Zinc alloys and the die casting sector

Is there growth and where?

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• Turnover 2014: USD 630 million

• Number of employees 2014: 6,000

• 23 manufacturing facilities in 16 countries

• Billions of die castings shipped annually

• Manufacture in
  • Zinc
  • Aluminum
  • Magnesium
  • MIM

• Machines range from 4 to 500 tones

• 680 multi-slide, conventional zinc and aluminum machines in operation
Revenue breakdown

- Zinc Multi-slide: 40%
- Zinc Conventional: 27%
- Aluminum: 21%
- MIM: 5%
- Magnesium: 1%
- Other: 6%

2014 Revenue by Process

Key benefits

**ZINC**
- Low cost
- High strength and hardness
- High thermal conductivity
- Excellent thin wall capability, superior heat dissipation

**ALUMINUM**
- Excellent strength-to-weight ratio
- Outstanding corrosion resistance
- Superior heat dissipation
- EMI/RFI shielding capabilities

**MIM (STAINLESS STEEL: 17-4, 420)**
- High strength and hardness
- Wear
- Corrosion resistance
- High density

**MAGNESIUM**
- Excellent stiffness
- Strength-to-weight ratio
- Excellent electrical conductivity
In Asia, but particularly in China, suppliers continue to favor small, precision, die cast zinc components for consumer electronics applications.

**Spotlight: Wearable Device**

- 150 million wearable devices will ship in 2015 (increase of 60 million from 2014)
- By 2020, the industry is projected to grow to $60 billion from $700 million in 2013
- 23% of people say that they are planning to buy a wrist-worn wearable device in the near future
Though aluminum parts are lighter, automakers continue to utilize zinc for faster production and considerably lower cost.

**Spotlight: Active Safety**

- 60% of new vehicles sold by 2017 will be “connected cars”
- 100 different sensors will be in the average car sold in 2015
- Zinc opportunities = camera, radar and connector housings
- Parts are complex, require extremely low particle count and high cleanliness
Manufacturers are using zinc for cosmetic door handles, key fob accessories, design elements, antennas and security systems.
Die casting lends itself to the manufacture of intricate three dimensional connector housings and assemblies in zinc. Industry Automation is a major growth driver for Connectors in zinc.
Why Zinc?

- Customers prefer the weight of a metal handle
- Smooth finish as cast
- Easy to apply decorative chrome plating
- Cost effective for high volume production
Why Zinc?

- Originally designed for Al but converted to Zn
- Heat dissipation is critical
- Complex geometry
- Better part to part consistency
- Cost effective for high volume production
Why Zinc?

- Copper nickel tin plating can be applied for improved electromagnetism and corrosion resistance
- Complex geometry
- Better part to part consistency
Why Zinc?

- Converted two components that were machined from solid steel and aluminum to achieve a 63% cost savings

- Developed a special iridescent blue paint to mimic the look of anodizing and allow for the conversion
NEW ALLOY DEVELOPMENT

EZAC
- High strength, creep resistant, hot chamber, zinc based die casting alloy
- Superior creep resistance (14x longer than Zamak 2 and 3x longer than ACuZinc5)
- Higher yield strength (comparable to ZA-27)
- Higher hardness
- Opportunities for conversion: powder metal components, MIM components, parts where standard zinc alloys are failing due to strength, hardness or creep resistance

Piston Guide
Standard Zamak alloys showed signs of galling
THANK YOU