

Data sheet: A1.7

Thin Gauge Hot Rolled Strip

General description

Hot rolled strip is produced in coil form by the rolling of steel slabs at elevated temperatures through a Hot Strip Mill. This data sheet serves as an introduction to thin gauge hot rolled strip produced at Mittal Steel South Africa's Saldanha Steel Mill.

Manufacturing process

Hot rolling

After casting through a thin slab caster the slab directly enters a reheat furnace and is then reduced to a transfer bar of a specific thickness in a two stand roughing mill before passing to a five stand finishing mill where it is rolled to the ordered thickness. The strip is 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.

Temper rolling

Temper rolling is an additional process used to ensure flatness and freedom from coil breaks. For thin material, temper rolling is compulsory.

Supply conditions

All material described in this data sheet is supplied in terms of Price List 120 (Thin Gauge) and Mittal Steel South Africa's General Conditions of Sale.

Product list

Chemical composition

The following SAE/AISI grades are available:

Table 1. Chemical composition specification (ladle analysis, percent)

Designation	C	Mn	P max	S max	Si max
COMMERCIAL QUALITY	0,15 max	1,00 max	0,035	0,040	0,30
SAE/AISI 1006 - '95	0,08 max	0,45 max	0,030	0,035	0.05
SAE/AISI 1006 - '95(Si 0.03 max)	0,08 max	0,45 max	0,030	0,030	0.03
SAE/AISI 1008 - '95	0,10 max	0,50 max	0,030	0,030	0.05
SAE/AISI 1008 - '95(Si 0.03 max)	0,10 max	0,50 max	0,030	0,030	0.03

For further information, contact:

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Mechanical properties

Commercial steels are not produced to specific mechanical property requirements. No minimum or maximum values on any mechanical properties such as yield strength, tensile strength, hardness, elongation or impact toughness are guaranteed

Dimensions

Material is supplied as rolled, with mill edge. Material is temper rolled to improve shape and to prevent the incidence of coil breaks.

Thin gauge hot rolled coil is available in dimensions as shown in Table 2.

Table 2. Available hot strip mill product dimensions¹

Thickness	1,2 mm 1,3 mm and 1,4 mm
Width (coils)	1000 mm and 1219 mm
Coil inside diameter	760 mm

Surface condition and corrosion prevention

Hot rolled steel is susceptible to corrosion when not adequately protected. Users are 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 thin layer of iron oxide (scale).

Applications

These commercial steel specifications are suitable for general engineering applications where moderate forming, bending and drawing are involved. These steels are produced to analysis specifications as described in Table 2. The commercial steels are not recommended for severe drawing applications or structural applications where the mechanical properties of the steel are of paramount importance.

Welding

These steels are readily weldable using normal arc welding processes with the normal precautions.

Tolerances

Steel is normally produced to the tolerances of the ordered specification. If tighter tolerances are required, these are subject to enquiry.

Where steel specifications do not include tolerance specifications, Mittal Steel South Africa produces strip in accordance with the tolerances specified below.

Thickness

The thickness is measured at any point on the sheet, not less than 20mm from the untrimmed edge and 10mm from a side trimmed edge.

Thickness tolerance: -0,15mm +0,15mm

Width

The width tolerance on all mill edge coils is -0mm +20mm.

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Flatness

Flatness is the maximum deviation from a horizontal flat surface in 1 000mm length expressed in either millimetres or in I-units.

I-unit = $0,25 \left(\frac{H}{L} \right)^2$ where H = wave height in millimetres (mm) and L = wave length in meters (m)

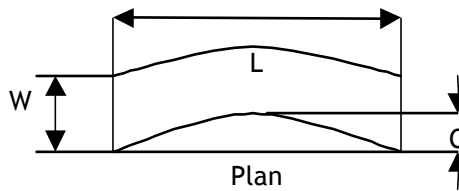
Flatness tolerance = 20 mm [100 I-units]

Camber

Camber is the deviation of a side edge of the strip from a straight line, the measurement being taken on the concave side with a straight edge.

Figure 2

W is the width
L is the length
C is the edge camber



A maximum camber of 25mm in any 6 000mm is permissible in coils.

Packing

Coils will be strapped according to Packing Code 91 (3 circumferential and 4 eye straps).

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