

Magnesium Extrusion Alloy Compositions



Provided Courtesy of Materials Technology@TMS

The following is a summary of the compositions of typical magnesium extrusion 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. %														Reference	Link	
Alloy	Al	Zn	RE	Zr	Ag	Mn	Y	Th	Li	Cu	Si	Sr	Ca			Others
AZ10A	1.2	0.4				0.2 min									ASM Specialty Handbook: Magnesium and Magnesium Alloys, eds. M. M. Avedesian and H. Baker, ASM International, 1999.	Acquire the Book
AZ31B	3	1				0.3									Magnesium-Elektron Corporate Site	Magnesium-Elektron
	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
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
ZM21		2				1									Magnesium-Elektron Corporate Site	Magnesium-Elektron
M1A						1.6									Handbook of Materials Selection, ed. Kutz, Myer, 2002 John Wiley & Sons	Read the Full Article
ZK31 (ZW3)		3		0.6											Magnesium-Elektron Corporate Site	Magnesium-Elektron
ZK40A		4		0.7											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
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

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Alloy	COMPOSITION wt. %													Others	Reference	Link	
	Al	Zn	RE	Zr	Ag	Mn	Y	Th	Li	Cu	Si	Sr	Ca				
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
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