Earth-moving machinery — Elevating scrapers — Volumetric rating

Engins de terrassement — Décapeuses élévatrices — Évaluation volumétrique

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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 6484 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	Finland	Romania
Austria	France	South Africa, Rep. of
Belgium	Italy	Spain
Brazil	Japan	Sweden
Bulgaria	Libyan Arab Jamahiriya	United Kingdom
Czechoslovakia	Philippines	USA
Egypt, Arab Rep. of	Poland	USSR

No member body expressed disapproval of the document.

Earth-moving machinery — Elevating scrapers — Volumetric rating

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.*[1)]

3 Definitions

3.1 elevating scrapers : Elevating scrapers have a powered mechanism fixed to the scraper bowl to assist in loading material.

3.2 elevating scraper components : These are 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. Such position to be within the manufacturer's specifications.

4.2 Boundaries of the struck volume.

4.2.1 The interior surfaces of the bowl sides.

4.2.2 The interior surface of the rear of the bowl, or ejector mechanism.

4.2.3 The bowl floor.

4.2.4 The plane, perpendicular to the forward surface of the cutting edge, that passes through the centreline of the elevator idler. See figure 3.

4.2.5 The plane of, or linear extension of, the inner paths of the elevator flights adjacent to the load. See figure 3.

4.2.6 The plane defined by the mean lines. Mean lines are 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.

4.2.7 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.

4.3.1 The upper horizontal surface of the struck volume, see 4.2.6.

4.3.2 The plane of, or linear extension of, the plane of the inner paths of the elevator flights adjacent to the load, see 4.2.5.

4.3.3 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. The point of tangency is at the upper end of the elevator. See figure 4.

The slope of this plane can 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 4.3.4.

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1) At present at the stage of draft.

4.3.4 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.

4.3.5 Planes of 1 : 1 (45°) slope in and up from the bowl side mean lines. See figure 5.

4.4 Rated volume is the sum of the struck and top (heaped) volumes.

4.5 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 results

5.1 Any published ratings must be within ± 3 % of the volume determined by this procedure.

5.2 Ratings for volumes less than 10 m³ should be expressed to the nearest 0,1 m³ while those larger should be expressed to the nearest 0,5 m³.
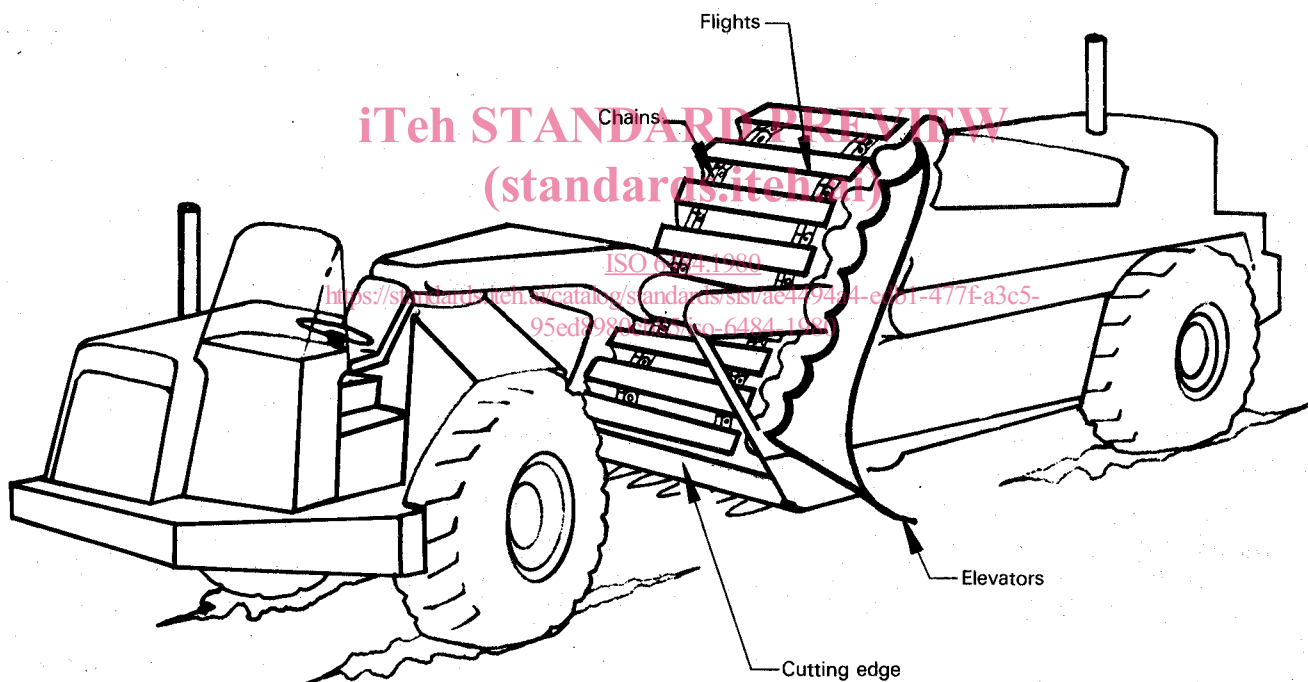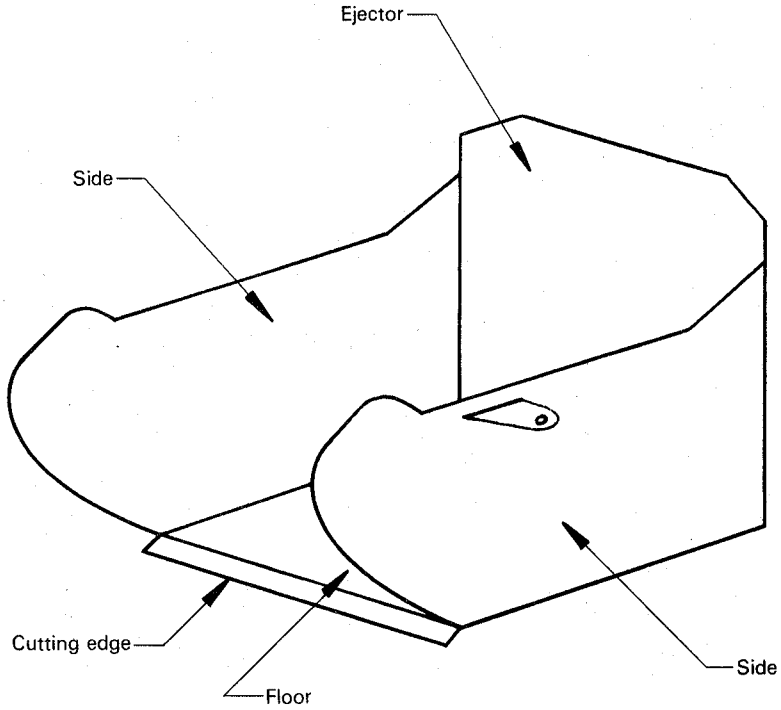

Figure 1 — Elevating scraper

Ejector

Side

Cutting edge

Floor

Side

Figure 2 — Components of scraper bowls

See 4.2.5

Mean line
See 4.2.6

See 4.2.5

See 4.2.4

Floor

Cutting edge
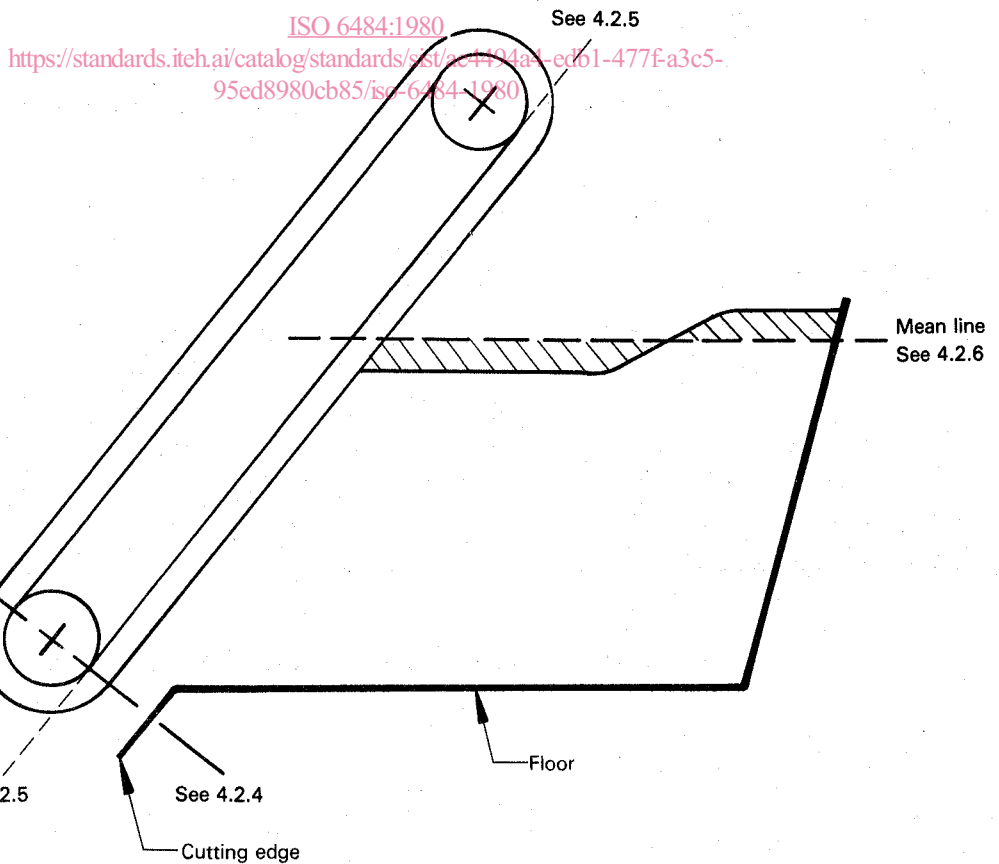
Figure 3 — Boundaries of the struck volume; planes related to the elevator idler and flights

See 3.3.3

3

1

Minimum
See 4.3.3 and 4.3.4

See 4.3.3
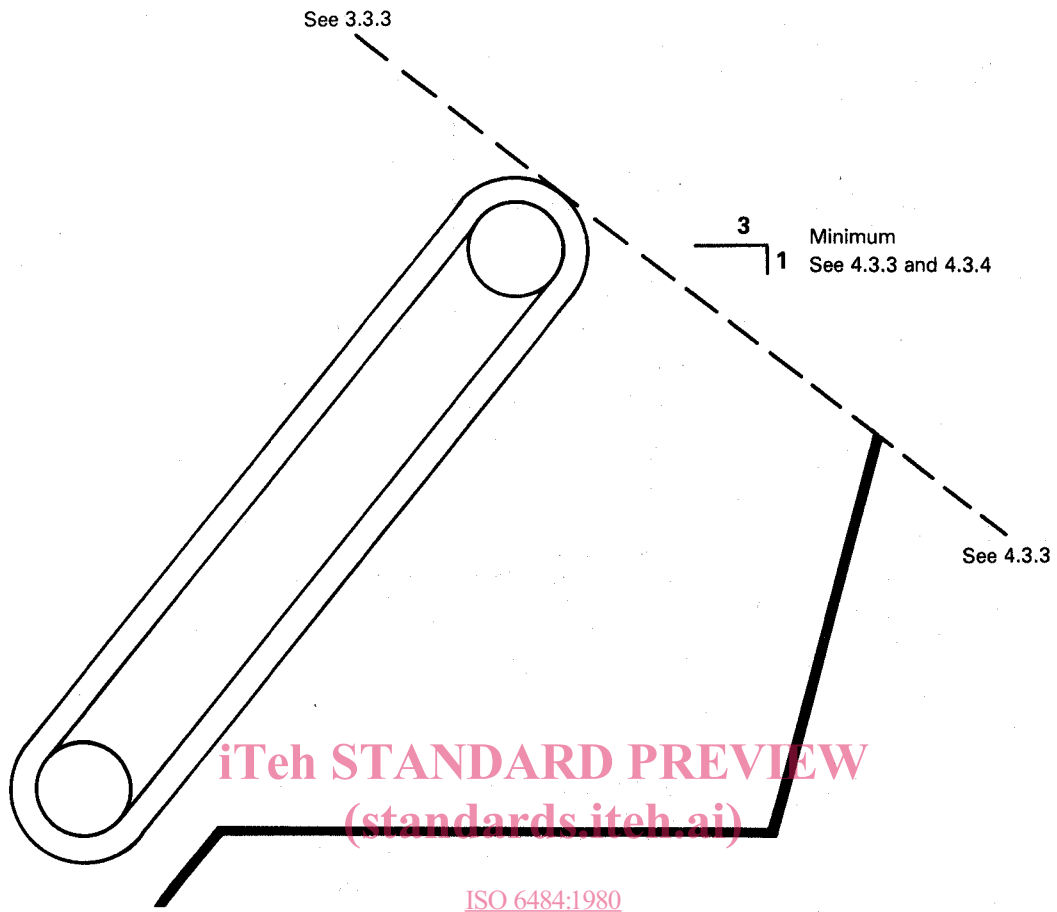
Figure 4 — Boundaries of the top (heaped) volume; tangential plane

See 4.3.5

1

1

1

1

3

1

Minimum
See 4.3.3

Mean line
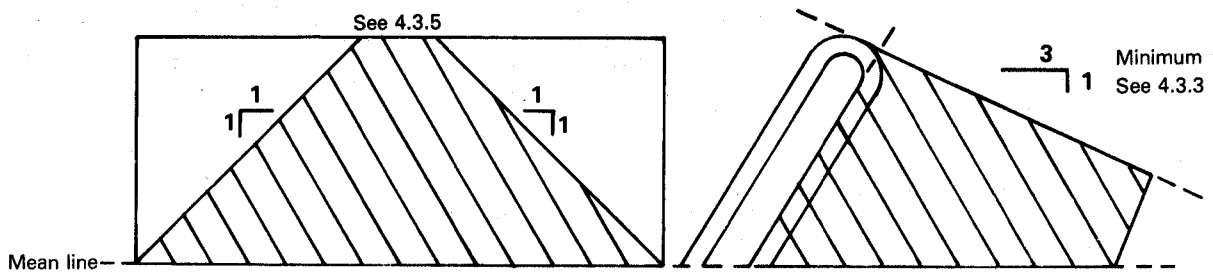
Figure 5 — Boundaries of the top (heaped) volume