**Aluminum alloys common to automobile:**

* Non heat treatable Al-Mg (EN 5xxx) and heat treatable Al-Mg-Si (EN 6xxx) alloy systems are most commonly used

Details:

* Variation in composition and processing could be used to improve corrosion resistance and formability, surface appearance and age hardening response
* Good strength/weight ratio
* Good fracture toughness and energy absorption capacity
* Good workability
* Ease of joining
* Recyclability

**Application for Aluminum alloys:**

* **5xxx aluminum-magnesium alloy**
* **Bridges**
* **Storage tanks**
* **Pressure vessels**
* **Automobile body panel and frame applications**

**Details:**



* **6xxx aluminum-magnesium-silicon alloy**
* **Bridge structures**
* **Marine frames**
* **Trucks parts**
* **Railroad cars**
* **pipelines**

 

Highest volume of aluminum is in car castings (engine blocks, cylinder blocks, and chassis)



The table above shows the weight reduction and cost increase by replacing steel with aluminum



**Compositions of aluminum alloys:**

*Typical Compositions of different 5xxx aluminum-magnesium alloy*





*Typical compositions of different 6xxx aluminum-magnesium-silicon alloy*

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 **Aluminum alloy usage:**



* aluminum tubes
* brake systems