Capacity Rating – Elevating Scrapers – SAE J957 JAN85

SAE Standard
Completely Revised January 1985

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.

ϕ CAPACITY RATING—ELEVATING SCRAPERS—SAE J957 JAN85

SAE Standard

Report of the Construction and Industrial Machinery Committee, approved June 1966, completely revised, Off-Road Machinery Technical Committee, January 1985.

1. Purpose—The purpose of this standard is to provide a uniform method of calculating the SAE rated volumetric capacity.

2. Scope—This standard applies to elevating scrapers as defined in SAE J728 and J1057. It is similar to ISO/DIS 6484.

3. Volumetric Capacity—The standard rating shall be the heaped capacity. Heaped capacity is the sum of the struck volume and the top volume.

3.1 Bowl Position

3.1.1 The bowl shall be positioned so that the lowest inner flat surface of the floor is horizontal.

3.1.2 The ejector shall be in the normal hauling mode.

3.1.3 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 flights.

3.2 Struck Volume

3.2.1 The struck volume shall be enclosed by:

3.2.1.1 The bowl floor.

3.2.1.2 The ejector.

3.2.1.3 The path of the inner edge of the elevator flights.

3.2.1.4 The plane perpendicular to the surface of the cutting edge that passes through the centerline of the elevator lower idler or sprocket.

3.2.1.5 The plane through the mean line of the bowl sides.

3.2.1.5.1 Mean lines are horizontal lines along the top edges of the bowl sides above which, in a side view of the bowl, there is an area of bowl side above the line equal to the non-bowl side area under the line.

3.2.1.6 The effect of local discontinuities (gussets, elevator arms, or other internal projections) shall be ignored.

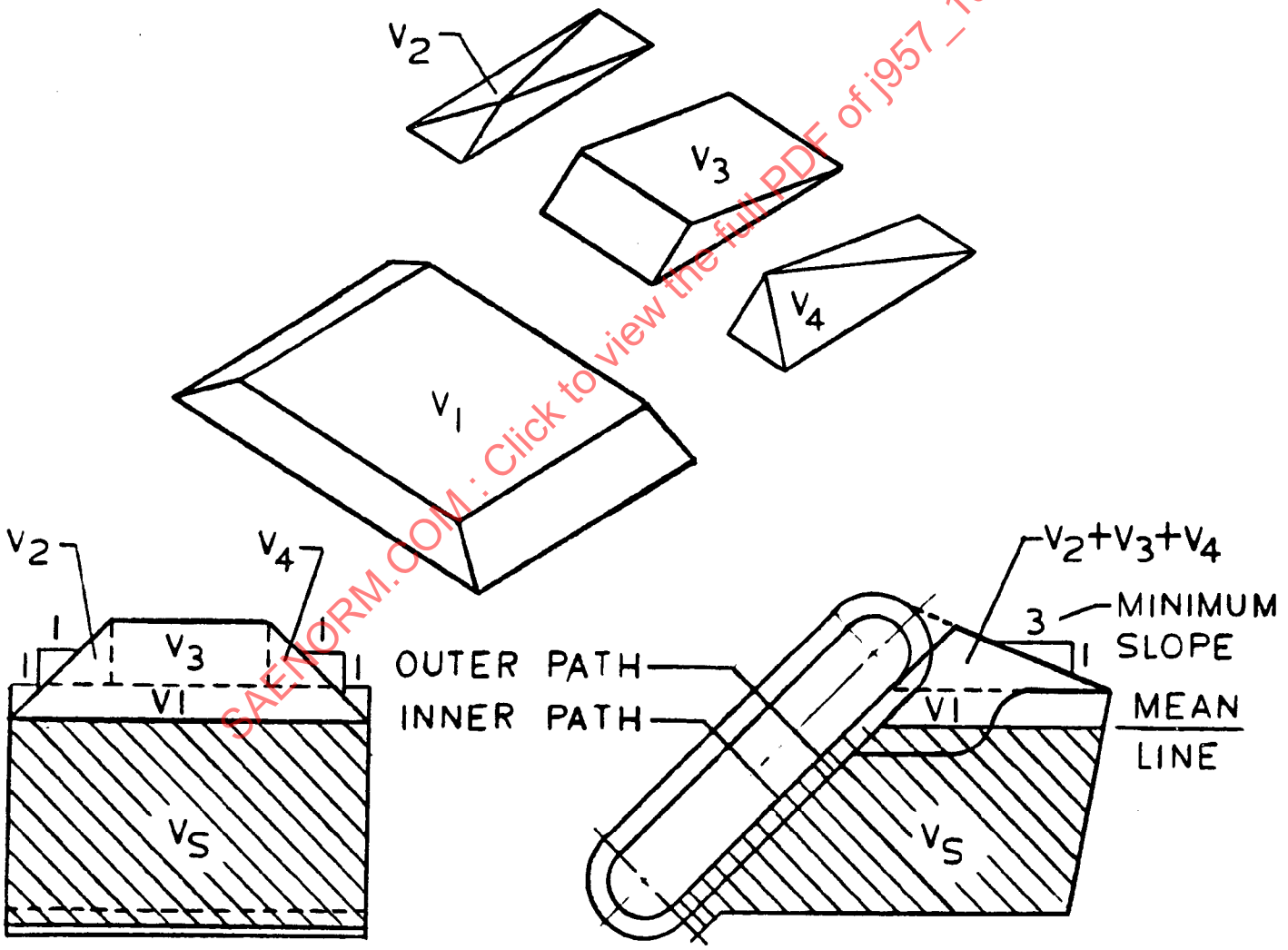
3.3 Top Volume

3.3.1 The volume shall be enclosed by:

3.3.1.1 The upper horizontal surface of the struck volume.

3.3.1.2 The plane of the path of the inner edge of the elevator flights.

3.3.1.3 The plane from the top of the solid portion of the rear bowl or ejector, tangent to the path of the outer tips of the elevator flights.



VOLUME STRUCK = V_S

STANDARD RATING VOLUME HEAPED = $V_H = V_S + V_1 + V_2 + V_3 + V_4$

FIG. 1—TYPICAL ELEVATING SCRAPER VOLUME COMPUTATION