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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Earth-moving machinery — Crawler and wheel tractor dozer blades — Volumetric ratings

*Engins de terrassement — Lames de tracteurs sur chenilles ou sur roues — Évaluations
volumétriques*

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Reference number
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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 9246 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*.

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.

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Earth-moving machinery — Crawler and wheel tractor dozer blades — Volumetric ratings

1 Scope and field of application

1.1 This International Standard specifies a procedure for calculating the volume of dozer blades. It is intended to be used for consistent comparisons of dozer blade capacities presented in commercial literature for tractors, as defined in ISO 6165. It is not to be used for predicting productivity of tractor dozers in actual field conditions or that might be observed in any specific applications. Such determinations need to consider other parameters, such as efficiency of the blade, tractor power, tractive effort, soil properties, terrain, operator technique and duty cycle.

1.2 This International Standard applies to all types of dozers that are mounted on all tractors defined in ISO 6747. This includes straight, angling, semi-U-, and U-blade configurations. It is assumed that the blade face is flat and vertical; the blade included volume is not considered (see figure 1).

2 References

ISO 6165, *Earth-moving machinery — Basic types — Vocabulary*.

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

ISO 6747, *Earth-moving machinery — Tractors — Terminology*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 6746-2 and the following apply.

3.1 Straight blade dozers

3.1.1 blade projected area, A_m : Blade area, in square metres, exclusive of the end bit extensions, projected on a vertical plane parallel to the middle part of the cutting edge of the blade (see figure 2). The blade is located in the mid-pitch position with the cutting edge on the ground reference plane (GRP).

3.1.2 blade width, W : Distance, in metres, from outside to outside of the blade, exclusive of the end bits (see figure 3).

3.1.3 effective blade height, H' : Vertical height, in metres, that with W width, produces a projected area equal to A_m : i.e. $H' = A_m/W$ (see figure 3).

3.1.4 effective blade contour : Simplified representation of the blade face for calculating the blade capacity based on the vertical plane bounded by W and H' (see figure 3).

3.2 Semi-U- and U-blade dozers

3.2.1 blade projected area, A_m : (Identical to that for a straight blade — see 3.1.1.)

3.2.2 blade width, W : (Identical to that for a straight blade — see 3.1.2.)

3.2.3 effective blade height, H' : (Identical to that for a straight blade — see 3.1.3.)

3.2.4 effective blade contour : Simplified representation of the blade face for calculating the blade capacity. It is established by intersecting planes extending vertically from the cutting edge at the GRP, with the blade in the mid-pitch position. The frontal dimensions are W and H' (see figure 4).

3.2.5 wing angle, α : Angle, in degrees, measured at the cutting edge on the GRP with the blade in the mid-pitch position. This angle describes the orientation of the intersecting planes that establish the effective blade contour (see figure 4).

3.2.6 wing length, Z : Length, in metres, of the wing measured parallel to the blade width (see figure 4).

3.3 Angling blade dozers in straight position

3.3.1 blade width, W : Blade width, in metres (see figure 5).

3.3.2 effective blade height, H' : Vertical height, in metres, with the blade in the mid-pitch position (see figure 5).

3.3.3 effective blade contour : Simplified representation of the blade face for calculating the blade capacity based on the vertical plane bounded by W and H' (see figure 5).

4 Volume symbols and formulae

4.1 Symbols

V_s : Volume of straight, angling, semi-U- and U-blades using the simplified representation of the blade face for calculating the blade capacity shown in figures 3 and 4.

V_u : Volume of the contour of semi-U- and U-blades, taking into account the wing angle and wing length (see figure 6).

V_1 : Capacity volume of straight and angling blades.

V_2 : Capacity volume of semi-U- and U-blades.

4.2 Capacity volume formulae

As shown in figure 6, the following formulae will indicate blade capacities, in each case in cubic metres.

4.2.1 Straight and angling blade capacity

$$V_1 = V_s$$

$$V_s = 0,8 W (H')^2$$

4.2.2 Semi-U- and U-blade capacity

$$V_2 = V_s + V_u$$

$$V_s = 0,8 W (H')^2$$

$$V_u = Z H' (W - Z) \tan \alpha$$

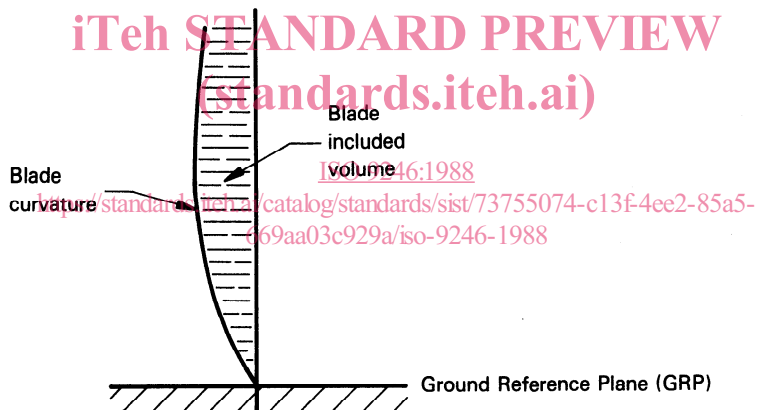


Figure 1 – Blade included volume

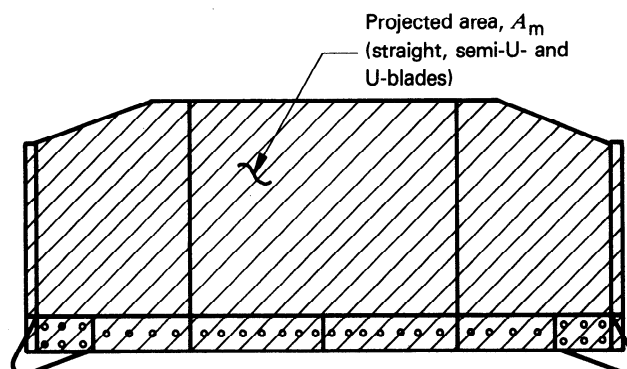


Figure 2 – Blade projected area

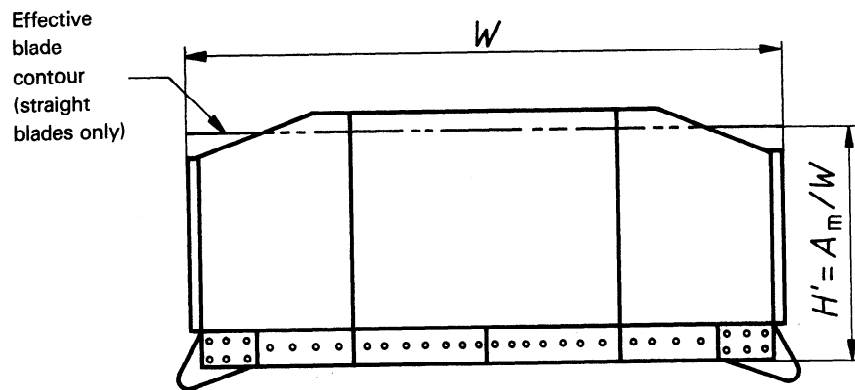


Figure 3 — Straight, semi-U-, U-blade dimensions

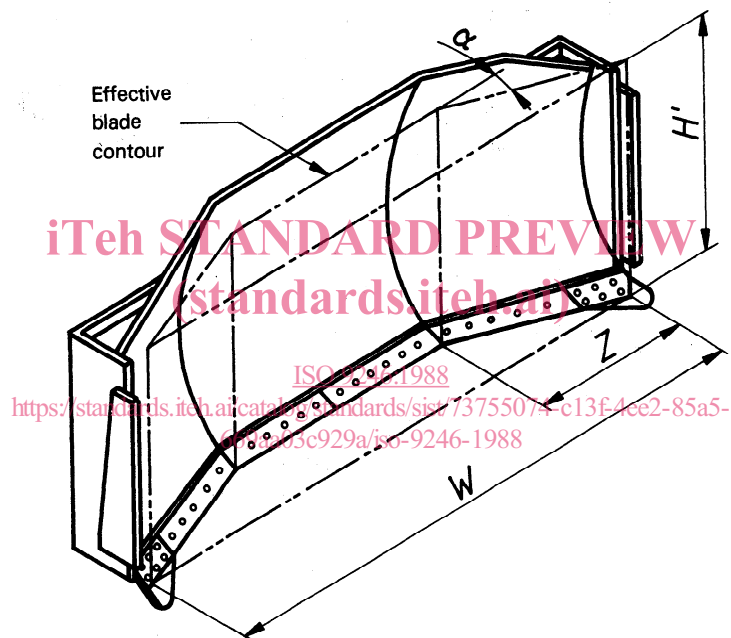


Figure 4 — Effective blade contour of semi-U- and U-blades

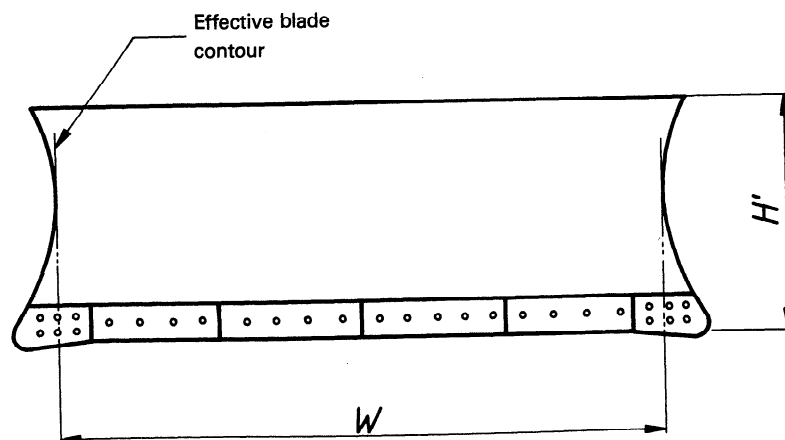


Figure 5 — Angling blade dimensions

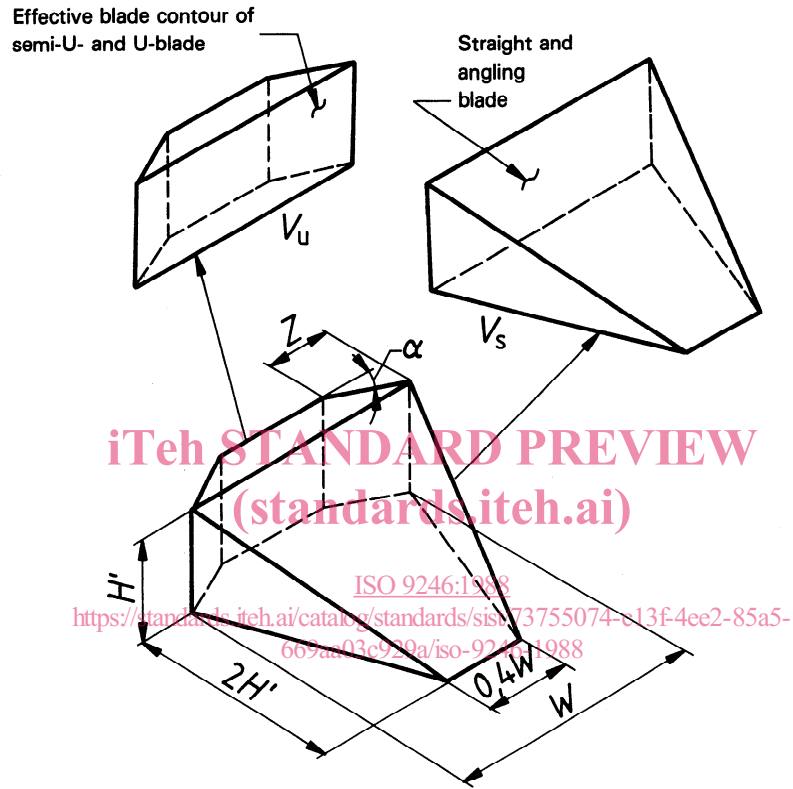


Figure 6 – Blade volume

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