

**QUALITY CERTIFICATE**

**APS P-6048**

MATERIAL SIZE	COLADA HEAT	COMPOSICION QUIMICA (%) CHEMICAL COMPOSITION (%)															
		C	Mn	SI	P	S	N	V	Cr	NI	Mo	Cu	Nb	Al	Ti		Cev
B11	B09	C11	C12	C13	C14	C15	C16	C17	C18								
W-8x24	56247	,08	1,17	,20	,023	,028	,010	,002	,143	,159	,025	,442	,022	,001	,003		,35
W-8x24	56248	,10	1,12	,19	,022	,018	,010	,002	,132	,135	,023	,415	,020	,002	,003		,35
W-8x24	56249	,09	1,20	,16	,022	,024	,009	,002	,124	,142	,025	,436	,020	,002	,003		,36
W-8x28	56228	,10	1,19	,19	,018	,027	,010	,002	,120	,150	,028	,430	,018	,002	,000		,37
W-8x28	56229	,08	1,26	,21	,019	,032	,010	,003	,126	,145	,025	,352	,025	,002	,003		,35
W-8x28	56230	,11	1,27	,19	,016	,016	,010	,002	,120	,141	,024	,378	,018	,002	,003		,38
W-8x28	56232	,11	1,12	,16	,014	,018	,009	,002	,117	,124	,022	,369	,021	,002	,003		,36
W-8x28	56233	,12	1,12	,17	,014	,016	,011	,002	,117	,126	,022	,375	,020	,002	,003		,36
W-8x28	56235	,10	1,12	,18	,017	,017	,011	,002	,112	,141	,026	,359	,017	,002	,003		,35

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES				FLEXIÓN POR CHOQUE IMPACT TEST					
		ReH MPa	Rm MPa	A% L0=5.65VSo	Doblado 180°	°C	KV300	V1 J.	V2 J.	V3 J.	Media J.
B11	B09	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
W-10x12	56259	413	546	26,8		+20°	4	128	101	101	110
W-10x12	56260	370	548	27,5		+20°	4	92	77	96	88
W-10x12	56319	420	545	29,9		+20°	4	106	95	111	104
W-10x12	56320	418	543	28,9		+20°	4	102	104	101	102
W-10x12	56321	422	540	26,2		+20°	4	104	78	94	92
W-10x12	56322	421	544	28,8		+20°	4	100	102	102	101
W-10x12	56353	394	539	28,		+20°	4	111	94	94	100
W-10x12	56354	379	543	29,		+20°	4	88	77	76	80
W-10x12	56355	382	544	27,		+20°	4	85	67	83	78
W-10x12	56356	379	543	26,7		+20°	4	86	86	86	86
W-10x12	56357	377	547	28,7		+20°	4	93	74	73	80
W-10x12	56358	378	547	29,1		+20°	4	88	70	94	84
W-10x12	56361	413	550	27,7		+20°	4	98	80	98	92
W-10x12	56362	415	548	27,8		+20°	4	101	86	77	88
W-10x12	56363	423	544	28,3		+20°	4	101	77	91	90
W-10x12	56364	394	548	29,9		+20°	4	95	91	91	92
W-10x12	56365	378	544	29,		+20°	4	87	70	83	80
W-10x12	56366	407	539	29,8		+20°	4	97	95	95	96
W-10x12	56368	446	540	29,7		+20°	4	93	84	81	86
W-10x12	56369	401	538	29,4		+20°	4	116	103	128	116
W-10x12	56370	404	544	31,2		+20°	4	102	84	96	94
W-10x12	56371	379	546	30,7		+20°	4	101	81	93	92
W-10x12	56372	400	541	30,7		+20°	4	101	91	78	92
W-10x33	56490	399	541	28,6		+20°	5	111	93	122	111
W-10x33	56491	369	538	27,		+20°	5	101	85	78	88
W-10x33	56492	401	521	34,		+20°	5	230	187	240	219
W-10x33	56493	403	536	30,8		+20°	5	188	156	145	161
W-10x33	56496	399	540	27,5		+20°	5	97	77	93	89
W-10x33	56497	400	539	32,		+20°	5	124	92	110	109
W-10x33	56498	403	548	30,		+20°	5	105	98	102	102
W-10x33	56499	410	550	26,		+20°	5	141	114	126	127
W-10x33	56528	404	534	28,6		+20°	5	120	100	89	103
W-10x33	56529	412	550	29,		+20°	5	131	109	111	117
W-10x33	56530	388	550	31,		+20°	5	77	64	87	76
W-10x33	56531	399	531	26,4		+20°	5	128	107	103	113

FERREBARRIEDO S.A. DE  
 CERTIFICADO ORIGINAL DE NUESTROS ARCHIVOS  
 REMISION No. 58-36-10-00 ventas@ferrebarriedo.com.mx

A01

## QUALITY CERTIFICATE

**APS P-6048**

MATERIAL SIZE	COLADA HEAT	PROPIEDADES MECANICAS MECHANICAL PROPERTIES				FLEXIÓN POR CHOQUE IMPACT TEST					
		ReH MPa	Rm MPa	A% L0=5.65VSo	Doblado 180°	°C	KV300	V1 J.	V2 J.	V3 J.	Media J.
B11	B09	C11	C12	C13	C20	C03	C.40/41	C42		C43	
W-8x28	56233	400	541	29,8		+20°	5	77	71	80	76
W-8x28	56235	399	549	27,8		+20°	5	69	55	74	66

**133 análisis**

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

B06: Marca APO

Z01

  
 Luis María Lakunza

**FERRE BARNIEDO, S.A. DE C.V.**  
 ESTE CERTIFICADO ES COPIA FIEL  
 DEL ORIGINAL DE NUESTROS ARCHIVOS,  
 AMPARA LA REMISION No. \_\_\_\_\_  
 TEL. 58-36-10-00 [ventas@ferrebarniedo.com.mx](mailto:ventas@ferrebarniedo.com.mx)