
International Standard



6484

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Earth-moving machinery — Elevating scrapers — Volumetric ratings

Engins de terrassement — Décapeuses élévatrices — Évaluations volumétriques

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Descriptors : earth moving equipment, scrapers, bowls, tests, determination, volume.

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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6484 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*.

This second edition cancels and replaces the first edition (ISO 6484:1980), of which it constitutes a minor revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Earth-moving machinery — Elevating scrapers — Volumetric ratings

1 Scope and field of application

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

2 Reference

ISO 7133, *Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications*.

3 Definitions

3.1 elevating scraper : Scraper, as defined in ISO 7133 with a powered mechanism fixed to the scraper bowl to assist in loading material.

3.2 elevating scraper components : Components as identified in figures 1, 2 and 3.

4 Volumetric ratings

4.1 Positioning of the bowl

4.1.1 The bowl shall be positioned so that the lowest flat surface of the floor is horizontal or as close to horizontal as possible.

4.1.2 The material discharging mechanism shall be positioned to give maximum volumetric capacity.

4.1.3 The elevating mechanism shall be positioned to give the minimum distance between the cutting edge and the path of the outer tips of the elevator. This position shall be within the manufacturer's specifications.

4.2 Boundaries of the struck volume

The boundaries of the struck volume shall be defined by :

- a) the interior surfaces of the bowl sides;

- b) the interior surface of the rear of the bowl, or ejector mechanism;

- c) the bowl floor;

- d) the plane, perpendicular to the forward surface of the cutting edge, that passes through the centreline of the elevator idler (see figure 3);

- e) the plane of, or linear extension of, the inner paths of the elevator flights adjacent to the load (see figure 3);

- f) the plane defined by the mean lines, i.e. those horizontal lines above which, in a side view of the bowl, there is an area of the bowl side equal to the non-bowl side area under the lines (see figure 3);

- g) the vertical planes from the interior surfaces of the bowl sides to the plane of the mean lines.

4.3 Boundaries of the top (heaped) volume

The boundaries of the top (heaped) volume shall be defined by:

- a) the upper horizontal surface of the struck volume [see 4.2 f)];

- b) the plane of, or linear extension of, the plane of the inner paths of the elevator flights adjacent to the load [see 4.2 e)];

- c) the tangential plane from the top of the solid portion of the rear of the bowl, or ejector mechanism, to the path of the outer tips of the elevator flights, where the point of tangency is at the upper end of the elevator (see figure 4);

The slope of this plane shall not be less than 3 : 1 (18,4°) forward and upward from the top of the solid portion of the rear of the bowl or ejector mechanism. If the slope is less than 3 : 1 this boundary plane shall be as defined in 4.3 d).

- d) a plane of 3 : 1 (rear and down) slope tangent to the outer tips of the elevator flights that ends when it intersects the rear of the bowl;

- e) planes of 1 : 1 (45°) slope in and up from the bowl side mean lines (see figure 5).

4.4 Rated volume

The rated volume is the sum of the struck and top (heaped) volumes.

The effect of local discontinuities — gussets, supporting arms of the elevator in the scraper bowl, etc. — on these volumes shall be ignored.

5 Expression of volumetric ratings

5.1 Any published volumetric ratings shall be within $\pm 3\%$ of the volume determined by this procedure.

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

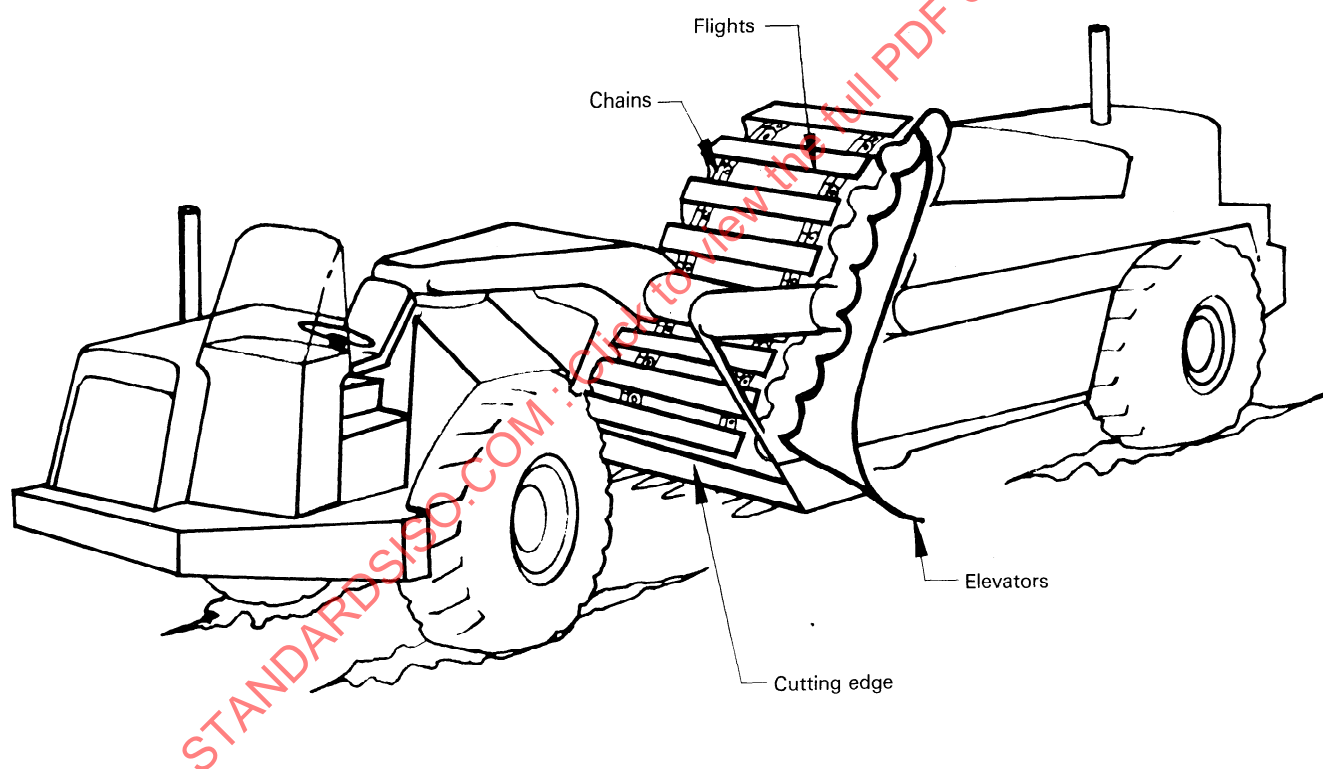


Figure 1 — Elevating scraper

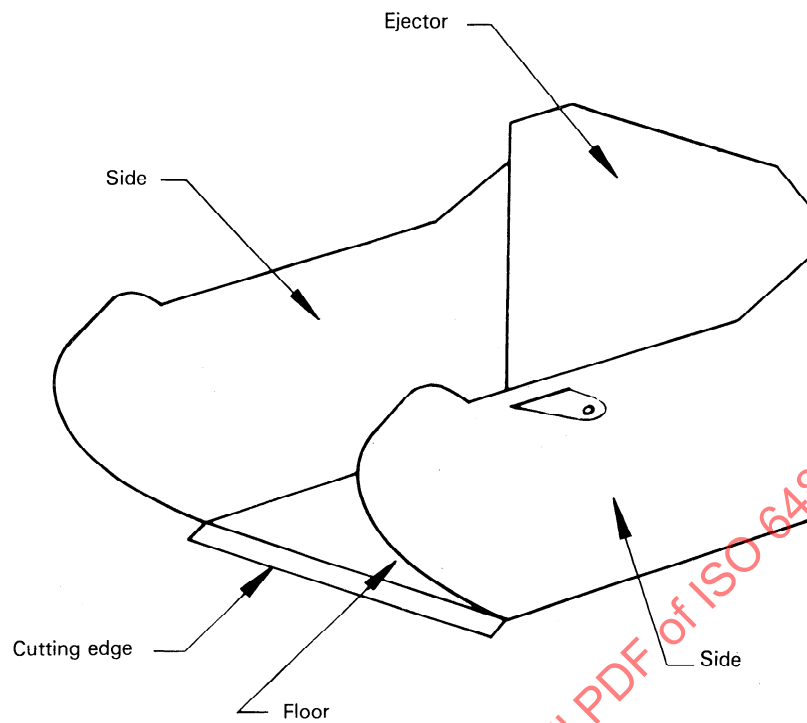


Figure 2 — Components of scraper bowls

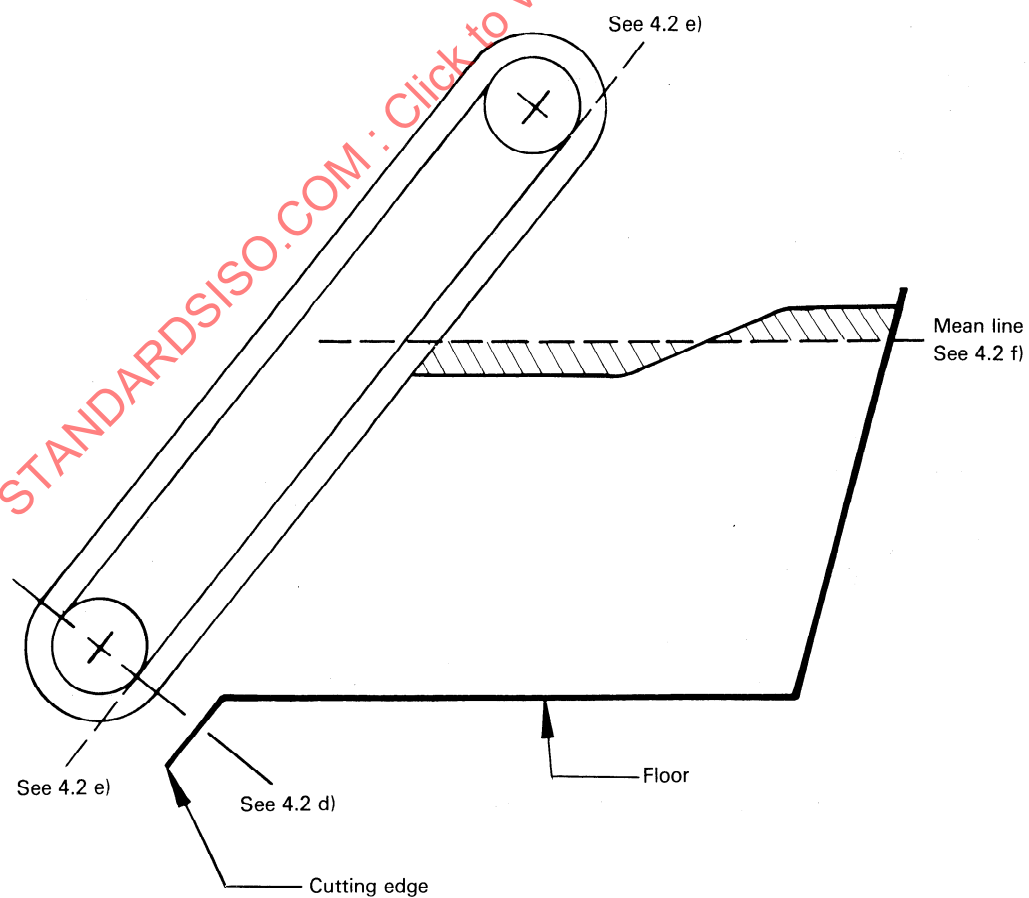


Figure 3 — Boundaries of the struck volume — Planes related to the elevator idler and flights

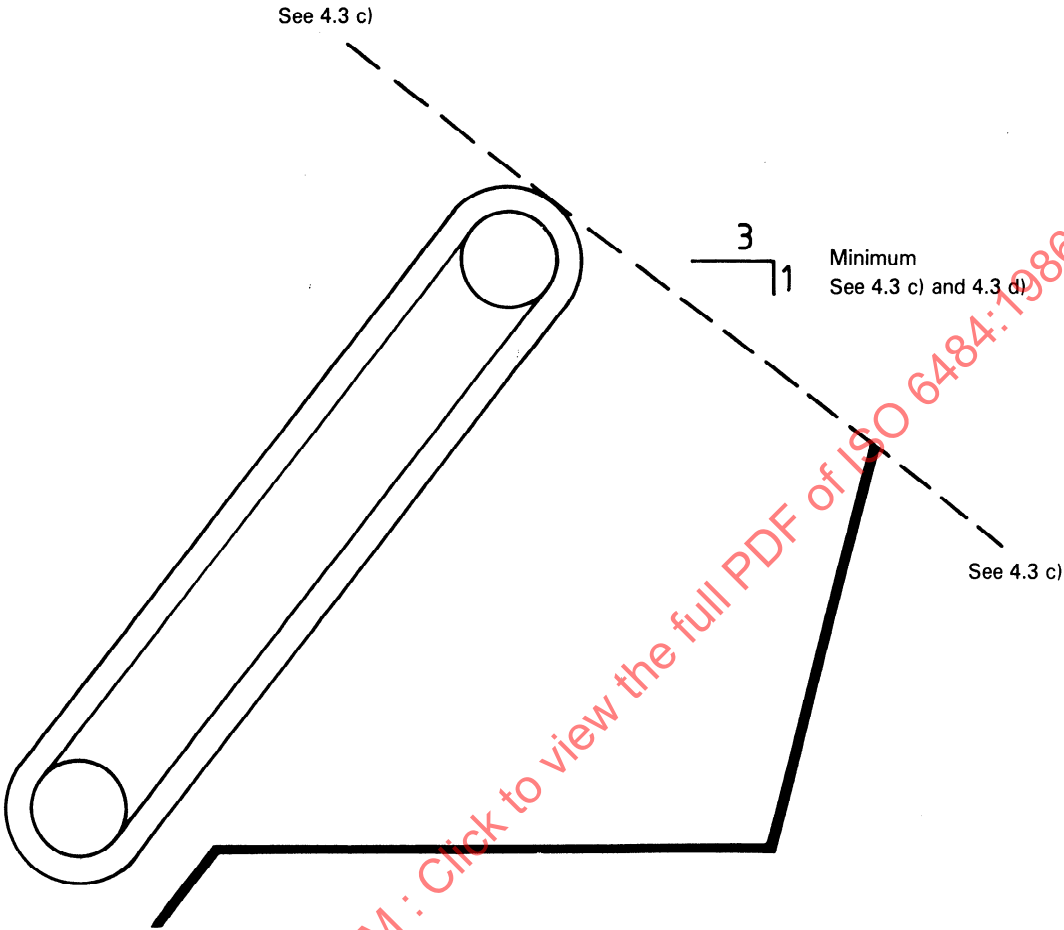


Figure 4 — Boundaries of the top (heaped) volume — Tangential plane

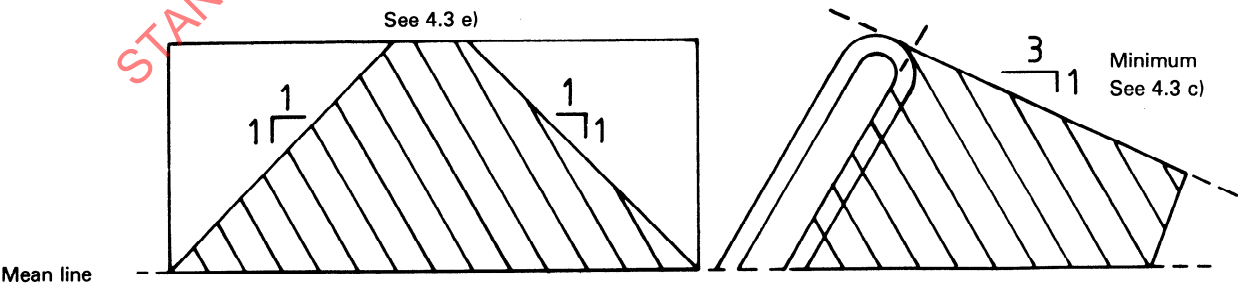


Figure 5 — Boundaries of the top (heaped) volume