CSC Estándar Acero Grados 2016

Si su Grado requerido no está listado, por favor contacte a la Ingeniería de CSC para más información.
Otras calidades pueden ser proporcionadas a petición.

AISI	ACEROS			Composición química																						Propiedades mecánicas						USA forjado AISI STD
	Código ASTM	Grado	Condición	Carbón C% Max.	Silicio Si% Max.	Manganeso Mn% Max.	Níquel Ni%	Cromo Cr%	Molibdeno Mo%	Fósforo P% Max.	Azufre S% Max.	Cobre Cu%	Vanadio V%	Hierro Fe%	Tungsteno W%	Cobalto Co%	Níquel + Cobalto Ni% + Co%	Aluminio Al%	Titanio Ti%	Niobio Nb%	Niobio + tántalo Nb% + Ta%	Boro B%	Nitrógeno N%	Nitrógeno + Carbono N% + C%	Aleación% Total - Sin hierro	Charpy "V" muesca pies lb.	Resistencia a la tracción K.S.I.	Resistencia al rendimiento K.S.I.	Elong%	Dureza del brinell #	Reducción del área %	
Grados Forjados																																
Aceros al carbono y aleados	A915	SC 1025		0.22 to 0.28	0.30 to 0.60	0.40 to 0.80				0.04	0.04			98.62											1.38							1025
	A915	SC 1030		0.28 to 0.34	0.30 to 0.60	0.50 to 0.90				0.04	0.04			98.46											1.54							1030
	A915	SC 1040		0.37 to 0.44	0.30 to 0.60	0.50 to 0.90				0.04	0.04			98.37											1.64							1040
	A915	SC 1045		0.43 to 0.50	0.30 to 0.60	0.50 to 0.90				0.04	0.04			98.31											1.70							1045
	A915	SC 4130		0.28 to 0.33	0.30 to 0.60	0.40 to 0.80		0.80 to 1.10	0.15 to 0.25	.035	0.04			97.42											2.58							4130
	A915	SC 4140		0.38 to 0.43	0.30 to 0.60	0.70 to 1.10		0.80 to 1.10	0.15 to 0.25	.035	0.04			97.02											2.98							4140
	A915	SC 4330		0.28 to 0.33	0.30 to 0.60	0.60 to 0.90	1.65 to 2.00	0.70 to 0.90	0.20 to 0.30	.035	0.04			95.55											4.46							4330
	A915	SC 4340		0.38 to 0.43	0.30 to 0.60	0.60 to 0.90	1.65 to 2.00	0.70 to 0.90	0.20 to 0.30	.035	0.04			95.45											4.56							4340
	A915	SC 8620		0.18 to 0.23	0.30 to 0.60	0.60 to 1.00	0.40 to 0.70	0.40 to 0.60	0.15 to 0.25	.035	0.04			97.22											2.78							8620
	A915	SC 8625		0.23 to 0.28	0.30 to 0.60	0.60 to 1.00	0.40 to 0.70	0.40 to 0.60	0.15 to 0.25	.035	0.04			97.17											2.83							8625
	A915	SC 8630		0.28 to 0.33	0.30 to 0.60	0.60 to 1.00	0.40 to 0.60	0.40 to 0.60	0.15 to 0.25	.035	0.04			97.17											2.83							8630
		H13		0.32 to 0.45	0.80 to 1.20	0.20 to 0.50	0.30 Max.	4.75 to 5.50	1.10 to 1.75				0.80 to 1.20	90.42											9.59							H13
		H21		0.26 to 0.36	0.15 to 0.50	0.15 to 0.40	0.30 Max.	3.00 to 3.75					0.30 to 0.60	85.72	8.50 to 10.00										14.29							H21
Hastalloys - Alto Níquel		Hastalloy C276		0.01	0.08	1.00	55.24	14.50 to 16.50	15.00 to 17.00	0.04	0.03		0.35	4.00 to 7.00	3.00 to 4.50	2.50 Max.									44.76							
		Hastalloy B2		0.02	0.10	1.00	66.81	1.00	26.00 to 30.00	0.04	0.03			2.00 Max.		1.00 Max.									33.19							
		Incoloy 825		0.05	0.05	1.00	38.00 to 46.00	19.50 to 23.50	2.50 to 3.50		0.03	1.50 to 3.00		29.02				0.20	0.60 to 1.20						70.98							
		Inconel 600		0.15	0.50	1.00	74.34	14.00 to 17.00			.015	0.50		6.00 to 10.00											25.665							
		Inconel 625		0.10	0.50	0.50	57.92	20.00 to 23.00	8.00 to 10.00	.015	.015			5.00		1.00		0.40	0.40		3.15 to 4.15				42.08							
		Inconel 718		0.08	0.35	0.35		17.00 to 21.00	2.80 to 3.30	.015	.015	0.30		17.11		1.00	50.00 to 55.00	0.20 to 0.80	0.65 to 1.15		4.75 to 5.50	.006			82.891							
Aceros de carbono y baja aleación:																																
Acero carbono	A27	N-1		0.25	0.80	0.75				0.05	0.06			98.09											1.91							
	A27	N-2		0.35	0.80	0.60				0.05	0.06			98.14											1.86							
	A27	U 60-30		0.25	0.80	0.75				0.05	0.06			98.09											1.91		60	30	22		30	
	A27	60-30		0.30	0.80	0.60				0.05	0.06			98.19											1.81		60	30	24		35	1020
	A27	65-35		0.30	0.80	0.70				0.05	0.06			98.09											1.91		65	35	24		35	
	A27	70-36		0.35	0.80	0.70				0.05	0.06			98.04											1.96		70	36	22		30	1030
	A27	70-40		0.25	0.80	1.20				0.05	0.06			97.64											2.36		70	40	22		30	
	A216	WCA		0.25	0.60	0.70	0.50 Max.	0.50 Max.	0.20 Max.	0.04	0.045	0.30 Max.	0.03 Max.	96.84											3.17		60-85	30	24		35	
	A216	WCB		0.30	0.60	1.00	0.50 Max.	0.50 Max.	0.20 Max.	0.04	0.045	0.30 Max.	0.03 Max.	96.49											3.52		70-95	36	22		35	
	A216	WCC		0.25	0.60	1.20	0.50 Max.	0.50 Max.	0.20 Max.	0.04	0.045	0.30 Max.	0.03 Max.	96.34											3.67		70-95	40	22		35	
	A352	LCA		0.25	0.60	0.70	0.50	0.50	0.20	0.04	0.045	0.30	0.03	96.84											3.17	13 (-25 F)	60-85	30	24		35	
	A352	LCB		0.30	0.60	1.00	0.50	0.50	0.20	0.04	0.045	0.30	0.03	96.49											3.52	13 (-50 F)	65-90	35	24		35	
	A352	LCC		0.25	0.60	1.20	0.50	0.50	0.20	0.04	.045	0.30	0.03	96.34											3.67	13 (-50 F)	70-95	40	22		35	
	A356	Grade 1		0.35	0.60	0.70				.035	0.03			98.29											1.72		70	36	20			
Herramienta de acero	A597	CA-2		0.95 to 1.05	1.50	0.75		4.75 to 5.50	0.90 to 1.40				0.20 to 0.50	90.13											9.88					58-62 RC		
	A597	CD-2		1.40 to 1.60	1.50	1.00		11.00 to 13.00	0.70 to 1.20				0.40 to 1.00	81.50		0.70 to 1.00									18.50					58-64 RC		
	A597	CD-5		1.35 to 1.60	1.50	0.75		11.00 to 13.00	0.70 to 1.20				0.35 to 0.55	79.88		2.50 to 3.50									20.13					58-64 RC		
	A597	CM-2		0.78 to 0.88	1.00	0.75	0.25	3.75 to 4.50	4.50 to 5.50				1.25 to 2.20	79.95	5.50 to 6.75	0.25									20.06					64-66 RC		
	A597	CS-5		0.50 to 0.65	1.75 to 2.20	0.60 to 1.00	0.40 to 0.60	0.35	0.20 0.80				1.25 to 2.20	87.50	5.50 to 6.75	0.25									12.50					53-58 RC		
	A597	CS-7		0.45 to 0.55	0.60 to 1.00	0.40 to 0.80		3.00 to 3.50	1.20 to 1.60					93.45											6.55							
	A597	CH-12		0.30 to 0.40	1.50	0.75		4.75 to 5.75	1.25 to 1.75				0.20 to 0.50	88.95	1.00 to 1.70										11.05					40-55 RC		
	A597	CH-13		0.30 to 0.42	1.50	0.75		4.75 to 5.75	1.25 to 1.75				0.75 to 1.20	89.67											10.34					40-55 RC		
Aleaciones de base de níquel:																																
Aleaciones resistentes a la corrosión de base de níquel	A494	CZ-100	.95 min. Ni	1.00	2.00	1.50	91.19			0.03	0.03	1.25 Max.		3.00 Max.											8.81		50	18	10	90-140		
	A494	M-35-1		0.35	1.25	1.50	63.34			0.03	0.03	26.00 to 33.00		3.50 Max.						0.50 Max.					36.66		65	25	25			
	A494	M-25-S		0.25	3.50 to 4.50	1.50	60.69			0.03	0.03	27.00 to 33.00		3.50 Max.											39.31							
	A494	M-30C		0.30	1.00 to 2.00	1.50	61.64			0.03	0.03	26.00 to 33.00		3.50 Max.						1.00 to 3.00					38.36		65	32.5	25	125-180		
	A494	N-12MV		0.12	1.00	1.00	63.41	1.00	26.00 to 30.00	0.04	0.03		0.20 to 0.60	4.00 to 6.00											36.59		76	40	6	180-220		
	A494	N-7M		0.07	1.00	1.00	62.36	1.00	30.00 to 33.00	0.04	0.03			3.00 Max.											37.64		76	40	20			
	A494	CY-40		0.40	3.00	1.50	68.54	14.00 to 17.00		0.03	0.03			11.00 Max.											31.46		70	28	30			Fe 11.0
	A494	CW-12MW		0.12	1.00	1.00	58.31	15.50 to 17.50	16.00 to 18.00	0.04	0.03			4.50 to 7.50											41.69		72	40	4	220-280		C
	A494	CW-6M		0.07	1.00	1.00	57.86	17.00 to 20.00	17.00 to 20.00	0.04	0.03			3.00 Max.											42.14		72	40	25			
	A494	CW-2M		0.02	0.80	1.00	63.62	15.00 to 17.50	15.00 to 17.50	0.03	0.03			2.00 Max.											36.38		72	40	20			
	A494	CW-6MC		0.06	1.00	1.00	62.41	20.00 to 23.00	8.00 to 10.00	.015	.015			5.00 Max.											37.59		70	40	25			625
Aceros al carbono de alta resistencia:																																
Acero al carbono de alta resistencia	A148	80-40		0.35 to 0.45	0.20 to 0.60	0.60 to 1.00				0.05	0.06			98.29											1.71		80	40	18	170-207	30	
	A148	80-50		0.25 to 0.30	0.30 to 0.60	0.75 to 1.00	0.40 to 0.70	0.40 to 0.70	0.20 to 0.30	0.05	0.06			96.94											3.06		80	50	22	180-207	35	
	A148	90-60		0.25 to 0.30	0.30 to 0.60	0.75 to 1.00	0.40 to 0.70	0.40 to 0.70	0.20 to 0.30	0.05	0.06			96.94											3.06		90	60	20	190-220	40	
	A148	105-85		0.25 to 0.30	0.30 to 0.60	0.75 to 1.00	0.40 to 0.70	0.40 to 0.70	0.20 to 0.30	0.05	0.06			96.94											3.06		105	85	17	220-250	35	
Fundiciones de acero:																																
Acero de baja aleación	A217	WC1		0.25	0.60	0.50 to 0.80			0.45 to 0.65	0.04	.045			97.87											2.14		60-90	35	24		35	
	A217	WC4		0.05 to 0.20	0.60	0.50 to 0.80	0.70 to 1.10	0.50 to 0.80	0.45 to 0.65	0.04	.045			96.44											3.56		70-95	40	20		35	
	A217	WC5		0.05 to 0.20	0.60	0.40 to 0.70	0.60 to 1.00	0.50 to 0.90	0.90 to 1.20	0.04	.045			96.09											3.91		70-95	40	20		35	
	A217	WC6		0.05 to 0.20	0.60	0.50 to 0.80		1.00 to 1.50	0.45 to 0.65	0.04	.045			96.74											3.26		70-95	40	20		35	
	A217	WC9		0.05 to 0.18	0.60	0.40 to 0.70		2.00 to 2.75	0.90 to 1.20	0.04	.045			95.23											4.78		70-95	40	20		35	
	A217	WC11		0.15 to 0.21	0.30 to 0.60	0.50 to 0.80		1.00 to 1.50	0.45 to 0.65	0.02	.015			96.89											3.12		80-105	50	18		45	
	A217	C5		0.20	0.75	0.40 to 0.70		4.00 to 6.50	0.45 to 0.65	0.04	.045			92.62											7.39		90-115	60	18		35	
	A217	C12		0.20	1.00	0.35 to 0.65		8.00 to 10.00	0.90 to 1.20	0.04	.045			88.17											11.84		90-115	60	18		35	
	A217	C12A		0.08 to 0.12	0.20 to 0.50	0.30 to 0.60	0.40	8.00 to 9.50	0.85 to 1.05	0.03	.010			88.38						0.06 to 1.00			0.03 to 0.07		11.62		85-110	65	20		45	

Símbolos	Al	Aluminio	Fe	Hierro
	As	Arsénico	Mg	Magnesio
	B	Boro	Mn	Manganeso
	C	Carbón	Mo	Molibdeno
	Cb	Columbio (niobio)	N	Nitrógeno
	Ce	Cerio	Nb	Niobio (ahora Columbium)
	Co	Cobalto	Ni	Níquel
	Cr	Cromo	P	Fósforo
	Cu	Cobre	Pb	Dirigir
	Fe	Hierro	S	Azufre
	Mg	Magnesio	Sb	Antimonio
	Mn	Manganeso	Se	Selenio
	Mo	Molibdeno	Si	Silicio
	N	Nitrógeno	Sn	Estaño
	Nb	Niobio (ahora Columbium)	Ta	Tantalio
	Ni	Níquel	Ti	Titanio
	P	Fósforo	V	Vanadio
	Pb	Dirigir	W	Tungsteno
			Zn	Zinc