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## Road construction and maintenance equipment — Paver-finishers — Commercial specifications

*Équipement pour la construction et l'entretien des routes —  
Finnisseurs — 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](http://www.iso.org/directives)).

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For an explanation of 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 [www.iso.org/iso/foreword.html](http://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 15878:2008), which has been technically revised. It also incorporates the Technical Corrigendum ISO 15878:2008/Cor 1:2008.

The main changes compared to the previous edition are as follows:

- clarification of the Scope;
- update of terminology to align with the state of the art;
- introducing definitions of different compaction types;
- combining the clauses 'Operating principle' and 'Description of an asphalt paver' into 'Commercial specifications'.

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 [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Paver-finishers are used in road construction and for maintenance to place and pre-compact paving materials using the floating/self-levelling screed method. The weight of the screed and its forward motion combined with additional vibrating and reciprocating elements are used to pre-compact the mixture to form a mat.

The design type of a paver-finisher is typically determined according to the following criteria.

- Type of tractor:
  - wheeled (see [Figure A.1](#));
  - steel crawler-mounted with replaceable track plates (see [Figure A.2](#));
  - rubber crawler-mounted (see [Figure A.3](#)).
- Method of mixture transfer from hopper to the screed:
  - by slat conveyor (see [Figure A.4](#));
  - by screw conveyor (see [Figure A.12](#));
  - by gravity.
- Screed type:
  - fixed width (see [Figure A.4](#));
  - extendable (see [Figure A.13](#)).

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# Road construction and maintenance equipment — Paver-finishers — Commercial specifications

## 1 Scope

This document establishes the content for commercial specifications for paver-finishers used in road construction and maintenance processes for the placement and pre-compaction of paving materials. It covers the machine and its components and establishes parameters for technical characteristics for both.

This document does not cover commercial specifications for road wideners which can perform similarly to a paver-finisher under certain conditions.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3046-1, *Reciprocating internal combustion engines — Performance — Part 1: Declarations of power, fuel and lubricating oil consumptions, and test methods — Additional requirements for engines for general use*

ISO 3911, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

## 3 Terms and definitions

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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

#### **paver-finisher**

mobile self-propelled machine consisting of a *tractor* (3.66) and a free floating *screed* (3.45) intended for the placement and pre-compaction of the paving material using the floating/self-levelling screed method

#### 3.1.1

##### **pre-compaction screed paver-finisher**

*tractor* (3.66) equipped with a *pre-compaction screed* (3.45.1)

#### 3.1.2

##### **compaction screed paver-finisher**

*tractor* (3.66) equipped with a *compaction screed* (3.45.2)

#### 3.1.3

##### **high-compaction screed paver-finisher**

*tractor* (3.66) equipped with a *high-compaction screed* (3.45.3)

3.2

**adjustable width strike-off**

adjustable width mouldboard

movable blade at the leading edge of a *fixed width screed* (3.22) for varying paving width

Note 1 to entry: For an example, see [Figure A.6](#).

3.3

**angle of approach**

angle between the *GRP* (3.25) and a plane tangent to the forward tyres or tracks of the machine and passing through the lowest point of any structure or component forward of the tyres or tracks which limits the magnitude of the angle

Note 1 to entry: See [Figure A.20](#), angle  $\alpha_1$ .

3.4

**angle of departure**

angle between the *GRP* (3.25) and a plane tangent to the rear tyres or tracks of the machine and passing through the lowest point of any structure or component behind the tyres or tracks which limits the magnitude of the angle

Note 1 to entry: See [Figure A.20](#), angle  $\alpha_2$ .

3.5

**apron**

area of the *hopper* (3.26) in front of the *conveyor* (3.14)

Note 1 to entry: For an example, see [Figure A.10](#).

3.6

**emission reducing device**

**ERD**

system to extract or reduce emissions from bitumen or other volatile or suspended substances from the *screed* (3.45) area and the *paver-finisher operator stations* (3.8)

3.7

**paver-finisher operator**

person whose primary functions are to control paver speed, direction and laying of the paving material

3.8

**paver-finisher operator station**

designated location from which the *paver-finisher operator* (3.7) controls the functions of the paver

3.9

**automatic feeder system control**

system for automatic control of the flow of the paving material to the *screed* (3.45)

3.10

**automatic screed control**

system for automatic control of the *mat* (3.32) profile in relation to an external physical reference or 3D coordinates

3.11

**bevel edger**

attachment for putting a sloped surface on the edge of the *mat* (3.32)

3.12

**bracing**

device for reinforcing the *screed* (3.45) when built up for large working widths



**3.13****cut-off plate**

attachment used in conjunction with the *screed end plate* (3.47) to reduce the effective *screed* (3.45) width

**3.14****conveyor**

device for transferring the paving material from the *hopper* (3.26) to the *spreading auger* (3.56)/*screed* (3.45)

Note 1 to entry: Examples include slat-type or screw-type.

Note 2 to entry: For examples, see [Figure A.4](#) and [Figure A.12](#).

**3.15****conveyor tunnel**

passageway through which the paving material moves from the *hopper* (3.26) to the *spreading auger* (3.56)/*screed* (3.45)

Note 1 to entry: For an example, see [Figure A.4](#).

**3.16****conveyor capacity**

$C$

capacity in t/h, derived from the following formula:

$$C = D \cdot A \cdot S \cdot E$$

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where:

$D$  is the paving material bulk density (1.75 t/m<sup>3</sup>);

$A$  is the tunnel area, in m<sup>2</sup>, as measured at the tunnel opening [total for all *conveyors* (3.14)];

$S$  is the maximum conveyor speed, in m/min, in paving mode, multiplied by 60;

$E$  is coefficient of conveyor efficiency (noting the conveyor efficiency used in the calculation)

**3.17****conveyor flow gate**

device for adjustment of the height of the paving material being transferred by the *conveyor* (3.14)

Note 1 to entry: For an example, see [Figure A.4](#).

**3.18****crown**

angle between a section of *screed* (3.45) and the horizontal

Note 1 to entry: A positive crown is defined as the outer end of the screed lower than the inner end.

Note 2 to entry: See [Figure A.25](#).

**3.19****control**

device that shapes the *screed* (3.45) to form a *mat* (3.32) with the desired *crown* (3.18)

Note 1 to entry: For an example, see [Figure A.10](#).

### 3.20

#### **extendable screed**

*screed* (3.45) with permanently mounted extensions that can be extended or retracted to change the *mat* (3.32) width when the paver is in operation

Note 1 to entry: For an example, see [Figure A.13](#).

### 3.21

#### **extension slope**

angle (maximum positive to maximum negative) between the extension and the adjacent section of the *screed* (3.45)

Note 1 to entry: Positive slope is defined as the outer end of the extension lower than the inner end.

Note 2 to entry: See [Figure A.26](#).

### 3.22

#### **fixed width screed**

*screed* (3.45) with a constant width that can only be changed by adding or removing *screed extensions* (3.48)

Note 1 to entry: For an example, see [Figure A.10](#).

### 3.23

#### **automatic grade control**

automatic grade and slope control system for control of the longitudinal profile of the *mat* (3.32) following a physical reference

Note 1 to entry: Examples include a joint, a string line, a curb, the base, a mobile reference, a *slope beam* (3.54) or following a 3D coordinate reference.

#### 3.23.1

##### **three-dimensional grade control 3D grade control**

system that uses a three-dimensional coordinate as a reference to control the profile of the pavement

Note 1 to entry: This can include lateral control of the *tractor* (3.66) or *screed* (3.45).

Note 2 to entry: For an example, see [Figure A.10](#).

#### 3.23.2

##### **three-dimensional paver control 3D paver control**

system that uses a three-dimensional coordinate as a reference to control the profile of the pavement and the width and/or direction of the pavement

### 3.24

#### **grade control sensor**

device that provides a vertical reference measurement

#### 3.24.1

##### **physical referenced grade controller**

*grade control sensor* (3.24) using physical reference

#### 3.24.2

##### **3D coordinates referenced grade controller**

*grade control sensor* (3.24) using 3D coordinates as reference

Note 1 to entry: For an example, see [Figure A.10](#).

**3.25****ground reference plane****GRP**

plane on which the machine is placed for measurements: in the case of the base machine, a hard, level surface; in the case of equipment and attachments, either a hard, level surface or compacted earth

Note 1 to entry: The surface used depends on the intended use of the machine and its equipment and attachments.

[SOURCE: ISO 6746-1:2003, 3.2]

**3.26****hopper**

component of the *paver-finisher* (3.1) which receives the paving material from an external source

Note 1 to entry: For an example, see [Figure A.4](#).

**3.27****hopper capacity**

struck volume of the *paver-finisher* (3.1) *hopper* (3.26) including the volume of the *conveyor* (3.14) in front of the rear hopper wall

**3.28****hopper insert**

device to increase *hopper capacity* (3.27)

**3.29****machine clearance circle**

radius of the smallest circle which encloses the outermost point of the machine projection with the machine in operating configuration while executing its sharpest practical turn

Note 1 to entry: See [Figure A.22](#), dimension  $R_1$ .

**3.30****operating mass**

mass of the machine in operating configuration with a 75 kg *paver-finisher operator* (3.7)

Note 1 to entry: On wheeled machines, the mass of the tyre ballast is included (if provided or recommended by the machine manufacturer).

**3.31****shipping mass**

mass of the machine as shipped by the manufacturer including the standard components detached and shipped loose with the machine

**3.32****mat**

paving material that has been placed by a *screed* (3.45) or *strike-off* (3.59)

**3.33****material feed system**

combined *conveyor* (3.14) and auger components that transfer the paving material from the *hopper* (3.26) and distribute it in front of the *screed* (3.45)

Note 1 to entry: For an example, see [Figure A.4](#).

**3.34****material feed sensor**

device used to detect the quantity of the paving material in front of the *screed* (3.45)

Note 1 to entry: For an example, see [Figure A.4](#).

**3.35**

**material retaining plate**

material limiting plate

attachment installed in front of a *spreading auger* (3.56) extension to prevent the paving material from flowing forwards

**3.36**

**mobile grade reference**

towed attachment that provides an independent reference for the *automatic grade control* (3.23)

Note 1 to entry: For an example, see [Figure A.10](#).

**3.37**

**overall operating height**

vertical distance from the *GRP* (3.25) to the highest point of the machine with the machine in operating configuration

Note 1 to entry: See [Figure A.21](#), dimension  $H_3$ .

**3.38**

**overall shipping height**

vertical distance from the *GRP* (3.25) to the highest point of the machine in shipping configuration

Note 1 to entry: See [Figure A.23](#), dimension  $H_4$ .

**3.39**

**overall operating length**

longitudinal distance between the extreme front and rear points of the machine with the machine in operating configuration

Note 1 to entry: See [Figure A.23](#), dimension  $L_1$ .

**3.40**

**overall shipping length**

longitudinal distance between the extreme front and rear points of the machine with the machine in shipping configuration

Note 1 to entry: See [Figure A.23](#), dimension  $L_2$ .

**3.41**

**overall operating width of the tractor**

minimum transverse distance between the extreme points of either side of the *tractor* (3.66) with the machine in operating configuration, but with the *hopper* (3.26) wings lowered

Note 1 to entry: See [Figure A.24](#), dimension  $W_2$ .

**3.42**

**overall shipping width**

transverse distance between the extreme points on the sides of the machine with the *tractor* (3.66) in shipping configuration

Note 1 to entry: See [Figure A.21](#), dimension  $W_6$ .

**3.43**

**paving speed**

forward speed over a hard, horizontal surface in the designated range

**3.44**

**push-roller**

device that contacts the tyres of the paving material delivery vehicle

Note 1 to entry: For an example, see [Figure A.4](#).

### 3.45 screed

device towed behind the *tractor* (3.66) to strike off, compact, contour and smooth the paving material

Note 1 to entry: For an example, see [Figure A.13](#).

#### 3.45.1 pre-compaction screed

*screed* (3.45) that compacts the paving material by the profile of the front of the *screed plate* (3.52), the angle of attack and its weight

Note 1 to entry: For an example, see [Figure A.14](#).

#### 3.45.2 compaction screed

*screed* (3.45) fitted with a single compaction system in addition to the pre-compacting system.

Note 1 to entry: The additional compaction system can include vibrators, *tamper bars* (3.60) or *pressure bars* (3.73).

Note 2 to entry: For examples see [Figure A.15](#) and [Figure A.16](#).

#### 3.45.3 high-compaction screed

*screed* (3.45) fitted with at least two compaction systems in addition to the pre-compacting system

Note 1 to entry: The additional compaction systems can include vibrators, *tamper bars* (3.60) or *pressure bars* (3.73).

Note 2 to entry: For examples see [Figure A.17](#), [Figure A.18](#) and [Figure A.19](#).

### 3.46 tow arm

attachment by which the *screed* (3.45) is connected to and towed by the *tractor* (3.66)

Note 1 to entry: For an example, see [Figure A.4](#).

### 3.47 screed end plate

vertically adjustable plate at the outboard end of the *screed* (3.45), which retains the paving material and forms the edge of the *mat* (3.32)

Note 1 to entry: For an example, see [Figure A.4](#).

### 3.48 screed extension

bolt-on attachment to the *screed* (3.45) to increase the width of the *mat* (3.32)

Note 1 to entry: For an example, see [Figure A.2](#).

Note 2 to entry: The screed extension can be fixed or adjustable.

Note 3 to entry: Screed extensions can be used to extend fixed or *extendable screeds* (3.20).

### 3.49 screed heater

device to heat the *screed plate* (3.52) to minimize adhesion of the paving material

### 3.50 screed lift

device used to raise the *screed* (3.45)

Note 1 to entry: For an example, see [Figure A.10](#).