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International Standard



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

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## Earth-moving machinery — Dumper bodies — Volumetric rating

*Engins de terrassement — Bennes de tombereau — Évaluation volumétrique*

First edition — 1980-09-15

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UDC 621.869 : 629.11

Ref. No. ISO 6483-1980 (E)

Descriptors : earth handling equipment, volumetric measurement, determination, volume.

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6483 was developed by Technical Committee ISO/TC 127, *Earth moving machinery*, and was circulated to the member bodies in August 1979.

It has been approved by the member bodies of the following countries :

Australia	France	Spain
Austria	Germany, F. R.	Sweden
Belgium	Ireland	Switzerland
Bulgaria	Italy	United Kingdom
Canada	Japan	USA
Czechoslovakia	Poland	USSR
Egypt, Arab Rep. of	Romania	
Finland	South Africa, Rep. of	

No member body expressed disapproval of the document.

# Earth-moving machinery — Dumper bodies — Volumetric rating

## 1 Scope and field of application

This International Standard specifies a procedure for approximating the volume of typical materials carried in dumper bodies. The volumes are based on the inside dimensions of the bodies and representative volumes on top of the bodies. This rating method is intended to be a consistent means of comparing body capacities; it is not intended to define actual capacities that might be observed in any specific application.

## 2 Reference

ISO 7132, *Earth-moving machinery — Dumpers — Terminology*.<sup>1)</sup>

## 3 Definitions

**3.1 body** : That portion of a dumper in which material is carried. See figures 1 and 2. Surfaces whose function is to protect against personal injury or machine damage are not to be considered as carrying surfaces for this analysis.

**3.2 bottom dumper** : Dumper which discharges material by opening its bottom.

**3.3 rear dumper** : Dumper which discharges material in a rearward direction parallel to its longitudinal axis.

**3.4 side dumper** : Dumper which discharges material in a direction perpendicular to its longitudinal axis.

## 4 Volumetric ratings

**4.1** The body shall be positioned as it would be if it were fully lowered on a machine on a horizontal surface with all tyres at their recommended pressure.

**4.2** Any load retaining or ejecting device shall be positioned to give maximum volumetric capacity. This position must be within the device's normal operating range.

## 4.3 Boundaries of the struck volume

**4.3.1** The interior surfaces of the body - bottom, sides, ejection or retention device.

**4.3.2** For bodies that have an open end over which material moves when discharged, the volume shall be limited by a plane passing through the rear-most edge of the open end and top rear corners of the side plates or at a slope of 1 : 1 extending upward and inward from the rear-most edge of the open end; whichever is smaller. The planes are defined in 4.3.2.1 and 4.3.2.2. Volume computations for open sides can be made in the same manner.

**4.3.2.1** The plane, or planes, defined by the intermediate edges. See figure 3.

**4.3.2.2** A plane of 1 : 1 slope from the discharge edge. See figure 3.

**4.3.3** The plane defined by the mean lines. Mean lines are horizontal lines, above which, in a side view of the body, there is an area of the body side equal to the non-bowl side area under the lines. See figure 4.

**4.3.4** Vertical planes from the interior surfaces of the body sides to the plane of the mean lines. See figure 4.

## 4.4 Boundaries of the top (heaped) volume.

**4.4.1** Non-horizontal surfaces, above the upper plane of the struck volume which can retain load.

**4.4.2** Plane(s) of 2 : 1 (26,6°) slope, in and up from the upper edges of the surfaces of 4.4.1 and 4.3.4. Planes of 2 : 1 (26,6°) slope, in and up, from the edges of upper plane of the struck volume. See figure 5. It does not mean that all materials will form this angle, but this angle generally expresses best the angle of repose of the usual soils/rocks.

1) At present at the stage of draft.

## 5 Expression of ratings

**5.1** Rated capacity of the dumper or trailer body shall be the sum of the struck volume and the top volume. Any published ratings must be within  $\pm 3\%$  of the volume determined by this procedure.

**5.2** Ratings for volumes less than  $10\text{ m}^3$  should be expressed to the nearest  $0,1\text{ m}^3$  while those volumes larger should be expressed to the nearest  $0,5\text{ m}^3$ .

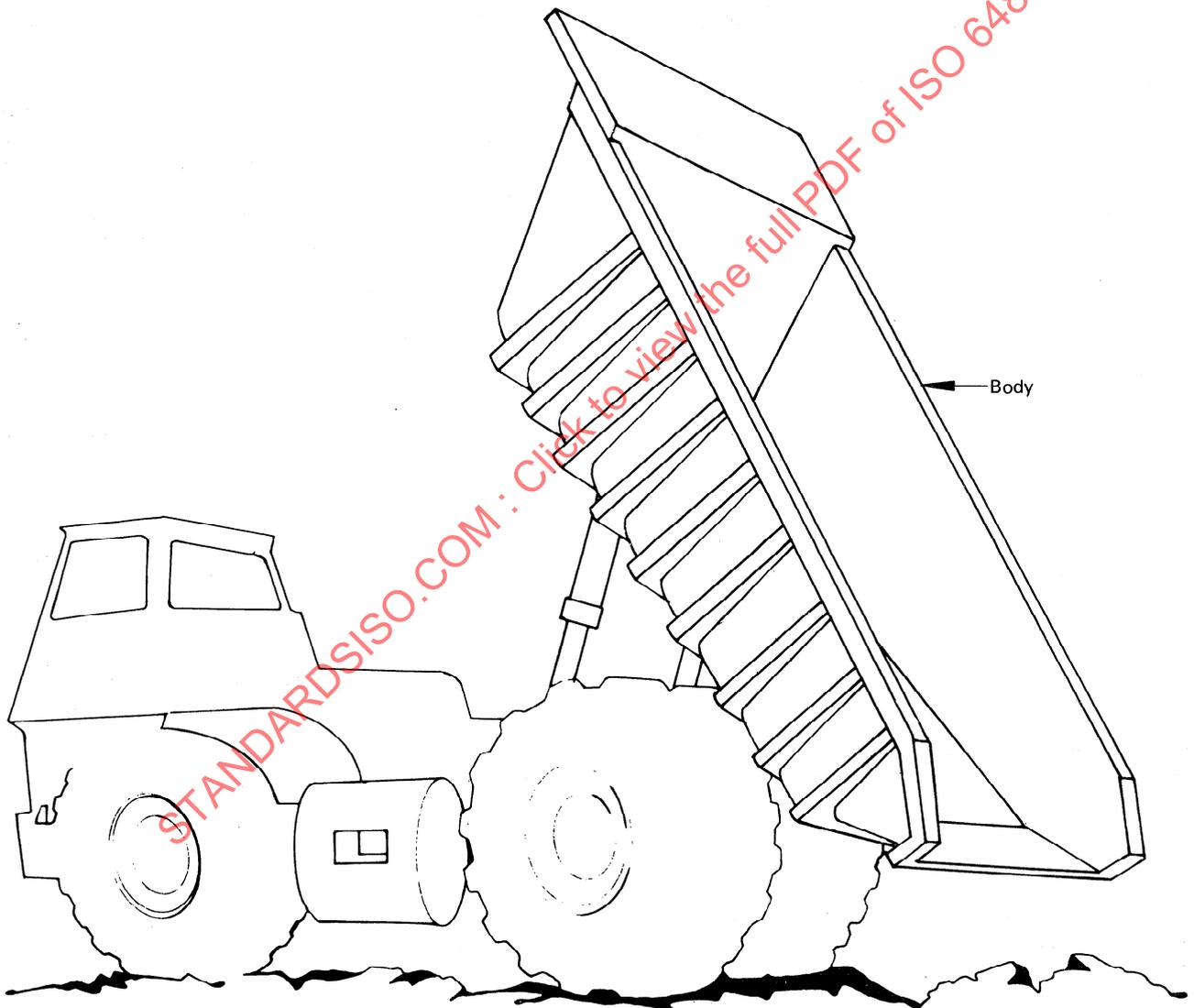
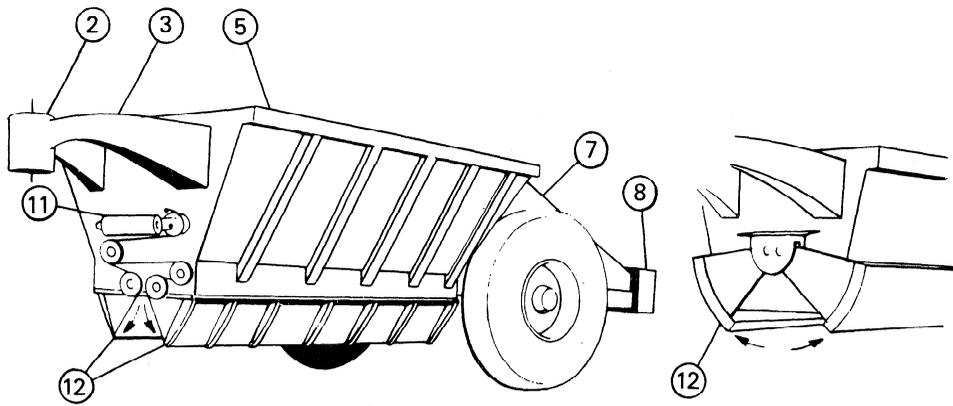
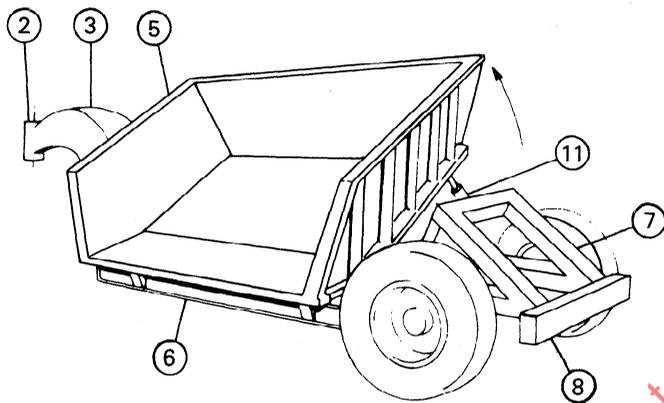


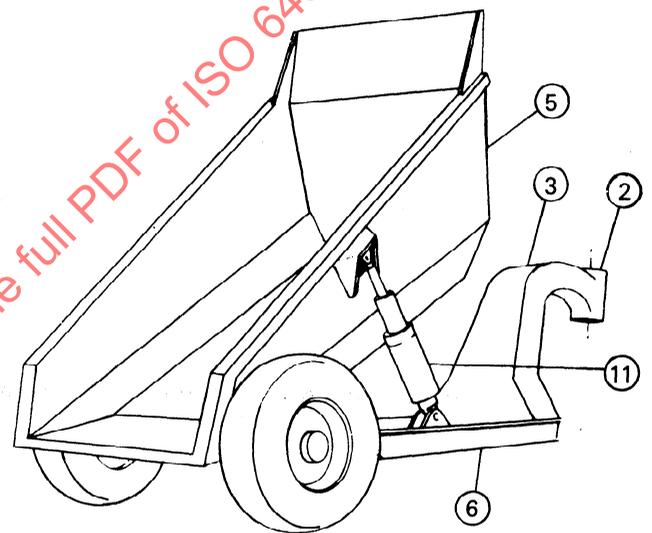
Figure 1 — Dumper body



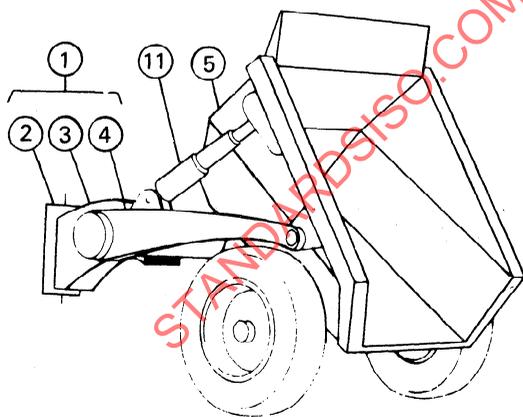
Bottom dump



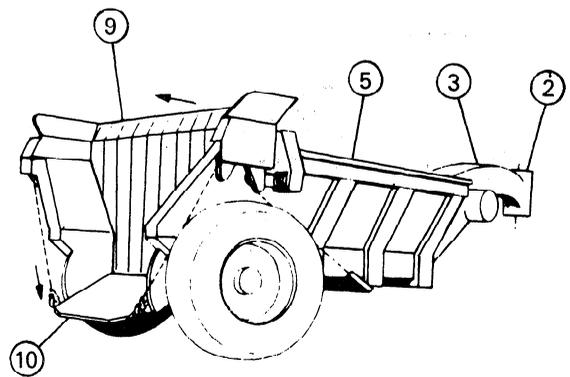
Side dump



Rear dump



Rear dump



Rear dump

- 1 Frame, draft
- 2 Housing, king pin
- 3 Gooseneck
- 4 Arms, draft
- 5 Body
- 6 Frame, main

- 7 Frame, rear
- 8 Bumper
- 9 Ejector
- 10 Tailgate
- 11 Cylinder
- 12 Doors

Figure 2 — Types of dumper body

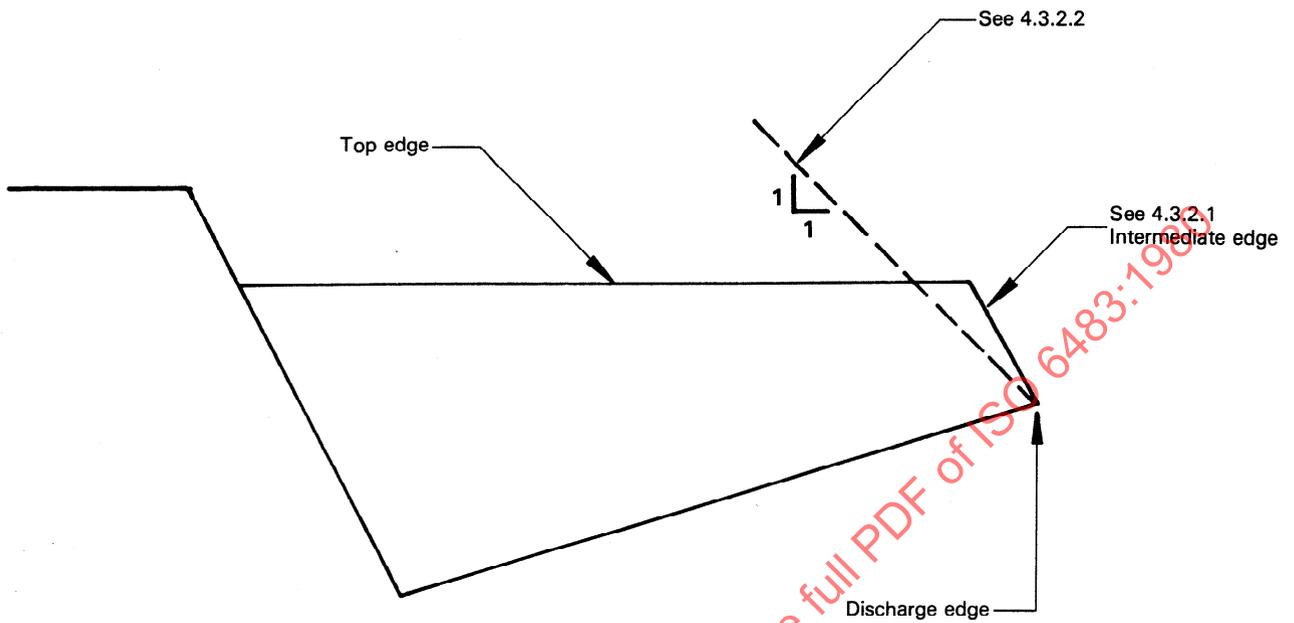


Figure 3 — Boundaries of the struck volume; planes defined by the intermediate or discharge edges

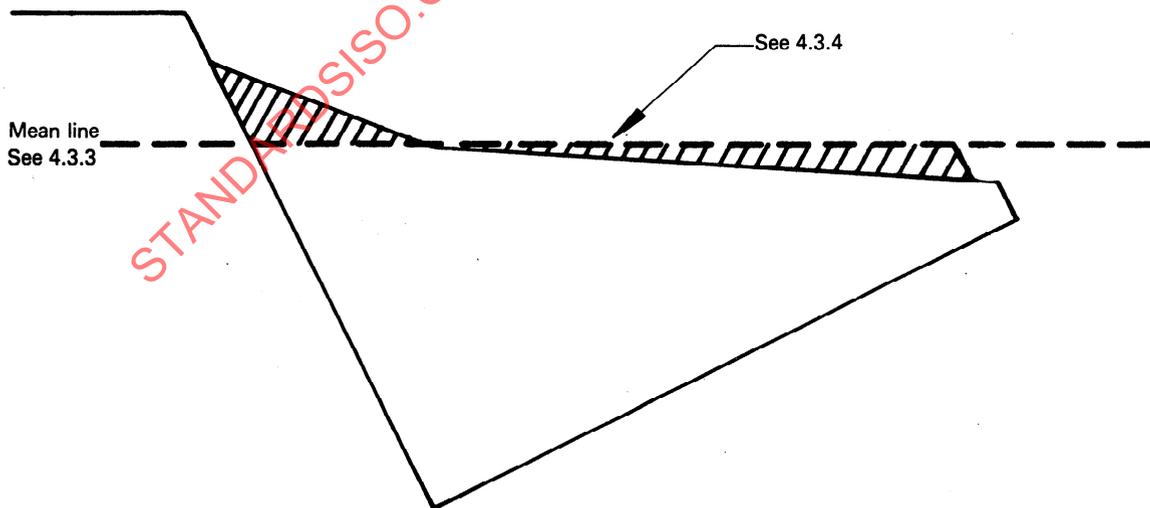


Figure 4 — Boundaries of the struck volume; plane defined by mean line