

## 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  $\pm 5 \mu\text{m}$

#### CHEMICAL COMPOSITION

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

#### PHYSICAL PROPERTIES

Properties	Typical Value
Density (g/cm <sup>3</sup> )	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 $\Delta H$ (J/g)	- 47
Young's modulus (GPa)	87
Poisson's ratio	0.35
Bending yield strength (GPa)	2.1
Tensile yield strength (GPa)	1.6
Compressive yield strength (GPa)	1.7
Vickers hardness (HV5)	480
Electrical conductivity (% IACS)	~ 1
Thermal conductivity (W/mK)	~ 6
Thermal expansion coefficient (1/K)	10 - 12 * 10 <sup>-6</sup>
Specific heat capacity (J/kgK)	250 - 350

