Property	Magnesium Alloy	Zinc Alloy	Aluminum Alloy	Titanium Alloy
Density (g/cm^3)	Approximately 1.74	About 6.6	Around 2.7	Approximately 4.5
Tensile Strength (MPa)	200 - 350	270 - 400	300 - 600	900 - 1,400
Yield Strength (MPa)	90 - 250	150 - 320	50 - 570	830 - 1,200
Thermal Conductivity (W/mK)	156	113	205	22
Elastic Modulus (GPa)	45	96	70	116
Melting Point (°C)	650 - 670	380 - 390	660	1,660
Corrosion Resistance	Good in controlled environments	Excellent, but can corrode in certain conditions	Very Good	Excellent, especially in seawater
Specific Applications	Lightweight structural components, aerospace, automotive	Die casting, intricate shapes, good for plating	Aircraft frames, automotive parts, cans	High-strength aerospace structures, biomedical implants
Cost	Moderate	Low to Moderate	Low to Moderate	High

Notes:

Density reflects the mass per unit volume, which influences the weight of the final component and its suitability for lightweight applications.

Tensile Strength and Yield Strength indicate the material's ability to withstand loads without failure. Higher values are often sought after for structural applications.

Thermal Conductivity shows the ability to conduct heat, which is crucial for applications requiring efficient heat dissipation.

Elastic Modulus measures the stiffness of a material, affecting its ability to deform under stress.

Melting Point impacts the processing techniques and applications at high temperatures.

Corrosion Resistance is a critical factor for materials exposed to harsh environments, influencing longevity and maintenance needs.

Specific Applications highlight the areas where each alloy finds predominant usage, reflecting their mechanical and physical characteristics.

Cost offers a general indication of material expense, affecting the economic feasibility of their use in various applications.

This table serves as a guideline for selecting an appropriate alloy based on the specific requirements of a project or application. Each alloy presents a unique set of properties, making them suitable for different challenges in engineering and design.