Technical Presentations

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The Future Technology That Is Here Today

Let’s look at what the automobile manufacturers are using today, but was only theory a few years ago.

More and More vehicle manufacturers are using aluminum in the manufacturing process

Some vehicle are made entirely from aluminum.

Jaguar XJ

Audi A8

Acura NSX

Some Vehicles utilize Aluminum frames.

2006 Chevrolet Corvette-Z06

2005 BMW 5 Series

Still others are using aluminum panels that are made from special process called SUPERFORMING

2003 Aston Martin Vanquish

What is Superforming?

High-quality 2-piece aluminium bonnet and boot panels assemblies for the latest works Mitsubishi Lancer Evolution world rally car. Panels produced by the 'Superforming' process were then mated, clinched and inspected at CPP

The New Ford GT40 uses superforming for most of its exterior panels

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Vehicle manufactures are also using Magnesium.

Magnesium is used on the 2004 Ford F150 Radiator Support, on the inner door shell of the Mercedes S-Class Coupe, just to name a few.

There are also advances in steel. Let's take a look at the Ultra Light Steel Auto Programs

ULTRALIGHT STEEL AUTO BODY

ULSAB-AVC Advanced Vehicle Concepts

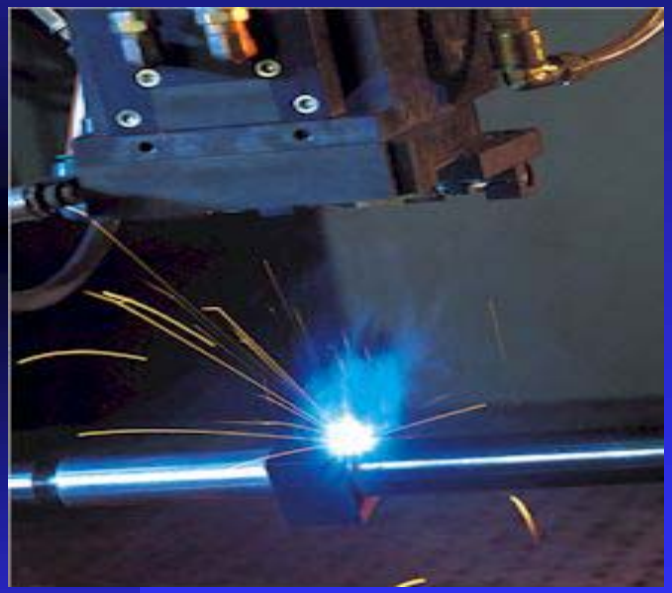
ULTRALIGHT STEEL AUTO SUSPENSION

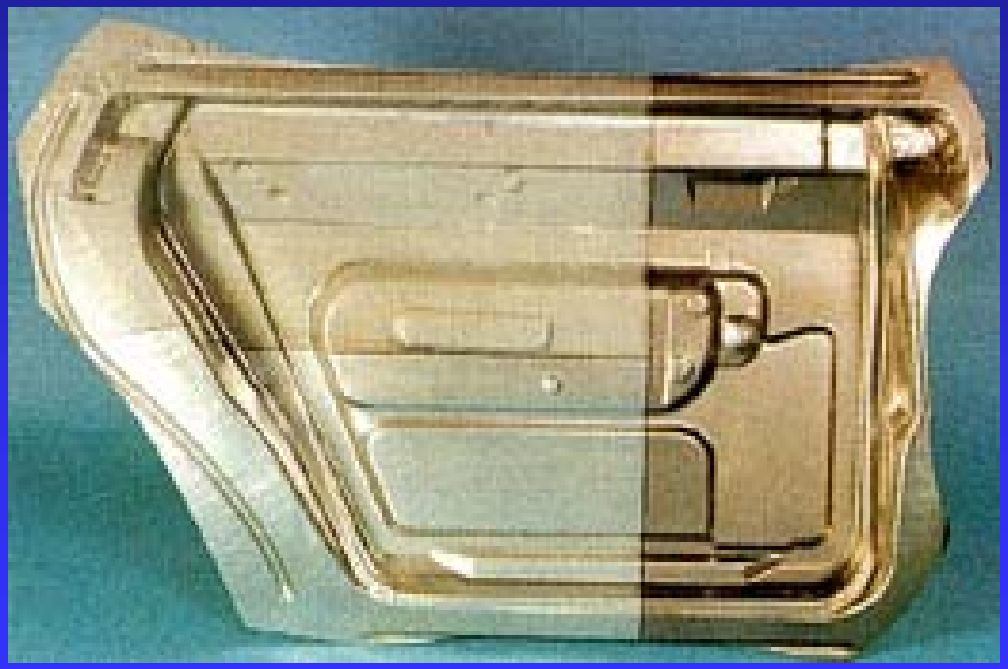
ULTRALIGHT STEEL AUTO CLOSURES

Tailored Blanks are cornerstone of the UltraLight Steel Auto Body

Tailored blanks let manufacturers put the right materials in the right places. So, for example, if strength is required in one area, a thicker piece of steel can be located there while the adjacent material can be of a thinner gage. ULSAB is taking advantage of tailored blanks. For example, this body side outer is a tailored blank.

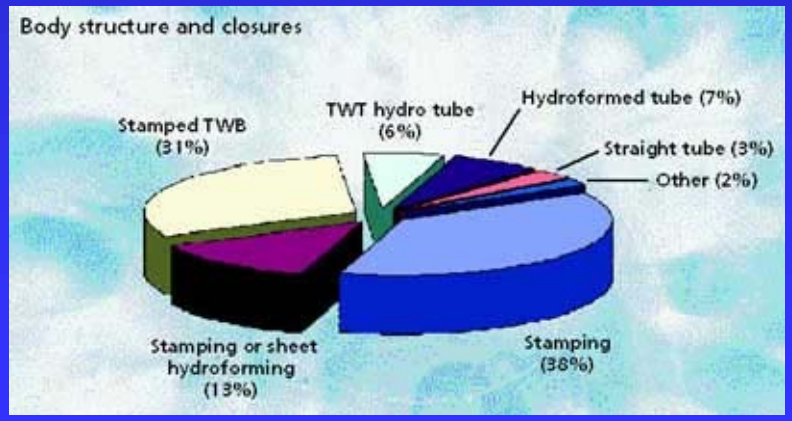
Tailored blanks are possible by using laser welding.





Inner door panel made up from 3 different steels that have been laser welded together.

A Concept car using ULSAB-AVC ideas



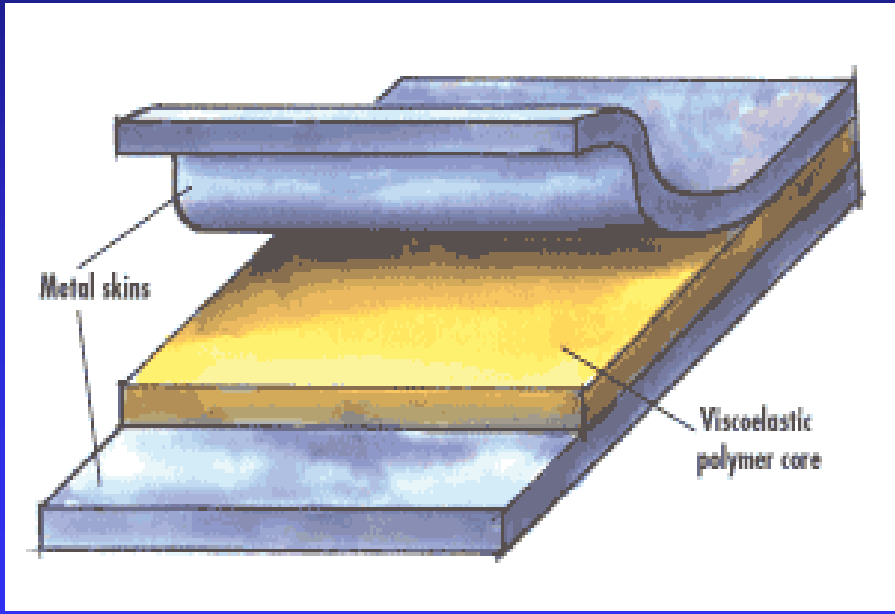
The Honda Ridgeline was designed and constructed using ULSAB-AVC concepts.

The third part of the equation is ULSAC-Ultra Light Steel Closures

The Final part of the program was ULSAS

- Achieve mass savings of up to 34% over current steel design at no additional cost
- Match the mass of aluminum system, while achieving 30% cost benefit
- Does not compromise performance
- Is manufacturable in high volume at no cost penalty

Quiet Steel—Another advancement in vehicle production



Advanced Steel with Boron is being used more extensively in areas of safety.

Red indicates boron-steel reinforcements to the XC90's frame

New technologies in panel attachments.