



ALUMINIUM CASTING General Tables Technical suitabilities

Technological suitabilities of Aluminium alloys for casting

Group of alloys	Alloy designation		Moulding method				Mouldability			Other properties								Mechanical characteristics				
	Numerical EN AC	Symbolic EN AC	Sand	Die	A pressure	Precision (lost wax)	Fluidity	Resist. to hot cracking	Vatertightness	Machinability Raw moulding	After thermal treatment	Corrosion-proofing	Decorative anodized	Solubility ²⁾	Polishability	Expansion coefficient 10-6/K 293-373K	Electrical conductivity MS/m	Thermal conductivity M/mK	Resist. to atmosph. temp.	Resist. to temp. up to 200°C	Ductability (shock resist.)	Fatigue strength MPa
AlCu	21000	AlCu4MgTi	•	•		•	C	D	D	-	A	D	C	D	B	23	16 to 23	120 to 150	A	B	A	80 to 110
	21100	AlCu4Ti	•	•			C	D	D	-	A	D	C	D	B	23	16 to 23	120 to 110	A	B	A	80 to 110
AlSiMgTi	41000	AlSi2MgTi	•	•			C	C	C	C	B	B	B	B	B	23	19 to 25	140 to 160	B		B	-
AlSi7Mg	42000	AlSi7Mg	•	•		•	B	A	B	B/C	B	B/C	D	B	C	22	19 to 25	150 to 170	B	C	C	80 to 110
	42100	AlSi7Mg0.3	•	•		•	B	A	B	-	B	B	D	B	C	22	21 to 27	160 to 180	A	C	A	80 to 110
	42200	AlSi7Mg0.6	•	•		•	B	A	B	-	B	B	D	B	C	22	20 to 26	150 to 180	A	C	A	80 to 110
AlSi10Mg	43000	AlSiMg(a)	•	•			A	A	B	B/C	B	B	E	A	D	21	19 to 25	150 to 170	B	C	C	80 to 110
	43100	AlSi10Mg(b)	•	•			A	A	B	B/C	B	B/C	E	A	D	21	18 to 25	140 to 170	B	C	C	80 to 110
	43200	AlSi10Mg(Cu)	•	•			A	A	B	B/C	B	C	E	A	C	21	16 to 24	130 to 170	B	C	C	80 to 110
	43300	AlSi9Mg	•	•			A	A	B	B/C	B	B	E	A	D	21	20 to 26	150 to 180	A	C	A	80 to 110
	43400	AlSi10Mg(Fe)				•	A	A	C	B	-	C	E	D	D	21	16 to 21	130 to 150	B	C	C	60 to 90
AlSi	44000	AlSi11	•	•			A	A	A	C	-	B	E	A	D	21	18 to 24	140 to 170	D	C	A	60 to 90
	44100	AlSi12(b)	•	•		•	A	A	A	C	-	B/C	E	A	D	20	16 to 23	130 to 160	D	C	B	60 to 90
	44200	AlSi12(a)	•	•			A	A	A	C	-	B	E	A	D	20	17 to 24	140 to 170	D	C	A	60 to 90
	44300	AlSi12(Fe)				•	A	A	C	C	-	C	E	D	D	20	16 to 22	130 to 160	B	C	C	60 to 90
	44400	AlSi9				•	A	A	C	C	-	C	E D		D	21	16 to 22	130 to 150	C	C	C	60 to 90
AlSi5Cu	45000	AlSi6Cu4	•	•			B	B	B	B	-	D	D	C	B	22	14 to 17	110 to 120	D	A	C	60 to 90
	45100	AlSi5Cu3Mg		•			B	B	B	B	A	D	D	C	B	22	16 to 19	130	A	A	C	80 to 110
	45200	AlSi5Cu3Mn	•	•		•	B	B	B	B	B	D	D	C	B	22	15 to 19	120 to 130	A	A	C	70 to 100
	45300	AlSi5Cu1Mg	•	•			C	B	C	B	B	D	D	C	B	22	19 to 23	140 to 150	B	B	B	70 to 100
	45400	AlSi5Cu3		•			B	B	B	B	B	D	D	C	B	22	16 to 19	120 to 130	B	A	A	70 to 100

(continues)



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	Numerical EN AC	Symbolic EN AC	Sand	Die	A pressure	Precision (lost wax)	Fluidity	Resist. to hot cracking	Watertightness	Machinability		Corrosion-proofing	Decorative anodized	Solubility ²⁾	Polishability	Expansion coefficient 10-6/K 293-373K	Electrical conductivity MS/m	Thermal conductivity M/mK	Resist. to atmosph. temp.	Resist. to temp. up to 200°C	Ductability (shock resist.)	Fatigue strength MPa
AlSi9Cu	46000	AlSi9Cu3(Fe)			●		B	B	C	B	-	D	E	F	C	21	13 to 17	110 to 120	B	B	D	60 to 90
	46100	AlSi11Cu2(Fe)			●		A	B	C	C	-	D	E	F	C	20	14 to 18	120 to 130	B	B	D	60 to 90
	46200	AlSi8Cu3	●	●	●		B	B	B	B	-	D	E	B	C	21	14 to 18	110 to 130	B	A	C	60 to 90
	45300	AlSi7Cu3Mg		●			B	B	B	C	-	C	E	B	C	21	14 to 17	110 to 120	D	A	C	60 to 90
	46400	AlSi9Cu1Mg	●	●			B	B	B	B	B	D	E	B	D	21	16 to 22	130 to 150	A	B	C	60 to 90
AlSi9Cu	46500	AlSi9Cu3(Fe)(Zn)			●		B	B	B	B	-	D	E	F	C	21	13 to 17	110 to 120	B	A	D	60 to 90
	46600	AlSi7Cu2	●	●			B	B	B	B	-	D	E	C	C	21	15 to 19	120 to 130	D	B	C	50 to 70
AlSi(Cu)	47000	AlSi12(Cu)	●	●			A	A	A	C	-	C	E	A	C	20	16 to 22	130 to 150	D	B	C	60 to 90
	47100	AlSi12Cu1(Fe)			●		A	A	C	C	-	C	E	F	C	20	15 to 20	120 to 150	B	B	C	60 to 90
AlSiCuNiMg	48000	AlSi12CuNiMg		●			A	A	A	-	B	C	E	A	C	20	15 to 23	130 to 160	A	A	D	80 to 110
AlMg	51000	AlMg3(b)	●	●			C	D	D	A	-	A	A	C	A	24	17 to 22	130 to 140	D	B	B	60 to 90
	51100	AlMg3(a)	●	●	●		C	D	D	A	-	A	A	C	A	24	17 to 22	130 to 140	D	B	B	60 to 90
	51200	AlMg9	●	●		●	C	D	D	A	-	A	B	C	A	24	11 to 14	60 to 90	C	B	C	60 to 90
	51300	AlMg5	●	●			C	D	D	A	-	A	A	C	A	24	15 to 21	110 to 130	D	B	B	60 to 90
	51400	AlMg5(Si)	●	●			C	D	D	A	-	A	B	C	A	24	15 to 21	110 to 140	D	B	B	60 to 90
AlZnMg	71000	AlZn5Mg	●	●			C	D	D	A	A	B	B	C	B	24	19 to 21	130 to 140	C	D	B	60 to 90

Indicates the moulding process used most for each alloy: A: Excellent; D: Bad; B: Good; E: Not recommended; C: Regular; F Inappropriate

NOTE - In a family of alloys, the designation for two letters separated by a stroke, for example B/C, allows small differences to be indicated.

1) The comparisons only apply to the corresponding column.

2) The weldability of pressurised moulded parts depends on the quantity of gas occluded and, in the majority of cases, it is very poor. Using special injection moulding processes, the values of B to C can be obtained.