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**Building construction machinery and  
equipment — Pedestrian-controlled  
vibratory plates — Terminology and  
commercial specifications**

*Machines et matériels pour la construction des bâtiments — Plaques  
vibrantes guidées à la main — Terminologie et spécifications  
commerciales*

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ISO 19433 was prepared by Technical Committee ISO/TC 195, *Building construction machinery and equipment*.

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## Introduction

The purpose of this International Standard is to define the main terms and commercial specifications for pedestrian-controlled vibratory plates used for material (soil and asphalt) compaction. These machines are typically used in the building trades to improve material density characteristics.

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# Building construction machinery and equipment — Pedestrian-controlled vibratory plates — Terminology and commercial specifications

## 1 Scope

This International Standard provides a terminology and sets out the commercial specifications for pedestrian-controlled vibratory plates used in building construction. It is applicable to both forward- and reversible-type plates. These plate compactors are intended for the mechanical compaction of all disturbed soil, sand or aggregates used for load-bearing purposes — whether in new construction or repairs.

## 2 Terms and definitions

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

### 2.1

#### **pedestrian-controlled vibratory plate**

direct- or remote-controlled machine designed for the purpose of improving material density and stiffness

NOTE The machine compacts material through vibration and impact force generated by the vibrator shaft to the base plate and transmitted to the material.

#### 2.1.1

##### **forward-type vibratory plate**

machine designed to move in only one direction, forward

See Figure 1 a).

#### 2.1.2

##### **reversible-type vibratory plate**

machine designed to move in two directions, both forward (away from the operator) and reverse (towards the operator)

See Figure 1 b).

### 2.2

#### **prime mover**

driving energy source for vibrator mechanism

### 2.3

#### **transmission**

system of components that translates the prime mover energy to the vibrator mechanism

### 2.4

#### **base plate**

machine element that locates the vibrator mechanism and comes in contact with the material being compacted

See Figure 1.

**2.5**

**vibrator shaft**

shaft with an eccentric mass that generates vibration when rotated

**2.6**

**vibrator mechanism**

system of components, utilizing the vibrator shaft, affixed to the base plate

**2.7**

**vibration frequency**

number of vibrator cycles per second

**2.8**

**eccentric radius**

distance, offset from the radius of rotation, at which the eccentric mass is considered concentrated

**2.9**

**eccentric mass**

vibrator shaft element whose mass is radially offset from the shaft centre line

**2.10**

**eccentric moment**

**static moment**

product of the eccentric mass and the eccentric radius

**2.11**

**centrifugal force**

calculated value which considers the vibrator shaft eccentric moment and vibrator shaft frequency

NOTE This value can be calculated using the equation given in Annex A.

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**2.12**

**operating mass**

machine mass with equipment, attachments and all fluid systems (i.e. hydraulic oil, engine oil, lubrication oil, transmission oil) at the levels specified by the manufacturer, and — when applicable — with the fuel and water tanks half-full

**2.13**

**shipping mass**

machine mass as configured for shipping

**2.14**

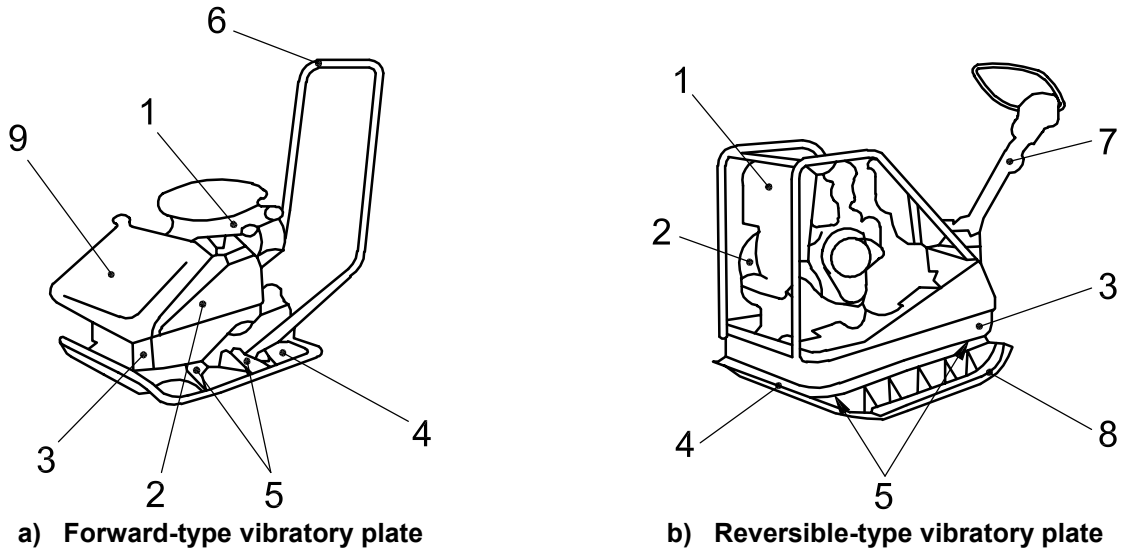
**water system**

container and delivery system used to lubricate the base plate for asphalt applications

**2.15**

**maximum travel speed**

maximum horizontal distance the vibratory plate travels over material being compacted in a given unit of time, measured in both forward and reverse directions

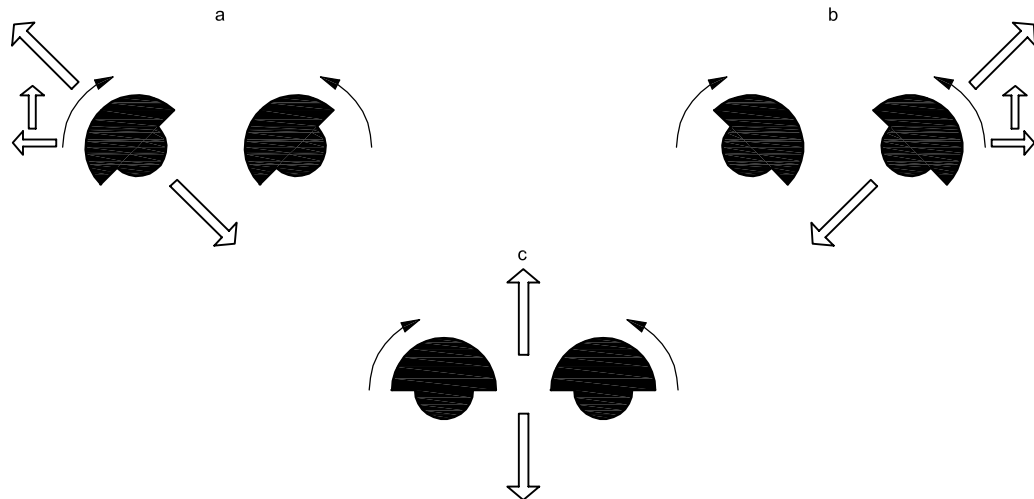


**Key**

- 1 prime mover
- 2 transmission
- 3 vibrator mechanism
- 4 base plate
- 5 dampers
- 6 guide handle
- 7 operator control assembly
- 8 expanders
- 9 water system

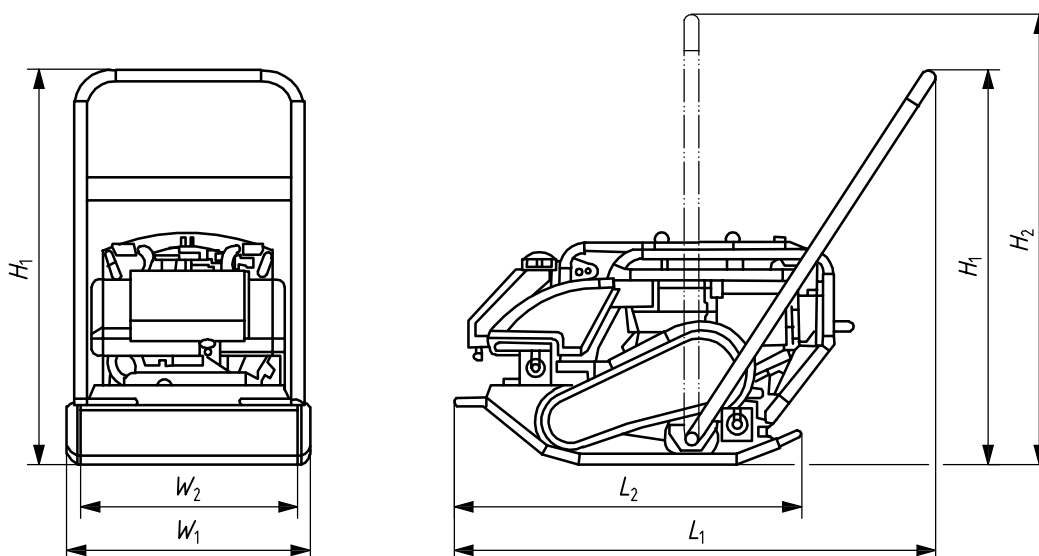
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Figure 1 — Structure of pedestrian-controlled vibratory plates  
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- a Position of eccentric mass for forward movement.
- b Position of eccentric mass for reverse movement.
- c Position of eccentric mass for in-place vibration.

**Figure 2 — Double vibrator's eccentric mass positions for vibratory plate directional control**



**Key**

- $H_1$  overall height in operating position
- $H_2$  overall height
- $L_1$  overall length with handle in operating position
- $L_2$  base plate length
- $W_1$  overall width
- $W_2$  base plate width

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**Figure 3 — Machine dimensions**  
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### 3 Commercial specifications

#### 3.1 General

The following general data shall be presented:

- a) model and type;
- b) manufacturer;
- c) serial number;
- d) prime mover type (internal combustion engine, electric, pneumatic);
- e) operating mass kg;
- f) base plate size ( $W_2 \times L_2$ ) mm (see Figure 3);
- g) centrifugal force kN;
- h) vibration frequency Hz;
- i) maximum travel speed:
  - forward m/min;
  - reverse m/min;
- j) overall dimensions in operating mode (see Figure 3):
  - length,  $L_1$  mm;
  - width,  $W_1$  mm;
  - height,  $H_1$  mm.

#### 3.2 Prime mover

##### 3.2.1 For internal combustion engine

The following combustion engine data shall be presented:

- a) internal combustion engine type:
  - with spark ignition or
  - compression ignition;
- b) model;
- c) manufacturer;