

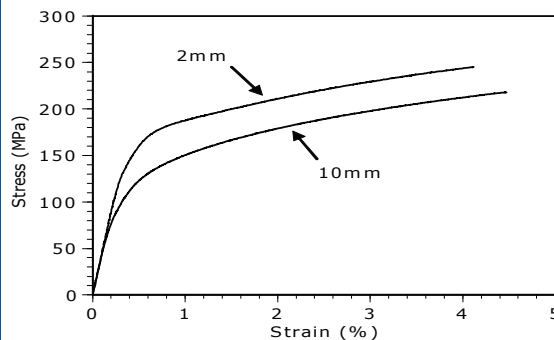
Data Sheet

Mechanical properties at room temperature (2mm thick die castings)

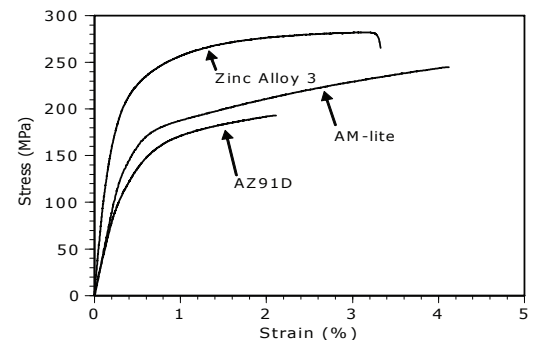
Hardness VHN (300g)	85-90
Brinell	76-80
0.2% proof stress (MPa)	160-170
Linear elastic limit (MPa)	~ 100
Ultimate tensile strength (MPa)	230-250
Fracture elongation (%)	3-4
Young's modulus (GPa)	45.3
Poisson's ratio	0.35
Shear modulus (GPa)	16.8
Compressive 0.2% proof stress (MPa)	150
Compressive strength (MPa)	446
Bending fatigue strength (MPa) 3 point bending, R=0.1, 10 ⁶ cycles	181
Fatigue strength (MPa) R.R.Moore, 50x10 ⁶ cycles	85
Creep strain (%) at 200h, 150°C 35 MPa	0.2
60 MPa	0.5
Charpy impact strength (J) unnotched standard 10x10mm thick specimens	3.3

Physical properties

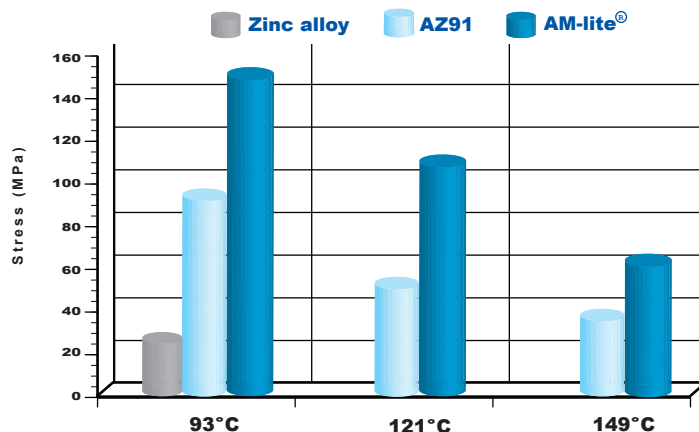
Density at 20°C (g.cm ⁻³)	2.02
Solidification range (°C)	585-330
Solidus temperature (°C)	330
Liquidus temperature (°C)	585
Latent heat of solidification (kJ.kg ⁻¹)	340
Specific heat at 25°C (kJ.kg ⁻¹ .K ⁻¹)	0.95
Heat release during casting (600-250°C) (kJ.cm ⁻³)	1.0
Coefficient of thermal expansion(K ⁻¹)	24.9.10 ⁻⁶
Electrical conductivity (IACS %)	15.5
Electrical resistivity (ohm.m.10 ⁻⁶)	105-110
Thermal conductivity (W.m ⁻¹ .K ⁻¹) estimated from electrical conductivity	83



Tensile curves for as-cast AM-lite® 2mm thick plates and 10mm square die castings.



Comparison of tensile curves for 2mm thick plates of, AZ91D and Zinc Alloy 3. (Note: the strength of zinc alloys is very strain rate dependent. The design strength of zinc alloys is much lower than AM-lite® and AZ91).



Comparison of creep strength between AM-lite®, AZ91D and Zinc Alloy 5. Stress required for 0.5% strain after 100h of creep.

(Note: no data is provided for zinc at temperatures above 100°C because its creep strength at these temperatures is very low).