BROADHEAD TEST: SILVER FLAME 125 GRAIN

By

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This broadhead is produced by the Alaskan company Grizzly Stik.

The Silver Flame grain fixed blade broadhead (Figure 1) is also available in 100, 150, 180 and 210 grain versions.

Figure 1: Silver Flam3 125 grain fixed blade broadhead.

PACKAGING

Silver Flame broadheads come safely packaged inside a sturdy brown plastic box with clear lid, sealed inside a clear plastic container with colorful and informative insert (Figures 2 and 3).

Figure 2: Attractive packaging with good information.

Figure 3: A sturdy plastic box to keep the broadheads in is a good feature.

BLADE DESCRIPTION

This is really a nice, strong looking broadhead – nothing flimsy about it.

Specs for the 125 grain Silver Flame are as follows:

- 440C Stainless Steel blades
- 58 Rockwell hardness (HRC)
- Blade length (cutting edge) – 1.64" (41.7 mm)
- Blade width – 1.13" (28.7mm)
- .052" (1.32 mm) blade thickness
- Cut on contact convex edge design
- CNC grade aircraft grade aluminium ferrule
- Stainless Steel Torx screws
- Ferrule diameter .334" (8.48 mm)

The 3 broadheads in the package were weighed and averaged out at 124grains.

TESTING METHOD

The broadheads were mounted onto GrizzlyStik Momentum UFOC Nano 330 shafts fletched with three 2 inch plastic vanes. This is our standardized shaft for broadhead testing.

Total arrow weight was 656 grains and arrows had an F.O.C of 21.25%. Shaft length 30 inches.

Arrows were shot from a Hoyt Spyder 70# compound bow set at 29" draw length bow kindly loaned by Magnum Archery.

The Silver Flame broadhead passed both the thumbnail and paper sharpness test with flying colours (Figure 4).

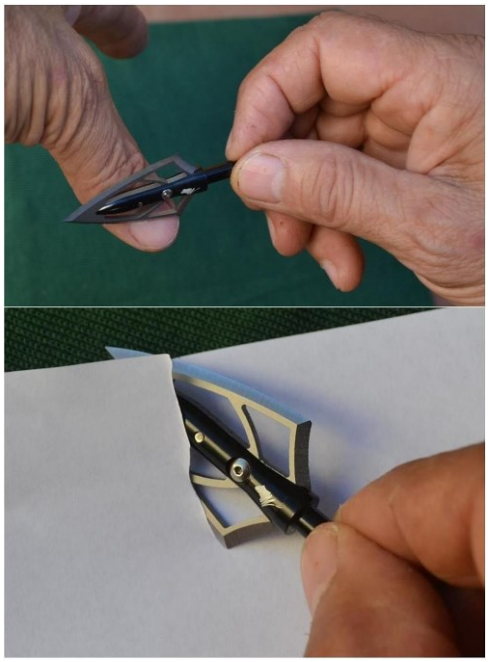

Figure 4: Thumbnail and paper test.

The arrows were shot out of a shooting machine into a Busch Taxidermy foam target set at 20 yards to determine penetration and grouping. The grouping (3 shots) was compared to that using the same arrows but replacing the broadhead with field points of the same weight and without any additional tuning of the broadheads.

The broadhead was also shot at 20 yards through a fresh bovine scapula mounted onto a frame to ascertain its bone penetrating capability and durability (Figure 5). Arrow velocity at the bow was determined using a Master Chrony chronograph. High speed video footage using a state of the art Metek Vision Research camera was used to calculate the velocity in feet per second just prior to and just after point of impact with the scapula.

From these velocity calculations we were also able to calculate kinetic energy and momentum of the arrow at point of impact and as the arrow exited the scapula.

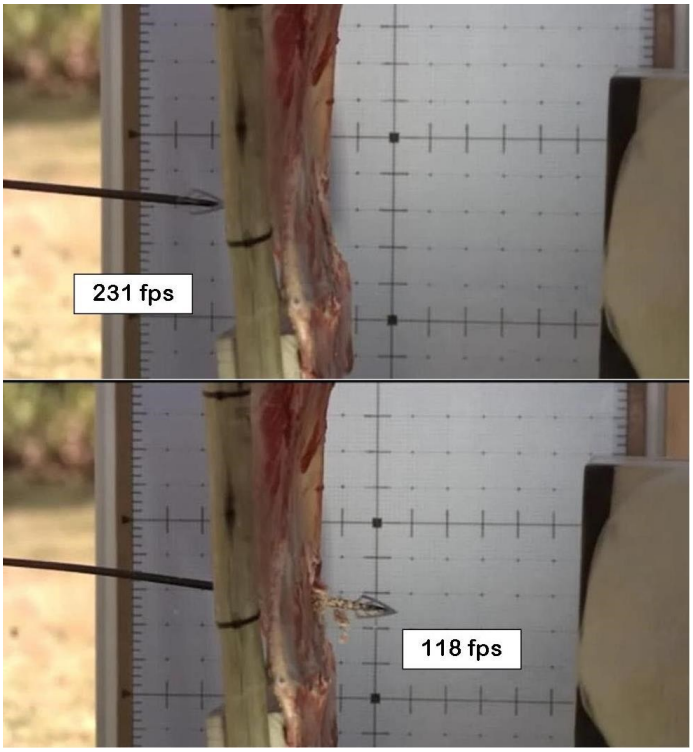

Figure 5: The Silver Flame flying through a bovine scapula

RESULTS

Ballistics

Arrow velocity (at bow)	240 feet per second
Grouping (3 arrows) at 20 yards	15 mm
Deviation of broadhead MPI from field point MPI	18 mm (left)
Penetration into foam broadhead butt	280 mm
Arrow velocity at moment of impact with scapula	231 feet per second
Kinetic energy at moment of impact	77.71 foot pounds
Momentum at moment of impact	67.28 slugs ft/sec
Arrow velocity on exit from scapula	118 feet per second
Kinetic energy on exit from scapula	20.28 foot pounds
Momentum on exit from scapula	34.37 slugs ft/sec
Loss of velocity after scapula penetration	113 feet per second (48.9% reduction)
Loss of kinetic energy on exit from scapula	56.8 foot pounds (73 % reduction)
Loss of momentum on exit from scapula	33.43 slugs ft/sec (49.7 % reduction)

Inspection of broadhead after scapula test

The broadhead was completely intact after passing through the bovine scapula – even on close inspection neither blades nor ferrule showed any visible damage (Figure 6). This is one tough broadhead.

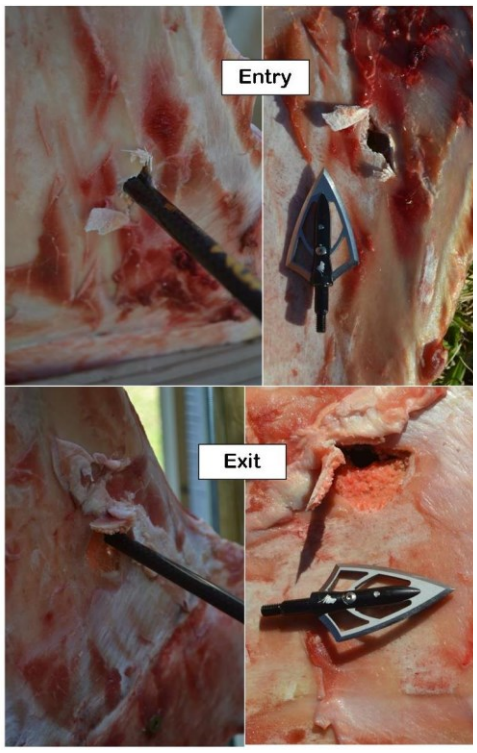

Figure 6: The broadhead showed no visible damage after being shot through a bovine scapula

Observations from high speed video footage

The arrow was rotating on entry and cut through the bovine scapula with relative ease although it slowed up quite significantly losing 113 feet per second during penetration (Figure 5). Large bone fragments flew from the exit wound indicating that it had been "punched" out. The arrow was very stable in flight.

Effect on scapula

Because of the tapering shaft there was little resistance once the broadhead has penetrated. The entry hole was the profile of the broadhead blade / ferrule. As the broadhead exited the far side of the scapula it "punched" out a segment of bone. I attribute this to a fairly sharp transition between the broadhead blade and the ferrule tip. See Figure 6 and 7.

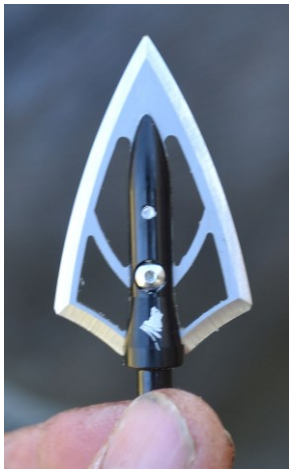

Figure 6: After testing (no damage)

BROADHEAD SCORE SHEET

GrizzlyStik Silver Flame125 grain fixed blade	1	2	3	4	5
Packaging and presentation					X
Mechanical Advantage			X		
F.O.C					X
Cutting width					X
Cutting length			X		
Blade point				X	
Number of blades					X
Bevels			X		
Blade thickness				X	
Ferrule material and construction			X		
Planing index (difference in MPI from field point MPI					X
Penetration (foam) – measured from tip of broadhead				X	
Sharpness (thumbnail and paper test)				X	
Strength and durability					X
Quality and value for money					X
Type of broadhead					X
Reliability of operation (moving parts)					X
Kinetic energy retention after bovine scapula penetration at 20 yards			X		
Momentum retention after bovine scapula penetration at 20 yards			X		
Reuseability					X
TOTAL (100)	84				

CONCLUSION AND RECOMMENDATIONS

This is a quality broadhead capable of taking on big game – especially the heavier weight versions (150, 180 and 210 grain versions) – Figures 8-11 show animals that have been taken with Silver Flame broadheads. It is tough, sharp, durable and strong. Not only does this broadhead "deliver" the goods it will be able to be used time and again (with a little sharpening) making it excellent value for money. GrizzlyStik have done a good job on this one.

Figure 8

Figure 9

Figure 10

Figure 11