

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



## MILL TEST CERTIFICATE

OLA P-39783

DISCHARGE ADDRESS		CUSTOMER	
Aceros del Toro S.A. de C.V. Carretera a Monclova Numero 301 General Escobedo, Nuevo León MEXICO		Aceros del Toro S.A. de C.V. Carretera a Monclova Numero 301 General Escobedo, Nuevo León MEXICO	
SHIPPED AND CERTIFIED BY		CREDIT NUMBER	PORT OF LOADING
ARCELORMITTAL OLABERRIA CARRETERA MADRID - IRUN, KM. 419 20212 OLABERRIA (Guipúzcoa) TELEF. (943) 80.50.00 - FAX (943) 88.04.04			BILBAO, SPAIN
		PORT OF DISCHARGE	VESSEL
		ALTAMIRA	Amazoneborg
OUR REFERENCE	CONTRACT NUMBER	ORDER NUMBER	DATE
P1704509	01-E-46835 / 1700017930	52810	05/05/2014

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 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
+//SILVER							
WF BEAMS 10x33	40'	4	8	32	4790	19.160	149643,149644
WF BEAMS 10x45	40'	4	6	24	4899	19.596	149638,149639,149640
WF BEAMS 10x49	40'	9	6	54	5334	48.006	150025,150026,150027, 150088
WF BEAMS 10x68	40'	1	1	1	1234	1.234	144106
WF BEAMS 10x68	40'	4	4	16	4935	19.740	149991,149992
WF BEAMS 12x53	40'	5	4	20	3846	19.230	150209,150210
WF BEAMS 12x58	40'	5	4	20	4209	21.045	148853,150214
WF BEAMS 12x65	40'	11	4	44	4717	51.887	149585,149587
WF BEAMS 12x79	40'	3	4	12	5734	17.202	149591,150201
WF BEAMS 14x22	40'	8	12	96	4790	38.320	149731,149732
WF BEAMS 14x26	40'	1	6	6	2830	2.830	149116
WF BEAMS 14x26	40'	4	10	40	4717	18.868	149719
WF BEAMS 14x30	40'	5	8	40	4355	21.775	147188,149102,149725, 149726
WF BEAMS 14x61	40'	3	4	12	4427	13.281	148986,148989
WF BEAMS 14x74	40'	5	3	15	4028	20.140	149631
WF BEAMS 14x82	40'	13	3	39	4463	58.019	148981,149630,149631

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SIZE	LENGTH	BUNDLES	PIECES BUNDLES	TOTAL PIECES	WEIGHT BUNDLES	TOTAL WEIGHT	HEAT
WF BEAMS 16x26	40'	14	6	84	2830	39.620	149595,149596,149597,149604,149607,149612,149613
WF BEAMS 16x31	40'	6	6	36	3375	20.250	149556
WF BEAMS 16x40	40'	8	5	40	3629	29.032	149600,149601
WF BEAMS 16x45	40'	5	5	25	4082	20.410	149566
WF BEAMS 16x50	40'	9	5	45	4536	40.824	149563,149564,149602,149603
WF BEAMS 16x67	40'	8	3	24	3647	29.176	150122,150123,150758
WF BEAMS 18x65	40'	6	4	24	4717	28.302	150058
WF BEAMS 21x50	40'	3	5	15	4536	13.608	148931,149631,150212
WF BEAMS 21x50	40'	1	3	3	2722	2.722	149631
WF BEAMS 21x62	40'	4	4	16	4500	18.000	149596,149597,149598
WF BEAMS 21x68	40'	4	4	16	4935	19.740	148944,149604
WF BEAMS 21x68	40'	1	1	1	1234	1.234	149606
WF BEAMS 24x55	40'	10	5	50	4990	49.900	150079,150164,150188
WF BEAMS 16x36	40'	9	5	45	3266	29.394	150093,150096,150097,150098

TOTAL BUNDLES 173

TOTAL WEIGHT 732.545 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
144106	,084	1,030	,190	,017	,023	,031	,080	,210	,035	,430	,003	,035	,003	,33
147188	,117	1,090	,190	,032	,019	,036	,220	,180	,032	,510	,003	,035	,004	,40
148853	,091	1,030	,200	,016	,018	,035	,120	,210	,039	,300	,003	,027	,003	,34
148931	,089	1,000	,190	,011	,022	,034	,110	,190	,033	,260	,003	,032	,002	,32
148944	,070	1,040	,200	,023	,017	,044	,250	,200	,042	,400	,003	,033	,003	,35
148981	,068	,810	,160	,020	,017	,047	,210	,240	,058	,320	,003	,030	,004	,30
148986	,083	1,030	,180	,021	,017	,038	,240	,210	,053	,340	,003	,052	,005	,36
148989	,073	1,010	,180	,018	,017	,034	,170	,200	,049	,500	,003	,042	,002	,34
149102	,102	1,030	,180	,014	,015	,034	,150	,190	,034	,390	,003	,024	,004	,36
149116	,085	1,020	,170	,013	,017	,037	,140	,210	,039	,330	,003	,027	,003	,33
149556	,095	,650	,160	,023	,016	,051	,140	,180	,032	,380	,003	,022	,001	,29
149563	,101	,700	,210	,024	,022	,045	,150	,180	,031	,440	,003	,034	,004	,30
149564	,096	,700	,170	,022	,020	,047	,150	,160	,030	,380	,003	,031	,003	,29
149566	,100	,680	,200	,026	,015	,050	,210	,210	,039	,430	,003	,031	,004	,32
149585	,094	,660	,180	,020	,018	,044	,160	,140	,036	,430	,003	,032	,004	,29
149587	,075	,680	,190	,034	,020	,047	,200	,150	,033	,420	,003	,033	,004	,28
149591	,105	,730	,180	,025	,018	,046	,210	,180	,036	,400	,003	,029	,004	,32
149595	,087	,710	,180	,022	,018	,044	,170	,200	,038	,350	,003	,024	,003	,29
149596	,082	,750	,170	,014	,023	,047	,140	,180	,036	,310	,003	,020	,002	,28
149597	,101	,660	,180	,016	,019	,044	,160	,230	,045	,410	,003	,034	,003	,30
149598	,090	,680	,180	,025	,023	,046	,160	,200	,034	,430	,003	,031	,001	,29

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	C	Mn	Si	P	S	V	Cr	Ni	Mo	Cu	Nb	Sn	Al	CEV						
149600	,096	,670	,190	,025	,016	,046	,160	,150	,033	,430	,003	,023	,003	,29						
149601	,087	,640	,190	,028	,024	,052	,150	,140	,037	,420	,003	,028	,004	,28						
149602	,097	,670	,160	,024	,024	,051	,150	,150	,037	,390	,003	,030	,001	,29						
149603	,100	,690	,150	,025	,022	,051	,150	,150	,033	,450	,003	,029	,001	,30						
149604	,098	,680	,190	,024	,022	,052	,170	,150	,034	,450	,003	,029	,002	,30						
149606	,103	,670	,180	,024	,024	,044	,170	,130	,030	,450	,003	,029	,001	,30						
149607	,093	,650	,170	,021	,024	,063	,160	,140	,027	,430	,003	,029	,001	,29						
149612	,103	,650	,170	,015	,019	,044	,130	,200	,035	,430	,003	,030	,004	,30						
149613	,084	,700	,200	,026	,018	,049	,150	,180	,036	,440	,003	,026	,002	,29						
149630	,092	,650	,160	,028	,019	,045	,150	,160	,032	,520	,003	,025	,001	,29						
149631	,097	,670	,180	,030	,021	,045	,190	,160	,032	,480	,003	,026	,001	,30						
149638	,115	,650	,170	,024	,014	,047	,210	,210	,034	,500	,003	,028	,002	,33						
149639	,109	,690	,190	,022	,014	,052	,160	,190	,036	,380	,003	,026	,003	,31						
149640	,091	,740	,180	,024	,023	,052	,160	,180	,035	,410	,003	,028	,003	,30						
149643	,093	,680	,180	,031	,019	,052	,150	,170	,032	,430	,003	,024	,002	,29						
149644	,110	,680	,180	,030	,020	,055	,160	,150	,030	,470	,003	,028	,002	,31						
149719	,112	,700	,160	,013	,018	,045	,090	,160	,031	,380	,003	,041	,001	,30						
149725	,112	,690	,190	,023	,010	,046	,110	,150	,027	,390	,003	,038	,003	,30						
149726	,115	,690	,190	,022	,015	,049	,170	,150	,029	,350	,003	,036	,005	,31						
149731	,082	,690	,160	,016	,018	,044	,140	,200	,055	,350	,003	,063	,003	,28						
149732	,097	,700	,170	,021	,019	,045	,130	,180	,039	,360	,003	,039	,004	,29						
149991	,093	,670	,180	,021	,021	,045	,110	,180	,036	,390	,003	,024	,001	,28						
149992	,098	,640	,190	,024	,016	,044	,110	,170	,036	,380	,003	,029	,003	,28						
150025	,089	,670	,190	,023	,019	,044	,110	,180	,036	,390	,003	,039	,004	,28						
150026	,082	,670	,190	,022	,018	,045	,120	,160	,040	,400	,003	,035	,004	,27						
150027	,092	,660	,190	,025	,021	,061	,130	,160	,041	,400	,003	,031	,005	,29						
150058	,103	,720	,180	,021	,018	,047	,140	,160	,027	,380	,003	,023	,002	,30						
150079	,096	,710	,190	,018	,017	,047	,110	,170	,030	,350	,003	,017	,003	,29						
150088	,103	,660	,170	,016	,016	,046	,150	,220	,042	,320	,003	,019	,003	,30						
150093	,106	,670	,200	,015	,017	,047	,110	,190	,032	,350	,003	,043	,004	,29						
150096	,096	,700	,180	,018	,018	,046	,130	,180	,030	,360	,003	,032	,003	,29						
150097	,090	,710	,200	,016	,023	,047	,110	,190	,034	,390	,003	,027	,004	,29						
150098	,090	,710	,200	,016	,033	,050	,110	,180	,034	,440	,003	,024	,004	,29						
150122	,080	,710	,180	,020	,023	,048	,140	,200	,036	,390	,003	,020	,004	,28						
150123	,090	,700	,180	,013	,029	,043	,120	,190	,039	,390	,003	,019	,004	,29						
150164	,088	,710	,170	,020	,024	,046	,100	,190	,030	,370	,003	,025	,001	,28						
150188	,103	,720	,210	,016	,018	,048	,130	,250	,039	,420	,003	,032	,003	,31						
150201	,091	,780	,220	,020	,013	,046	,120	,230	,034	,440	,003	,027	,004	,31						
150209	,091	,680	,190	,022	,018	,043	,160	,210	,028	,450	,003	,022	,002	,29						
150210	,110	,740	,150	,020	,022	,048	,190	,210	,035	,410	,003	,023	,001	,33						
150212	,095	,680	,170	,013	,019	,042	,100	,190	,032	,330	,003	,025	,002	,28						
150214	,097	,710	,200	,013	,020	,047	,100	,210	,033	,330	,003	,023	,005	,29						
150758	,112	,750	,190	,019	,018	,049	,160	,160	,039	,410	,003	,033	,003	,32						



MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa	Rm MPa	A% LO=8"			
W-10x33	149643	397	395	526	512	22,4	21,8

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MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES					
		ReH MPa		Rm MPa		A% L0=8"	
B11	B08	C11		C10		C13	
W-10x33	149644	397	387	508	498	22,3	21,9
W-10x45	149638	394	386	522	512	23,1	22,5
W-10x45	149639	387	379	515	497	24,6	23,9
W-10x45	149640	376	372	492	492	22,5	22,3
W-10x49	150025	383	383	532	546	24,2	24,1
W-10x49	150026	420	378	490	537	22,7	24,7
W-10x49	150027	376	417	507	502	23,5	24,7
W-10x49	150088	413	405	520	502	22,5	22,2
W-10x68	144106	390	388	521	509	26,4	25,5
W-10x68	149991	376	370	498	488	22,7	22,5
W-10x68	149992	376	374	490	490	23,7	25,
W-12x53	150209	421	409	533	529	23,	22,7
W-12x53	150210	388	384	502	492	25,2	25,
W-12x58	148853	402	388	529	525	22,9	22,5
W-12x58	150214	415	404	515	503	25,4	24,7
W-12x65	149585	368	373	525	490	24,	23,
W-12x65	149587	427	419	507	553	25,1	25,6
W-12x79	149591	394	382	505	485	25,3	24,3
W-12x79	150201	381	368	507	485	24,2	23,9
W-14x22	149731	423	413	525	515	22,6	21,8
W-14x22	149732	408	398	533	531	23,	22,3
W-14x26	149116	416	406	538	534	23,1	22,3
W-14x26	149719	437	421	563	557	23,4	23,4
W-14x30	147188	402	395	562	559	23,7	23,2
W-14x30	149102	400	394	546	523	22,7	21,9
W-14x30	149725	384	380	518	507	22,6	22,2
W-14x30	149726	393	392	520	498	22,6	22,1
W-14x61	148986	391	389	504	502	25,	25,
W-14x61	148989	375	377	491	492	23,	23,
W-14x74	149631	413	409	545	543	23,8	23,2
W-14x82	148981	377	369	495	503	24,9	24,8
W-14x82	149630	367	358	498	482	23,	22,9
W-14x82	149631	380	366	501	495	22,4	21,7
W-16x26	149595	420	402	522	506	24,	23,3
W-16x26	149596	411	399	522	514	24,3	23,8
W-16x26	149597	434	420	534	523	23,3	22,6
W-16x26	149604	450	438	567	551	22,8	22,7
W-16x26	149607	446	434	527	521	22,2	22,
W-16x26	149612	434	416	550	534	22,3	21,9
W-16x26	149613	439	435	538	536	22,4	22,
W-16x31	149556	420	414	534	522	24,3	23,9
W-16x36	150093	380	385	551	554	23,9	24,4
W-16x36	150096	398	396	512	502	22,5	22,
W-16x36	150097	387	375	503	489	22,9	22,4
W-16x36	150098	389	374	497	491	22,9	22,5
W-16x40	149600	390	390	510	492	23,6	22,7
W-16x40	149601	402	386	511	499	23,7	23,3
W-16x45	149566	388	372	497	489	22,4	21,8

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		ReH MPa		Rm MPa		A% LO=8"	
D01	D06	C11		C12		C13	
W-16x50	149563	386	374	519	499	22,9	22,
W-16x50	149564	381	367	491	491	22,7	22,5
W-16x50	149602	385	379	515	513	25,	24,9
W-16x50	149603	383	377	512	506	22,8	22,
W-16x67	150122	386	377	497	488	22,8	22,1
W-16x67	150123	355	345	470	452	24,1	23,3
W-16x67	150758	385	379	514	496	22,4	22,3
W-18x65	150058	403	392	529	528	22,8	22,1
W-21x50	148931	384	372	509	495	24,2	23,6
W-21x50	149631	409	399	518	511	23,7	23,
W-21x50	150212	396	380	508	502	22,4	22,2
W-21x62	149596	409	396	513	495	22,1	22,1
W-21x62	149597	406	392	518	503	22,9	22,3
W-21x62	149598	381	381	506	498	24,6	23,8
W-21x68	148944	381	376	511	497	22,7	22,5
W-21x68	149604	385	383	522	517	25,5	24,
W-21x68	149606	376	374	505	485	22,9	22,2
W-24x55	150079	395	386	519	497	25,6	25,1
W-24x55	150164	388	372	504	497	22,7	22,2
W-24x55	150188	378	372	514	495	24,3	24,

### 64 análisis

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

Z01

Lorenzo Zabala

