

# Cast Aluminum B390

Aluminum Alloy for Casting

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# NewayPrecision

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### Technical Data: Cast Aluminum B390

#### Product Description

The B390 alloy primarily comprises aluminum and alloying elements, contributing to its remarkable properties. It exhibits good corrosion resistance, making it suitable for applications where exposure to various environmental conditions is a concern. Additionally, B390 offers enhanced thermal conductivity, an essential characteristic in components where heat dissipation is crucial.

In the die-casting method, B390 proves advantageous due to its fluidity during the molten stage, allowing intricate details to be captured in the cast parts. Neway's utilization of B390 in die casting aligns with its commitment to delivering high-quality, custom metal parts with precision and durability.



#### Chemical Comparison

Aluminum (Al)	Copper (Cu)	Magnesium (Mg)	Zinc (Zn)	Silicon (Si)	Iron (Fe)
90	3.5	0.5	3.5	0.9	0.5

#### Physical and Mechanical Properties

Property	Tensile Strength (MPa)	Yield Strength (MPa)	Hardness (Brinell)	Shear Strength (MPa)	Impact Strength (J)	Fatigue Strength (MPa)	Thermal Conductivity (W/m·K)	Density (g/cm <sup>3</sup> )	Melting Range (°C)
Value	360	240	95	230	10	120	170	2.74	570-640

#### Typical Applications

##### Aluminum B390 Die Casting Structural Elements



Aluminum Alloy B390 is an excellent choice for die-casting structural elements owing to its well-balanced mechanical properties. With a high tensile strength of 360 MPa and a yield strength of 240 MPa, B390 provides the necessary structural integrity to withstand substantial loads and resist deformation, ensuring the longevity of components subjected to mechanical stresses. Its Brinell hardness 95 enhances wear resistance, making it well-suited for structural elements that may encounter surface abrasion over time.

The alloy's ability to maintain shear strength at 230 MPa is crucial for stability under parallel forces, while an impact strength of 10 Joules ensures resilience against sudden impacts or dynamic loads. B390 further exhibits a fatigue strength of 120 MPa, indicating durability against repeated loading, a common consideration for long-term performance in structural applications. Moreover, its thermal conductivity of 170 W/m·K facilitates efficient heat dissipation, an essential feature for components exposed to temperature variations.

#### Note

The above data are reference material science data. This data reference is not binding and is not considered as authoritative test data. If your material requirements are extremely precise, please contact our material engineers. Tel | +86 18926788217 | Web | [www.newayprecision.com](http://www.newayprecision.com) | Contact Neway



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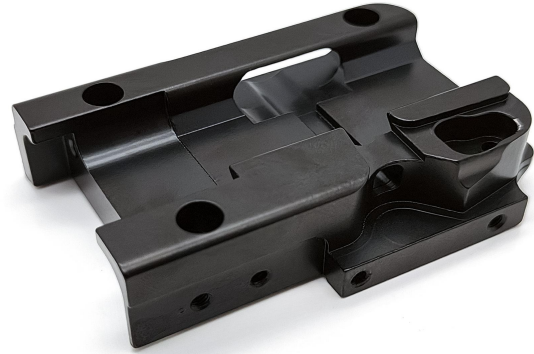
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## Aluminum B390 Die Casting Electronics Housings

Aluminum alloy B390 is an ideal choice for die-cast electronics housings due to its lightweight nature, excellent thermal conductivity, and corrosion resistance. With a  $2.74 \text{ g/cm}^3$  density, B390 ensures that electronic housings remain lightweight, facilitating the design of portable and sleek devices. This characteristic is particularly advantageous in the electronics industry, where minimizing weight without compromising structural integrity is crucial.

The alloy's remarkable thermal conductivity, measured at  $170 \text{ W/m}\cdot\text{K}$ , is crucial for effective heat dissipation in electronics housings. As electronic components generate heat during operation, B390 facilitates the efficient transfer of heat away from sensitive parts, preventing overheating and ensuring optimal performance and longevity of electronic devices. This feature is especially vital in applications like smartphones, computers, and other electronic gadgets where thermal management is critical.



## Aluminum B390 Die Casting Industrial Machinery Parts



Aluminum Alloy B390 emerges as a favorable material for die-casting industrial machinery parts, showcasing a well-balanced set of mechanical properties that meet the rigorous demands of heavy-duty applications. With a tensile strength of 360 MPa and a yield strength of 240 MPa, B390 provides the structural robustness required in industrial machinery components subjected to substantial loads and forces. It ensures the integrity and durability of the die-cast parts, contributing to the overall reliability of the machinery.

In addition to its strength, B390 exhibits a shear strength of 230 MPa, making it well-suited for components experiencing forces parallel to their surfaces, a common scenario in industrial machinery. The alloy's excellent thermal conductivity at  $170 \text{ W/m}\cdot\text{K}$  is beneficial in dissipating heat generated during machinery operation, preventing overheating and contributing to the overall efficiency and performance of the equipment.

## Aluminum B390 Die Casting Consumer Goods Accessories

Aluminum Alloy B390 is an excellent choice for die-casting consumer goods accessories, providing lightweight design, durability, and versatility. With a  $2.74 \text{ g/cm}^3$  density, B390 creates lightweight accessories, making it an ideal material for consumer electronics, kitchen appliances, and recreational equipment. This lightweight characteristic enhances the overall user experience, especially in handheld or frequently manipulated accessories.

The alloy's superior corrosion resistance ensures the longevity and aesthetic appeal of consumer goods accessories, making it well-suited for items that may be exposed to varying environmental conditions. Whether used in kitchen gadgets or outdoor equipment, B390's resistance to corrosion safeguards the appearance and functionality of accessories over time, contributing to consumer satisfaction and product reliability.



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