

AMORPHOUS ALLOYS

AMLOY-ZR01

MATERIAL PROPERTIES

- High strength combined with excellent elasticity
- High surface quality
- High hardness and low abrasion
- High corrosion resistance
- Biocompatibility
- Isotropic behaviour

INDUSTRIES & APPLICATIONS

- Aerospace
- Consumer Electronics
- Industrial
- Lifestyle
- Medical Technologies
- Robotics
- Sensors
- Tool Inserts

PROCESSING TECHNOLOGIES

Additive Manufacturing:

Optimally suited for the production of small to medium volumes featuring complex geometries and large component sizes

Injection Molding:

Ideal for high volume production with manufacturing tolerances within $\pm 10 \mu\text{m}$

CHEMICAL COMPOSITION

Element	Concentration (wt%)
Zr	balance
Cu	24
Al	4
Nb	2

PHYSICAL PROPERTIES

Properties	Typical Value
Density (g/cm ³)	6.68
Liquidus temperature (°C)	920
Solidus temperature (°C)	870
Glass transition temperature T _g (°C)	400
Crystallization temperature T _x (°C)	475
Crystallization enthalpy ΔH (J/g)	- 47
Young's modulus (GPa)	87
Poisson's ratio	0.35
Bending yield strength (GPa)	2.3
Tensile yield strength (GPa)	1.6
Compressive yield strength (GPa)	1.7
Vickers hardness (HV5)	480
Electrical conductivity (% IACS)	~ 1
Thermal conductivity (W/mK)	~ 2.5
Thermal expansion coefficient (1/K)	10 - 12 * 10 ⁻⁶
Specific heat capacity (J/kgK)	250 - 350

