



Standard Guide for Fixed Blade Broadhead Performance and Safety Standards¹

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1. Scope

1.1 This guide covers the formulation of preliminary guidelines in six areas of broadhead performance and safety.

1.2 The first three guidelines, flight, penetration, and sharpness, are related to performance, but they can have some bearing on safety. The last three, impact resistance, assembly and attachment methods, and packaging, determine to a great degree the safety level of the broadhead in the hands of the end user.

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. Terminology

2.1 Definitions:

2.1.1 *blades, n*—the sharp, laterally extended elements of the broadhead that perform the task of cutting after the arrow impacts the target.

2.1.2 *broadheads, n*—devices for attachment to the forward end of an arrow that are equipped with one or more sharp cutting blades. Broadheads are used when hunting with a bow and arrow to harvest game animals.

2.1.3 *ferrule, n*—the central structural section or component of the broadhead to which the forward end of the arrow shaft is attached. In some broadhead types, the ferrule is integral with the blades. In other types of broadheads, the ferrule has provisions to mount separable blades, but it may also have one or more integral blades. The ferrule may have a projecting threaded shaft that screws into a socket in the forward end of the arrow shaft, or it may have a hollow rear section into which the forward end of the arrow shaft is inserted.

2.1.4 *flight, n*—the path taken by the arrow after it is launched by the bow, but specifically including the characteristics of the motion of the arrow as it proceeds along the path of flight.

2.1.5 *penetration potential and penetration, n*—penetration potential is the combination of many factors that determine the

potential of an arrow to penetrate any target that it impacts. These factors are principally the mass and velocity of the arrow, the characteristics of the assembled arrow, and the manner of flight of the arrow. Penetration is the actual depth an arrow penetrates in a given target. Considering that an arrow has given penetration potential, the actual depth of penetration will be a function of the material and consistency of the target and the manner or attitude of the arrow when it strikes the target.

3. Significance and Use

3.1 This guide is not intended to be all-inclusive. There may be additional aspects of performance and safety that need to be addressed in order to have a comprehensive study of the subject matter.

3.2 The suggested preliminary guideline summaries that follow were developed by a consensus of bowhunters with many years of field experience, industry people with knowledge in the design and manufacture of broadheads, and individuals experienced in the distribution and retail areas of the business who have close contact with end users.

4. Flight

4.1 It is quite probable that well-directed straight-line flight is the most important characteristic of an arrow equipped with a broadhead. All other factors, such as good penetration potential and high-impact resistance, cannot be used to their full extent if the broadhead-equipped arrow does not strike where it is aimed.

4.2 Straightness of flight also contributes to the performance and humaneness of the broadhead in that it increases the probability of hitting the target, and enhances penetration potential by reducing energy loss due to an angular impact. Straight flight may also contribute to safety.

4.3 Fundamental principles of aerodynamics should be applied to any broadhead design and manufacture to achieve straightness of flight. Specifically, concentricity of the ferrule, balanced placement of the blades with respect to the centerline of the ferrule, elimination of warps in the blades, and close weight control for consistency and balance are important factors in the design and manufacture of broadheads.

4.4 Mounting the broadhead on the arrow shaft can be a critical operation. For aerodynamic reasons, it is important that the blades of the broadhead be aligned accurately with the longitudinal centerline of the arrow shaft. This is a function of

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