002	,002		,29
W-14x68	60494	,08	,76	,22	,018	,020	,011	,002	,117	,101	,021	,599	,017	,002	,002		,28
W-14x68	60495	,08	,80	,22	,016	,013	,010	,002	,095	,144	,022	,535	,017	,002	,002		,28
W-14x68	60496	,09	,74	,21	,019	,013	,011	,002	,119	,123	,022	,569	,017	,002	,002		,29
W-14x68	60497	,08	,80	,24	,016	,012	,011	,002	,101	,107	,019	,498	,018	,002	,002		,28
W-14x68	60510	,08	,73	,20	,021	,016	,010	,001	,113	,107	,020	,618	,017	,002	,002		,28
W-14x74	59051	,09	,81	,19	,020	,028	,010	,002	,087	,096	,019	,512	,016	,002	,002		,29
W-14x74	60506	,09	,69	,19	,021	,024	,012	,001	,118	,117	,023	,622	,016	,002	,002		,28
W-14x74	60507	,09	,75	,20	,017	,017	,010	,001	,094	,110	,020	,615	,017	,002	,002		,28
W-14x74	60509	,08	,72	,21	,022	,013	,011	,002	,151	,114	,020	,598	,015	,003	,002		,29
W-14x82	56462	,09	,85	,20	,018	,012	,012	,002	,100	,121	,024	,513	,015	,002	,001		,30
W-14x82	60499	,09	,74	,18	,017	,014	,011	,002	,120	,117	,023	,555	,017	,002	,002		,28
W-14x82	60500	,08	,79	,21	,015	,029	,011	,002	,092	,115	,023	,581	,017	,002	,002		,28
W-14x82	60501	,08	,81	,23	,015	,014	,010	,001	,086	,108	,019	,629	,019	,002	,002		,29
W-14x82	60502	,08	,75	,19	,018	,021	,011	,002	,093	,109	,022	,621	,017	,002	,002		,28
W-14x82	60504	,08	,79	,20	,018	,015	,011	,001	,091	,101	,019	,588	,017	,002	,002		,28
W-14x82	60505	,09	,78	,20	,017	,010	,010	,001	,108	,103	,018	,530	,017	,002	,002		,28
W-16x100	60434	,09	,79	,20	,018	,019	,010	,002	,079	,109	,021	,553	,016	,002	,002		,28
W-16x100	60435	,09	,81	,20	,020	,023	,010	,002	,079	,107	,020	,581	,016	,002	,002		,29
W-16x100	60439	,09	,73	,20	,028	,008	,010	,002	,132	,115	,021	,598	,016	,002	,002		,29
W-16x100	60484	,08	1,13	,22	,022	,016	,011	,003	,104	,113	,024	,566	,018	,003	,002		,34
W-16x67	60430	,09	,83	,21	,017	,019	,010	,003	,064	,113	,021	,581	,017	,002	,002		,29
W-16x67	60478	,08	1,12	,20	,020	,027	,010	,002	,104	,151	,023	,594	,017	,002	,002		,34
W-16x67	60479	,07	1,17	,20	,019	,026	,009	,002	,138	,114	,028	,538	,017	,002	,002		,34
W-16x67	60480	,09	1,09	,26	,022	,014	,011	,002	,125	,115	,023	,540	,018	,002	,002		,34
W-16x67	60481	,09	1,04	,24	,025	,014	,010	,002	,121	,115	,021	,595	,016	,002	,002		,34
W-16x77	60428	,10	,77	,21	,014	,006	,011	,002	,078	,110	,019	,532	,017	,002	,002		,29
W-16x77	60429	,10	,76	,22	,019	,018	,010	,002	,065	,128	,022	,536	,016	,002	,002		,29
W-16x77	60432	,09	,80	,21	,022	,022	,011	,003	,086	,115	,021	,569	,017	,002	,002		,29
W-16x77	60483	,09	1,12	,21	,020	,027	,011	,003	,084	,121	,025	,585	,017	,002	,002		,35
W-16x77	60484	,08	1,13	,22	,022	,016	,011	,003	,104	,113	,024	,566	,018	,003	,002		,34
W-16x89	60434	,09	,79	,20	,018	,019	,010	,002	,079	,109	,021	,553	,016	,002	,002		,28
W-16x89	60438	,10	,80	,21	,020	,007	,012	,002	,077	,120	,019	,574	,016	,002	,002		,29
W-16x89	60439	,09	,73	,20	,028	,008	,010	,002	,132	,115	,021	,598	,016	,002	,002		,29
W-16x89	60442	,12	,77	,19	,021	,022	,012	,002	,108	,105	,018	,535	,016	,002	,002		,32
W-16x89	60443	,09	,81	,22	,016	,018	,009	,002	,082	,110	,018	,504	,016	,002	,002		,28
W-18x119	60498	,09	,83	,21	,014	,019	,012	,002	,066	,126	,023	,474	,018	,002	,002		,29
W-18x119	60510	,08	,73	,20	,021	,016	,010	,001	,113	,107	,020	,618	,017	,002	,002		,28
W-18x119	60513	,09	,76	,20	,019	,024	,012	,002	,104	,101	,023	,554	,014	,002	,002		,28
W-18x119	60514	,08	,79	,22	,022	,026	,011	,002	,083	,120	,024	,584	,018	,002	,002		,28
W-18x130	60495	,08	,80	,22	,016	,013	,010	,002	,095	,144	,022	,535	,017	,002	,002		,28
W-18x130	60496	,09	,74	,21	,019	,013	,011	,002	,119	,123	,022	,569	,017	,002	,002		,29
W-18x130	60497	,08	,80	,24	,016	,012	,011	,002	,101	,107	,019	,498	,018	,002	,002		,28



CERTIFICADO DE CALIDAD

APS 3726

MATERIAL SIZE	COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)															Cev	
		C	Mn	Si	P	S	N	V	Cr	Ni	Mo	Cu	Nb	Al	Ti			
B11	B08	C71	C72	C73	C74	C75	C76	C77	C78									
W-14x61	60490	,07	,80	,23	,016	,018	,012	,001	,127	,138	,022	,544	,017	,003	,002			,28
W-14x61	60491	,08	,85	,21	,018	,017	,011	,002	,125	,125	,020	,568	,018	,002	,002			,30
W-14x61	60492	,09	,76	,20	,017	,016	,012	,002	,088	,121	,023	,590	,017	,002	,002			,28
W-14x61	60493	,08	,80	,20	,021	,017	,011	,002	,172	,100	,024	,530	,017	,002	,002			,29
W-14x68	60450	,09	,82	,21	,015	,022	,010	,002	,078	,115	,019	,502	,017	,002	,002			,29
W-14x68	60494	,08	,76	,22	,018	,020	,011	,002	,117	,101	,021	,599	,017	,002	,002			,28
W-14x68	60495	,08	,80	,22	,016	,013	,010	,002	,095	,144	,022	,535	,017	,002	,002			,28
W-14x68	60496	,09	,74	,21	,019	,013	,011	,002	,119	,123	,022	,569	,017	,002	,002			,29
W-14x68	60497	,08	,80	,24	,016	,012	,011	,002	,101	,107	,019	,498	,018	,002	,002			,28
W-14x68	60510	,08	,73	,20	,021	,016	,010	,001	,113	,107	,020	,618	,017	,002	,002			,28
W-14x74	59051	,09	,81	,19	,020	,028	,010	,002	,087	,096	,019	,512	,016	,002	,002			,29
W-14x74	60506	,09	,69	,19	,021	,024	,012	,001	,118	,117	,023	,622	,016	,002	,002			,28
W-14x74	60507	,09	,75	,20	,017	,017	,010	,001	,094	,110	,020	,615	,017	,002	,002			,28
W-14x74	60509	,08	,72	,21	,022	,013	,011	,002	,151	,114	,020	,598	,015	,003	,002			,29
W-14x82	56462	,09	,85	,20	,018	,012	,012	,002	,100	,121	,024	,513	,015	,002	,001			,30
W-14x82	60499	,09	,74	,18	,017	,014	,011	,002	,120	,117	,023	,555	,017	,002	,002			,28
W-14x82	60500	,08	,79	,21	,015	,029	,011	,002	,092	,115	,023	,581	,017	,002	,002			,28
W-14x82	60501	,08	,81	,23	,015	,014	,010	,001	,086	,108	,019	,629	,019	,002	,002			,29
W-14x82	60502	,08	,75	,19	,018	,021	,011	,002	,093	,109	,022	,621	,017	,002	,002			,28
W-14x82	60504	,08	,79	,20	,018	,015	,011	,001	,091	,101	,019	,588	,017	,002	,002			,28
W-14x82	60505	,09	,78	,20	,017	,010	,010	,001	,108	,103	,018	,530	,017	,002	,002			,28
W-16x100	60434	,09	,79	,20	,018	,019	,010	,002	,079	,109	,021	,553	,016	,002	,002			,28
W-16x100	60435	,09	,81	,20	,020	,023	,010	,002	,079	,107	,020	,581	,016	,002	,002			,28
W-16x100	60439	,09	,73	,20	,028	,008	,010	,002	,132	,115	,021	,598	,016	,002	,002			,29
W-16x100	60484	,08	1,13	,22	,022	,016	,011	,003	,104	,113	,024	,566	,018	,003	,002			,29
W-16x67	60430	,09	,83	,21	,017	,019	,010	,003	,064	,113	,021	,581	,017	,002	,002			,34
W-16x67	60478	,08	1,12	,20	,020	,027	,010	,002	,104	,151	,023	,594	,017	,002	,002			,29
W-16x67	60479	,07	1,17	,20	,019	,026	,009	,002	,138	,114	,028	,538	,017	,002	,002			,34
W-16x67	60480	,09	1,09	,26	,022	,014	,011	,002	,125	,115	,023	,540	,018	,002	,002			,34
W-16x67	60481	,09	1,04	,24	,025	,014	,010	,002	,121	,115	,021	,595	,016	,002	,002			,34
W-16x77	60428	,10	,77	,21	,014	,006	,011	,002	,078	,110	,019	,532	,017	,002	,002			,29
W-16x77	60429	,10	,76	,22	,019	,018	,010	,002	,065	,128	,022	,536	,016	,002	,002			,29
W-16x77	60432	,09	,80	,21	,022	,022	,011	,003	,086	,115	,021	,569	,017	,002	,002			,29
W-16x77	60483	,09	1,12	,21	,020	,027	,011	,003	,084	,121	,025	,585	,017	,002	,002			,29
W-16x77	60484	,08	1,13	,22	,022	,016	,011	,003	,104	,113	,024	,566	,018	,003	,002			,35
W-16x89	60434	,09	,79	,20	,018	,019	,010	,002	,079	,109	,021	,553	,016	,002	,002			,34
W-16x89	60438	,10	,80	,21	,020	,007	,012	,002	,077	,120	,019	,574	,016	,002	,002			,28
W-16x89	60439	,09	,73	,20	,028	,008	,010	,002	,132	,115	,021	,598	,016	,002	,002			,29
W-16x89	60442	,12	,77	,19	,021	,022	,012	,002	,108	,105	,018	,535	,016	,002	,002			,29
W-16x89	60443	,09	,81	,22	,016	,018	,009	,002	,082	,110	,018	,504	,016	,002	,002			,32
W-18x119	60498	,09	,83	,21	,014	,019	,012	,002	,066	,126	,023	,474	,018	,002	,002			,28
W-18x119	60510	,08	,73	,20	,021	,016	,010	,001	,113	,107	,020	,618	,017	,002	,002			,29
W-18x119	60513	,09	,76	,20	,019	,024	,012	,002	,104	,101	,023	,554	,014	,002	,002			,28
W-18x119	60514	,08	,79	,22	,022	,026	,011	,002	,083	,120	,024	,584	,018	,002	,002			,28
W-18x130	60495	,08	,80	,22	,016	,013	,010	,002	,095	,144	,022	,535	,017	,002	,002			,28
W-18x130	60496	,09	,74	,21	,019	,013	,011	,002	,119	,123	,022	,569	,017	,002	,002			,28
W-18x130	60497	,08	,80	,24	,016	,012	,011	,002	,101	,107	,019	,498	,018	,002	,002			,29



ACERALIA PERFILES
Grupo Arcelor

CARRETERA TOLEDO, KM. 9
28021 MADRID
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CERTIFICADO DE CALIDAD

APS 3726

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES				FLEXIÓN POR CHOQUE IMPACT TEST					
		ReH MPa	Rm MPa	A% L0=5.65VS0	Doblado 180°	°C	KV300	V1 j.	V2 j.	V3 j.	Media j.
B11	B06	C11	C12	C13	C50	C03	C40/41	C42			C43
W-14x68	60494	380	480	23,7							
W-14x68	60495	371	484	22,6							
W-14x68	60496	377	486	23,7							
W-14x68	60497	372	482	22,7							
W-14x68	60510	371	483	23,7							
W-14x74	59051	381	492	23,1							
W-14x74	60506	392	495	23,3							
W-14x74	60507	381	493	23,6							
W-14x74	60509	381	495	23,6							
W-14x82	56462	386	489	22,9							
W-14x82	60499	380	480	24,7							
W-14x82	60500	379	476	24,							
W-14x82	60501	376	472	24,2							
W-14x82	60502	346	466	23,6							
W-14x82	60504	374	476	24,3							
W-14x82	60505	375	484	23,8							
W-16x100	60434	370	475	25,1							
W-16x100	60435	366	470	24,9							
W-16x100	60439	370	476	25,3							
W-16x100	60484	401	505	24,9							
W-16x67	60430	380	485	23,6							
W-16x67	60478	394	500	22,7							
W-16x67	60479	398	501	23,2							
W-16x67	60480	397	507	23,							
W-16x67	60481	406	513	23,2							
W-16x77	60428	395	485	25,							
W-16x77	60429	383	483	23,8							
W-16x77	60432	399	487	24,9							
W-16x77	60483	399	500	23,9							
W-16x77	60484	401	502	24,8							
W-16x89	60434	385	485	24,1							
W-16x89	60438	380	489	23,9							
W-16x89	60439	379	488	24,1							
W-16x89	60442	400	500	23,7							
W-16x89	60443	378	485	24,3							
W-18x119	60498	380	490	24,8							
W-18x119	60510	366	475	25,1							
W-18x119	60513	364	479	24,							
W-18x119	60514	363	476	25,3							
W-18x130	60495	370	481	23,3							
W-18x130	60496	360	480	23,							
W-18x130	60497	363	473	24,5							
W-18x143	60492	373	483	23,1							
W-18x143	60493	371	482	23,6							
W-18x143	60494	348	474	22,9							
W-18x143	60495	370	481	23,1							
W-18x86	60515	367	473	26,6							

CERTIFICADO DE CALIDAD - QUALITY CERTIFICATE

MAD 7465

DISCHARGE ADDRESS		CUSTOMER	
FERRE BARNIEDO, S.A. DE C.V. AV REVOLUCION,81 CP 55000 ECATEPEC EDO DE MEXICO		FERRE BARNIEDO, S.A. DE C.V. AV REVOLUCION,81 CP 55000 ECATEPEC EDO DE MEXICO	
SHIPPED AND CERTIFIED BY		CREDIT NUMBER	PORT OF LOADING
ACERALIA PERFILES MADRID CARRETERA TOLEDO, KM. 9 28021 MADRID TELEF. (91) 797.23.00 - FAX (91) 795.31.81			PASAJES, SPAIN
		PORT OF DISCHARGE	VESSEL
		TAMPICO	ANTHIA
OUR REFERENCE	CONTRACT NUMBER	ORDER NUMBER	DATE
MERCHE	E-19292	4º Trim. 04	15/12/2004

Material: WF Vigas, calidad DUAL ASTM A-36 / A 572 Gr. 50

El exportador de los productos incluidos en el presente documento,
Autorización aduanera no.

ACERALIA PERFILES MADRID, S.L. ES/28/0047/03

Declara que, salvo indicación en sentido contrario, estos productos
gozan de un origen preferencial ESPAÑA

27496

SIZE	LENGTH	BUNDLES	PIECES BUNDLES	TOTAL PIECES	WEIGHT BUNDLES	TOTAL WEIGHT	HEAT
/ BLANCO							
WF BEAMS 10x49 <i>1010073</i>	40'	11	6	66	5334	58.674	61555,61556,61557
WF BEAMS 18x143 <i>1811213</i>	40'	18	2	36	5189	93.402	61728,61748,61749,61750
WF BEAMS 14x61 <i>1410091</i>	40'	18	4	72	4427	79.686	61706,61708,61710,61711,61713
WF BEAMS 14x68 <i>1410101</i>	40'	12	4	48	4935	59.220	61721,61722,61723,61725
WF BEAMS 14x74 <i>1410110</i>	40'	19	4	76	5371	102.049	61707,61746,61747,61748
WF BEAMS 21x62 <i>2108092</i>	40'	11	5	55	5625	61.875	61568,61614,61615,61650,61651
WF BEAMS 21x68 <i>2108101</i>	40'	12	4	48	4935	59.220	61565,61566,61615,61616,61650

TOTAL BUNDLES 101 TOTAL WEIGHT 514.126 Kg.

A02 EN 10204/3.1.b		ASTM A36 - A572 G50/A6														(B01/B02/B03) A03	
C70:E MATERIAL SIZE	COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)															
		C	Mn	Si	P	S	N	V	Cr	Ni	Mo	Cu	Nb	Al	Ti		Cev
B11	B08	C71	C72	C73	C74	C75	C76	C77	C78								
W-10x49	61555	,09	,80	,22	,020	,022	,011	,002	,081	,133	,020	,506	,018	,002	,002		,28
W-10x49	61556	,09	,75	,20	,019	,027	,011	,002	,111	,121	,054	,504	,016	,002	,002		,29
W-10x49	61557	,09	,72	,19	,017	,024	,011	,002	,116	,113	,028	,535	,015	,002	,002		,28
W-14x61	61706	,08	,75	,21	,026	,021	,010	,002	,116	,129	,021	,568	,017	,002	,002		,28
W-14x61	61708	,09	,77	,22	,031	,017	,009	,003	,126	,110	,018	,582	,018	,002	,002		,29



CERTIFICADO DE CALIDAD - QUALITY CERTIFICATE

MAD 7465

MATERIAL SIZE	COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)															Cev
		C	Mn	Si	P	S	N	V	Cr	Ni	Mo	Cu	Nb	Al	Ti		
B11	B08	C71	C72	C73	C74	C75	C76	C77	C78								
W-14x61	61710*	,09	,79	,22	,022	,014	,010	,002	,124	,111	,016	,517	,017	,002	,002		,29
W-14x61	61711	,09	,80	,19	,015	,026	,010	,002	,079	,119	,020	,519	,016	,002	,002		,29
W-14x61	61713	,08	,85	,21	,014	,016	,011	,002	,074	,118	,022	,447	,019	,002	,002		,28
W-14x68	61721	,08	,77	,20	,015	,024	,010	,002	,095	,124	,020	,562	,017	,002	,002		,28
W-14x68	61722	,08	,80	,22	,013	,018	,010	,002	,076	,127	,021	,626	,018	,002	,002		,28
W-14x68	61723	,08	,76	,21	,022	,015	,011	,002	,119	,122	,023	,615	,018	,002	,002		,29
W-14x68	61725	,09	,76	,20	,024	,013	,010	,002	,137	,117	,025	,530	,018	,002	,002		,29
W-14x74	61707	,08	,73	,21	,016	,014	,009	,002	,117	,117	,020	,577	,016	,002	,002		,28
W-14x74	61746	,10	,74	,18	,022	,021	,011	,002	,130	,140	,021	,539	,017	,002	,002		,29
W-14x74	61747	,09	,76	,20	,018	,025	,010	,002	,079	,141	,020	,622	,016	,002	,002		,28
W-14x74	61748	,09	,71	,20	,015	,019	,010	,002	,111	,172	,031	,625	,017	,002	,002		,29
W-18x143	61728	,09	,79	,21	,019	,017	,010	,002	,108	,113	,020	,495	,017	,002	,002		,29
W-18x143	61748	,09	,71	,20	,015	,019	,010	,002	,111	,172	,031	,625	,017	,002	,002		,29
W-18x143	61750	,08	,70	,19	,023	,020	,010	,002	,114	,151	,028	,664	,018	,002	,002		,28
W-21x62	61568	,10	,73	,21	,021	,021	,010	,002	,109	,127	,022	,556	,017	,002	,002		,29
W-21x62	61614	,08	,76	,21	,018	,026	,010	,002	,149	,117	,020	,574	,017	,002	,002		,29
W-21x62	61615	,09	,77	,20	,024	,021	,010	,002	,140	,112	,017	,502	,016	,002	,002		,29
W-21x62	61650	,10	,75	,20	,015	,027	,010	,002	,076	,136	,046	,593	,016	,002	,002		,30
W-21x62	61651	,09	,74	,19	,014	,015	,010	,002	,074	,120	,027	,598	,016	,002	,002		,28
W-21x68	61565	,09	,80	,21	,015	,021	,010	,002	,089	,125	,022	,557	,016	,002	,002		,29
W-21x68	61566	,09	,80	,22	,019	,026	,010	,002	,094	,119	,020	,546	,018	,002	,002		,29
W-21x68	61615	,09	,77	,20	,024	,021	,010	,002	,140	,112	,017	,502	,016	,002	,002		,29
W-21x68	61616	,08	,72	,20	,030	,018	,010	,002	,186	,125	,021	,593	,016	,002	,002		,29
W-21x68	61650	,10	,75	,20	,015	,027	,010	,002	,076	,136	,046	,593	,016	,002	,002		,30

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES				FLEXIÓN POR CHOQUE IMPACT TEST					
		ReH MPa	Rm MPa	A% L0=5.65VS0	Doblado 180°	°C	KV300	V1 j.	V2 j.	V3 j.	Media j.
B11	B08	C11	C12	C13	C50	C03	C40/41	C42			C43
W-10x49	61555	381	489	23,7							
W-10x49	61556	386	490	23,6							
W-10x49	61557	379	482	24,7							
W-14x61	61706	387	491	25,8							
W-14x61	61708	385	488	25,2							
W-14x61	61710	377	484	24,							
W-14x61	61711	380	488	24,8							
W-14x61	61713	381	482	24,6							
W-14x68	61721	384	491	23,7							
W-14x68	61722	388	491	23,5							
W-14x68	61723	377	489	23,8							
W-14x68	61725	389	493	23,2							
W-14x74	61707	375	479	24,9							
W-14x74	61746	375	479	25,8							
W-14x74	61747	372	481	24,5							
W-14x74	61748	375	480	25,6							
W-18x143	61728	369	475	23,5							
W-18x143	61748	370	479	23,5							
W-18x143	61750	365	478	24,6							
W-21x62	61568	387	487	25,							