

Magnesium Forging Alloy Compositions



Provided Courtesy of Materials Technology@TMS

The following is a summary of the compositions of typical magnesium forging alloys. Compositions are limits where a range is given for major alloying additions. Compositions are nominal if a single value is given for intentional alloying additions. Designations in parentheses are British designations for the ASTM designations which precede them.

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COMPOSITION wt.%														Others	Reference	Link
Alloy	Al	Zn	RE	Zr	Ag	Mn	Y	Th	Li	Cu	Si	Sr	Ca			
AZ31B	3	1				0.6								0.005 max Ni, 0.005 max Fe	Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
ZM21		2				1									Magnesium Elektron Corporate Site	Magnesium-Elektron
AZ61A (AZM)	6	1				0.3									Magnesium Elektron Corporate Site	Magnesium-Elektron
	6.5	0.9				0.33								0.005 max Ni, 0.005 max Fe	Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
M1A						1.2- 2.0				0.05 max	0.10 max		0.3 max	0.01 Ni max, 0.30 max others total	ASM Specialty Handbook: Magnesium and Magnesium Alloys, eds. M. M. Avedesian and H. Baker, ASM International, 1999.	Acquire the Book
ZK31 (ZW3)		3		0.6											Magnesium Elektron Corporate Site	Magnesium-Elektron
AZ80A	8.5	0.5				0.12 min									Magnesium Elektron Corporate Site	Magnesium-Elektron
	8.5	0.5				0.31								0.005 max Ni, 0.005 max Fe	Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
ZK60A		4.8- 6.2		0.45 min											Magnesium Elektron Corporate Site	Magnesium-Elektron
		5.5		0.7											Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
WE54A			3.0 - 4.0*	0.4 min			4.75- 5.5							* RE is 1.5 - 2.0% Nb, rest being heavy rare earths (Yb, Er, Dy, Gd)	Magnesium Elektron Corporate Site	Magnesium-Elektron
WE43A			2.4- 4.4 *	0.4 min			3.7- 4.3							* RE is 2.0 - 2.5% Nb, rest being heavy rare earths (Yb, Er, Dy, Gd)	Magnesium Elektron Corporate Site	Magnesium-Elektron