

DIE CASTING ALLOY DATA

Courtesy of Empire Die Casting Co., Inc.

SPECIFICATION	Aluminum - ASTM B 85-95							Zinc		Zinc-Aluminum		
	380-3%	380-1%	A360.0	384	43	13	383	ZA-3	ZA-5	ZA-8	ZA-12	ZA-27
Commercial	380-3%	380-1%	A360.0	384	43	13	383	ZA-3	ZA-5	ZA-8	ZA-12	ZA-27
SAE	306	306	309	303	304	305	383	J46-8b	J46-8b	-	-	-
ASTM (UNS)	A13800	-	A13600	A03840	A34430	A14130	A03830	B86-95 Z33520	B86-95 Z35531	B791-95 Z35636	B791-96 Z35631	B791-96 Z35841
Federal QQ-A591 F	-	-	A360.0	384.0	C443.0	A413.0	383.0	QQ-Z-363B AG40A	QQ-Z-363B AC41A	-	-	-
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
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
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	-	-	-	-	-
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
Maganese	0.50	0.50	0.35	0.50	0.35	0.35	0.50	-	-	-	-	-
Zinc	3.0	1.0	0.50	3.0	0.50	0.50	3.0	Balance	Balance	Balance	Balance	Balance
Nickel	0.50	0.50	0.50	0.50	0.50	0.50	0.30	-	-	-	-	-
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
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
Yield Strength (ksi)	23	23	24	24	14	21	22	32	33	42	46	53
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
Shear Strength (ksi)	27	28	28	29	19	25	27	31	38	40	43	47
Fatigue Strength (ksi)	20	20	20	20	17	19	21	6.9	8.2	15	17	21
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
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
CHARACTERISTICS												
Hardness BHN 80	80	80	80	85	50	80	80	82	91	95-110	95-115	105-125
Machinability	Good	Good	Good	Good	Fair	Fair	Good	Excellent	Excellent	Excellent	Good	Good
Castability	Excellent	Exellent	Good	Good	Fair	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good
Corrosion Resistance	Fair	Fair	Good	Fair	Good	Good	Good	Good	Good	Good	Good	Good
Anti-Soldering	Good	Good	Good	Good	Poor	Excellent	Good	Good	Good	Good	Good	Good
Polishing	Fair	Fair	Fair	Fair	Poor	Poor	Good	Excellent	Excellent	Excellent	Excellent	Excellent
Anodizing Appearance	Fair	Fair	Fair	Poor	Good	Poor	Fair	Good	Good	Excellent	Excellent	Fair
Pressure Tightness	Good	Good	Excellent	Good	Good	Excellent	Good	Good	Good	Good	Excellent	Fair
Bearing Wear	-	-	-	-	-	-	-	-	-	Good	Excellent	Excellent