

# CHART OF SPECIFICATIONS

# ALUMINUM STANDARD SAND AND PERM MOLD CASTING ALLOYS



**MONMET**

Monmet helps our customers solve their problems with an unmatched expertise in alloy and process selection. Monmet offers our customers a complete range of aluminum alloys to choose from.

SPECIFICATIONS						CHEMISTRY					CHARACTERISTICS*											
AA NUMBER	FORMER DESIGNATION	S-Sand P-Perm Mold	FEDERAL		Current Same as AA Old ASTM Nos.		SAE	MILITARY Mil-A-21180C	NOMINAL CHEMICAL COMPOSITIONS %					Fluidity	Resistance to Hot Crack	Pressure Tightness	Strength at Elevated Temp	Corrosion Resistance	Machinability	Anodizing Appearance	Polishing	Weldability
			QQA601E Sand	QQA596 P.M.	B - 26 Sand	B - 108 P.M.			Cu	Si	Mg	Zn	Other									
208	108	S,P	108		CS43A	CS43A			4.0	3.0				2	2	2	3	4	3	3	3	2
213	C113	S,P		113	CS74A	CS74A	33		7.0	2.0				2	3	3	3	5	2	2	3	3
222	122	S,P	122	122	CG100A	CG100A	34		10.0		0.2			3	3	3	1	5	1	2	3	4
242	142	S,P	142	142	CN42A	CN42A	39		4.0		1.5		Ni 2.0	3	4	3	1	4	2	2	3	4
295	195	S	195		C4A		38		4.5	1.1				3	4	4	3	4	2	2	2	3
296	B295.0	P		B195			380		4.5	2.5				3	4	3	2	4	3	2	3	4
308	A108	S,P		A108					4.5	5.5				2	2	2	3	4	3	3	4	2
319	319, Allcast	S,P	319	319	SC64D	SC64D	326		3.5	6.0				2	2	2	3	3	3	4	4	2
328	Red X - 8	S	Red X - 8		SC82A		327		1.5	8.0	0.4		Mn 0.4	1	1	1	2	3	4	3	4	2
332	F332.0	P				SC103A	332		3.0	9.5	1.0			1	1	2	1	3	4	4	4	2
333	333	P		333					3.5	9.0	0.3			2	2	2	2	3	3	3	4	2
336	A332.0	P		A132		SN122A	321		1.0	12.0	1.0		Ni 2.5	1	1	2	1	3	4	4	4	2
354	354	P						C354	1.8	9.0	0.5			1	1	1	2	3	3	4	4	2
355	355	S,P	355	355	SC51A	SC51A	322		1.3	5.0	0.5			1	1	1	2	3	3	3	4	2
C355	C355	S,P		C355		SC51B	355	C355	1.3	5.0	0.5		Fe 0.2 Max	1	1	1	2	3	3	3	4	2
356	356	S,P	356	356	SG70A	SG70A	323			7.0	0.3			1	1	1	3	2	3	4	4	2
A356	A356	S,P		A356		SG70B	336	A356		7.0	0.3		Fe 0.2 Max	1	1	1	3	2	3	4	4	2
357	357	S,P		357						7.0	0.5			1	1	1	3	2	3	4	4	2
A357	A357	S,P						A357		7.0	0.6		Ti 0.1 Be 0.06	1	1	1	2	2	3	4	4	2
359	359	S,P						359		9.0	0.6			1	1	1	2	2	3	4	4	2
443	43	S	43	43	S5C	S5C	35			5.3	.6 Max			1	1	1	4	2	5	4	4	1
B443	43	S,P	43	43	S5A	S5A				5.3	15 Max			1	1	1	4	2	5	4	4	1
512	B514	S	B214		G42A	G42A				1.8	4.00			3	3	4	3	1	2	2	2	4
513	A514	S		A214		G42A				4.00	1.8			5	4	5	3	1	1	1	1	5
514	214	S	214		G4A		320			4.00				5	4	5	3	1	1	1	1	4
520	220	S	220		G10A		324			10.0				4	2	5	5	1	1	1	1	5
535	Almag 35	S	Almag 35		GM70B	GM70B				6.9		Be 0.005		4	3	5	3	1	1	1	1	1
705	603, Ternalloy 5	S,P	Ternalloy 5	Ternalloy 5	ZG32A	ZG32A	311			1.6	3.0	Mn 0.5 Cr 0.3		4	5	3	4	2	1	2	2	4
707	607, Ternalloy 7	S,P	Ternalloy 7	Ternalloy 7	ZG42A	ZG42A	312			2.1	4.3	Mn 0.5 Cr 0.3		4	5	5	4	2	1	2	2	4
710	A712.0	S	A612		ZG61A		313		0.5	0.7	6.5			4	5	3	4	2	1	2	2	4
712	D712	S	40E		ZG61A		310		0.025	0.3	0.6	5.75	Cr 0.5 Ti 0.2	4	5	3	4	2	1	2	2	4
713	613, Tenzaloy	S,P	Tenzaloy		ZG81A		315		0.7	0.4	7.5			4	5	3	4	2	1	1	1	4
771	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	750	S,P	750	750								Sn 6.3 Ni 1.0		5	5	5	5	3	1	3	3	5
851	A850.0	S,P	A750	A750					1.0			Sn 6.3 Ni 0.5		5	4	4	5	3	1	3	3	5
852	B850.0	S,P	B750	B750					2.0	0.8		Sn 6.3 Ni 1.2		5	5	5	5	3	1	3	3	5

TYPICAL MECHANICAL PROPERTIES OF CAST ALLOYS										
Sand Castings										
AA NUMBER	FORMER DESIGNATION	TEMPER	ULTIMATE TENSIL (KSI)	YIELD STRENGTH (KSI**)	ELONGATION % in 2"	COMPRESSIVE YIELD (KSI**)	BRINELL HARDNESS 500 KG 10MM	SHEARING STRENGTH (KSI)	ENDURANCE LIMIT (KSI***)	
208.0	108	F	21	14	2.5	15	55	17	11.0	
213.0	C113	F	23	15	1.5		70	15		
222.0	122	T2	27	20	1.0	20	80	21	9.5	
242.0	142	T61	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	
		T62	41	32	2.0	34	90	33	8.0	
319.0	319	T7	39	26	6.0	26	65			
		F	27	18	2.0	19	70	22	10.0	
		T5	30	26	1.5	27	80	24	11.0	
		F	36	24	2.0	25	80	29	11.0	
328.0	Red x 8	T6	26	16	2.0		60			
		T6	37	25	2.5		85			
355.0	355	T51	28	23	1.5	24	65	22	8.0	
		T6	35	25	3.0	26	80	28	9.0	
		T7	38	36	0.5	38	85	28	10.0	
		T71	35	29	1.5	30	75	26	10.0	
C355.0	C355	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	70	26	8.5	
		T7	34	30	3.0	31	75	24	9.0	
A356.0	A356	T6	40	30	6.0		75			
357	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	8.0	
514.0	214	F	25	12	9.0	12	50	20	7.0	
512.0	B514	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	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			
710.0	A712	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		
851.0	A850	T5	20	11	5.0	11	45	14		
852.0	B850	T5	27	22	2.0	22	65	18	10.0	

  

Perm Mold										
AA NUMBER	FORMER DESIGNATION	TEMPER	ULTIMATE TENSIL (KSI)	YIELD STRENGTH (KSI**)	ELONGATION % in 2"	COMPRESSIVE YIELD (KSI**)	BRINELL HARDNESS 500 KG 10MM	SHEARING STRENGTH (KSI)	ENDURANCE LIMIT (KSI***)	
213.0	C113	F	29	22	1.0		70			
222.0	122	T551	35	35	0.5	40	115	30	8.5	
		T65	48	36	0.5	36	140	36	9.0	
242	142	T571	40	34	1.0	34	105	30	10.5	
		T61	47	42	0.5	44	110	35	9.5	
295	195	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			
A332	F332	T551	36	28	0.5	28	105	28	13.5	
		T65	47	43	0.5	43	125	36		
333.0	333	F	34	19	2	19	90	27	14.5	
		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	29	6.0				19.5	
355.0	355	T51	30	24	2.0	24	75	24		
		T6	42	27	4.0	27	90	34	10.0	
		T62	45	40	1.5	40	105	36	10.0	
		T71	36	31	3.0	31	85	27	10.0	
C355.0	355	T6	48	28	8.0		90			
356.0	356	T51	27	20	2.0	27	80	30	13.0	
		T6	38	27	5.0	24	70	25	11.0	
		T7	32	24	6.0					
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	359	T61	48	37	6.0					
B443.0	43	F	23	9	9.0	9	45	16	8.0	
514.0	214	F	27	16	7.0		60	22		
705.0	Ternalloy 5	T5	40	21	16.0		70			
707.0	Ternalloy 7	T5	45	28	8.0		85			
		T7	51	40	5.0		95			
713	Tenzaloy	T5	40	27	6.0		80			
707	750	T5	23	11	12.0	11	45	15	9.0	
		T5	20	11	5.0	11	45	14	9.0	
851	A850	T5	32	23	5	23				