International Standard Compositions of Aluminium Die-casting Alloys

Designation	A356 (%)	A360 (%)	A380 (%)	ADC12 (%)	LM2 (%)	LM5 (%)	LM24 (%)
Silicon (Si)	6.5-7.5	9.0-10.0	7.5-9.5	9.6-12.0	9.0-11.5	0.3 max	7.5-9.5
Iron (Fe)	0.20 max	1.3 max	1.3 max	1.3 max	1.0 max	0.6 max	1.3 max
Copper (Cu)	0.20 max	0.6 max	3.0-4.0	1.5-3.5	0.7-2.5	0.1 max	3.0-4.0
Manganese (Mn)	0.10 max	0.35 max	0.50 max	0.50 max	0.5 max	0.3-0.7	0.5 max
Magnesium (Mg)	0.25-0.45	0.40-0.60	0.10 max	0.30 max	0.30 max	3.0-6.0	0.30 max
Nickel (Ni)	-	0.50 max	0.50 max	0.50 max	0.50 max	0.1 max	0.50 max
Zinc (Zn)	0.10 max	0.50 max	3.0 max	1.00 max	2.0 max	0.1 max	3.0 max
Tin (Sn)	-	0.15 max	0.35 max	0.30 max	0.2 max	0.05 max	0.2 max
Lead (Pb)	0.05 max	-	-	-	0.3 max	0.05 max	0.3 max
Titanium (Ti)	0.20 max	-	-	-	0.2 max	0.2 max	0.2 max
Aluminium (Al)	Balance	Balance	Balance	Balance	Balance	Balance	Balance

Physical Properties of Aluminium Die-casting Alloys

Designation	A356	A360	A380	ADC12	LM2	LM5	LM24
Density (g/cm^3)	2.67	2.68	2.76	2.82	2.74	2.65	2.79
Heat Capacity (J/g K)	0.963	0.963	0.963	0.963	0.963	0.963	0.963
Thermal Conductivity (W/m K)	151	113	109	92	100	138	96.3
Melting Range (℃)	557-613	557-596	538-593	516-582	525-570	580-642	520-580
Tensile Strength, Ultimate (MPa)	234	317	324	331	300	170-280	320
Tensile Strength, Yield (MPa)	165	165	159	165	130	90-120	150
Elongation (%)	3.5	3.5	3.5	2.5	1-3	5	1-3

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