

Data sheet: G1.2

## Mining steel bars - Roof bolting

### Hot rolled deformed steel bars, high-strength grades

#### General description

ArcelorMittal South Africa, Newcastle Steel produces steel for roof bolting applications in the mining and geotechnical industries. Two steel grade types are produced viz. standard strength deformed bar and a high strength deformed bar.

Mining bars are only available in lengths

#### Steel specifications

Specifications	Code	CE
Grade 500 N	657 003	0.51max
	657 005	0.51max
HS Mine Roof Bolt	114 150	-

- 1 *Weldability: If the actual carbon equivalent of a cast is less or equal than specified in the table for a specific cast, the steel may be regarded as being weldable provided the correct welding procedures are followed. If weldability is an essential requirement for high strength bars it should be specified in the order.*
- 2 *Carbon equivalent =  $\%C + \%Mn/6 + (\%Cr + \%Mo + \%V)/5 + (\%Ni + \%Cu)/15$*

#### Mechanical properties

Specification	Yield strength <sup>1), 2)</sup> (min) [MPa]	Tensile strength (min)[MPa]	Elongation <sup>3)</sup> (min) [%]
Grade 500N	500		22 min
HS Mine Roof Bolt	600 <sup>4)</sup>	790 <sup>4)</sup>	20min

- 1 *Also characteristic strength for Limit State Design.*
- 2 *Yield strength or 0,2% proof stress.*
- 3 *Gauge length =  $5,65 \times \text{square root of } A_o$ , where  $A_o$  = original cross section of the bar.*
- 4 *Only applicable on diameters 16 – 22mm*

For further information, contact:

ArcelorMittal South Africa Limited, Newcastle Works, PO Box 2, Newcastle 2940. Tel (034) 314-8482 Fax (034) 314-8211  
e-mail address: enquiries.newcastle@arcelormittal.com

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## Standard sizes and Dimensional tolerance

Nominal diameter	Core diameter	Nominal mass	Permissible variation in:
mm	mm	kg/m	Diameter
16	16	1.630	-0.5 +0.2mm
18	18	2.059	-0.5 +0.2mm
20	20	2.539	-0.5 +0.2mm
22	21.7	2.984	-0.5 +0.2mm
25	24.3	3.750	-0.5 +0.2mm
32	32	6.502	-0.5 +0.2mm

### Bundle mass

Bundle mass with a maximum of 2 tons must be specified by the customer.

### Lengths

Bar Mill - 6m to 18m in increments of 1 meter

Other lengths subject to enquiry

### Mass and length tolerances

	Bar diameter (mm)	Tolerance
Batch mass (applicable to lengths only)	All diameters	+2,5 - 2,5%
Linear mass (individual bars)	All diameters	+4,0 - 4,0%
Length	All diameters	- 0 + 50 mm

### Corrosion

Tightly adherent light corrosion products should not adversely affect the bond strength of mining bars. Loose corrosion products should be removed by wire brushing.

### Certification

Test and analysis certificates are supplied with all material.

The mechanical and chemical laboratories of ArcelorMittal Steel South Africa, Newcastle Steel are SANAS accredited facilities

### Applications

ArcelorMittal Steel South Africa's reinforcing steel is used for the full range of concrete reinforcement applications such as foundations, columns, beams and slabs as well as bridge and water-retention structures. A specially adapted ribbed bar is also widely used as roof bolting for the mining industry.

### Bundling

**Lengths:** Lengths are securely tied in bundles normally containing a standard number of bars per size and length. Bundles are secured with wire ties or steel straps depending on bar diameter, two adjacent straps approximately 150 - 250 mm from each end and intermediate straps at approximately 1,5 meter intervals. (A list of standard bundles is available on request)

### Labels and marking

#### Labels

One polyester label on a metal backing will be tied to each end of the bundle by means of wire ties or laced to bundle straps at works' option.

**Coloured metal backings are available in:** white, blue, green, purple, grey, brown, orange, pink, black, beige, light green, light blue and red.

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ArcelorMittal South Africa Limited, Newcastle Works PO Box 2, Newcastle 2940. Tel (034) 314-8629 Fax (034) 314-8211 e-mail address: enquiries.newcastle@arcelormittal.com

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Where no metal backing colour is specified on orders, white labels will normally be used at the works' discretion.

Labels will bear information on a maximum of four lines with a maximum of forty-five characters per line.

***The following standard information will normally be stated:***

- ArcelorMittal Steel South Africa's order confirmation number
- Port of destination (export)
- Cast number
- Steel grade and bar diameter
- Bundle mass
- Number of bars per bundle (if specifically requested)
- Bundle number
- Bundle numbers are also printed on a bar code.

***Colour marking***

Water based paint marking is available in single colours or up to three stripes in two colours or up to three stripes in three colour combinations, for customer's identification purposes.

***Colours available:*** red, green, blue, pink and white

Coloured lines/bands are approximately 50 or 100mm wide and are applied through approximately 180 degrees. Colour splashes are approximately 100mm in diameter.

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