



Standard Test Method for Determining Extreme Pressure Properties of Lubricating Greases Using a High-Frequency, Linear-Oscillation (SRV) Test Machine¹

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1. Scope

1.1 This test method covers a procedure for determining extreme pressure properties of lubricating greases under high-frequency linear-oscillation motion using the SRV test machine. This test method can also be used for evaluating extreme pressure properties of lubricating fluid.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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:²

A295/A295M Specification for High-Carbon Anti-Friction Bearing Steel

D217 Test Methods for Cone Penetration of Lubricating Grease

D4175 Terminology Relating to Petroleum, Petroleum Products, and Lubricants

D6425 Test Method for Measuring Friction and Wear Properties of Extreme Pressure (EP) Lubricating Oils Using SRV Test Machine

E45 Test Methods for Determining the Inclusion Content of Steel

G40 Terminology Relating to Wear and Erosion

2.2 Other Standards:³

DIN EN ISO 683-17 Heat-treated Steels, alloy steels and free-cutting steels – Part 17 : Ball and roller bearing steels

DIN EN ISO 13565-2:1998 Geometrical Product Specifications (GPS) – Surface texture: Profile method; Surfaces having stratified functional properties – Part 2: Height characterization using linear material ratio curve (replaces DIN 4776:1990: Measurement of surface roughness; parameters R_K , R_{PK} , R_{VK} , M_{r1} , M_{r2} for the description of the material portion)

3. Terminology

3.1 Definitions:

3.1.1 *break-in, n —in tribology*, an initial transition process occurring in newly established wearing contacts, often accompanied by transients in coefficient of friction or wear rate, or both, which are uncharacteristic of the given tribological system's long-term behavior. **G40**

3.1.2 *coefficient of friction, μ or f , n —in tribology*, the dimensionless ratio of the friction force (F) between two bodies to the normal force (N) pressing these bodies together. **G40**

3.1.3 *Hertzian contact area, n —the apparent area of contact between two nonconforming solid bodies pressed against each other, as calculated from Hertz's equations of elastic deformation.* **G40**

3.1.4 *Hertzian contact pressure, n —the magnitude of the pressure at any specified location in a Hertzian contact area, as calculated from Hertz's equations of elastic deformation.* **G40**

3.1.5 *lubricant, n —any material interposed between two surfaces that reduces the friction or wear, or both, between them.* **D4175**

3.1.6 *lubricating grease, n —a semi-fluid to solid product of a dispersion of a thickener in a liquid lubricant.* **D217**

3.1.6.1 *Discussion*—The dispersion of the thickener forms a two-phase system and immobilizes the liquid lubricant by

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.G0 on Lubricating Grease.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Beuth Verlag GmbH, Burggrafenstrasse 6, D-10787 Berlin, Germany.