

Construction machinery is lighter and stronger with Armstrong™

ArcelorMittal showcases offer at Bauma, Europe's largest trade fair for construction machinery.

In April 2013, ArcelorMittal Flat Carbon Europe (FCE) attended the 30th edition of Bauma in Munich, Germany. Bauma is the international trade fair for construction machinery, building material and mining machines, construction vehicles and construction equipment. With more than 530,000 visitors from over 200 countries, the fair provided the ideal forum for FCE to display our Armstrong™ range which has the properties construction machinery makers require to build safe, lightweight and long-lasting machinery.

ArcelorMittal FCE attended Bauma together with ArcelorMittal Long Carbon Europe (LCE) and ArcelorMittal Industeel. LCE presented its steel sheet piling as well as its bars and rods offer for this market. Industeel and FCE showcased their complementary offer of high strength and wear resistant steels. Industeel offers these specialty steels in heavy-gauge plates whereas FCE delivers these steels as coils in thinner gauges.

During Bauma, ArcelorMittal FCE presented Armstrong™ Wear 400 and Armstrong™ 700MC. Both steels offer the weight savings and strength manufacturers need to create lightweight construction machinery.

ArcelorMittal FCE exhibited a sample tipper tray made from Armstrong™ Wear 400. The tight radius of the sample demonstrated the excellent bendability of Armstrong™ Wear 400. Also on display was part of a crane boom made from Armstrong™ 700MC. The boom was developed by a customer who used Armstrong™ 700MC at a thickness of 2 mm. It enabled him to build a 26 metre platform which can be installed on a 3.5 tonne truck. Another item shown was a trailer attachment profile, also made with Armstrong™ 700MC. However, in this case the thickness of the steel was 12 mm, making the attachments strong enough to support the heavy stresses to which it is subjected.

Armstrong™ Wear 400: the new abrasion resistant steel grade

Armstrong™ Wear 400 is a new high strength steel from ArcelorMittal with outstanding resistance to abrasion. Its excellent hardness also makes Armstrong™ Wear 400 resistant to dents and impact damage. Machines and parts made from this steel have a significantly longer life than those made with structural steels or high strength low alloy (HSLA) grades.

Armstrong™ Wear 400 is produced using a direct quenching process at the hot strip mill. This results in a homogeneous fine martensitic microstructure and a very smooth surface.

In addition to high hardness, Armstrong™ Wear 400 offers good bendability and weldability. It comes with guarantees on hardness and specific chemistry. ArcelorMittal's Armstrong™ Wear 400 is produced as coils which can be cut to length as required to avoid wastage.

Armstrong™ 700MC: for lightweight, strong equipment

ArcelorMittal's Armstrong™ 700MC is an ultra high strength low alloy steel offered in an exceptional range of dimensions with thicknesses from 2 to 12 mm and widths up to 2,000 mm. Combined with an appropriate part geometry, it meets the

needs of many manufacturers when it comes to creating construction equipment with improved payload capacity and lower weight.

Due to its low carbon equivalent value and thinness, Armstrong™ 700MC is easy to weld. It does not require any pre- or post-welding heating and is suitable for all types of arc welding. The grade is insensitive to cold cracking.

The fine grain size and low sulphur content also improve the fatigue resistance of the steel – a key criterion in construction applications. Tests show that Armstrong™ 700MC can withstand a maximum stress of 590 MPa for up to 2 million cycles.





ArcelorMittal FCE solutions for construction machinery

Safety, strength and weight are the three main considerations for construction machinery manufacturers. ArcelorMittal's Armstrong™ steels enable manufacturers to meet these criteria and develop high quality machinery. Applications include:

Concrete mixing and placement equipment

Our ultra high strength steels enable manufacturers to develop machines with longer reach and improved pumping capacity. Our abrasion resistant grade – Armstrong™ Wear 400 – is perfect for the mixing drums of concrete transportation trucks. As the drums are lighter, payload can be increased to reduce the number of trips needed to each building site.



Earthmoving machinery

Earthmoving equipment requires steels with excellent strength and toughness. And for those parts which come into contact with the earth, extra abrasion resistance is required. Our Armstrong™ range includes steels which are available in thicknesses up to 16 mm. Our structural and HSLA quarto plates can be supplied in thicknesses up to 150 mm.



Lifting equipment

A major challenge for lifting equipment manufacturers is combining long outreach and high load capacity with limitations on the machine's weight. Our Armstrong™ ultra high strength low alloy grades are available in yield strengths up to 700 MPa to meet this challenge.



Machinery cabins

As well as providing a comfortable working environment, cabins must meet roll-over and falling object protection requirements. ArcelorMittal's offer includes our Armstrong™ and Dual Phase grades which are suitable for roll forming and bending.



More information?

For more information about ArcelorMittal's Armstrong™ range of high strength and ultra high strength steels for construction equipment, see www.arcelormittal.com/industry/constructionequipment