DRAFT INTERNATIONAL STANDARD ISO/DIS 8811

ISO/TC **127**/SC **4** Secretariat: **UNI**

Voting begins on: **2008-06-26** Voting terminates on: **2008-11-26**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Earth-moving machinery — Rollers and land-fill compactors — Terminology and commercial specifications

Engins de terrassement — Engins de compactage — Terminologie et spécifications commerciales

[Revision of first edition (ISO 8811:2000) and ISO 8811:2000/Cor.1:2002]

ICS 01.040.53; 53.100

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Foreword

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ISO 8811 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 4, *Commercial nomenclature, classification and rating*.

This second edition cancels and replaces the first edition (ISO 8811:2000), of which has been technically revised.

Earth-moving machinery — Rollers and land-fill compactors — Terminology and commercial specifications

1 Scope

This International Standard defines the terms used to describe, and the commercial specification of, rollers and land-fill compactors as defined in ISO 6165, their equipment and attachments. It identifies the different types of machines, in addition to their nomenclature, and the symbols used to indicate their dimensions and those of their attachments.

NOTE ISO/TC 195, Building construction machinery and equipment, is standardizing terminology and commercial specifications of pedestrian-controlled vibratory plates (ISO 19433) and pedestrian-controlled vibratory rammers (ISO 19452).

2 Normative references

The following referenced documents are indispensable for the application 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 6014, *Earth-moving machinery -- Determination of ground speed*

ISO 6016, *Earth-moving machinery -- Methods of measuring the masses of whole machines, their equipment and components*

ISO 6165, *Earth-moving machinery -- Basic types -- Identification and terms and definitions*

ISO 6746-1, *Earth-moving machinery -- Definitions of dimensions and codes -- Part 1: Base machine*

ISO 6746-2, *Earth-moving machinery -- Definitions of dimensions and codes -- Part 2: Equipment*

ISO 9249, *Earth-moving machinery -- Engine test code -- Net power*

ISO 3450, *Earth-moving machinery -- Braking systems of rubber-tyred machines -- Systems and performance requirements and test procedures*

ISO 17063, *Earth-moving machinery -- Braking systems of pedestrian-controlled machines -- Performance requirements and test procedures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6016, ISO 6165 and the following apply.

3.1 General

NOTE Term numbers 3.1.1 to 3.1.7 are vacant.

3.1.8
ballast
removable weight added to the base machine or equipment as specified by the manufacture which is used to increase machine performance e.g. stability, traction or compaction

[ISO/DIS 6016]

NOTE Ballast can be added through the use of weights on wheels, frames or axles, liquid filled tires, or compartments to be filled with water, sand or iron parts.

3.2 Masses and vibration

NOTE Term numbers 3.2.1 to 3.2.3 also 3.2.5, 3.2.6 and 3.2.8 are vacant.

3.2.1 Axle distribution of masses of wheeled machines

3.2.4.1
axle load (mass)
mass distribution on each axle at the operating mass

[ISO/DIS 6016]

3.2.4.2
maximum axle load (mass)
maximum mass allowable on each axle as specified by the manufacturer

[ISO/DIS 6016]

3.2.4.3
axle load force
product of axle load (mass) (see 3.2.4.1) and gravity acceleration

3.2.4.4
maximum axle load force
maximum load force allowable on each axle as specified by the manufacturer

3.2.7
vibrating mass
mass of vibrating drum together with mass of all other parts rigidly connected to it

3.2.9
frequency
number of cycles per second

NOTE The frequency is expressed in hertz (Hz).

3.2.10
eccentric moment (mass)
product of the eccentric mass and its radius of eccentricity

NOTE The eccentric moment is expressed in kilogram meters (kg·m).

3.2.10.1
eccentric mass
mass located offset to its rotation centreline to generate vibration

3.2.10.2
radius of eccentricity
distance form the eccentric mass (3.2.10.1) to its rotation centreline

3.2.11
centrifugal force
product of the eccentric moment (mass) (3.2.10) and the square of the angular rotating velocity

NOTE 1 The centrifugal force is expressed in newtons (N). It may be allowable to express the value, divided by 1000, in kilonewtons (kN).

NOTE 2 The angular rotating velocity is expressed in radian per second (rad/s).

3.2.12
nominal amplitude
eccentric moment multiplied by 1000, divided by the mass of vibrated parts (3.2.4)

NOTE The nominal amplitude is expressed in millimetres (mm).

3.3 Linear load and surface pressure

3.3.1
linear load (mass)
(smooth drums) total load exerted on the ground by the drum, with or without ballast, divided by the drum's rolling width

NOTE The linear load is expressed in kilograms per centimetre.

3.3.2
linear load force

<smooth drums> portion of the operating mass exerted on the ground by a given drum (with or without ballast) multiplied by gravity acceleration divided by the drum's rolling width in centimetre

NOTE The (static) linear load force is expressed in newtons per centimetre (N/cm).

3.3.3
dynamic linear load (force)
sum of static linear load force (3.3.2) and part of the centrifugal force (multiplied by 1000 for being expressed in N) exerted on the ground by the corresponding drum divided by the drum's rolling width in centimetre

NOTE The dynamic linear load - force is expressed in newtons per centimetre (N/cm).

3.3.4
theoretical surface pressure
<pneumatic tyres> ratio of the machine load - force, with or without ballast, and the total contact area measured on an even, hard surface

NOTE The theoretical surface pressure is expressed in kPa and values can be shown in a diagram as the relation between the theoretical surface pressure and the wheel load - force, tyre-inflation pressure and contact area.

4 Base machine

NOTE The information on the base machine parameters is provided in the referenced figures.

4.1 Type of rollers

Rollers and land-fill compactors are classified according to the following technical attributes.

4.1.1 Type of compaction work

4.1.1.1 Static rollers

4.1.1.2 Vibratory (dynamic) rollers

4.1.1.3 Combination vibratory and static

4.1.2 Type of compaction drum

4.1.2.1 Pneumatic tyre

4.1.2.2 Metallic (Steel) drum

4.1.2.2.1 Smooth drum

4.1.2.2.2 Padfeet drum

4.1.2.2.3 Crashing drum

4.1.2.2.4 Polygonal drum

4.1.2.3 Combined roller (Combination metallic drum and pneumatic tyre both for compaction purpose)

4.1.3 Number of compaction drums

4.1.3.1 Single-drum type

4.1.3.2 Dual-drum type (Tandem rollers)

4.1.3.3 Three drum type

4.1.3.4 Four compaction drum type

NOTE Landfill compactors are generally four compaction wheel type

4.1.3.5 Number of pneumatic tyres (for pneumatic tyred rollers)

4.1.4 Type of travelling

4.1.4.1 Towed rollers

4.1.4.2 Self-propelled non-riding (pedestrian) rollers

4.1.4.2.1 Self-propelled non-riding single-drum roller

4.1.4.2.2 Self-propelled non-riding dual-drum rollers

4.1.4.3 Self-propelled remote controlled rollers

4.1.4.4 Ride-on, self-propelled rollers

4.1.4.4.1.1 Type of traction

4.1.4.4.1.2 Drum driven (front or rear or both)

4.1.4.4.1.3 Rubber tyre driven (use with single metallic drum for compaction)

4.1.4.4.1.4 Pneumatic tyre driven (for pneumatic tyred rollers or for combined rollers)

4.1.4.4.1.5 Crawler driven (use with single metallic drum for compaction)

4.1.4.4.1.6 Type of steering

4.1.4.4.1.7 Rigid frame - vertically-pivoting yoke-mounted steering drum type - front or rear

4.1.4.4.1.8 Crab steering (Rigid frame - vertically-pivoting yoke-mounted steering type - both front and rear)

4.1.4.4.1.9 Articulated steering

4.1.4.4.1.10 Articulated steering with drum-offset hitch

4.1.4.4.1.11 Skid-steering

4.1.4.4.1.12 Split drum

NOTE Use of split (LH/RH) drums helps steering.

4.2 Typical commercial classification of rollers

Rollers and land-fill compactors are typically and commercially classified as follows based on combination of major technical attributes as specified in 4.1.

4.2.1 Ride on roller

4.2.1.1.1 Static (steel drum) roller (road roller)

4.2.1.1.1.1 Static three-drum roller with rigid frame and vertically-pivoting yoke-mounted steering drum, front or rear

See Figure 1.

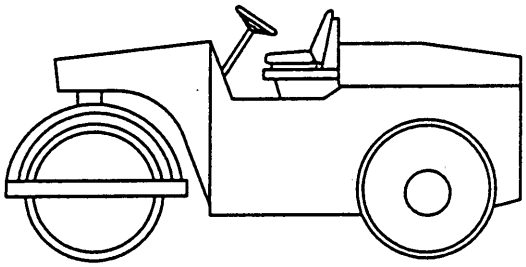

Figure 1 Static dual- or three-drum roller with rigid frame and vertically-pivoting yoke-mounted steering drum

4.2.1.1.2 Static three-drum roller with articulated steering

See Figure 2

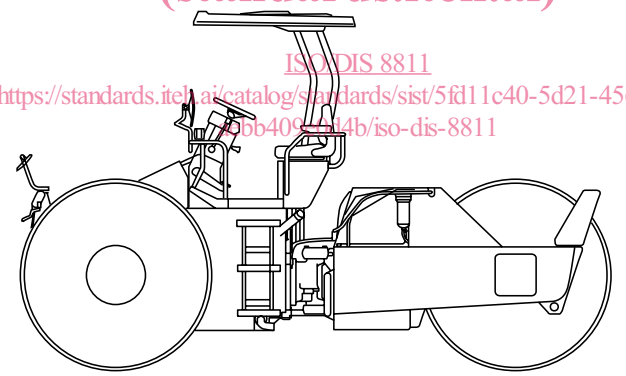

Figure 2 Static or dynamic (vibratory), three-drum roller with articulated steering

4.2.1.1.3 Static dual-drum roller with articulated steering

4.2.1.1.4 Static four compaction wheel landfill compactor with articulated steering

4.2.1.2 Vibratory (dynamic) rollers

4.2.1.2.1 Dynamic (vibratory) single-drum, dual rubber wheel roller with articulated steering

See Figure 3.