2009 Compound Hunting Bow Evaluation

BowTech Admiral Test Results

By *Anthony Barnum*

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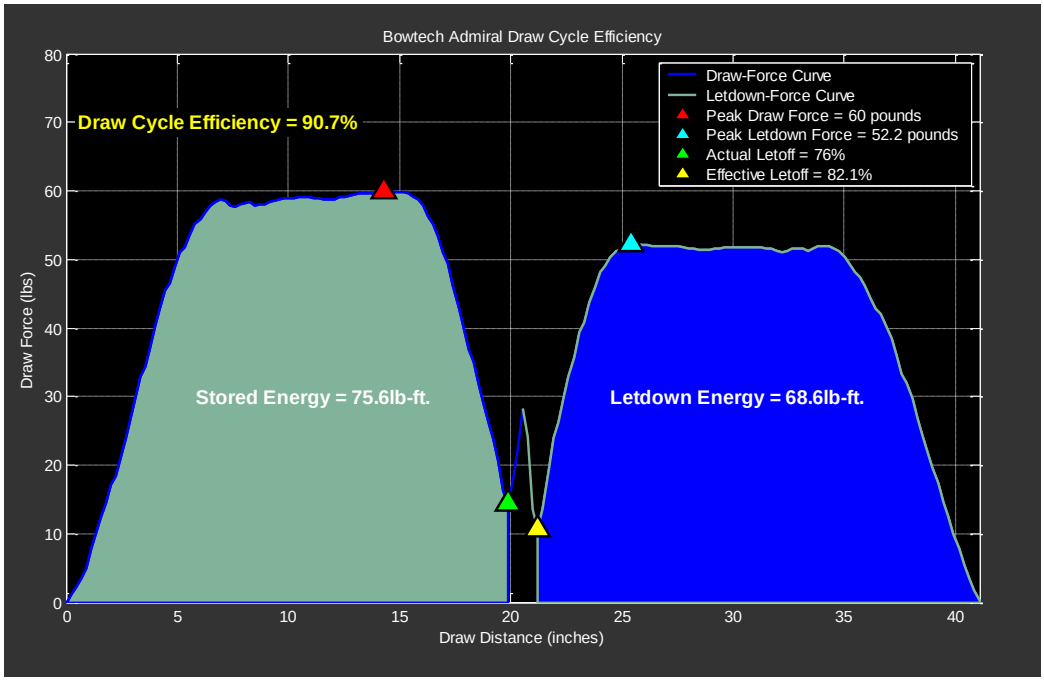
BowTech Admiral



Introduction:

For 2009, BowTech's lineup has seen some major restructuring and additions as only the 82nd Airborne has been carried over from the 2008 model year. The Admiral is BowTech's flagship offering in this new lineup and boasts BowTech's proprietary Center Pivot limb technology and CenterTrac Binary Cam System. The latest version of the CenterTrac Cam System includes a rotating module that allows both the shop owner and end user to adjust the Admiral across the full spectrum of available draw lengths without requiring additional modules or cams. On the Admiral, this allows full adjustment for a 24 inch draw length all the way up to a 30 inch draw length – 6 inches of adjustment built right in! The Center Pivot system utilized on the Admiral has also been modified for 2009. The center pivot strut has been incorporated into the 1-piece riser and hex head bolts are used to secure the limbs and cams onto the bow (e-clips are no longer utilized). Finally, the string suppressor has been moved to the more conventional location below the grip, which should alleviate the site window visibility concerns associated with the ShortStop™ utilized on the 2008 models.

BowTech Admiral

Contact Info: BowTech Archery
www.bowtecharchery.com

MSRP:	$829	**Draw Length:**	24"-30" *
Cams:	CenterTrac Binary Cam	**Draw Weight:**	40-70*
Limbs:	Composite Center Pivot	**Brace Height:**	7 1/2" *
Grip:	Laminate two piece	**Axle to Axle:**	31 1/16" *
Let-off:	65%-80%*	**Mass Weight:**	4.2 ^
String:	BCY 452X		
Damping:	InVelvet™, Hush Kit, String Suppressor		*Advertised
Finish:	Realtree Hardwoods Green® HD™		^Measured

Performance at a Glance (60 lbs, 29"):

Arrow	Speed	K.E.	Momentum
300 Grains	301.0	60.3	12.9
360 Grains	276.8	61.2	14.2
420 Grains	259.0	62.5	15.5
540 Grains	230.8	63.8	17.8

Arrow (Grains):	300	360	420	540
Dynamic Efficiency:	79.8%	81.0%	82.7%	84.4%
Speed Per Inch of PS:	15.2	14.0	13.1	11.6
Noise Output (dBA):	86.4	89.0	82.9	80.4
Total Vibration (G):	104.9	115.0	103.6	86.4

The Admiral sample that was provided to Archery Evolution was measured to have a brace-height of 7.438 inches, while the axle-to-axle length was measured to be 31 ¼ inches. The requested 29 inch, 60 pound model was measured straight out of the box to have a 29 1/4 inch draw length and peak draw-weight of 61.0 pounds. At these settings, The Admiral achieved an average speed of 303.4 fps when shot by hand in the out of box configuration (brass nock installed) with a 300 grain arrow. When shot from the shooting machine with the addition of a string loop, the Admiral achieved and average speed of 302.3 fps at these settings. Even though the both the draw-length and draw weight were within the test specifications, BowTech requested that the Admiral be set to exactly 60 pounds, 29 inches. A slight adjustment to the integrated draw stop and limb bolts brought the bow into exact specifications in short order.

A thorough examination of the finish quality showed only minor imperfections. A small raised area in the film-dip finish was noted near the top of the upper center pivot strut, while a small line void of film-dip finish was noted in the area of the lower center pivot. Minor fraying was noticed in the serving of the loop end of the string and some machining marks were noticed on the interior portions of the cams. Note that these imperfections do nothing to inhibit the functionality of the bow and are noted strictly for aesthetic purposes. Other than these minor issues, the finish was quite nice and the machining was flawless.

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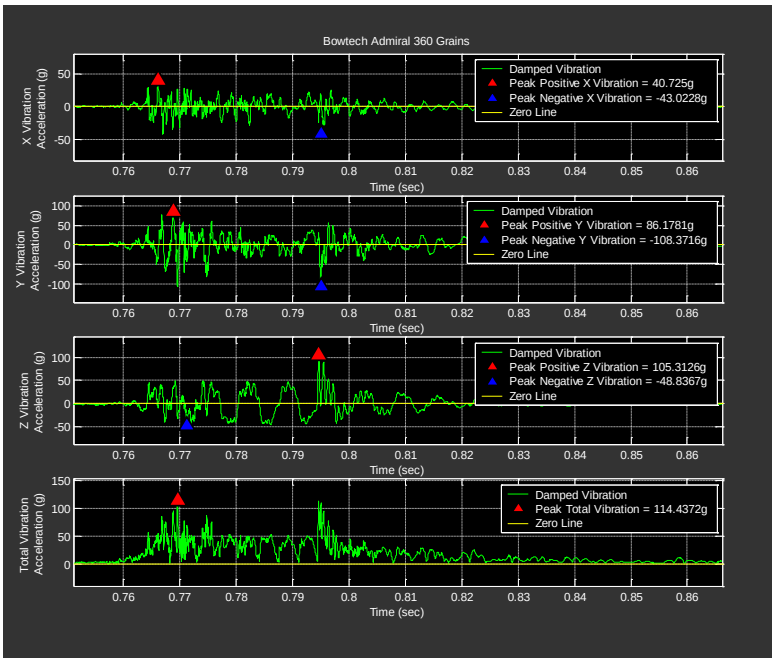
Detailed Test Results:

Speed / Performance Measurements:

Speed measurements were made with 4 different arrow weights to determine the average speed of the bow per inch of Power Stroke. Utilizing the stored energy obtained from the Force-Draw curve, average dynamic efficiency was calculated.

Speed per inch of Power Stroke: 13.4
Dynamic Efficiency: 82.0%

Speed Point Blank - 29" ± 1/4", 60# ± 1#	Bowtech Admiral							
	Brace Height = 7.438		Draw Weight = 60.0		Draw Length = 29		Axle-to-Axle = 31 1/4	
Grains	300 Grains		360 Grains		420 Grains		540 Grains	
Chronograph	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono	BFM	Pro-Chrono
1	~~300.6~~	300	~~276.9~~	275	~~259.1~~	258	~~230.6~~	230
2	~~301.2~~	300	~~276.6~~	275	258.9	257	230.8	230
3	301.0	300	276.8	275	~~258.8~~	257	~~230.9~~	230
4	~~301.2~~	300	276.8	275	~~259.1~~	258	230.8	230
5	300.7	300	276.8	275	259.0	258	230.7	230
Avg. Speed	301.0	300	276.8	275	259.0	258	230.8	230
Kinetic Energy	60.3	59.9	61.2	60.4	62.5	61.9	63.8	63.4
Momentum	12.9	12.9	14.2	14.1	15.5	15.5	17.8	17.7
Power Stroke	19.813							
Speed per inch of Power Stroke	15.2	15.1	14.0	13.9	13.1	13.0	11.6	11.6
Avg. Speed per inch of PS	13.4							
Stored Energy	75.6							
Dynamic Efficiency	79.8%	79.3%	81.0%	79.9%	82.7%	81.9%	84.4%	83.9%
Avg. Dynamic Efficiency (BFM)	82.0%							



Vibration Measurements:

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

Positive X-Vibration: 36.6 g
Negative X-Vibration: -44.7 g

Positive Y-Vibration: 80.0 g
Negative Y-Vibration: -94.8 g

Positive Z-Vibration: 92.0 g
Negative Z-Vibration: -54.7 g

Total Vibration: 102.5 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: 16.5%

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: 102.6 dB
A-Weighted Sound Output: 84.7 dBA
C-Weighted Sound Output: 94.3 dBC

Noise & Vibration	Bowtech Admiral											
	Brace Height = 7.438				Draw Weight = 60				Draw Length = 29			Axle to Axle = 31 1/4
Parameter	Peak Noise Output (dB)				Peak A-Weighted Noise Output (dBA)				Peak C-Weighted Noise Output (dBC)			
Grains	300 Grains	360 Grains	420 Grains	540 Grains	300 Grains	360 Grains	420 Grains	540 Grains	300 Grains	360 Grains	420 Grains	540 Grains
Measurement	Max				Max				Max			
1	105.1	103.7	100.4	~~102.3~~	~~89.0~~	89.3	~~80.8~~	~~79.9~~	97.1	~~94.9~~	~~91.9~~	93.1
2	104.6	103.8	~~102.6~~	100.5	~~84.3~~	89.8	~~84.0~~	80.3	96.5	95.4	~~94.3~~	91.0
3	104.6	~~105.5~~	102.0	102.0	87.0	~~90.3~~	82.9	~~84.1~~	96.6	~~97.4~~	93.9	~~93.2~~
4	~~104.2~~	~~103.1~~	~~100.3~~	~~98.6~~	85.5	88.0	83.1	80.5	~~95.6~~	95.1	92.1	91.1
5	~~105.7~~	104.6	101.2	99.0	86.9	~~87.2~~	82.8	80.5	~~97.6~~	96.5	93.5	~~90.0~~
Average	104.8	104.0	101.2	100.5	86.4	89.0	82.9	80.4	96.7	95.6	93.2	91.7
Total Average Max	102.6				84.7				94.3			

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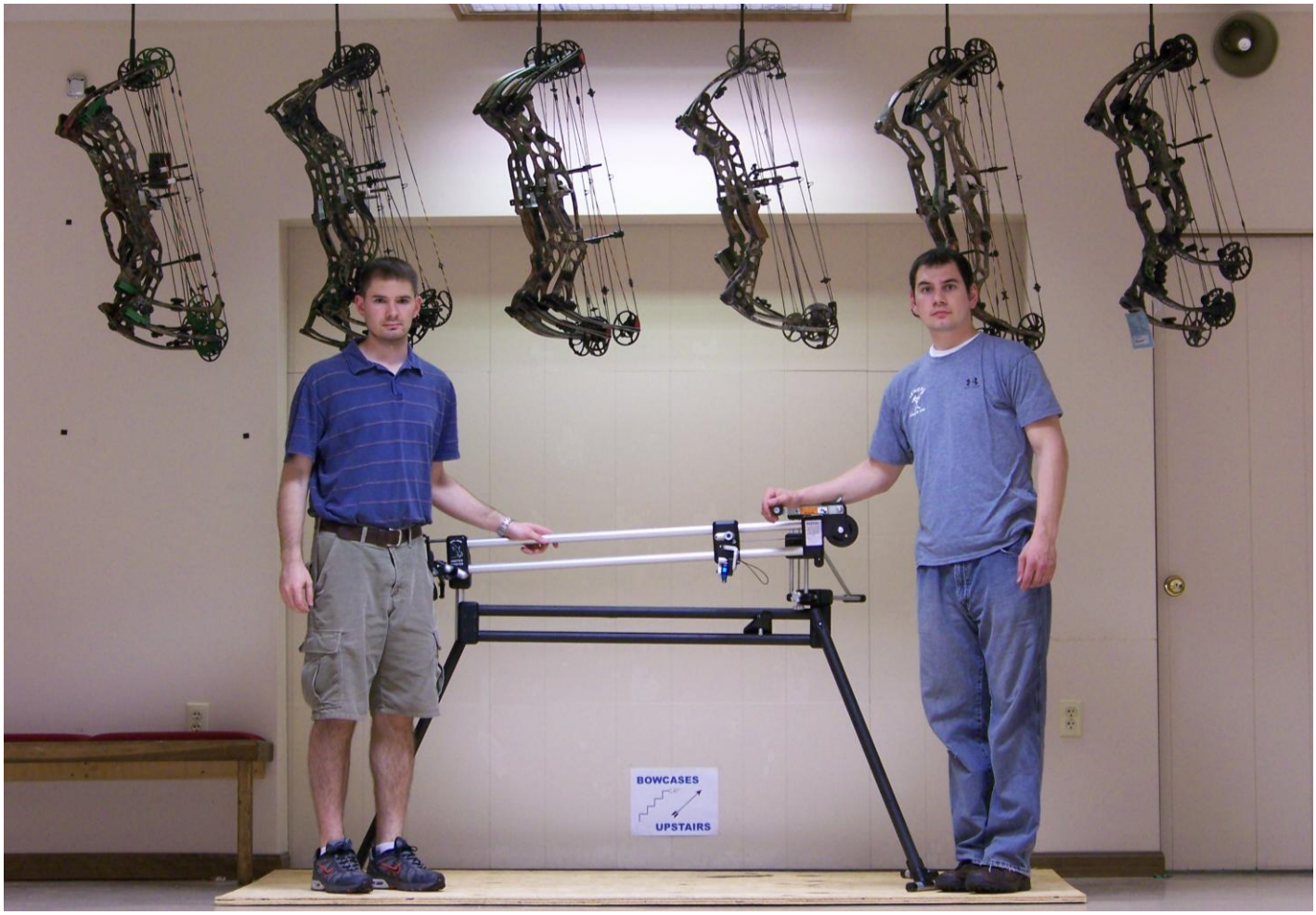

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