

Higher strength rebar – Benefit for all

ArcelorMittal South Africa is the foremost supplier of steel products to the South African construction industry. With a reputation of being innovative and leading the way in developing products to international standards and specifications, ArcelorMittal South Africa has identified that the international demand for higher strength steel products for construction has increased.

The usage of higher strength steel results in a number of benefits to society and manufacturers. Society is able to benefit as the usage of high strength steel can result in a saving of up to 11% by mass in steel usage per m³ of concrete. This in turn results in:

- Less expensive construction methodologies
- Reduced energy consumption
- Reduced number of bars per m³ of concrete
- Reduced cut off losses due to a reduction in the number of cuts
- Reduced cost in fixing of rebar; less welds, less tying, less bends, less cutting
- Improved fire resistance

In addition, the impact on the carbon footprint of the steel manufacturer is significantly reduced, per m³ of concrete constructed.

The steel manufacturer also benefits from the increased capacity created - less steel is required, and the excess capacity can be used to service other market segments and manufacture products required by these segments. A reduction in capital expenditure thus is a positive benefit derived for the steel manufacturer.

In keeping with this philosophy and following international trends, ArcelorMittal South Africa has embarked on a process of developing rebar to the International Specification EN 10800 (BS4449:2005). This specification allows for three classes of reinforcing steel B500A, B500B and B500C. Despite the fact that EN 10080 is due to be replaced by EN 10138, all three of these rebar classes conform to the required ductility classes of the Eurocode 2 – Design of concrete structures EN 1992-1-1, which allows for greater flexibility.

ArcelorMittal has specifically developed Grade B500B for normal structural applications and will in due course also launch B500C, which is used for seismic sensitive applications such as nuclear power plants.

As the demand for products to international specification, especially in the 14 Southern African Development Community (SADC) countries increases and more international investors establish a presence in these countries, ArcelorMittal South Africa is ideally placed to service

these markets. Already this product has been accredited with the Tanzanian Standards Authority and the product is being exported to Tanzania and further afield.

The product was also successfully supplied into the Gouda Wind Farm project by ArcelorMittal South Africa where the international partner designed in accordance with Eurocode 2 and the Grade B500B was specified.

In addition, all parties including the manufacturer, the rebar yard and the stockists will benefit from a stock reduction as a singular product line that needs to be stocked in order to serve both the domestic RSA and SADC region.

As the international specification is of a higher order than the existing South African specification, SANS 920:2001, which has a yield strength of 450Mpa, the certification to the higher order will allow ArcelorMittal customers to compete effectively in the domestic market. It is anticipated that the SA's engineering profession will in due course follow international developments and revise the necessary design codes in line with international norms.