



Standard Test Method for Measuring Wear Properties of Fluid Lubricants (Falex Pin and Vee Block Method)¹

This standard is issued under the fixed designation D 2670; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers a procedure for making a preliminary evaluation of the wear properties of fluid lubricants by means of the Falex Pin and Vee Block Lubricant Test Machine.

NOTE 1—Certain fluid lubricants may require different test parameters depending upon their performance characteristics.

1.2 The values stated in either inch-pound units or SI (metric) units are to be regarded separately as standard. Within the text the SI units are shown in brackets. The values stated in each system are not exact equivalents, therefore each system must be used independently of the other. Combining values of the two systems may result in nonconformance with the specification.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

B 16 Specification for Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines²

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *actual gage load, n* —the value obtained from the gage while running the test and before any corrections are made.

3.1.1.1 *Discussion*—The gage reading is irrespective of the particular gage used, and corrections are made by comparison to a standard reference.

3.1.2 *direct load, n* —the load that is applied linearly, bisecting the angle of the vee block corrected to either the 800 lbf or 3000 lbf gage reference.

3.1.2.1 *Discussion*—This load is equivalent to the true load times the $\cos 42^\circ$.

3.1.3 *true load, n* —the sum of the applied forces normal to the tangents of contact between the faces of one vee block and the journal pin corrected to the 4500 lbf gage reference line.

3.1.4 *wear teeth, n* —a measurement of wear, which in this test, is based on the number of ratchet wheel teeth advanced during the test while maintaining load.

3.1.4.1 *Discussion*—The number of teeth is directly related to the total wear (inches).

4. Summary of Test Method

4.1 The test consists of running a rotating steel journal against two stationary steel V-blocks immersed in the lubricant sample. Load is applied to the V-blocks and maintained by a ratchet mechanism. Wear is determined and recorded as the number of teeth of the ratchet mechanism advanced to maintain load constant during the prescribed testing time.

5. Significance and Use

5.1 This test method may be used to determine wear obtained with fluid lubricants under the prescribed test conditions. The user of this test method should determine to his or her own satisfaction whether results of this test procedure correlate with field performance or other bench test machines. If the test conditions are changed, wear values may change and relative ratings of fluids may be different.

¹ This test method is under the jurisdiction of Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.L on Industrial Lubricants.

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² *Annual Book of ASTM Standards*, Vol 02.01.

