

ArcelorMittal Gipuzkoa, S.L.U.  
 Long Carbon Europe  
 CARRETERA MADRID - IRUN, KM. 419  
 20212 OLABERRIA (Gipuzkoa)  
 TELEF. (943) 80.50.00 - FAX (943) 88.04.04



## MILL TEST CERTIFICATE

OLA P-37897

DISCHARGE ADDRESS		CUSTOMER	
SHIPPED AND CERTIFIED BY		CREDIT NUMBER	PORT OF LOADING
ARCELMITTAL OLABERRIA CARRETERA MADRID - IRUN, KM. 419 20212 OLABERRIA (Gipuzkoa) TELEF. (943) 80.50.00 - FAX (943) 88.04.04			BILBAO, SPAIN
		PORT OF DISCHARGE	VESSEL
		ALTAMIRA	ARNEBORG
OUR REFERENCE	CONTRACT NUMBER	ORDER NUMBER	DATE
mcabello	01-E-45721 / 1700017343	600832 / 600857	30/11/2013

Material: WF Vigas,

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

ARCELMITTAL GIPUZKOA, S.L.U. ES/20/0040/03

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

SIZE	LENGTH	BUNDLES	PIECES BUNDLES	TOTAL PIECES	WEIGHT BUNDLES	TOTAL WEIGHT	HEAT
<b>+/WHITE</b>							
WF BEAMS 8x31	40'	23	8	184	4499	103.477	147458,147459,147460, 147461,147462,147463
WF BEAMS 8x40	40'	16	6	96	4355	69.680	147511,147512
WF BEAMS 8x48	40'	10	6	60	5225	52.250	146384,147508
WF BEAMS 10x33	40'	1	8	8	4790	4.790	146777
WF BEAMS 10x45	40'	1	3	3	2449	2.449	146774
WF BEAMS 10x49	40'	10	6	60	5334	53.340	147479,147480,147482
WF BEAMS 10x54	40'	1	2	2	1959	1.959	142149
WF BEAMS 10x54	40'	13	4	52	3919	50.947	147464
WF BEAMS 12x72	40'	19	4	76	5225	99.275	147688,147689,147691, 147774
WF BEAMS 12x79	40'	61	4	244	5734	349.774	147747,147767,147769, 147770,147771,147772, 147773,147774,147775
WF BEAMS 16x77	40'	3	3	9	4191	12.573	144565
WF BEAMS 21x44	40'	42	5	210	3992	167.664	147466,147467,147468, 147469,147471,147472, 147474
WF BEAMS 21x44	40'	1	4	4	3193	3.193	147465
WF BEAMS 21x55	40'	13	4	52	3992	51.896	147421,147422,147431
WF BEAMS 21x62	40'	67	4	268	4500	301.500	147438,147439,147440, 147441,147442,147443

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SIZE	LENGTH	BUNDLES	PIECES BUNDLES	TOTAL PIECES	WEIGHT BUNDLES	TOTAL WEIGHT	HEAT
WF BEAMS 21x73	40'	1	2	2	2649	2.649	145964
WF BEAMS 21x73	40'	19	4	76	5298	100.862	147447,147448
WF BEAMS 21x83	40'	22	3	66	4518	99.396	147451,147452
WF BEAMS 21x93	40'	10	3	30	5062	50.620	147452
WF BEAMS 24x55	40'	1	5	5	4990	4.990	146398
WF BEAMS 24x62	40'	3	4	12	4500	13.500	146399,146400
WF BEAMS 24x68	40'	14	3	42	3701	51.814	145371,147493
WF BEAMS 24x84	40'	11	3	33	4572	50.292	146462,146463,147504, 147505,147521
WF BEAMS 14x22	40'	32	12	384	4790	153.280	147214,147215,147859, 147862,147864,147865
TOTAL BUNDLES		394		TOTAL WEIGHT		1.851.970 Kg.	

A02 EN 10204/3.1

CSA G40.21 50W/ASTM A572 G50/A992/A6

(B01/B02/B03) A03

COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)														
	C	Mn	Si	P	S	V	Cr	Ni	Mo	Cu	Nb	Sn	Al	CEV	
142149	,122	1,380	,240	,015	,008	,033	,130	,130	,031	,470	,003	,039	,001	,43	
144565	,082	1,000	,200	,022	,020	,040	,140	,170	,027	,430	,008	,045	,001	,33	
145371	,079	1,030	,200	,031	,017	,038	,250	,230	,038	,360	,003	,024	,003	,36	
145964	,079	1,010	,190	,026	,017	,036	,160	,150	,021	,440	,003	,024	,001	,33	
146384	,071	,960	,180	,014	,016	,036	,140	,190	,027	,340	,003	,029	,004	,31	
146398	,114	1,050	,200	,014	,014	,038	,180	,230	,046	,380	,003	,038	,003	,38	
146399	,089	1,000	,200	,014	,018	,050	,210	,240	,036	,430	,003	,030	,003	,36	
146400	,094	,980	,180	,011	,013	,032	,160	,230	,037	,350	,003	,024	,003	,34	
146462	,089	1,050	,220	,016	,019	,038	,320	,340	,100	,310	,003	,069	,003	,40	
146463	,078	1,010	,200	,011	,016	,035	,180	,310	,073	,320	,003	,061	,002	,35	
146774	,099	1,080	,180	,031	,019	,041	,290	,240	,048	,390	,003	,031	,002	,40	
146777	,087	1,020	,170	,020	,018	,037	,240	,210	,043	,310	,003	,034	,002	,36	
147214	,096	1,020	,190	,023	,023	,037	,210	,180	,037	,410	,003	,039	,003	,36	
147215	,114	1,110	,190	,030	,019	,038	,230	,210	,033	,440	,003	,035	,002	,40	
147421	,071	1,020	,180	,024	,015	,035	,150	,150	,030	,400	,003	,033	,003	,32	
147422	,078	1,030	,160	,021	,019	,032	,130	,130	,026	,370	,003	,028	,003	,32	
147431	,083	,960	,190	,022	,016	,034	,160	,170	,030	,420	,003	,033	,004	,33	
147438	,075	1,040	,170	,022	,022	,037	,170	,160	,027	,370	,003	,027	,001	,33	
147439	,078	1,020	,150	,018	,020	,036	,150	,150	,027	,410	,003	,026	,001	,33	
147440	,083	1,040	,150	,019	,024	,038	,140	,150	,026	,380	,003	,031	,001	,33	
147441	,095	,990	,180	,020	,027	,036	,150	,150	,026	,360	,003	,032	,002	,34	
147442	,118	1,030	,180	,017	,018	,037	,150	,150	,028	,340	,003	,027	,002	,37	
147443	,065	1,050	,200	,022	,019	,044	,150	,160	,027	,490	,003	,025	,003	,33	
147447	,075	1,030	,190	,018	,020	,035	,140	,170	,029	,350	,003	,026	,003	,32	
147448	,094	1,180	,170	,021	,020	,045	,230	,190	,041	,320	,003	,027	,002	,39	
147451	,093	,960	,170	,016	,019	,034	,130	,140	,031	,340	,003	,024	,001	,32	
147452	,076	,980	,190	,021	,016	,033	,160	,170	,028	,320	,003	,034	,004	,32	
147458	,089	1,020	,190	,023	,014	,039	,200	,150	,041	,390	,003	,029	,004	,35	
147459	,092	,990	,180	,025	,012	,038	,190	,220	,049	,370	,003	,025	,003	,35	

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COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)														CEV									
	C	Mn	Si	P	S	V	Cr	Ni	Mo	Cu	Nb	Sn	Al											
147460	,089	1,060	,200	,024	,014	,038	,200	,170	,032	,350	,003	,031	,003	,35										
147461	,098	1,040	,170	,027	,012	,037	,160	,160	,027	,350	,003	,029	,003	,35										
147462	,100	1,000	,180	,026	,017	,038	,250	,170	,038	,350	,003	,026	,001	,37										
147463	,104	,990	,200	,026	,014	,038	,270	,200	,058	,350	,003	,030	,001	,38										
147464	,093	1,050	,180	,021	,017	,037	,190	,180	,037	,360	,003	,030	,001	,36										
147465	,083	1,060	,180	,027	,018	,037	,180	,180	,034	,390	,003	,027	,002	,35										
147466	,080	,990	,170	,023	,020	,038	,180	,180	,030	,380	,003	,027	,001	,33										
147467	,103	1,250	,210	,022	,017	,037	,170	,190	,028	,430	,003	,027	,001	,40										
147468	,089	1,010	,200	,022	,022	,039	,170	,170	,034	,390	,003	,027	,003	,34										
147469	,092	1,000	,180	,023	,023	,039	,170	,180	,029	,400	,003	,027	,002	,34										
147471	,091	1,040	,170	,022	,020	,040	,170	,190	,035	,410	,003	,024	,001	,35										
147472	,102	1,030	,200	,024	,019	,042	,170	,230	,040	,420	,003	,019	,004	,37										
147474	,086	1,060	,180	,018	,019	,038	,200	,230	,055	,320	,003	,032	,003	,36										
147479	,084	1,030	,180	,020	,020	,039	,240	,270	,059	,320	,003	,029	,002	,36										
147480	,099	1,020	,180	,018	,020	,040	,130	,180	,033	,320	,003	,025	,004	,34										
147482	,116	1,040	,180	,028	,019	,040	,230	,200	,043	,380	,003	,028	,003	,39										
147493	,094	1,060	,190	,020	,018	,038	,150	,190	,034	,410	,007	,024	,002	,36										
147504	,073	1,050	,160	,016	,019	,038	,180	,220	,033	,300	,003	,024	,002	,33										
147505	,086	1,060	,210	,018	,023	,048	,170	,240	,036	,380	,005	,025	,002	,35										
147508	,106	1,000	,200	,017	,018	,034	,150	,210	,039	,370	,003	,037	,004	,36										
147511	,115	1,070	,200	,022	,016	,039	,210	,220	,052	,390	,003	,039	,003	,39										
147512	,105	1,050	,180	,020	,020	,041	,180	,220	,041	,400	,003	,036	,003	,37										
147521	,099	,990	,160	,021	,016	,043	,190	,620	,145	,410	,005	,034	,002	,41										
147688	,089	,990	,190	,020	,020	,035	,090	,160	,032	,370	,003	,023	,003	,32										
147689	,088	,960	,170	,022	,018	,037	,110	,150	,033	,320	,003	,025	,004	,32										
147691	,077	,970	,170	,019	,029	,037	,120	,190	,040	,350	,003	,021	,003	,31										
147747	,097	1,030	,190	,025	,023	,037	,180	,180	,034	,460	,003	,039	,003	,36										
147767	,093	,970	,180	,020	,018	,034	,110	,170	,026	,330	,003	,022	,003	,32										
147769	,083	,990	,190	,019	,020	,035	,120	,190	,027	,320	,003	,033	,003	,32										
147770	,086	1,000	,190	,016	,020	,033	,110	,170	,034	,290	,003	,026	,002	,32										
147771	,089	1,000	,190	,025	,023	,034	,120	,180	,029	,390	,003	,029	,002	,33										
147772	,071	1,010	,170	,020	,023	,036	,110	,170	,026	,350	,003	,026	,003	,31										
147773	,098	,990	,180	,022	,019	,038	,120	,160	,024	,340	,003	,028	,003	,33										
147774	,111	1,030	,190	,027	,019	,041	,120	,180	,027	,340	,003	,026	,004	,35										
147775	,078	1,020	,180	,027	,019	,038	,130	,200	,034	,310	,003	,026	,003	,32										
MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES							A% LO=8"															
		ReH MPa		Rm MPa																				
W-10x33	146777	394	394	529	511	22,4	22,1																	
W-10x45	146774	395	379	538	530	23,	22,7																	
W-10x49	147479	399	422	558	496	22,3	22,8																	
W-10x49	147480	389	389	515	493	22,4	21,8																	
W-10x49	147482	424	424	560	546	22,4	21,7																	
W-10x54	142149	441	435	546	541	23,1	22,4																	
W-10x54	147464	390	383	521	501	26,4	25,7																	
W-12x72	147688	381	373	506	486	26,5	26,4																	
W-12x72	147689	374	362	505	492	25,2	24,6																	

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MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa		Rm MPa		A% L0=8"	
<small>611</small>	<small>622</small>	<small>611</small>		<small>617</small>		<small>619</small>	
W-12x72	147691	378	371	499	493	26,2	25,9
W-12x72	147774	397	381	510	511	22,8	22,9
W-12x79	147747	392	383	490	493	25,6	23,4
W-12x79	147767	380	387	504	492	24,2	23,7
W-12x79	147769	374	372	508	488	23,7	23,2
W-12x79	147770	373	368	487	484	23,5	23,2
W-12x79	147771	377	371	500	499	23,	22,5
W-12x79	147772	405	393	520	516	22,6	22,6
W-12x79	147773	398	384	537	515	23,9	23,6
W-12x79	147774	376	372	499	483	23,6	22,7
W-12x79	147775	370	362	487	475	22,6	22,3
W-14x22	147214	416	405	550	537	22,9	22,6
W-14x22	147215	417	406	563	551	22,4	21,9
W-16x77	144565	419	409	541	517	23,3	22,6
W-21x44	147465	390	386	521	499	23,7	22,9
W-21x44	147466	396	390	515	493	24,7	24,4
W-21x44	147467	409	399	528	516	23,3	23,2
W-21x44	147468	398	384	503	491	24,	23,9
W-21x44	147469	403	391	524	501	25,4	24,8
W-21x44	147471	413	395	528	508	23,3	22,6
W-21x44	147472	408	397	519	514	26,8	26,3
W-21x44	147474	416	400	524	511	22,5	21,7
W-21x55	147421	414	404	514	514	23,1	22,8
W-21x55	147422	385	375	499	499	24,6	24,6
W-21x55	147431	409	425	529	525	23,2	23,6
W-21x62	147438	381	369	506	485	22,6	22,6
W-21x62	147439	371	363	499	493	26,9	26,1
W-21x62	147440	366	352	493	499	24,2	23,8
W-21x62	147441	365	356	506	495	23,	22,5
W-21x62	147442	383	367	514	498	24,2	23,9
W-21x62	147443	403	409	483	529	22,1	24,1
W-21x73	145964	448	411	558	560	24,8	24,4
W-21x73	147447	418	403	538	516	23,4	22,7
W-21x73	147448	382	370	497	495	23,7	22,8
W-21x83	147451	367	352	488	478	24,2	24,
W-21x83	147452	356	357	499	489	25,4	24,7
W-21x93	147452	372	362	499	487	26,5	25,8
W-24x55	146398	404	404	518	514	23,4	23,1
W-24x62	146399	374	369	506	497	23,3	22,6
W-24x62	146400	387	371	494	492	25,4	25,1
W-24x68	145371	401	398	520	510	22,1	21,6
W-24x68	147493	402	392	513	506	25,1	24,9
W-24x84	146462	387	383	524	506	22,5	22,5
W-24x84	146463	386	400	507	544	22,9	24,
W-24x84	147504	418	411	546	532	22,7	22,1
W-24x84	147505	416	402	539	517	22,6	21,8
W-24x84	147521	409	409	539	525	23,	22,2
W-8x31	147458	406	415	497	539	22,9	23,4

A01

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MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa		Rm MPa		A% LO=8°	
<small>B11</small>	<small>B06</small>	<small>C11</small>		<small>C12</small>		<small>C13</small>	
W-8x31	147459	393	392	534	512	22,4	22,3
W-8x31	147460	399	393	513	505	22,9	22,7
W-8x31	147461	414	407	551	531	22,6	21,8
W-8x31	147462	398	388	537	517	22,3	22,1
W-8x31	147463	397	383	521	499	22,2	22,2
W-8x40	147511	398	398	541	528	23,5	23,3
W-8x40	147512	409	402	542	524	22,3	21,8
W-8x48	146384	380	382	505	507	27,4	23,8
W-8x48	147508	369	359	514	502	23,	22,4

## 64 análisis

Z01

D01: Certificamos que los aceros arriba indicados han sido satisfactoriamente probados de acuerdo con la especificación.  
 B06: Marca AMD

Lorenzo Zabala