

ANSI/ASAE S483.2 AUG2011 (R2016)
Rotary Mower Blade Ductility Test



STANDARD

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Rotary Mower Blade Ductility Test

Proposed by the Industrial/Agricultural Mower Manufacturer's Council of the Farm and Industrial Equipment Institute; approved by the ASAE Agricultural Safety Committee and the ASAE Power and Machinery Division Standards Committee; adopted by ASAE as a Tentative Standard April 1987; reaffirmed December 1987; revised editorially and reclassified as a full Standard December 1988; approved as an American National Standard February 1989; reaffirmed July 1993, November 1998, February 2003; revised November 2005; August 2011; reaffirmed March 2016.

Keywords: Blade, Mower, Rotary, Test

1 Purpose and Scope

1.1 The purpose of this Standard is to identify production blade lots, from which samples were subjected to destructive testing.

2 Definitions

2.1 rotary mower: A mower in which one or more functional components cut or shear by impact and rotate about an axis perpendicular to the cutting plane. For illustrations of rotary mowers refer to Society of Automotive Engineers Standard J990, Nomenclature-Industrial and Agricultural Mowers.

2.2 blade lot: A blade lot will be determined by the blade manufacturer, traceable to the heat of steel and manufacturing process. A change in the heat of steel shall establish a new blade lot.

2.3 heat of steel: A heat of steel is a batch of steel from a ladle or steel making furnace. A heat of steel is sometimes referred to as a mill heat.

NOTE: The heat analysis is obtained from a small sample of molten metal from the ladle or furnace. The sample is allowed to solidify, then a spectrochemical analysis is performed. If the chemical analysis is within specification, the balance of molten metal can be cast as one heat treat number. Typically heats are over 50 tons with many mills running heats about 300 tons. (Refer to ASTM A29)

2.4 manufacturing process: A series of thermal manufacturing operations applied to the steel material to transform it into a finished blade. These operations include heating the material for forming purposes and the heat treat operation. Different heat treatment processes, for example quench and temper versus austemper, shall be considered different manufacturing processes.

2.5 permanent set angle: The angle formed by the back of the blade or test coupon in the area of the bend after removal from the blade bend test fixture (see Figure 1).

2.6 total deflection angle: The angle which is the sum of the permanent set angle and the estimated springback. This angle is for ease of fixture design and not acceptance criteria. (see Figure 2)

2.7 test coupon: Flat specimen with the same cross-section and of the same blade lot as the blades it represents.