

CHART OF SPECIFICATIONS

ALUMINUM STANDARD CASTING ALLOYS

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SPECIFICATIONS

NOMINAL CHEMICAL COMPOSITIONS

CHARACTERISTICS *

TYPICAL MECHANICAL PROPERTIES OF CAST ALLOYS *

AA Number	FORMER Designation	Process S-Sand P-P.M. D-Die	FEDERAL QQ-A-601d(sand) QQ-A-596d(P.M.) QQ-A-591d(Die)	ASTM B26-68(sand) B108-68(P.M.) B85-60(Die)	SAE	AMS	Military MIL-21180c	Cu %	Si %	Mg %	Zn %	Other %	Fluidity	Resistance to Hot Crack	Pressure Tightness	Strength at Elevated Temp	Corrosion Resistance	Machinability	Polishing	Anodizing Appearance	Weldability
208.0	108	S,P	108	CS 43A				4.0	3.0				2	2	2	3	4	3	3	3	2
213.0	C113	S,P	113	CS 74A	33			7.0	2.0				2	3	3	3	5	2	2	3	3
222.0	122	S,P	122	CG 100A	34			10.0		0.2			3	3	3	1	5	1	2	3	4
242.0	142	S,P	142	CN 42A	39	4222E		4.0		1.5		Ni 2.0	3	4	3	1	4	2	2	3	4
295.0	195	S	195	C 4A	38	4230C 4231C		4.5	1.1				3	4	4	3	4	2	2	2	3
B295.0	B195	P	B195		380	4282E 4283D		4.5	2.5				3	4	3	2	4	3	2	3	4
308.0	A108	S,P	A108					4.5	5.5				2	2	2	3	4	3	3	4	2
319.0	319, Allcast	S,P	319	SC 64D	326			3.5	6.0				2	2	2	3	3	3	4	4	2
328.0	Red X-8	S	Red X-8	SC 82A	327			1.5	8.0	0.4		Mn 0.4	1	1	1	2	3	4	3	4	2
A322.0	A132	P	A132	SN 122A	321			1.0	12.0	1.0		Ni 2.5	1	1	2	1	3	4	4	4	2
F332.0	F132	P	F132	SC 103A	332			3.0	9.5	1.0			1	1	2	1	3	4	4	4	2
333.0	333	P	333	SC 94A				3.5	9.0	0.3			2	2	2	2	3	3	3	4	2
354.0	354	P		SC 92A			C354	1.8	9.0	0.5			1	1	1	2	3	3	4	4	2
355.0	355	S,P	355	SC 51A	322	4210F 4212E		1.3	5.0	0.5			1	1	1	2	3	3	3	4	2
C356.0	C356	S,P	C355	SC 51B	335	4214D 4215B	C355	1.3	5.0	0.5		Fe 0.2 Max.	1	1	1	2	3	3	3	4	2
356.0	356	S,P	356	SG 70A	323	4217D			7.0	0.3			1	1	1	3	2	3	4	4	2
A356.0	A356	S,P	A356	SG 70B	336	4218B	A356		7.0	0.3		Fe 0.2 Max.	1	1	1	3	2	3	4	4	2
357.0	357	S,P	357					7.0	0.5				1	1	1	3	2	3	4	4	2
A357.0	A357	S,P				4219	A357		7.0	0.6		Ti 0.1 Be 0.06	1	1	1	2	2	3	4	4	2
359.0	359	S,P		SG 91A			359		9.0	0.6			1	1	1	2	2	3	4	4	2
360.0	360	D	360	SG 100B				9.5	0.5				2	2	1	3	3	3	3	4	4
A360.0	A360	D	A360	SG 100A	309	4390E			9.5	0.5		Fe 1.3 Max.	2	2	1	3	3	3	3	4	4
380.0	380	D	380	SC 84B	308			3.5	8.5				2	2	2	2	5	2	3	4	4
A380.0	A380	D	A380	SC 84A	306	4291B		3.5	8.5			Fe 1.3 Max.	2	2	2	2	5	2	3	4	4
384.0	384	D	SC114A	SC114A	303			3.7	11.3				1	2	2	1	4	3	3	4	4
A413.0	A13	D	A13	S12A	305	4290F			12.0				1	1	1	2	3	4	4	4	4
443.0	43	S	43	S 5C	35			0.6 Max.	5.3				1	1	1	4	2	5	4	4	1
B443.0	43	S,P	43	S 5A				0.15 Max.	5.3				1	1	1	4	2	5	4	4	1
514.0	214	S	214	G 4A	320					4.0			5	4	5	3	1	1	1	1	4
A514.0	A214	P	A214	GZ 42A						4.0	1.8		5	4	5	3	1	1	1	1	5
B514.0	B214	S	B214	GS 42A					1.8	4.0			3	3	4	3	1	2	2	2	4
518.0	218	D	218	G 8A						8.0			4	5	5	2	1	1	1	1	4
520.0	220	S	220	G 10A	324	4240C				10.0			4	2	5	5	1	1	1	1	5
535.0	Almag 35	S	Almag 35	GM 70B		4238A 4239			6.9			Be 0.005	4	3	5	3	1	1	1	1	1
706.0	603, Ternalloy 5	S,P	Ternalloy 5	ZG 32A	311				1.6	3.0		Mn 0.5, Cr 0.3	4	5	3	4	2	1	2	2	4
707.0	607, Ternalloy 7	S,P	Ternalloy 7	ZG 42A	312				2.1	4.3		Mn 0.5, Cr 0.3	4	5	3	4	2	1	2	2	4
A712.0	A612	S	A612	ZG 61B	313			0.5		0.7	6.5		4	5	3	4	2	1	2	2	4
D712.0	D612, 40E	S	40E	ZG 61A	310					0.6	5.8	Cr 0.5 Ti 0.2	4	5	3	4	2	1	2	2	4
713.0	613, Tenzaloy	S,P	Tenzaloy	ZC 81A	315			0.7		0.4	7.5		4	5	3	4	2	1	1	1	4
771.0	Precedent 71A	S	Precedent 71A						0.9	7.0		Cr 0.1 Ti 0.1	3	4	4	4	3	1	1	1	4
850.0	750	S,P	750		770	4275B		1.0				Sn 6.3 Ni 1.0	5	5	5	5	3	1	3	3	5
A850.0	A750	S,P	A750					1.0	2.5			Sn 6.3 Ni 0.5	5	4	4	5	3	1	3	3	5
B850.0	B750	S,P	B750					2.0		0.8		Sn 6.3 Ni 1.2	5	5	5	5	3	1	3	3	5

Sand Cast



Perm Mold



* 1, 2, 3, 4, 5 are relative ratings, 1 (one) is the highest. Characteristics listed for normally heat treated alloys are based on a heat treated condition.

Die Cast



AA Number	FORMER Designation	Temper	Ultimate Tensile ksi	Yield Strength ksi**	Elongation % in 2 in.	Compressive Yield ksi**	Brinell Hardness 500 Kg 10 mm	Shearing Strength ksi	Endurance Limit ksi***
208.0	108	F	21	14	2.5	15	55	17	11
213.0	C113	F	23	15	1.5		70	15	
222.0	122	T2	27	20	1.0	20	80	21	5.5
242.0	142	T81	41	40	0.5	43	115	32	8.5
		T21	27	18	1.0	18	70	21	8.0
295.0	195	T571	32	30	0.5	34	85	26	11.0
		T4	32	16	8.5	17	60	26	7.0
		T6	36	24	5.0	25	75	30	7.5
319.0	319	T62	41	32	2.0	34	90	33	8.0
		T7	39	26	4.0		65		
		F	27	18	2.0	19	70	22	10.0
328.0	Red x 8	T5	30	26	1.5	27	80	24	11.0
		T6	36	24	2.0	25	80	29	11.0
		F	26	16	2.0		60		
355.0	355	T6	37	25	2.5		85		
		T51	28	23	1.5	24	65	22	8.0
		T6	35	25	3.0	26	80	28	9.0
C355.0	C355 *	T7	38	36	0.5	38	85	28	10.0
		T71	35	29	1.5	30	75	26	10.0
		T6	39	29	5.0		85		
356.0	356	T51	25	20	2.0	21	60	20	7.5
		T6	33	24	3.5	25	75	26	8.5
		T7	34	30	2.0	31	75	24	9.0
A356.0	A356 *	T6	40	30	6.0		75		
357.0	357 *	T6	50	43	2.0		90		
A357.0	A357 *	T6	46	36	3.0	35	85	40	12.0
443.0	43	F	19	8	8.0	9	40	14	5.0
514.0	214	F	25	12	9.0	12	50	20	7.0
B514.0	B214	F	20	13	2.0	14	50	17	8.5
520.0	220	T4	46	25	14.0	26	75	33	8.0
535.0	Almag 35	F or T5	40	20	13.0	35	70	27	10.0
705.0	Ternalloy 5	F or T5	35	19	9.0		65		
707.0	Ternalloy 7	F or T5	37	27	3.0		85		
A712.0	A612	T5	35	25	5.0	25	75	26	8.0
D712.0	40E	F or T5	35	25	5.0	25	75	26	9.0
713.0	Tenzaloy	F or T5	34	23	5.0	24	75	25	8.0
771.0	Precedent 71A	T6	50	40	9.0		93		
850.0	750	T5	20	11	8.0	11	45	14	
A850.0	A750	T5	20	11	5.0	11	45	14	
B850.0	B750	T5	27	22	2.0	22	65	18	10.0

AA Number	FORMER Designation	Temper	Ultimate Tensile ksi	Yield Strength ksi**	Elongation % in 2 in.	Compressive Yield ksi**	Brinell Hardness 500 Kg 10 mm	Shearing Strength ksi	Endurance Limit ksi***
213.0	C113	F	29	22	1.0		70	20	
222.0	122	T551	37	30	0.5	40	115	30	8.5
		T85	48	36	0.5	36	140	36	9.0
242.0	142	T571	40	34	1.0	34	105	30	10.5
		T61	47	42	0.5	44	110	35	9.5
B295.0	B195	T4	37	19	9.0	20	75	30	9.5
		T6	40	26	5.0	26	90	32	10.0
		T7	39	20	4.5	20	80	30	9.0
308.0	A108	F	28	16	2.0	17	70	22	13.0
319.0	319	F	34	19	2.5	19	85	24	
		T6	40	27	3.0	27	95	28	
A332.0	A132	T551	36	28	0.5	28	105	28	13.5
		T65	47	43	0.5	43	125	36	
F332.0	F132	T5	36	28	1.0	36	105	27	14.5
333.0	333	F	34	19	2.0	19	90	27	
		T5	34	25	1.0	25	100	27	12.0
		T6	42	30	1.5	30	105	33	15.0
		T7	37	28	2.0	28	90	28	12.0
354.0	354 *	T61	52	39	6.0		125		
355.0	355	T51	30	24	2.0	24	75	24	19.5
		T6	42	27	4.0	27	90	34	10.0
		T62	45	40	1.5	40	105	36	10.0
C355.0	C355 *	T71	36	31	3.0	31	85	27	10.0
		T6	48	28	8.0		90		
356.0	356	T51	27	20	2.0		60		
		T6	38	27	5.0	27	80	30	13.0
		T7	32	24	6.0	24	70	25	11.0
A356.0	A356 *	T61	41	30	10.0	32	90	28	13.0
357.0	357	T6	49	36	8.0		85		
A357.0	A357 *	T6	50	40	10.0	40	85	43	16.0
359.0	359 *	T61	48	37	6.0		125		
B443.0	43	F	23	9	9.0	9	45	16	8.0
A514.0	A214	F	27	16	7.0		60	22	
705.0	Ternalloy 5	T5	40	21	16		70		
707.0	Ternalloy 7	T5	45	28	8.0		85		
		T7	51	40	5.0		95		
713.0	Tenzaloy	T5	40	27	6.0		80		
850.0	750	T5	23	11	12.0	11	45	15	9.0
A850.0	A750	T5	20	11	5.0	11	45	14	9.0
B850.0	B750	T5	32	23	5.0	23	70	21	11.0