
**Road construction and maintenance
equipment — Road milling machinery
— Terminology and commercial
specifications**

*Équipement pour la construction et l'entretien des routes —
Fraiseuses — Terminologie et spécifications commerciales*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 195, *Building construction machinery and equipment*.

This second edition cancels and replaces the first edition (ISO 15645:2002), of which it constitutes a minor revision. It also incorporates the Amendment ISO 15645:2002/Amd 1:2013. The changes compared to the previous edition are as follows:

- [Clause 2](#) has been added according to the ISO/IEC Directives, Part 2;
- in [4.2.1](#), the reference to [Figure A.2](#) has been deleted;
- [Figure A.2](#) has been updated; a key reference and a note to figure have been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at <https://www.iso.org/members.html>.

Introduction

This document deals with road milling machinery used in the retread process, which is carried out in road maintenance.

It provides definitions of the milling machine itself and its components, and technical characteristics.

It includes figures showing milling machines with a loading device and the positioning of work tools in a rotor.

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Road construction and maintenance equipment — Road milling machinery — Terminology and commercial specifications

1 Scope

This document establishes the terminology, functions, types and characteristics of road milling machinery.

It is applicable to the planing of pavements made of concrete, asphalt and similar materials with a view to removing them.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

road milling machinery

mobile road construction machine used to remove materials from paved surfaces by a milling action

3.2

road milling carrier

machine carrying all the systems constituting the road milling machine and distributing the necessary power to operate the different devices and to ensure movement during work and transfer

3.3

cutting and milling system

power-driven cylindrical bodies on which the milling tools are fitted

Note 1 to entry: The cylindrical bodies rotate during the milling operation. The tools are mostly cooled by a water sprinkler device.

3.4

levelling system

automatic or manual system used to obtain and maintain the geometry of the bottom of the cut

Note 1 to entry: The geometry of the bottom refers to both the longitudinal and cross-sections. The geometrical reference is taken from the existing section or from a specific layout.

3.5

system to remove or windrow aggregate material

transport system for the removal and storage of loose material

Note 1 to entry: The material is removed by either a front-, rear- or side-loading system, or is deposited as a windrow at the side or the back of the road milling machine.

3.6

operating mass

mass of the base machine with all standard equipment, with or without the cab, with or without ROPS, etc., with the operator (75 kg) and full fuel tank, and all fluid systems at their rated capacities and, when applicable, with the sprinkler water tank half full

4 Description of milling machine components

4.1 General

The machine is usually equipped with all the following devices:

- a traction and transport system;
- a cutting and milling system;
- a levelling system;
- a system to remove or windrow aggregate material.

4.2 Design of milling machine types

4.2.1 Traction and transport system

The description shall include the type of the ground drive system (wheels, tracks, etc.), the total number and position of wheels or tracks, the number and position of drive wheels or tracks, and the number and position of guiding wheels or tracks. The position of the rotor in relation to the wheels or tracks and the loading device is shown in [Figure A.1](#).

4.2.2 Cutting and milling system

The cutting and milling system comprises a rotor chamber and a drum sprinkler device (see [Figure A.3](#)).

4.2.3 Rotor drive methods

These may be

- hydraulic,
- hydromechanical, or
- mechanical (right and/or left),

or may depend on the direction of rotation of the rotor in relation to the direction of movement.

4.2.4 Layout of tools

The layout of tools on the rotor is application specific and is determined by the distance between two successive steps in the cross-section ([Figure A.2](#)).

4.2.5 System for levelling and control of working depth

The following characteristics shall be given:

- level reference (ground, machine element, cord or others);
- type of sensors (laser, ultrasound, electronic or hydraulic);
- adjustment;

- manual;
- automatic.

4.2.6 System to remove or windrow aggregate materials

The description shall include the types of conveyors, their drives and the methods of positioning.

5 Commercial specifications

5.1 Characteristics of the traction and transport vehicle

5.1.1 Dimensional characteristics

The dimensions shown in [Figure A.1](#) shall be specified:

- overall length with the removal system (mm);
- overall length without the removal system (mm);
- overall width in the working order (without the removal system) (mm);
- overall height (without the removal system) (mm);
- maximum front overhang (with the removal system) (mm);
- rear overhang (mm);
- inside turning radius (mm);
- outside turning radius (mm);
- distance between the rotor axis and the front wheels/tracks axis (mm);
- distance between the rotor axis and the rear wheels/tracks axis (mm);
- inside slewing radius of the rotor (mm);
- outside slewing radius of the rotor (mm);
- maximum loading height (mm);
- slewing angle of the removal system (degrees);
- side-shift of the rotor to the chassis (for machines with side-shifted rotor) (mm).

5.1.2 Shipping dimensions (overall)

The following dimensions shall be specified:

- length (mm);
- width (mm);
- height (mm).

5.1.3 Mass characteristics

The following characteristics shall be given:

- load shipping mass (kg);

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- operating mass (kg) (see 3.6 for conditions);
- other masses (all in kg);
 - on the front axle;
 - on the rear axle;
 - cab;
 - protective structure;
 - pumping and liquid adding device.

5.1.4 Engine characteristics

The following characteristics shall be given:

- engine brand and type;
- rated power (kW);
NOTE See ISO 14396 for guidance.
- revolutions (r/min);
- cooling type.

5.1.5 Transmission characteristics

The following characteristics shall be given:

- number of tracks or wheels;
- number of driving axles;
- mechanical transmission;
- maximum working speed (km/h);
- maximum transfer speed (km/h).

5.1.6 Position of steering

This shall be specified as

- front,
- rear, or
- both.

5.1.7 Characteristics and type of tyres or tracks

This shall be specified as:

- front;
- rear.

5.1.8 Tank characteristics

The following characteristics shall be given:

- fuel tank capacity (dm³);
- hydraulic oil tank capacity (dm³);
- water tank capacity (dm³).

5.2 Cutting and milling system characteristics

The following characteristics shall be given (see [Figures A.2](#) and [A.3](#)):

- overall length (mm);
- working width of the rotor (mm);
- diameter of the rotor with tools (mm);
- number of tools;
- type of tools (with bits of sintered carbide):
 - tool in the form of a wand (for surfaces of cement and concrete);
 - tool in the form of a mushroom (for surfaces of asphalt and concrete);
- tool attachment method;
- direction of rotor rotation;
- revolutions of the rotor (min⁻¹);
- peripheral speeds at the end of tools (m/min);
- depth of cut in one pass (mm);
- permissible transverse tilt angle of the chassis (in relation to the horizontal) (degrees);
- maximum rotor tilt in the vertical plane (degrees);
- rotor drive method:
 - hydraulic;
 - hydromechanical;
 - mechanical;
- layout of tools:
 - step (mm);
- system of control of the working depth:
 - level reference (ground, machine element, cord or others);
 - type of sensors (laser, ultrasound, infrared or others);
 - adjustment of the working depth (manual, automatic).

5.3 Drum sprinkler device

The following characteristics shall be given:

- water pump delivery (l/min);
- pressure in the water supply system (MPa);
- number of spray nozzles.

5.4 System to remove or windrow aggregate materials

The following characteristics shall be given:

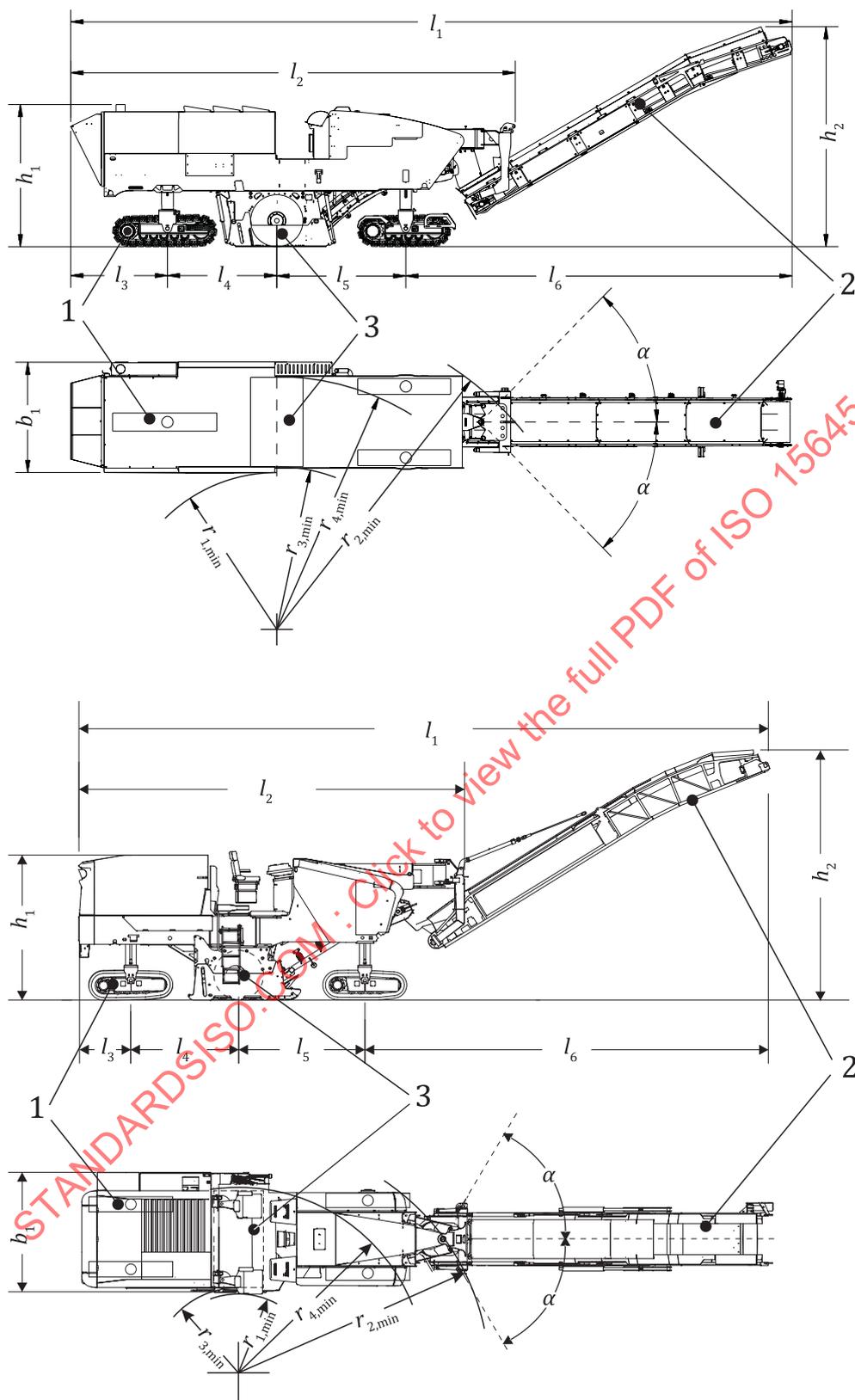
- type of the conveyor (belt, drag slat or other);
- output of the conveyor (kg/h);
- width of the conveyor (mm);
- conveyor drive method (hydraulic, hydromechanical, mechanical);
- system of conveyor positioning (hydraulic, hydromechanical, mechanical);
- overall length with the removal system folded (mm).

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Annex A
(informative)

Examples of road milling machine designs and their assemblies

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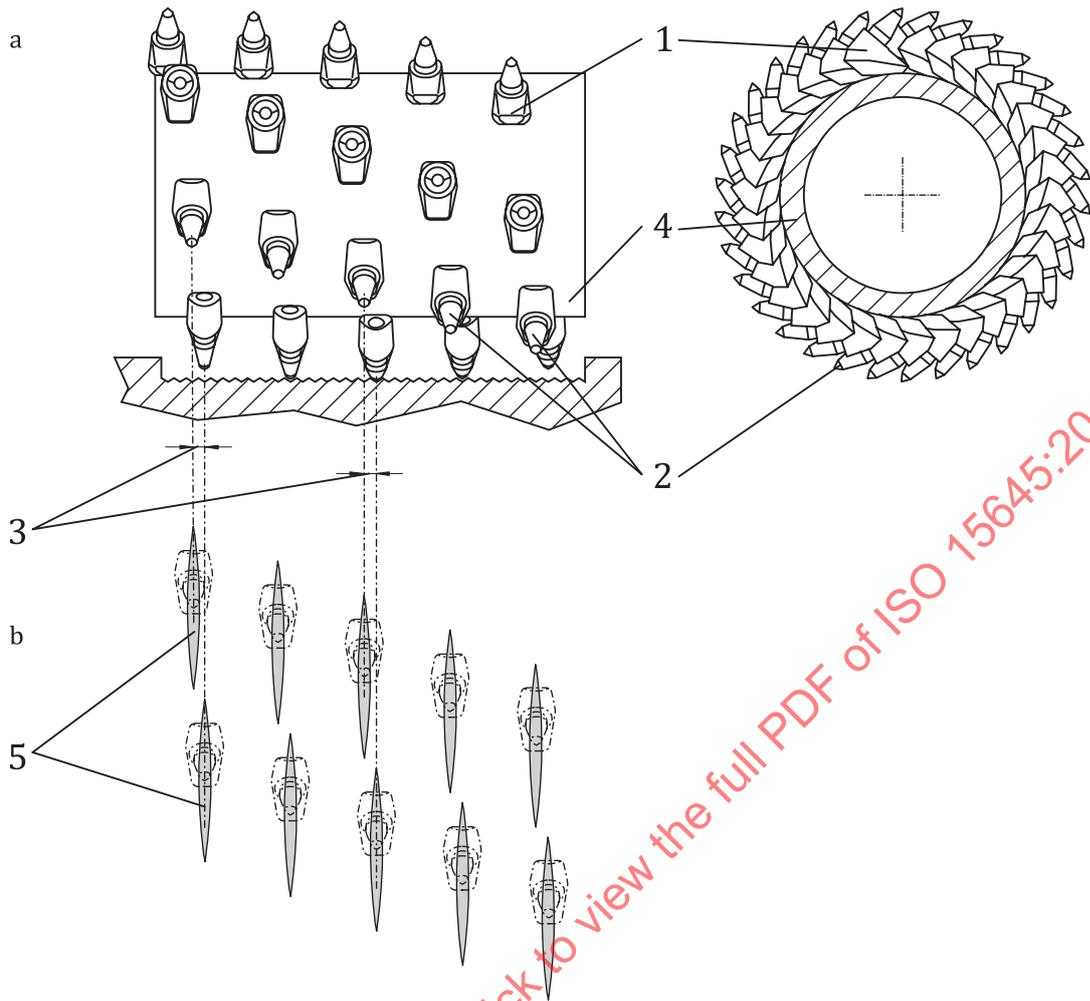
Key

- | | | | |
|-------|------------------------------------------|-------|---------------------------------------------|
| 1 | tracks | h_1 | overall height (without the removal system) |
| 2 | removal system | h_2 | maximum loading height |
| 3 | rotor | b_1 | overall width (without the removal system) |
| l_1 | overall length (with the removal system) | r_1 | inside turning radius |

l_2	overall length (without the removal system)	r_2	outside turning radius
l_3	rear overhang	r_3	inside slewing radius of the rotor
l_4	distance between the rotor axis and the rear wheels/tracks axis	r_4	outside slewing radius of the rotor
l_5	distance between the rotor axis and the front wheels/tracks axis	α	slewing angle of the removal system
l_6	maximum front overhang (with the removal system)		

Figure A.1 — Dimensional characteristics of road milling machines (3 or 4 tracks) with a removal system

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Key

- 1 tool holder
- 2 cutting tools
- 3 step
- 4 rotor
- 5 tool tracks
- a Pavement cross-section and tool attachment.
- b Top view of tool tracks.

NOTE The length of the tool tracks depends on the rotating speed of the rotor and the speed of the road milling machine.

Figure A.2 — Positioning of the working tools in a rotor