

Data Sheet: A2

Hot Strip Mill Products

Hot Rolled Steel Coil

General description

Hot rolled coil is used in the manufacture of general engineering products such as containers, pipes, wheel rims, agricultural implements and gas cylinders. This data sheet serves as an introduction to hot rolled coil produced at ArcelorMittal South Africa.

ArcelorMittal South Africa's products normally range in thickness from 1,5mm, to 16mm and in width from 800 mm to 1 925 mm. Material may be supplied with mill edge or can be side trimmed. For thin gauge hot rolled coil produced at Saldanha, refer to data sheet A1.7.

The relevant steel specifications most commonly used in the South African market are listed in the data sheet: Hot Strip Mill Products (file reference A1.5) and Price Lists 115, 120 and 121. Although other steels can also be purchased from ArcelorMittal South Africa, availability is subject to enquiry.

Manufacturing process

Steel making

Steel is normally manufactured in a basic oxygen furnace but could also be manufactured in electrical arc or conarc furnaces using clean internal scrap and direct reduced iron. All steel is desulphurised to maintain a high degree of cleanliness and is fully killed and continuously cast to produce a fine-grained finished product. Full shrouding techniques and automatic mould level control are applied to ensure superior internal and surface quality.

Hot rolling

The slab is reheated and then reduced to a transfer bar of a specific thickness in a roughing mill before passing to a seven stand finishing mill where it is rolled to the finished thickness and then cooled to the required temperature and coiled. The process is highly automated, with key parameters such as temperature, reduction, thickness, width and shape being computer controlled throughout the rolling sequence. The material quality is closely monitored at all critical stages of the process, aided by in line top and bottom inspection.

Temper rolling

Temper rolling is an additional process used to ensure flatness and freedom from coil breaks. In certain cases where thin, wide material is processed, temper rolling is compulsory. Material may specifically be ordered temper rolled in thicknesses up to and including 6 mm if guaranteed flatness and freedom from coil breaks are required for critical applications. For information on the width to thickness ratios where temper rolling becomes compulsory, refer to the data sheet: Hot Strip Mill Product Dimensions (file reference A1.1).

For further information, contact:

ArcelorMittal South Africa, PO Box 2, Vanderbijlpark 1900. Toll free number 0800 005043

Care has been taken to ensure that the information in this data sheet is accurate. ArcelorMittal South Africa does not, however, assume responsibility for any inaccuracies or misinterpretations of this data. We are continuously engaged in product development and revised data sheets will be issued from time to time. Please ensure that you have the most recent issue. Effective date: December 2015

Surface condition and corrosion prevention

Hot rolled steel, when not adequately protected, is susceptible to corrosion. Users are, therefore, advised to take the following precautions:

- store under low humidity conditions (less than 60%)
- in the absence of humidity control, good circulation of air must be ensured.

Because of the high rolling temperatures, hot rolled steel is normally covered with a layer of iron oxide (scale). Strip up to 4,8mm, depending on the material specification, may be ordered pickled to remove the surface scale. As this leaves the surface very reactive, the steel is subsequently oiled to prevent atmospheric corrosion. The protective oil is mineral based and is intended to prevent atmospheric corrosion in low humidity conditions.

Pickled material is subject to the dimensional restrictions indicated to in the data sheet: Hot Strip Mill Product Dimensions (file reference A1.1).

Dimensions

Hot rolled coil is available in dimensions as shown in Table 1:

Table 1. Available hot strip mill product dimensions¹

Thickness	1,6 mm to 16 mm depending on steel specification
Width (coils)	800 mm to 1 925 mm depending on thickness and steel specification
Coil inside diameter	
• Mill edge	760 mm
• Pickled and oiled	610 mm
• Side-trimmed ² or temper rolled	760 mm (610 mm on enquiry)

Note:

1. For more detail, refer to the data sheet: Hot Strip Mill Product Dimensions (file reference A1.1)
2. Side-trimmed coils on enquiry only

Coil mass

The minimum and maximum coil masses available in the mill edge condition vary according to coil width between 17 and 31 tons respectively. Minimum order mass is based on the proceeds of one slab for standard sizes or the proceeds of 2 slabs for non-standard sizes.

Orders for coils with a specified exact mass will not be accepted. Coils may be ordered to the nominal full coil mass as per ruling mass tables, or smaller split coils (half size).

Customers must indicate the maximum coil mass that can be handled to ensure the correct selection of available options. For specific delivery tolerances refer to the relevant price lists.

Tolerances

When steel is ordered to a national specification, it is produced to the tolerances specified. If tighter tolerances are required, these are subject to enquiry.

Where steel specifications do not include tolerance specifications, ArcelorMittal South Africa produces strip in accordance with the tolerances specified in the data sheet: Hot Strip Mill Product Tolerances (file reference A1.2).

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Packaging

Coils can be supplied with standard packaging comprising radial and circumferential straps. Protective packaging, which includes rust preventive paper, is also available on pickled and oiled material.

For rail transport, coils are loaded on cradles with the eye of the coil positioned transverse to the length of the truck. Coils for road transport are loaded with the eye of the coil positioned either transversely or longitudinally. Reference should be made to the packaging specifications available on the web site for more detail on packaging methods and the applicable codes.

Certification

Steel specifications, for which both the chemical analysis and the mechanical properties are specified, will be supplied with analysis and test certificates in accordance with the ordered specification.

Steel specifications produced to chemical analysis only, for example the SAE specifications, will be supplied with analysis certificates only.

Supply conditions

All hot-rolled coil will be supplied in terms of Price Lists 115, 120 and 121 and ArcelorMittal South Africa's General Conditions of Sale.

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