

	Property Datasheet - Most Common Magnesium Alloy Exclusive Magnesium Private Limited - Hyderabad, India.													Aluminium Alloy Based Materials	
#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Alloy Name	AZ91C	AZ91D	AZ31B	AZ80A	AZ80A	WE43	ZE41 - T5	MRI 202S	MRI 201S	MRI 153M	DSM 1	AM50A	AM60B	LM25 / AISI7Mg0.3	LM25 + 10% SiC
Temper Condition	T4	F	H24	T5	T5	T6	T5	T6	T6			F	F	TF / T6	
Density (g/cm3)	1.79	1.79	1.77	1.8	1.8	1.8	1.84	1.79	1.79	1.8	1.81	1.77	1.8	2.7	2.75
Tensile Strength (MPa)	234	230	290	380	290	296	200	270	270	250	250	200	220	230	220
Melting Point (°C)	596	533	605 - 630	610	610	540-640	640	646	646			620	615	625	625
Thermal Conductivity (W/m K)	72	72	96	76	76	51.3	109	91	91	64	98	65	61	151	190
Coefficient of Thermal Expansion (um/ m.k)	26	26	26	26	26	26.7	27.1	25.1	25.1	25.9	25.4	26	25.6	21.5	9.5
Electric Conductivity (% IACS)	9.9	12.2	18	11	11		39	27.41	27.41	8.1		16	13	39	5.4
Yield Strength (0.2% Offset) - MPa	76	160	180	275	193		133	165	190	170	150	110	131	200	117
Shear Strength (MPa)	145	140	160	165	100		138					110	131	143	
Fatigue Strength (MPa)	85	97				186				110		70	70	90	
Brinell Hardness (HB)	70	63	73	82	72	81-95	70			72		60	62	90	114
Charpy Impact	4.1 J	2.7 J					1.4 J			8.1 J		2.8 J	2.8 J		
Modulus of Elasticity	44.8 GPa	44.8 GPa	30 GPa			44 GPa				45 GPa		45 GPa	45 GPa	72.4 GPa	
Shear Modulus	17 GPa	17 GPa	17 GPa			17 GPa				17 GPa		17 GPa	17 GPa	26 GPa	
Poisson's Ratio	0.35	0.35	0.35			0.27						0.35	0.35	0.33	
Stress [MPa] to produce 0.2% creep strain															
100 Hours @ 150°C										60	95				
175°C						190	70	155	185						
200°C						160	50	100	160						
250°C						60	20	40	75						
Elongation (% in 50mm)	7%	3%	15%	7%	5%	11%	3%	10%	7%	6%	14%	15%	8%	2%	2%
Process	Sand Casting	Die Casting	Hard Rolled Sheets	Extrusion	Forging	Plates, Forging & Extrusion	Gravity Casting	Gravity Casting	Gravity Casting	Die Casting	Die Casting	Die Casting	Die Casting	Sand Casting	All Processes
	Exclusive Magnesium Private Limited - Hyderabad, India.														
Composition															
Mg	90	90	96	91	91	92 - 93.8	92.3 - 95.3					94.8	94	0.2 - 0.45	0.2 - 0.45
Al	8.1 - 9.3	8.3 - 9.7	2.5 - 3.5	7.8 - 9.2	7.8 - 9.2		-					4.4 - 5.4	5.5 - 6.5	Reminder	Reminder
Cu	0.1	0.03	0.05	0.05	0.05		0.1					0.01	0.35	0.1	0.1
Si	0.02	0.1	0.1	0.1	0.1		-					0.1	0.5	6.5 - 7.5	6.5 - 7.5
Fe	0.005	0.005	0.005	0.005	0.005		-					0.004	-	0.5	0.5
Mn	0.13 - 0.35	0.15	0.2 - 1	0.12	0.12 - 0.5		0.15					0.26 - 0.60	0.13 - 0.60	0.3	0.3
Ni	0.001	0.002	0.005	0.005	0.005		-					0.002	0.03	0.1	0.1
Zn	0.40 - 1.0	0.35 - 1.0	0.60 - 1.4	0.20 - 0.80	0.20 - 0.80		3.50 - 5.00					0.22	0.22	0.1	0.1
Ca	-	-	0.04	-	-	-	-					-	-	-	-
Yt	-	-	-	-	-	3.7 - 4.3	-								
Zr	-	-	-	-	-	>=0.2	0.400 - 1.00					-	-	-	-
Other Impurities		0.02	0.3		0.3							0.02	-	0.35	0.35
Rare Earth Metals	-	-	-	-	-	2.3 - 3.5	0.750 - 1.75					-	-	-	10% SiC