

ANSI/ASAE S343.4 JUN2015
Terminology for Combines and Grain Harvesting



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Terminology for Combines and Grain Harvesting

Developed by the ASAE Grain Harvesting Committee; approved by the Power and Machinery Division Standards Committee; adopted by ASAE as a Tentative Standard February 1971; reclassified as a full Standard December 1971; reconfirmed December 1977; revised April 1981; reconfirmed December 1985; revised March 1988; approved as an American National Standard August 1988; revised April 1990; revision approved by ANSI January 1991; revised editorially March 1991; reaffirmed by ASAE December 1994; revised editorially February 1995; reaffirmed by ASAE December 1995, December 1996; reaffirmed by ANSI March 1998; reaffirmed by ASAE December 2001, February 2004; reaffirmed by ANSI March 2004; reaffirmed by ASABE and ANSI February 2009, editorial revision and reaffirmed by ASABE December 2013, reaffirmed by ANSI January 2014; revised and approved by ANSI June 2015.

Keywords: Combines, Grain, Harvesting, Terminology

1 Purpose and Scope

1.1 The purpose of this Standard is to establish terminology pertinent to grain combine design and performance. It is intended to improve communication among engineers and researchers and to provide a basis for comparative listing of machine specifications.

2 References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies unless noted. For undated references, the latest approved edition of the referenced document (including any amendments) applies."

ANSI/ASABE AD5687:1999, Equipment for harvesting — Combine harvesters — Determination and designation of grain tank capacity and unloading device performance

ANSI/ASAE S396, Combine Capacity and Performance Test Procedure

USDA 810, Official United States Standards for Grain

ISO 712, Cereals and cereal products — Determination of moisture content — Reference method

3 Combine Components

3.1 Header: The portion of the combine comprising the mechanisms for gathering the crop.

3.1.1 Gathering width: The distance between the centerlines of the outermost divider points; expressed in meters to the nearest hundredth. Where adjustable dividers are used the maximum and minimum dimensions shall be stated.

3.1.2 Grain header width: The distance between the side sheets of the header measured immediately above the forward tips of the sickle sections; expressed in meters to the nearest hundredth.

3.1.3 Maize (ear corn) header width: The average distance between the centerlines of adjacent picking units multiplied by the number of units. Where the header width is adjustable, maximum and minimum distances between centerlines shall be stated, expressed in centimeters. The maximum and minimum header widths shall then be expressed in meters to the nearest hundredth, and the number of picking units shall be stated.

3.2 Primary cutting mechanism: That device on the header for severing the plant stalks. May include reciprocating, rotary, continuous, scissor-type, or other mechanisms for severing, and lies primarily in a horizontal plane.

3.2.1 Secondary cutting mechanism: Any other cutting device that does not serve as a primary cutting device.

3.2.2 Knife: A reciprocating member of a header used for severing crop. Sometimes called a sickle.

3.2.2.1 Knife frequency: The number of cycles which the sickle makes in a given period of time. One cycle is the full movement of the sickle in one direction and its return to the starting point. Frequency shall be expressed in hertz.

3.2.2.2 Knife stroke: The distance that a point on the knife nearest to the driver travels with respect to the centerline of a guard in one half cycle; expressed in millimeters.

3.3 Pickup attachment: A device for gathering a crop from a windrow or laid position, and does not contain a primary cutting device.

3.3.1 Pickup width: The minimum distance including the width of the outermost conveying elements but not including the gather of flared side sheets; expressed in meters to the nearest hundredth.

3.4 Cutting mechanism height: The height of the forward tip of any cutting blade or sickle section above the plane on which the machine is standing, measured under the following conditions and expressed in centimeters:

3.4.1 The maximum and minimum dimensions shall be in the highest point and the lowest point to which the cutterbar can be raised or lowered with the standard lift mechanism.

3.4.2 Tire and wheel equipment and axle height position shall be stated, and tires shall be inflated to the field operating pressures recommended by the combine manufacturer.

3.4.3 Header pitch if adjustable will be stated.

3.4.4 The plane on which the combine is standing shall be substantially level.

3.4.5 The header installed at the time of measuring shall be stated.

3.4.6 The grain tank shall be effectively empty in accordance with ANSI/ASABE AD5687:1999 JAN2014, Equipment for harvesting — Combine harvesters — Determination and designation of grain tank capacity and unloading device performance.

3.5 Rotating threshing or separating elements

3.5.1 Threshing cylinder: A rotating element, which in conjunction with a stationary element adjacent to it, is fitted primarily to promote threshing. The crop being threshed is contained between rotating and stationary elements for less than 360°.

3.5.2 Threshing and/or separating rotor: A rotating element similar to a threshing cylinder except that the crop is contained for 360° and may pass around the rotor axis one or more times.

3.5.3 Separating cylinder: Defined as for threshing cylinder or rotor, except that the terms “separating” and “separated” replace “threshing” and “threshed.”

3.5.4 Rotary separator: An alternative term for a rotary device, similar to a cylinder, which is fitted to promote separation only.

3.5.5 Cylinder or rotor threshing or separating diameter: The diameter of the circle generated by the outermost point of the appropriate rotating element as it rotates normal to its rotational input axis, dimension D , Figures 1, 2, 3, and 4, expressed in millimeters.

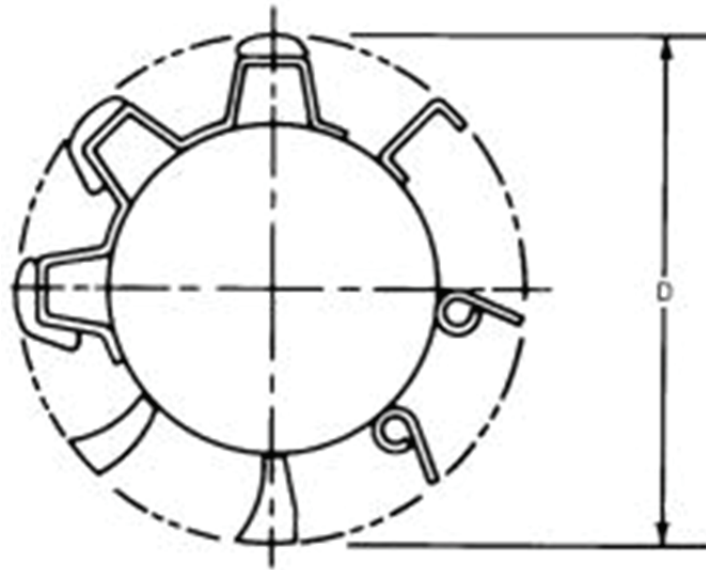


Figure 1 – Cylinder or rotor diameter

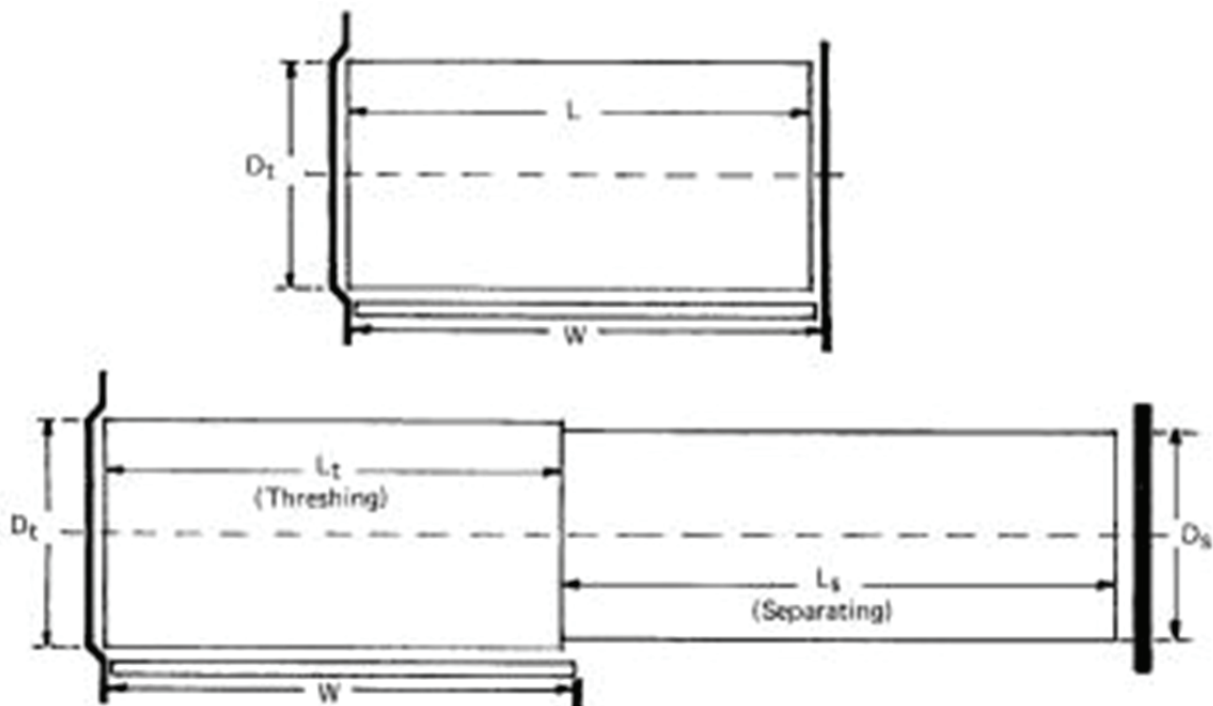


Figure 2 – Cylinder, rotor, and concave dimensions