



DIE CASTING ALLOY DATA

SPECIFICATION	Aluminum – ASTM B 85-95						Zinc				Zinc-Aluminum			Magnesium	
Commercial SAE	380-3% 306	380-1 % 306	A360.0 309	384.0 303	43 304	13 305	383 383	903 J 46-8b	925 J 46-8b	ZA-8 —	ZA-12 —	ZA-27 —	AZ91 D 501 A	AM60B —	
ASTM (UNS)	A13800	—	A13600	A03840	A34430	A14130	A03830	B 86-95 Z33520	B 86-95 Z35531	B791-95 Z35636	B791-96 Z35631	B791-96 Z35841	M11916	M10602	
Federal QQ-A-591 F	—	—	A360.0	384.0	C443.0	A413.0	383.0	QQ-Z- 363B AG40A	QQ-Z- 363B AC41A	—	—	—	QQ-M- 38B	—	
ELEMENT															
Copper	3.0-4.0	3.0-4.0	0.6	3.0-4.5	0.60	1.0	2.0-3.0	0.25	0.75-1.25	0.8-1.3	0.5-1.20	2.0-2.5	0.03	0.01	
Iron	1.3	1.3	1.3	1.3	2.0	1.3	1.3	0.10	0.10	0.075	0.075	0.075	0.005	0.005	
Silicon	7.5-9.5	7.5-9.5	9.0-10.0	10.5- 12.0	4.5-6.0	11.0- 13.0	9.5-11.5	—	—	—	—	—	0.10	0.10	
Magnesium	0.10	0.10	0.4-0.6	0.10	0.10	0.10	0.10	0.02-0.05	0.03-0.08	0.015- 0.030	0.015- 0.030	0.010- 0.020	Balance	Balance	
Manganese	0.50	0.50	0.35	0.50	0.35	0.35	0.50	—	—	—	—	—	0.15- 0.50	0.24- 0.60	
Zinc	3.0	1.0	0.50	3.0	0.50	0.50	3.0	Balance	Balance	Balance	Balance	Balance	0.35- 1.00	0.22	
Nickel	0.50	0.50	0.50	0.50	0.50	0.50	0.30	—	—	—	—	—	0.002	0.002	
Tin	0.35	0.35	0.15	0.35	0.15	0.15	0.15	0.003	0.003	0.003	0.003	0.003	—	—	
Aluminum	Balance	Balance	Balance	Balance	Balance	Balance	Balance	3.5-4.3	3.5-4.3	8.0-8.8	10.5-11.5	25.0-28.0	8.3-9.7	5.5-6.5	
Lead (max.)	—	—	—	—	—	—	—	0.005	0.005	0.006	0.006	0.006	—	—	
Cadmium (max.)	—	—	—	—	—	—	—	0.004	0.004	0.006	0.006	0.006	—	—	
PROPERTIES															
Tensile Strength (ksi)	47	47	46	48	33	43	45	41	48	54	58	61	34	32	
Yield Strength (ksi)	23	23	24	24	14	21	22	32	33	42	46	53	23	19	
Elongation (% in 2")	3.5	3.5	3.5	2.5	9.0	3.5	3.5	10	7	6-10	4-7	1-3	3	8	
Shear Strength (ksi)	27	28	28	29	19	25	27	31	38	40	43	47	20	N/A	
Fatigue Strength (ksi)	20	20	20	20	17	19	21	6.9	8.2	15	17	21	14	—	
Specific Gravity	2.76	2.7	2.63	2.76	2.69	2.66	2.7	6.6	6.7	6.3	6.03	5.0	1.81	1.78	
Lbs. per Cubic Inch	0.102	0.100	0.095	0.102	0.097	0.096	0.099	0.240	0.240	0.227	0.218	0.181	0.066	0.065	
CHARACTERISTICS															
Hardness BHN 80	80	80	80	85	50	80	80	82	91	95-110	95-115	105-125	63	58	
Machinability	Good	Good	Good	Good	Fair	Fair	Good	Excellent	Excellent	Excellent	Good	Good	Excellent	Excellent	
Castability	Excellent	Excellent	Good	Good	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Fair	
Corrosion Resistance	Fair	Fair	Good	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Excellent	Excellent	
Anti-Soldering	Good	Good	Good	Good	Poor	Excellent	Good	Good	Good	Good	Good	Good	Excellent	Excellent	
Polishing	Fair	Fair	Fair	Fair	Poor	Poor	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	
Anodizing	Fair	Fair	Fair	Poor	Good	Poor	Fair	Good	Good	Excellent	Excellent	Fair	Good	Excellent	
Appearance	Fair	Fair	Fair	Poor	Good	Poor	Fair	Good	Good	Excellent	Excellent	Fair	Good	Excellent	
Pressure Tightness	Good	Good	Excellent	Good	Good	Excellent	Good	Good	Good	Good	Excellent	Fair	Good	Excellent	
Bearing Wear	—	—	—	—	—	—	—	—	—	Good	Excellent	Excellent	Fair	N/A	