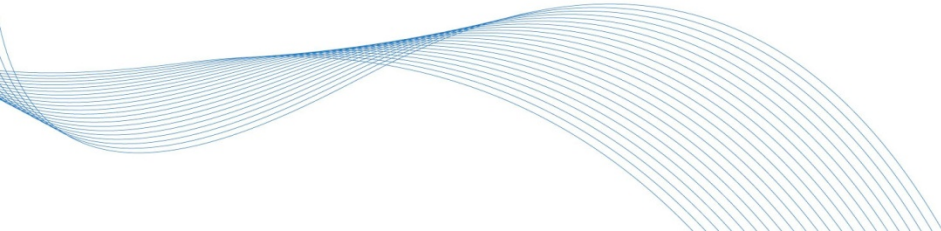




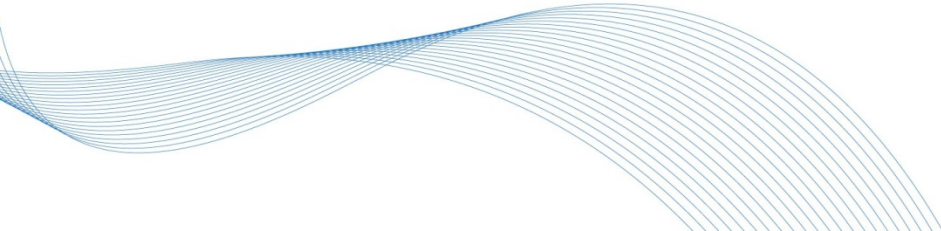
Clip-Lok SimPak[®]

**HPDC Magnesium in
automotive industry**

Magnesium foundrys


- Why Mg
 - Cost effective, components with many integrated functions are often cost competitive in Mg.
 - Saves weight, due to its low density, excellent castability and good mechanical properties Mg often saves weight.
- 

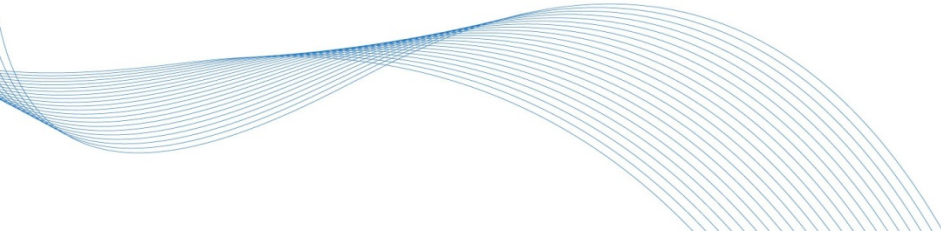
Magnesium foundrys

- Weight analysis:
Figures in density rates.
 - Steel, SS, HSS, UHSS and others. 7,86
 - Aluminium and alloys 2,78
 - Magnesium and Mg alloys 1,72
- 

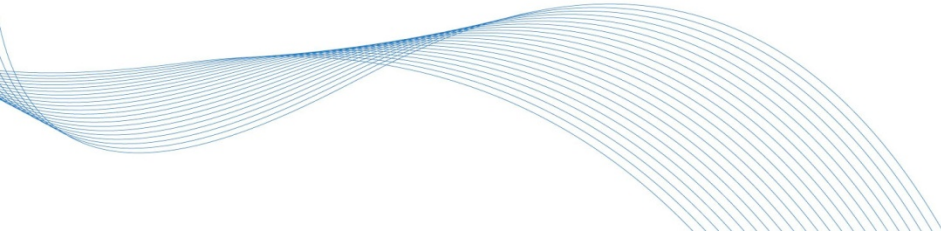
Magnesium foundrys

- Weight reduction analysis:
- The effect of weight on fuelconsumption varies between 0,17 l 100/km*100kg to 0,52l 100/km*100kg due to engine output.

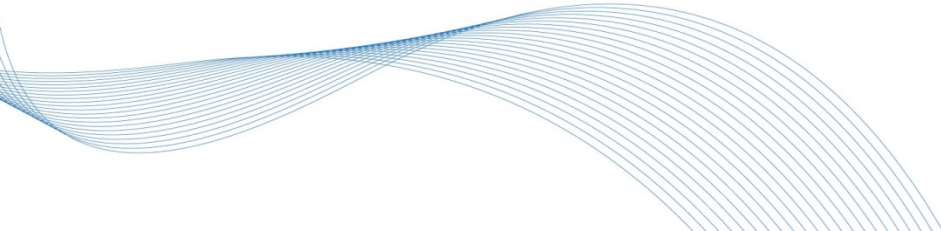
-
- Products currently in Mg.
 - Instrument panel structures.
 - Crossbeams.
 - Steering column and SC brackets.
 - Center stack.
 - Bumpers(craschbox, beam)
 - Retractable hardtops.
- 

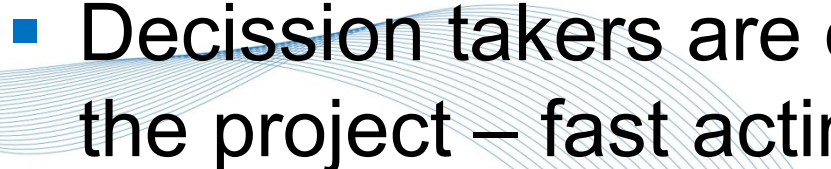
-
- Products currently in Mg.
 - Doors (impact beams, frame)
 - Front and backseats(subframes, mechanisms, backrests, seat panel)
 - Body-in-white(A-B-C pillars, body support).
- 

Magnesium foundrys


- Trends and facts:
 - Today 2,3kg Mg/car, within 10 years 60kg Mg/car.
 - Few suppliers of large scale production.
 - Mg-Al content per car predicted for 2010.
- 

Magnesium foundrys

- Future:
 - Tixofforming
 - Warm sheet forming.
 - Stamping
 - Joining technology progress, multi material interfaces.
- 

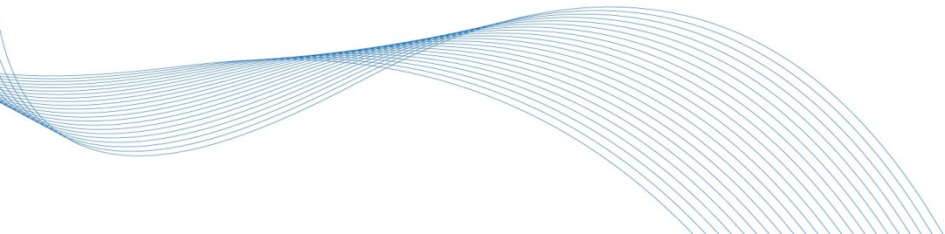
-
- What in it for us??
 - Previous part were stamped MS small parts welded together on site.
 - Mg part are often bulky and structured which means that they are sensitive to damages during packing/transport processes.
 - New suppliers/actors on the market without old traditional packaging thinking.
 - Decision takers are often closely related to the project – fast acting.
- 

Magnesium foundrys

- Actors within Scandinavia:
 - Finnveden –Automotive
 - Husqvarna –Chainsaws and eq.
 - Svensk trckgjutning –Automotive
 - Alteams group Finland –Automotive.
 - Hydro automotive structures – guess..
 - Tönsberg mag group Norway –Automotive.
 - SMA mag Norway –Automotive.
- 

Magnesium foundrys

- Main actors in Europe.
- Georg Fisher, Austria
- Gibbs, Hungary
- Antolin, Spain



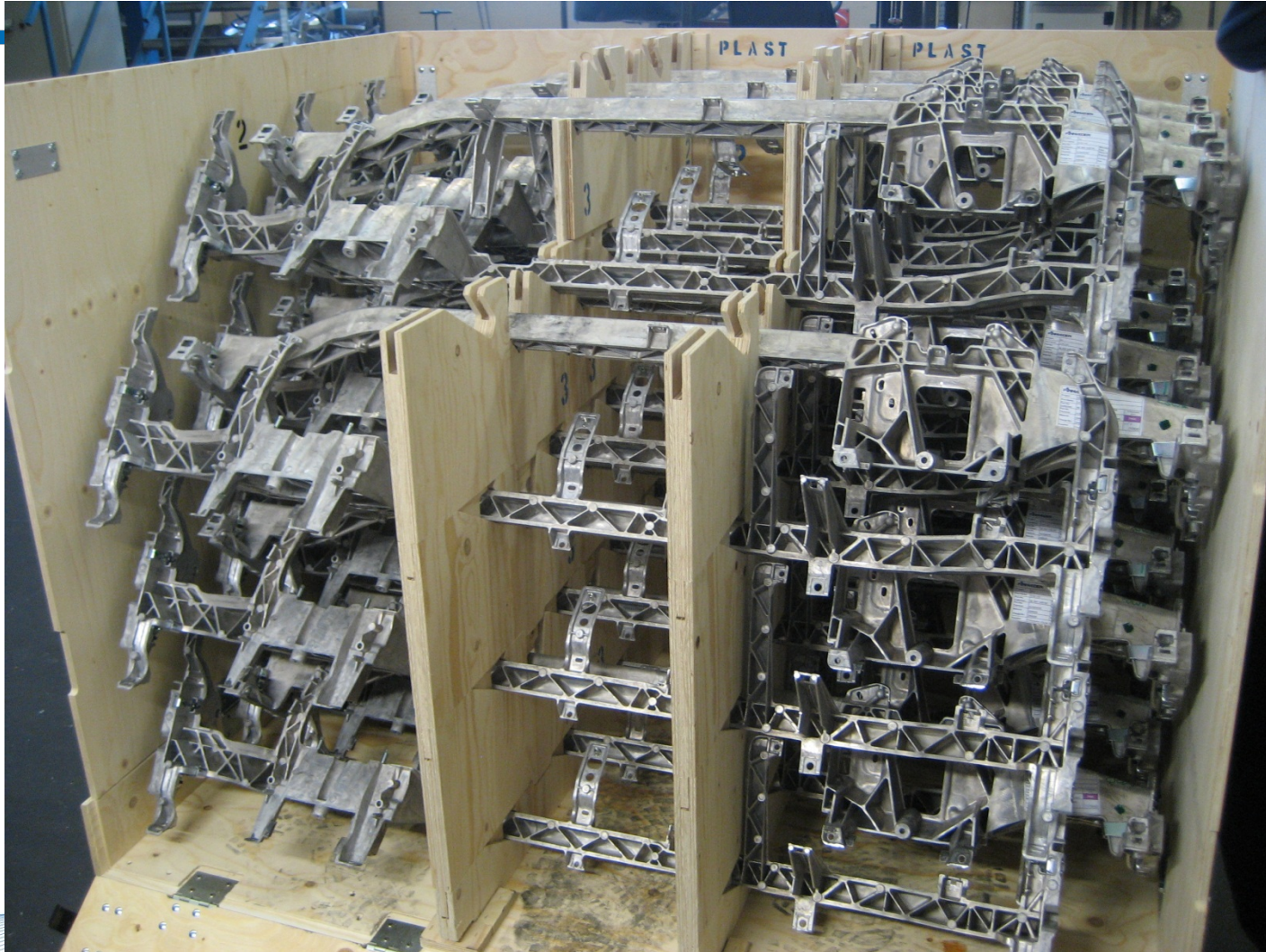
Magnesium foundrys



Magnesium foundrys



Magnesium foundrys



Magnesium foundrys



Magnesium foundrys

Conclusion

- Magnesium parts often bulky and complex.
- Complicated to pack without proper dunnage.

