

2010 Compound Bow Evaluation

BowTech Destroyer 350

By Anthony Barnum



BowTech Destroyer 350

Introduction:

For 2010, BowTech continues to raise the bar with key technological advancements. Their flagship model, the Destroyer 350, incorporates several new features that help to provide great speed in easily tunable package. At the center of the Destroyer 350's "tunability" is the new FLX-Guard™ cable containment system. This system helps reduce the amount of torque transmitted to the riser by flexing inward, toward the centerline of the bow; as more load is transmitted to the cables during the draw cycle, the FLX-Guard™ assembly moves further inward. When the string is released and the stored energy is transmitted from the limb and cables into the string and arrow, the FLX-Guard™ returns to the static position in time to provide ample fletching clearance. This is quite a feat given the amount of speed that this bow is capable of – it is advertised at up to 350 fps IBO! This power is generated by combining the new laminated HardCore Limbs™ and OverDrive Binary™ synchronized dual cam system, introduced on the Destroyer series for 2010. At their core, the HardCore Limbs™ incorporate a high modulus carbon layer which assists in storing energy across the whole cross-section of the limb, helping to reduce stress while increasing durability. The OverDrive Binary™ cam incorporates an offset synchronizing axle that helps provide additional leverage throughout the draw cycle. Attached to the axle are tunable split buss cable harnesses to assist in fine tuning.

The Destroyer 350 sample that was provided for this evaluation was measured to have a brace-height of 6.125 inches, while the axle-to-axle length was measured to be 32 5/16 inches. The requested 29 inch, 60 pound model was measured straight out of the box to have a 29 1/2 inch draw length and peak draw-weight of 61.6 pounds. When shot by hand with a 300 grain arrow, the Destroyer 350 achieved an average speed of 338.7 fps in the out of box configuration with only a brass nock added to the string. A quick adjustment to the integral rotating modules and limb bolts brought the Destroyer into specification

Subjective Test Results:

Fit & Finish:

The fit and finish of the Destroyer 350 sample provided for this evaluation was excellent. In fact, the only imperfections I was able to find were some machining marks in the groove cutouts in the cams. Otherwise, the film-dip finish on the riser was flawless with excellent coverage on the interior portion of the riser cutouts and the anodized finish of the limb pockets was quite good. The HardCore Limbs™ had a smooth finish with no noticeable imperfections and the exposed layers of the laminate was quite aesthetically pleasing.

Grip:

The Destroyer 350 incorporates a new one piece synthetic grip that is black in color with camo inserts matching the Realtree finish of the rest of the bow. I personally prefer the wooden grips that have been found on previous BowTech models, but the new grip is quite comfortable and offers consistent hand placement. My attempts to intentionally torque the bow met moderate resistance, but the Destroyer 350 settled back to a consistent position after the torque was removed.

Draw Cycle:

The draw cycle on the Destroyer 350 is consistently stiff, but generally smooth throughout. It stacks quickly and reaches peak draw weight about 1/4 of the way into the cycle. After the holding phase of the cycle, a abrupt transition is made into a short valley with a solid back wall. The first time I drew the Destroyer 350 back, the arrow jumped off of the rest as I pulled into the valley; once I was used to it, though, I had no trouble keeping the arrow on the rest. On average, the Destroyer 350 stores 4.02 ft-lbs. of energy for each inch that you draw it back.

Sound & Vibration:

For its speed, the Destroyer 350 does quite well in the sound and vibration area. When I first shot this bow, I was pleasantly surprised with the lack of shock. When I then looked at the chronograph and saw that it was shooting almost 340 fps, I was quite pleased. While there is very little residual vibration after the shot, sound output seemed to be about average which, again, is quite good for a bow that is this fast.

BowTech Destroyer 350

Contact Info: **BowTech Archery**

www.bowtecharchery.com

MSRP:	\$949	Draw Length:	25"-30" *
Cams:	OverDrive Binary™ Cam	Draw Weight:	50-70*
Limbs:	HardCore Limbs™	Brace Height:	6" *
Grip:	Synthetic one piece	Axle to Axle:	32 3/8" *
Let-off:	80%*	Mass Weight:	4.2 ^
String:	BCY 452X		
Damping:	InVelvet™, Hush Kit, String Suppressor		*Advertised
Finish:	Realtree Hardwoods HD®		^Measured

Performance at a Glance (60.1 lbs, 29"):

Arrow	Speed	K. E.	Momentum
300 Grains	325.9	70.8	14.0
360 Grains	300.5	72.2	15.5
420 Grains	280.0	73.1	16.8
540 Grains	248.8	74.2	19.2

Arrow (Grains):	300	360	420	540
Dynamic Efficiency:	83.3%	85.0%	86.1%	87.4%
Speed Per Inch of PS:	15.4	14.2	13.3	11.8
Noise Output (dBA):	89.4	87.2	84.1	83.7
Total Vibration (G):	250.6	215.4	209.0	203.7



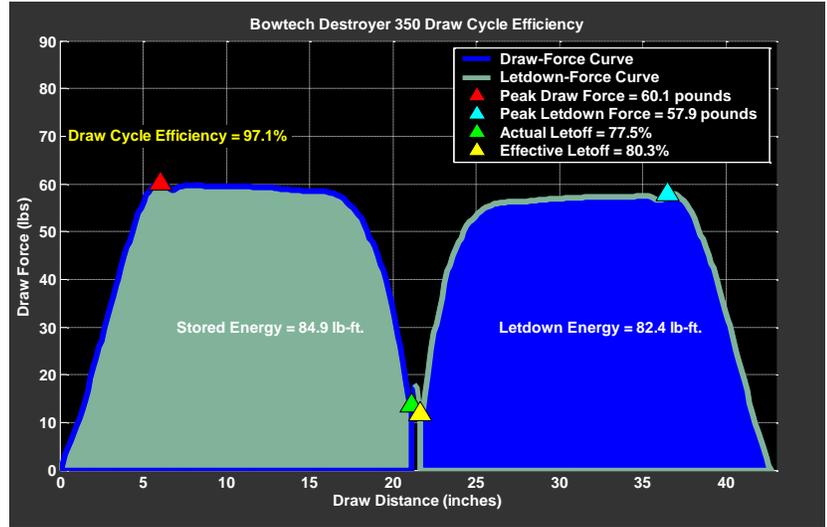
BowTech Destroyer 350

Objective Test Results:

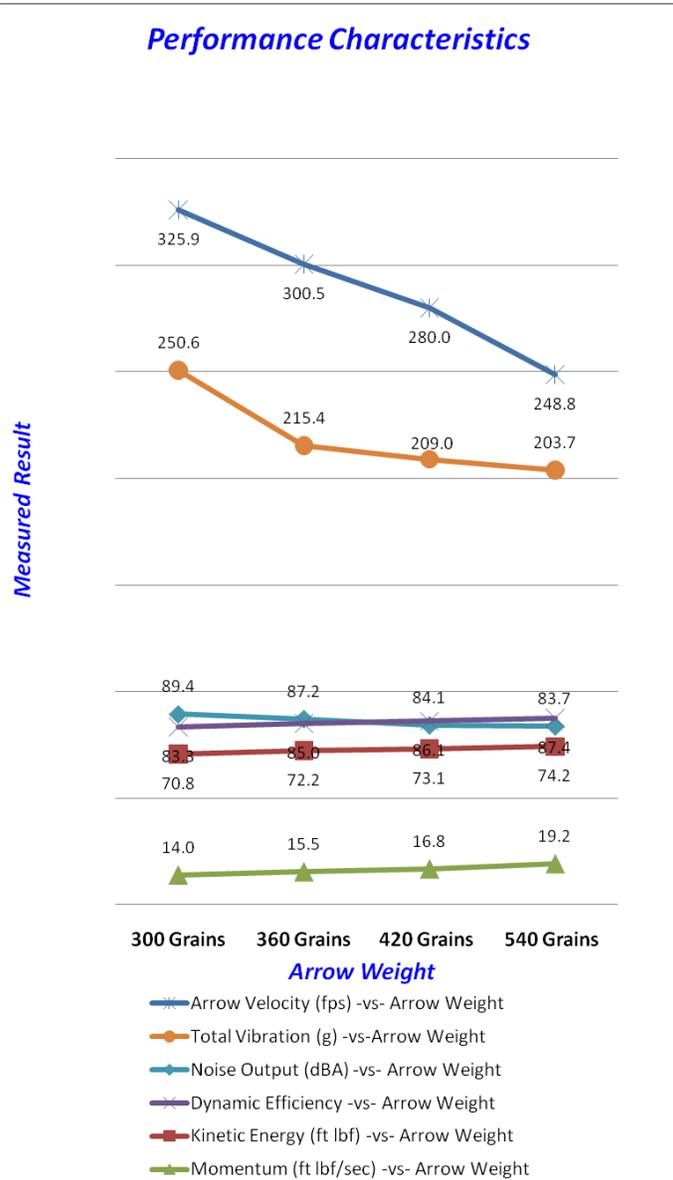
Speed / Performance Measurements:

Speed measurements are made with 4 different arrow weights to determine the average speed of the bow per inch of Power Stroke. Draw Cycle Efficiency is calculated using the stored energy and the let-down energy captured in the Force-Draw curve. The stored energy is used further to determine the average dynamic efficiency of the bow.

Speed per inch of Power Stroke: 13.7
Dynamic Efficiency: 85.5%
Draw Cycle Efficiency: 97.1%



Performance Characteristics



Vibration Measurements:

Vibration measurements are made with 4 different arrow weights to determine the average vibration in 3 dimensions as well as the total average vibration.

Positive X-Vibration: 84.2 g
Negative X-Vibration: -81.9 g
Positive Y-Vibration: 198.8 g
Negative Y-Vibration: -206.1 g
Positive Z-Vibration: 79.7 g
Negative Z-Vibration: -100.0 g
Total Vibration: 219.7 g

The addition of a 12 inch B-Stinger Pro Stabilizer with a 14 ounce weight yielded a significant reduction of peak total vibration when measured with a 360 grain arrow.

B-Stinger Reduction: 10.2%

Sound Measurements:

Sound measurements were made with 4 different arrow weights to determine the average sound output, the average A-Weighted sound output (mimicking the human ear) and the average C-Weighted sound output.

Unweighted Sound Output: 104.3 dB
A-Weighted Sound Output: 86.1 dBA
C-Weighted Sound Output: 95.5 dBC

