Tailored Blanks

Sustainability in steel
Tailored for tomorrow

The automotive industry faces two major challenges today: emissions reduction and improvement of safety standards. Reducing vehicle weight by using lighter materials is an obvious way to cut emissions, but steel offers unbeatable crash protection. ArcelorMittal Tailored Blanks answers both these demands with one innovative solution.

Tailored Blanks allow the use of optimal steel specifications, including ultra-high strength steel and Usibor® 1500 AS*. By welding steel sheets together, we produce materials that fit the job perfectly. Strength is concentrated where it is most needed for crash resistance and overall material thickness is reduced, decreasing weight and emissions. Meanwhile, manufacturing, material and transport costs are reduced, adding to your profits.

ArcelorMittal Tailored Blanks is supported by ArcelorMittal’s world-class R&D and wide distribution network. We work closely with our customers to optimise design, supply and cost efficiency.

*AS = Aluminium Silicon
Tailored to your needs

ArcelorMittal Tailored Blanks is a direct response to our customers’ expectations for state-of-the-art vehicle construction materials.

Q

“The mechanical properties of every single component are vital when it comes to a crash. Do tailored blanks deliver a high standard of safety?”

A

“Steel materials are not all the same. There are different grades, gauges and coatings, all with their own benefits. Tailored blanks combine different mechanical properties in one component by welding multiple steel sheets together. This means that parts can be adapted for better performance where it really counts. For example, there may be a deformable portion that absorbs energy in case of impact and a rigid portion that protects the vehicle occupants. In combination with Advanced High Strength Steels (AHSS), these tailored strength and deformation properties optimise safety in almost every part of the vehicle.”

Q

“To remain environmentally friendly I need lighter materials that will cut fuel consumption and emissions. I have heard that tailored blanks can achieve this. How exactly do they help?”

A

“Tailored blank technology allows us to concentrate strength and thickness exactly where they are needed for the perfect balance of performance and weight. Reinforcements are no longer needed and parts can be better integrated for maximum efficiency. This reduces weight, fuel consumption and emissions from the vehicle.”
Quality is a mindset; we work continuously to maintain the highest standards in our products and services. Starting from the design phase and extending through feasibility assessments and robust serial production, quality is built into every aspect of our products. Our plants are fully engaged in world-class manufacturing processes and our state-of-the-art production lines are also equipped with best-in-class inline inspection systems.

Our tailored blanks offer you significant savings in several areas of production. You will spend less on materials as their utilisation is optimised. The integration of components and reduction in reinforcements will also save money. Assembly costs are reduced with fewer tools needed and less stamping processes. As well as significantly reducing your Working Capital Ratio investment, you will benefit from all our R&D resources and expertise. You’ll also have access to the full range of ArcelorMittal services.

The greater the number of parts in the car body structure, the less stiff it will be. Reduced stiffness means more noise and vibration inside the vehicle. With ArcelorMittal tailored blanks, components can be better integrated. You need fewer parts and fewer reinforcements. This leads to more stiffness, less vibration, better acoustics and a higher standard of comfort.

Standards of vehicle comfort are rising all the time and I am looking for new ways to improve this area. How do tailored blanks measure up to traditional materials?

Our tailored blanks offer you significant savings in several areas of production. You will spend less on materials as their utilisation is optimised. The integration of components and reduction in reinforcements will also save money. Assembly costs are reduced with fewer tools needed and less stamping processes. As well as significantly reducing your Working Capital Ratio investment, you will benefit from all our R&D resources and expertise. You’ll also have access to the full range of ArcelorMittal services.

I need to cut production costs wherever I can. Would ArcelorMittal tailored blanks offer me any savings?

Quality is a mindset; we work continuously to maintain the highest standards in our products and services. Starting from the design phase and extending through feasibility assessments and robust serial production, quality is built into every aspect of our products. Our plants are fully engaged in world-class manufacturing processes and our state-of-the-art production lines are also equipped with best-in-class in-line inspection systems.

Sounds good! My customers expect very high quality and I rely on the same standards from my suppliers. How can I be sure that ArcelorMittal Tailored Blanks offers this?
Tailored for modern vehicles

These are the most common uses of our tailored blanks in cars. The list is expanding every day.

- Rear wheel house
- B-pillar
- A-pillar
- Side sill
- Front frame cross member
- Front rail
Door ring
Bumper beam
Tailgate
Front roof cross member
Rear rail
Floor panel
Front door inner
Tunnel
Door ring
Bumper beam
Reducing energy consumption and waste is the key to sustainable manufacturing as well as sustainable driving. Energy savings are built into every aspect of ArcelorMittal tailored blanks, from the design phase to the end of the product life.

Steel mill
Recycled scrap from the tailored blank plant is used to produce steel. Thanks to ArcelorMittal’s wide footprint, our plants are located close to both the mills and the customers, improving service and reducing transportation costs.

Tailored blank plant
A lean manufacturing process is used. There is only one supply chain per tailored blank instead of a multi-piece solution. The supply is stable, allowing management of a lower stock.

Car
Reduced body weight means lower fuel consumption. There are also less maintenance costs for consumables, brakes, suspension and other system components.

Parts made from ArcelorMittal tailored blanks are 100% recyclable at the end of the vehicle life.

Any steel not used in the final tailored blank is recycled in the nearest steel mill.

Optimal use of load capacity between tailored blank plant and car manufacturer. Less fuel used and fewer empty pallets transported.

Only one tailored blank needs to be stamped rather than one thicker monolith blank or several parts. Less part assembly is needed. Forming the part requires only a fraction of the energy used for other solutions.
Tailored innovation

Innovative processes
ArcelorMittal has been a pioneer in delivering steels for hot stamping (Usibor® 1500 AS) and we see this process growing rapidly due to its clear benefits in terms of cost and weight.

Laser Welded Blanks are a natural choice for combination with hot stamping steels. ArcelorMittal has patented a process to efficiently weld Usibor® 1500 AS by ablating the aluminium-silicon coating, while ensuring a high weld quality and preserving corrosion resistance around the welded area.

Thanks to this process, AMTB can deliver high quality welded blanks in Usibor® 1500 AS that will enable its customers to further reduce weight and improve crash resistance.

Innovative products
We study constantly and develop new products to create more value for our customers. The hot stamped door ring is a perfect example of how our knowledge benefits car manufacturers.

![Diagram showing Usibor® 1500 AS, DP600, DP780, Ductibor® 450/500 AS, and US-BOR® 1500 AS with process flow and vehicle design support.

*AS = Aluminium Silicon

Innovative working methods
For ArcelorMittal, innovation means developing new ways to create value by meeting customer and market needs. This applies to all areas of its business. We propose new ways of working not just for, but also alongside our customers. This cooperation continues throughout the entire development of a vehicle.
ArcelorMittal supplies automotive companies worldwide with a manufacturing technology that improves vehicle component performance.

ArcelorMittal Tailored Blanks around the world

Find out more at: www.arcelormittal.com/tailoredblanks

North America
Concord, Ontario, CANADA
Pioneer, Ohio, USA
Murfreesboro, Tennessee, USA
Delaco Tonawanda, New York, USA
Delaco Dearborn, Michigan, USA
Silao, MEXICO
San Luis Potosi, MEXICO

Europe
Birmingham, UK
Bremen, GERMANY
Neuwied, GERMANY
Gent, BELGIUM
Liège, BELGIUM
Genk, BELGIUM
Lorraine, FRANCE
Senica, SLOVAKIA
Zaragoza, SPAIN

Asia
Shanghai Baosteel & Arcelor Tailored Metal, CHINA
Arcelor Neel Tailored Blanks Chennai, INDIA
Arcelor Neel Tailored Blanks Pvt. Ltd., INDIA

Contact details

North America
For general information: +1 905 761 1525
For commercial purposes email: todd.baker@arcelormittal.com

South America, Europe, Asia, Australia
For general information (Head Office): +32 9210 03 30
For commercial purposes email: victor.trichet@arcelormittal.com

Find out more at: www.arcelormittal.com/tailoredblanks